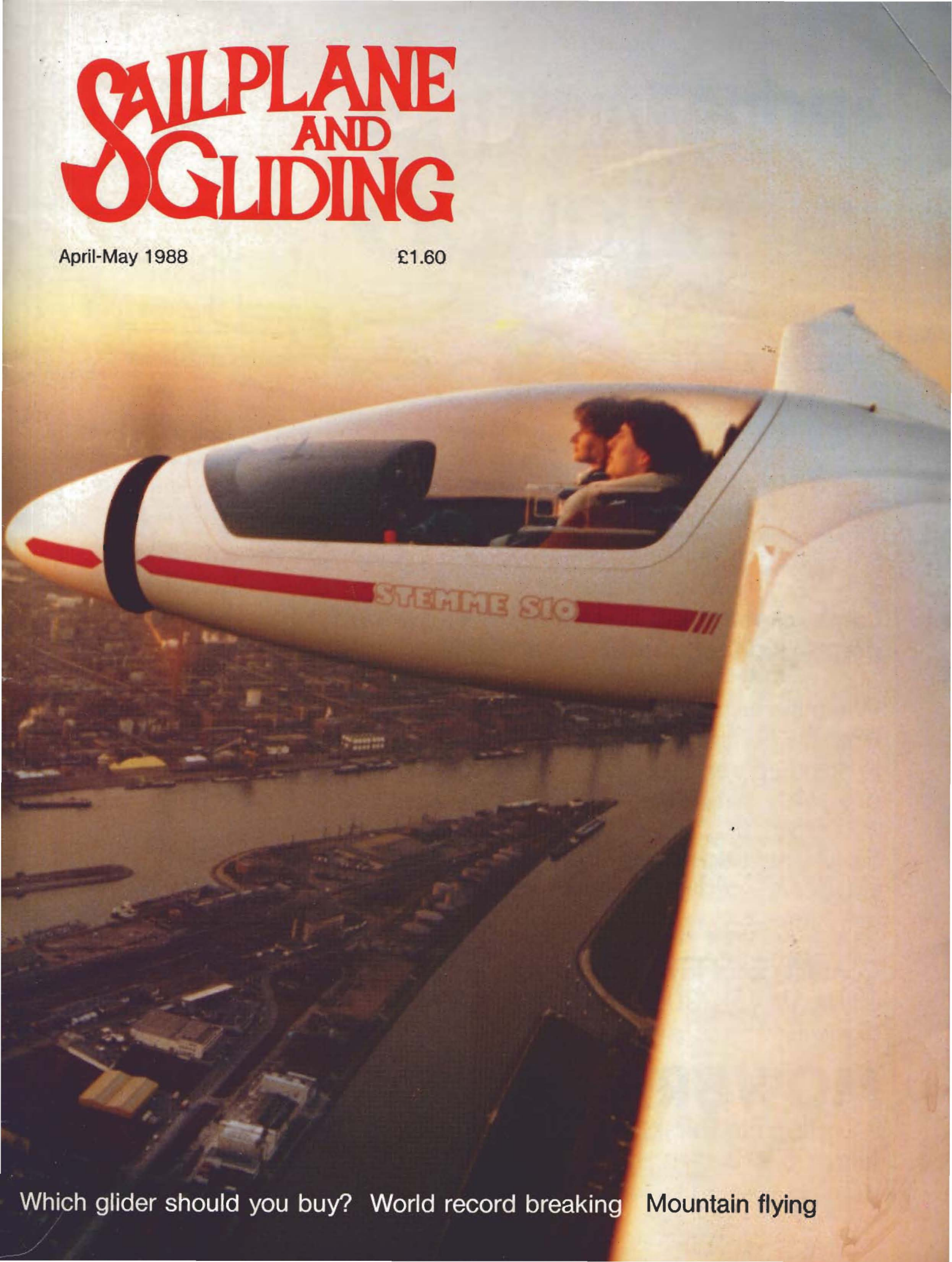
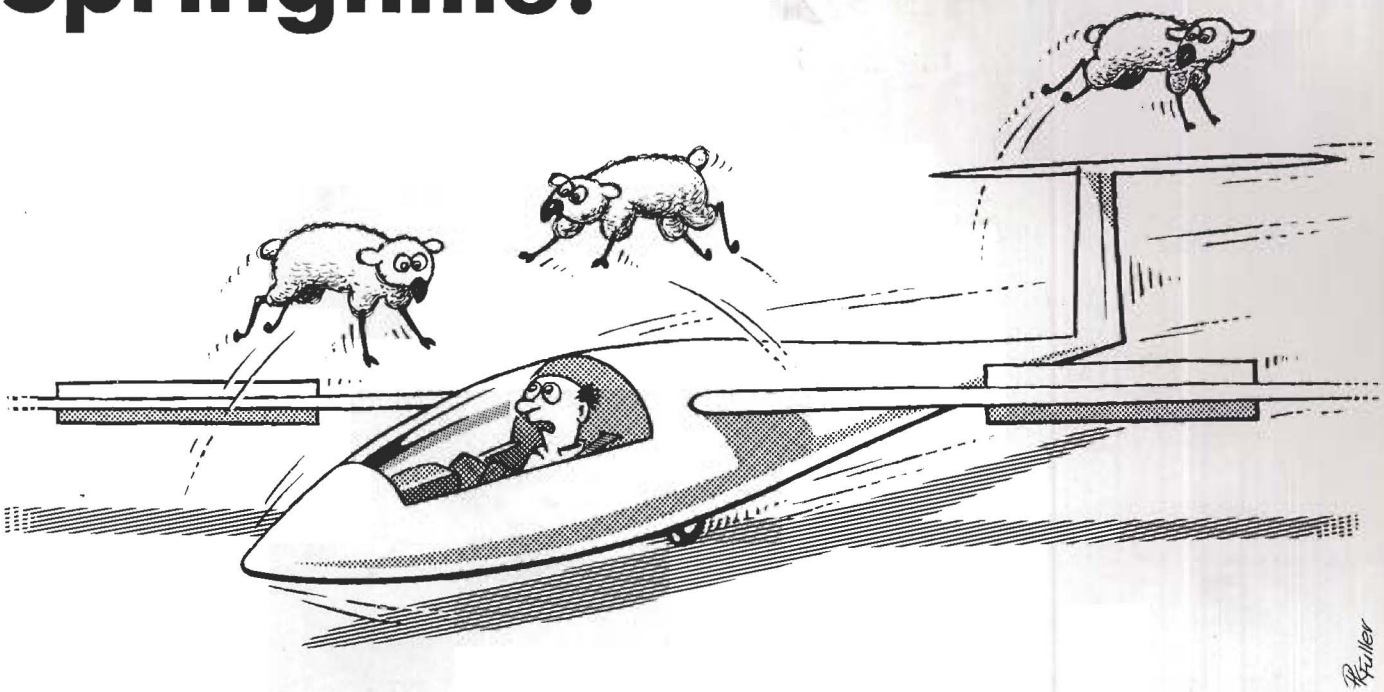
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Cover: Ingo Andresen, flying the third prototype of the Stemme S-10 motor glider with his wife Irene, took this photograph over Mannheim.

SAILPLANE AND GLIDING

62 IN PURSUIT OF WORLD RECORDS — Platypus

64 NEW SAILPLANES

66 LOW-DOWN ON THE ALPS — W. E. Malpas

69 TRAILER STABILITY — D. C. Austin
RUNNING ON EMPTY — L. Sanderson

70 VARIOMETERS EXPLAINED — A. J. Dibdin

72 NEW WINCH AT SUTTON BANK — J. C. Riddell

73 AWARD SCHEME INCLUDES GLIDING — Pim Allen

74 A LOOK AT AEROTOWING Part 2 — J. C. Gibson

75 GEL COAT DURABILITY — J. D. Jones

76 BLUE SILVER — B. Underwood

77 RETRIEVING MARY — M. F. Cuming

78 A FULL CIRCLE — L. E. N. Tanner

79 FRENCH COMPETITIONS — W. E. Malpas

80 WHICH GLIDER? — A. D. Piggott

83 TRAVELLER'S TALE — S. Mackintosh

84 ANNUAL RECORDS — Rika Harwood

86 BGA & GENERAL NEWS
BGA ACCIDENT SUMMARY — J. Shipley

87 GLIDING CERTIFICATES

89 AIRSPACE CHANGES — C. Garton

90 THE EARLY BIRD AND THE WORM — J. Kenny
WORLD RECORDS — Rika Harwood

91 YOUR LETTERS — M. Usherwood, M. Valentine, D. B. James, J. G. Storry (reply by B. B. C. Watson), S. E. Abbott, M. F. Cuming, I. W. Rudge (reply by C. Dews), P. Sturdgess, P. Bibby, A. J. Dibdin, T. E. Macfadyen, L. E. N. Tanner (reply by J. C. Gibson), M. P. Garrod (reply by W. G. Scull), D. Carey, A. Palmer, D. Dawson, Daphne Poynter, J. S. Sproule

96 CLUB NEWS

104 OVERSEAS NEWS

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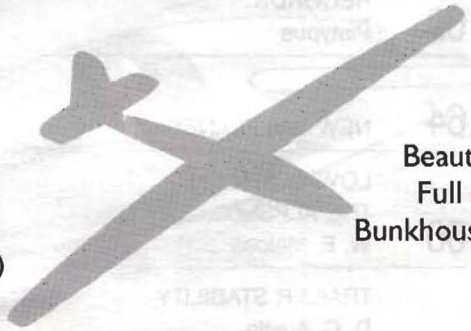
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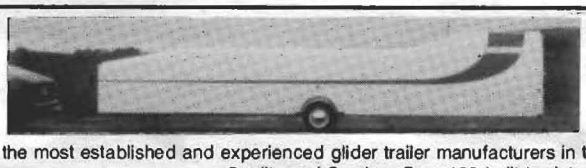
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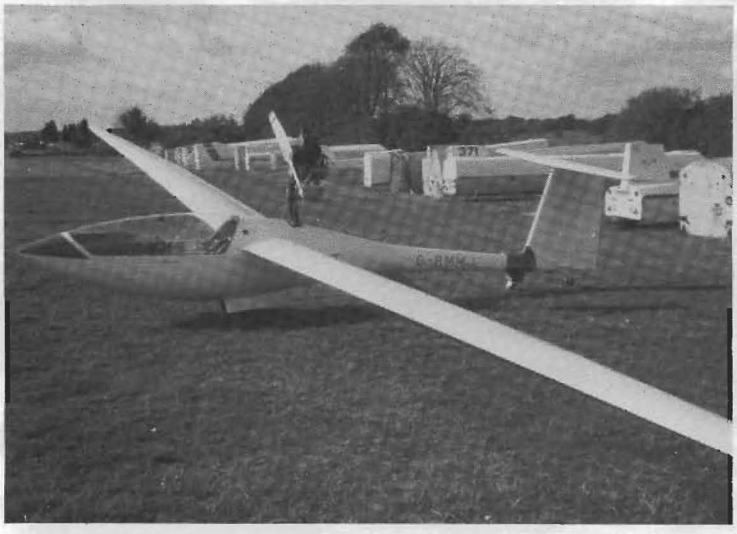
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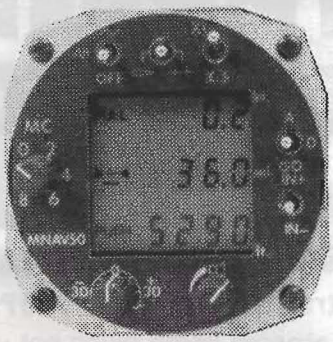


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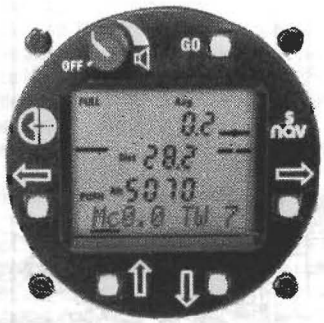
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IN PURSUIT OF WORLD RECORDS

Hans-Werner Grosse talks to Platypus in Alice Springs, Australia, December 1987.

Platypus: *What are the main ingredients in breaking world records?*



Ingredients in breaking world records.

Hans-Werner Grosse: First, of course, you need a good glider. Secondly, you need a lot of experience. Then you need to look over the globe for regions of good heating. Using the Met information of different countries you look for a "boundary" between tropical air and semi-arid regions. (Tropical air itself is useless; you don't want thunderstorms every afternoon.) Don't put all your faith in the official weather statistics, however: before making a costly expedition to a far continent with your own glider you had better visit the region and find out about the local soaring weather for yourself.

For long triangles you need big plains rather than mixtures of high mountains and plains; discontinuities of surface features are only partially beneficial.

Plat: *Many of us dream about crossing France by the Massif Central and flying on into the Alps.*

HWG: You must arrive at the mountains at the correct time: it's difficult going from the plain to the mountains. You might have done records that way 30 years ago but not now. The exception is the Appalachian "tramlines" in the USA, but that is not for me. The only decision you have to make is whether you fly three metres or 15 metres over the trees. There's very little choice.

Plat: *Haven't they run out of space in the Appalachians as the New Zealanders[1] seem to have done?*

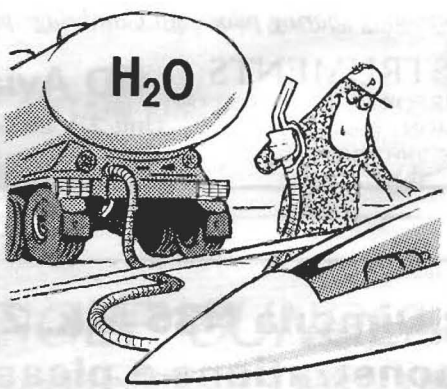
HWG: No. They could increase the triangular[2] distance considerably. Five pilots did 1360km triangles on one day, which shows that more is possible.

The speed along the ridge can be increased by using massive amounts of waterballast, since circling performance only matters for a short distance. However, one pilot has been killed flying overweight, trying to see how much he could carry.

The 500km "sprint"

Plat: *What speeds are achievable with present-day gliders on tasks up to 500kms?*

HWG: The current records are too low, since such small distances are only attempted on the second-best days. (*Pilots confined to British soaring conditions are allowed to take a couple of minutes off while they bang their heads against the nearest wall or just cry quietly into their beer . . .*)



Massive amounts of waterballast.

If you are prepared to waste a good day (I mean a day when you could have done 1000kms or more) you might get 170 to 180km/h. On a really good day in this region there will be two or three hours in the middle when you can average more than 170km/h, which would take you round a 500km "sprint" for the world record.

Speeds achieved in flights in South Africa benefit from the high plains and consequent high cloudbases. Your True Airspeed increases relative to Indicated Airspeed by about 5% for every 1000m, and that is equivalent to extra ballast. Currently, however, taking everything into consideration Alice Springs is the best location as far as I am concerned.

Plat: *What about wave?*

HWG: We haven't seen really fast triangles in wave yet. Wave is best for O/Rs, and maybe for distance records – early morning and late evening, with thermals in the middle.

Plat: *New Zealand ran out of land.*

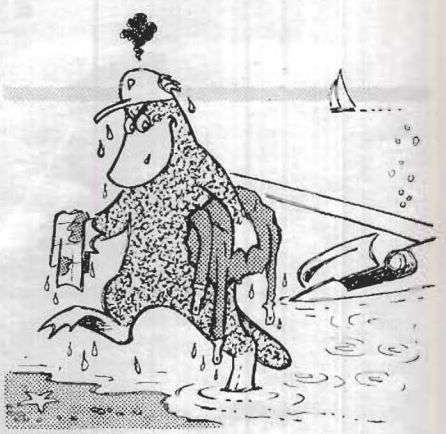
HWG: The usable parts of American mountain ranges for wave may also be limited, because of the discontinuity between the airmasses north and south of the jetstream. That could limit the distances achieveable in pure wave flight.

Plat: *Justin Wills says that the pure distance flight is not given the respect it deserves: it is seen as an easy downwind dash, whereas it requires a great deal of planning – as well as luck with the weather. He is thinking especially of the problems of organising a flight that starts in, say, Yorkshire, and takes you across the Channel with the opportunity to do a big distance on the other side.*

HWG: I don't know whether it deserves respect as such, but it definitely is an enjoyable experience. Yes, he has there the special problem of crossing the Channel at the right time and with enough height, not just to reach the French coast but to be certain of penetrating the dead zone caused by the sea breeze (which as you know becomes worse as the day progresses) and reaching good soaring conditions.

Plat: *And there are special UK airspace problems for a Channel dash, too. But looking at the question of good soaring conditions, how often do you get weather of the kind that enabled you to get 1460km in 1972?*

HWG: The flight in the ASW-12 from Lübeck to Biarritz was done in weather that I have never witnessed since that day – which explains why it is still the world record in spite of technical improvements in gliders and weather forecasting. Imagine a great "bubble" of cold air sweeping in from northern Sweden, ideal for soaring, that had passed over us in the night; I ran into the rear of it at exactly the right time in the morning over the Rhine, and ran out of the front of it south of Bordeaux late in the afternoon. With today's gliders in the same weather you'd exceed that distance, naturally.



Reach the French coast.

Plat: *But you'd run through the bubble quicker and maybe not go any further at the end of the day.*

[1] *Many world records, especially O/R distance, were achieved in New Zealand wave in the 1960s*

[2] *One TP has to be well away from the ridge, requiring a dash in ordinary thermals to and from the ridge.*

HWG: Yes, but you'd have a better chance of catching it from behind at the beginning of the day.
Plat: *Are you saying that such an airmass is limited in size?*
HWG: Yes, it always seems so – at least the most beneficial part of it is.
Plat: *What sort of dimensions?*
HWG: 800 to 1000km is a goodsize airmass – and it's moving downwind quite fast, of course, which adds some hundreds of extra kilometres.
Plat: *What about straight-out distance record possibilities in other parts of the world?*
HWG: Some people in the USA describe flights of 2000km, starting in wave, as possible.



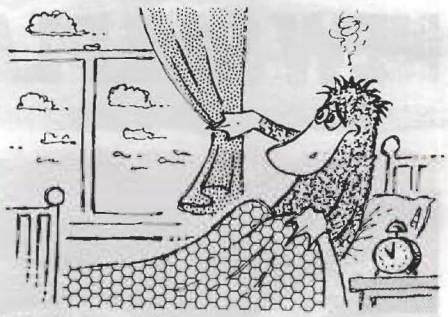
Hans-Werner Grosse photographed by Platypus.

Plat: *Yes, starting very early in a high wave and doing a long downwind glide to reach the thermals just as they are starting. At the World Champs in 1965 at South Cerney I met one of the American support team, Brittingham, who told me of a heroic attempt which took them (I think it was a two-seater) about 300km from the top of a big wave with the help of a strong tailwind; only snag was, there weren't any thermals at the end of it, so they just ran into the ground before lunch time. The great wave day and the great thermal day don't necessarily plug into each other neatly – though Nick Goodhart got a (completely unplanned) wave to 10000ft at the other end of the day on his goal flight to Portmoak in 1959[3].*
HWG: Another problem is that the direction of the tailwind component is often inconsistent, because of the discrepancy between upper and lower level winds. In fact consistent winds over 2000km are unlikely. Obviously if the wind curves a lot you get less benefit from it in terms of free kilometres.

"A gift from heaven"

The Biarritz flight was a "gift from heaven". In southern Germany you couldn't have soared at all – it was overcast. There was no special pilot skill involved.
Plat: *But you showed me the weather maps for the period up to and including that day; you obviously expected good conditions.*
HWG: You must *prepare* – you have to be ready and not be taken by surprise. The approaching airmass was quite easy to forecast.

[3]*This still stands as a UK goal distance record.*



Taken by surprise.

You too could break records, if only . . .

Plat: *If you couldn't fly for some reason could you coach other people to break records?*
HWG: Not everyone could be coached; you would have to be successful in competitions first. You have to be prepared to speculate and drive yourself forward. It's getting the balance between daredevilry and hesitation. You must be able to imagine the "energy-track" through the best air that will be your flight path. I think one could train people to be better. But what you can achieve is limited.
Plat: *If you took the Top Ten from each Class in the World Championships and set up a competition at Alice Springs, could you get records out of such a meeting?*
HWG: Yes! However, some competition pilots win just by their skill in gaggle flying and by more daring final glides. But the record-setter needs to sense where the invisible streets of lift are – without depending on other gliders to mark them. Ingo Renner, for instance, could definitely break all records here as soon as the right conditions came along. Some other top pilots might just kill themselves by misjudgment: landing out in this region can be fatal – it's simply not on.



Daring final glides.

Plat: *What do you have to say about gadgetry and instruments?*
HWG: The Biarritz flight was done without waterballast and with primitive instruments: the vario had a leaky total energy. Certainly good instruments make flights easier, but pilots have won competitions with elementary instruments.

I wouldn't like to fly now without my Schumann vario and Schumann box for total energy compensation. It's a mechanical vario and shows me a reliable picture of the value of thermals; it's American and the weaker US dollar makes it cheaper now, by the way.
Plat: *Why isn't an electrical vario better?*
HWG: I don't know why, but the Schumann vario works. I use the electrical for the audio, for the computer and for final glides.
Plat: *Have you ever flown gliders in England?*
HWG: No, only Tiger Moths, when I came over to Southend and bought one after the war. (HWG subsequently told us how he came to be shot down in his Ju 88 torpedo-bomber in World War II, but that was in the Mediterranean.)

Closed-circuit championships are a dead end.

Plat: *Aren't you interested in Championship flying anymore?*



Crossing frontiers.

HWG: Closed-circuit speed tasks, which is what Championships consist of entirely these days, are a dead end. They are not meaningful tests of pilots, they only improve certain skills. Most of it is tactical point-snatching.

Sadly, free distance isn't practical nowadays – think of 3000km retrieves! However, Maurie Bradney at Waikerie is testing a modern form of cat's cradle, which uses multiple TPs which the pilot does not have to declare in advance. Outlandings are avoided as much as possible but the ability to use the whole day is tested. This has real possibilities. *(See October issue, p237, Ed.)*

I quit Comps years ago and never regretted it. I lost interest when I found that my experience was not broadened, new insights not gained. The top pilots felt *frustrated* after Benalla. Yes, there were big distances flown at high speeds, but it became a treadmill. There was no chance to show truly superior ability. Pilots should go to the briefings with an ability to understand weather, they should study those temperature traces and make their plans. It should be as in chess, where the superior brain has the superior chance of winning.

What it's really about

Just as you can be too obsessed with the competition treadmill, you can also be too obsessed with breaking records. The *experience* is everything; the beauty of it – different scenery, flying over water, crossing frontiers, soaring from one country to another. Maybe I miss out from time to

time on days when I could have had an enjoyable flight, but have not flown because it wasn't a record-breaking day. That's wrong.

Just fly cross-country, fly long distances whenever you can. It becomes a way of life.

Tom Bradbury comments: HWG is right when he says 5% increase of speed for every 1000m: this is true at an altitude of 1000m but is an underestimate higher up. This shows up noticeably only on record wave flights. At 11780m the TAS is 1.95 times the IAS where the 5% rule would make it 1.60. (But then so far no one has done any cross-countries at that height.)

If you want to compare true and indicated airspeeds the formula is:

Ratio of IAS to TAS= square root of the ratios of the densities.

For example: sea level standard atmosphere is 1.22495kg/m³. At 600mb where the standard temperature is −12.3°C the density is 0.80131. The ratio of densities is 1.52868 (square root = 1.2364). So the TAS at 600mb (indicated altitude 13801ft) is 1.236 times the IAS.

Here is a table to showing TAS/IAS

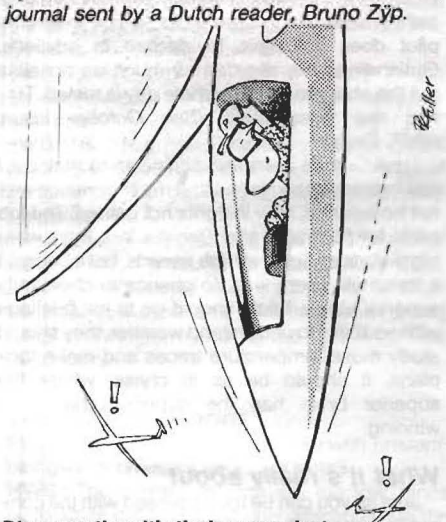
mbar	ft		500	(18289)	1.331
850	(4781)	1.073	400	(23574)	1.434
700	(9882)	1.162	300	(30065)	1.639
600	(13801)	1.236	250	(33999)	1.760
200	(38662)	1.950 (*i.e.* 100 IAS = 195 TAS)			

If one flies in a warm climate, say with a freezing level at 600mb, the density is less and the ratio then is 1.265 instead of 1.236. (Not a lot in it.)

Stop press: Since this piece was written, Hans-Werner has broken four two-seater world records starting from Alice Springs in the first half of January with his wife Karin as P2. **See p90.**

Platypus, Why Didn't you Tell Us?

Bill of the Platypus has electroreceptors. The Australians say that platypi are found commonly in muddy streams and *dive* mostly *with* their eyes, ears and nose shut. *Extract from a technical journal sent by a Dutch reader, Bruno Zÿp.*



Dive mostly with their eyes shut.

Playpus was asked about his bill and said indignantly he never sends one - his services to *S&G* are gratis. (Besides they wouldn't pay his bill if he sent one!)

NEW SAILPLANES



Kiwi with the engine in the operating position.

Kiwi

The Kiwi, designed by Martin Hansen for Valentin, is an all purpose aircraft which should go into production later this year. You can either have it as a 15m Standard Class sailplane and later convert it to a self-launching motor glider or choose to have the two stroke retractable TOP engine fitted immediately. Steve White (Nine Four Aviation Ltd), is the UK agent.

In fact Steve says that it is very flexible. If there is a launch available Kiwi can be flown as a pure glider or transformed into a motor glider within the few minutes it takes to bolt on the engine.

It was test flown by G. Marzinzik for *Aerokurier* who have given us permission to take extracts from their article. It should suit pilots with varied experience and has a good performance. Even in weak lift the motor glider feels happy with its favourably low wing loading of 31.5kg/m² and its special silencer made powered flying agreeably quiet.

It climbs at an average of 1.5m/sec taking about 12min to gain 3281ft and cruises at 80km/h using 9.50 litres/hr. The best glide angle of the Kiwi as a pure glider is 1:37 and with the engine retracted 1:35.

It was found to be safe and stable, giving the impression of a "thoroughly harmless and responsive aircraft."

The two-part double trapeze wing was given the Wortmann FX61-163 profile already proven in the ASW-15 and ASW-19 with carbon fibre used in the spars for weight saving and increased strength. The Kiwi is given a dent in the fuselage to half hide the engine and has a comfortable and well designed cockpit.

DG-300

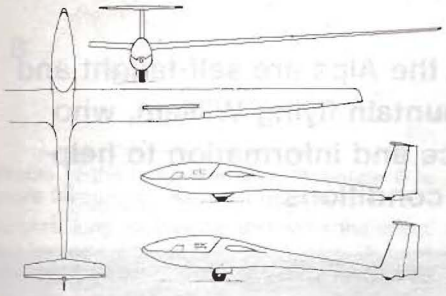
The single-seater DG-300 Club Elan, developed especially for use in clubs, had its maiden flight

Below: DG-300





The Stemme S-10 on a cross-country.



on January 10. With docile stalling characteristics, it is intended for the inexperienced pilot as well as being a good cross-country glider.

The present delivery time is the end of 1988.

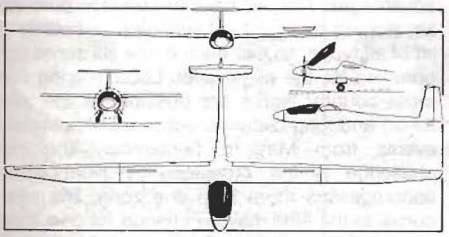
DG-600

In December while testing the DG-600 for flutter, Wilhelm Dirks, the designer, increased the speed to 300km/h (160kt) when a piece of the left wing broke away. The glider was forced into a steep turn from which he couldn't recover. Wilhelm parachuted to safety but the DG-600 was destroyed.

Bob McLean, the UK agent, went to the factory in January and found they were modifying the DG-600, making the fuselage 25% stronger in the pitching plane, by the addition of a few glass rovings in the spine and keel areas of the fuselage shell, and 10% stronger in the torsional rigidity sense by using an inner skin of the same strength of carbon cloth as the outer laminate, instead of the usual thinner laminate.

This should give a theoretical safe speed of 360km/h instead of the 300km/h (VDF) which has to be demonstrated for normal certification to JAR 22, the Common Market design criteria.

Stemme S-10



This two-seater side-by-side 23m motor glider will be here by the early summer with Mike Jefferyes and Hermann Sommersell as the UK agents. (See also *S&G*, June 1986, p131). The engine does not fold out into the airsteam but is mounted centrally in the fuselage behind the seats and drives forward through a carbon shaft to a folding propeller in the nose. When the engine is stopped the propeller blades fold inwards by spring loading and, once aligned, are fully enclosed inside the retracting nose-cone. Together with the fully retracting twin undercarriage this gives a clean profile with a calculated glide angle of 51:1.

It has already been flown at Mannheim by British pilot Roger Dickson who was impressed with its performance and handling. The stall was at about 40kt, and even with pronounced rudder there was no marked tendency to spin.

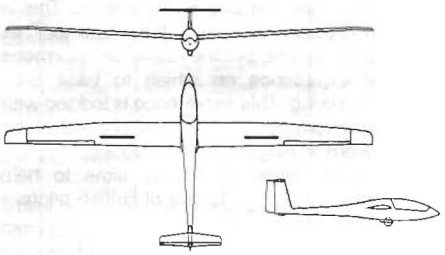
"With the propeller stowed the aircraft becomes a very fine sailplane and with a circling speed of 48-50kt the manoeuvrability was very good indeed and far more reminiscent of a 15m than a 23m sailplane," he added.

Roger found the glider had excellent penetration, light and very positive controls, powerful airbrakes and a comfortable cockpit with superb leg room.

The S-10 is being given a 90hp Limbach engine instead of the original 80hp and a new propeller optimised for take-off and climb. These changes will answer the only criticism Roger made in his report about the lack of power on take off and should give a 50% improvement.

As soon as possible we will have flight tests on the Kiwi, the Stemme S-10 and the Standard Class high performance LS-7 which the UK agent, Martyn Wells, hopes will be in this country by early spring.

Discus K



In November at Hahnweide, W. Germany, Klaus Holighaus rolled out his Discus K - K stands for *Kunstflug* (aerobatics). The wing is basically the same as for the normal Discus except that, outboard of the ailerons, it has special 820mm tips with 5° of anhedral replacing the conventional tips. The total span has been reduced to 13.7m and the tips have a different sweepback with the profile changed to improve inverted flight characteristics.

The Discus K is aimed at clubs who want an aerobatic trainer as well as a Standard Class machine without having to buy two aircraft. - *Translated by Les Fellows from Der Adler.*



The LS-7 after her maiden flight.

Make sure of getting your copy of S&G by taking out a subscription. Details on p83.

NORMAN IS NEW PRESIDENT

Norman H. Ellison, who was for quite a few years at Slingsby's & Torva in Yorkshire, and was the author of **British Glider & Sailplanes 1922-1970,** has just been elected president of the Boeing Employees Soaring Club, Seattle, in Washington State, for 1988 and 1989.

WILLIAM MALPAS

LOW-DOWN ON THE ALPS

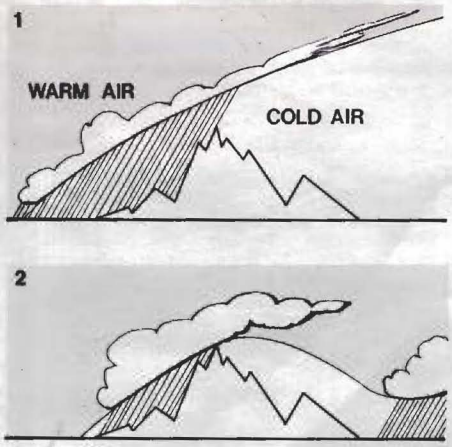
Most British pilots who glide in the Alps are self-taught and in the first of his articles on mountain flying William, who now lives in France, gives advice and information to help those flying abroad exploit the conditions

The editor has noticed that while there are substantial texts on how to exploit the Alps in German, French and Italian, almost nothing exists in English. Most British pilots who fly in the Alps are self-taught and therefore obliged to advance very cautiously. It shows in the way we fly, compared with the apparently devil-may-care approach of our French, German and Swiss friends. This is only an illusion, however: they are just as cautious as we are, but they have an enormous body of experience on which to base their decision-making. This experience is lodged with their instructors rich in Alpine hours and in the written word in magazines and books.

This short series of articles aims to help redress the balance in favour of British pilots.

PART I - PARADISE REVISITED

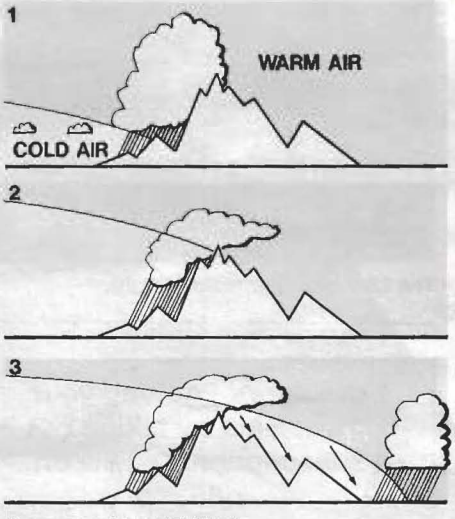
Why go? The first question is: why go all that way? What is so special about the Alps? As we know from our own experiences in the UK, even a small range of hills can act as a barrier to the movement of air masses and the fronts associated with their boundaries. The Alps present a formidable wall right across Europe and have a permanent effect on the routes taken by all anticyclones and depressions. Airmasses cannot pass or only succeed in doing so after a delay, and when they do pass, they are forced upwards. This uplift results in substantial modifications for the better in the characteristics of the airmass.



Passage of a warm front.

The fast moving cold front is stopped in its tracks and often deposits substantial precipitation on the ramparts of the Alps, so that when it passes the wall (up to 4000m high), it arrives the other side much drier. It also arrives much warmer, due to the compressing downward movement on the other side (the well known föhn effect). The slower moving warm front may also arrive on the other side eventually and when it does, the airmass will also be drier than before.

Anticyclonic airmasses on the plains surrounding the Alps are also blocked by the Alpine barrier. In short, the Alps form a massive barrier between the Mediterranean climate to the south and the rigours of the central European climate to the north. Within the area of the Alps themselves are mini climatic barriers that divide the area into six distinct zones, each with its own micro climate. These barriers coincide approximately with national frontiers, so we can give to the zones the names of the countries separated by them.



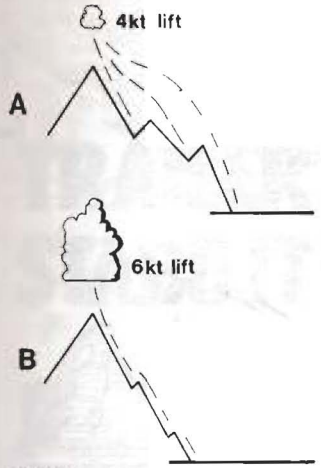
Passage of a cold front.



Jean - Claude Penaud photographed the lenticular over Mt Rose.

In 1975/76 I wrote in *S&G*, December-January issue, p264) about *"Les Enfants du Paradis"*, referring particularly to the southern Alps in France. Of the six zones this is probably the most reliable for the visitor with limited holiday time, but each zone has its peculiar advantages and disadvantages. They all have in common pure dry air, sloping rocks, lots of sunshine and plenty of lift of all types, so that each of the six zones is a paradise for the glider pilot. Local soaring and cross-country flights are possible all the year round and long distance flights are almost daily events from May to September. The real challenge is the cross-country flight which encompasses more than one zone. The newcomer to the Alps may, by chance, hit on a short period when such flights are easy, but in general they are difficult and best left to the more experienced.

Close to rock faces. A word of warning to the newcomer: the British pilot has a number of problems to overcome. The obvious ones are the cost and time to get there, the language, the different practices, and so on. But there is another less obvious problem: the pilot will be spending many hours very close to massive rock faces (how close we will discuss later) and the effect on many is FEAR! This is not confined to new-



Profile of the mountain side. Mountain B is more favourable than mountain A.

comers: long experience attenuates the effect, but for some it never quite disappears. Perhaps this is a good thing, because a great respect for the mountains is essential.

My own experience may be of comfort to others: I find that on mountains I already know (*ie*, have soared more than once) the fear diminishes progressively, but sometimes, when I approach a large mountain for the first time, it comes back especially if my first approach is to the flank of the mountain rather than over the top. Most pilots find that the rewards are well worth the effort required to overcome the natural reluctance to approach a huge mountainside.

Ready-made solution. Fortunately there is a ready-made solution for the newcomer which goes a long way towards overcoming these problems and, at the same time, gives him immediate access to the vast pool of existing experience. I strongly recommend that he applies for a course at the French National Centre at St Auban. There he will spend two weeks flying, at first with a very experienced Alpine instructor in a Janus, and later in a single-seater glider under the "eye" of the same instructor. (Details are given in the box.)

There may be similar facilities in other countries, but I do not have details.

PART II - THERMODYNAMIC LIFT

Plainsmen who have already flown in the Alps will know that unfamiliar factors must be taken into account in searching for thermic lift and one of the most obvious of these is the daily variations in valley winds. This article glosses over the subject by presenting a simple diagram and noting that it is well covered by Wally Wallington in **Meteorology for Glider Pilots,** and, in any case, the same effects tend to occur in a small way in valleys anywhere. I would like to go straight on to review other factors affecting thermic lift in the Alps. They are numerous but quite logical and can be discussed separately. The trick is to weigh the influence of each factor, sometimes conflicting with each other, and to draw up quickly a balance of probabilities in favour of which route to take. (Just like on the plains, but the factors are different and so too is the nature of the lift.)

Position of the sun. In the morning east facing slopes are favoured and progressively, as the earth rotates, so the best slopes will be found facing south and then west.

Angle of the slope. The most favourable angle is 90° to the sun, so that morning and evening the steep slopes will work best, whereas around midday the 35-40° slopes are at the best angle to the sun's rays.

Length of the slope. Alpine thermals tend to hug the slopes, so that they are heated progressively as they rise in proximity to the warm rocks. This has two important results. First, the longer the sloping rock face from valley floor to summit, the stronger will be the thermal at the top. Secondly, the strength of the thermal will tend to increase as it rises, because the temperature difference between the heated air close to the mountain side and the valley air at the same level will increase as we go up.

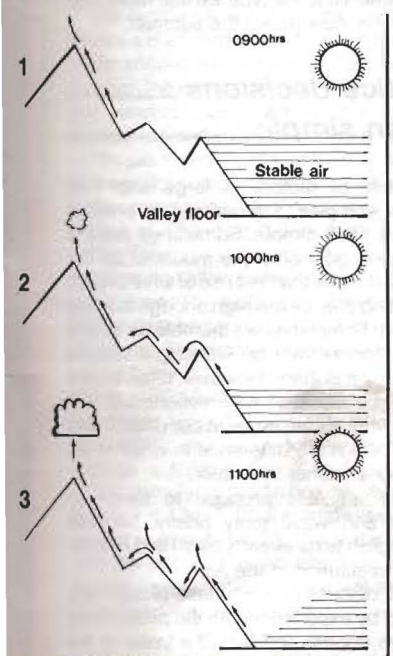
State of the airmass. All UK pilots know that air carrying mist and dust often seen over flat country in urban and industrial areas, especially in anticyclonic conditions, is very effective in reducing heating. Such air or stable maritime air from the Mediterranean or the Adriatic can be sucked in by the wind blowing up the valleys towards the high mountains. Fortunately, it can often be seen coming and can be avoided.

Percentage heat absorbed. The energy transmitted by radiation from the sun is not all stored by the surface. A significant part is reflected. Wally Wallington tells us that 40-90% will be reflected by snow, whereas only 10-15% will be reflected by darker surfaces such as wet soil or pine forest. Limestone granite and other rocks

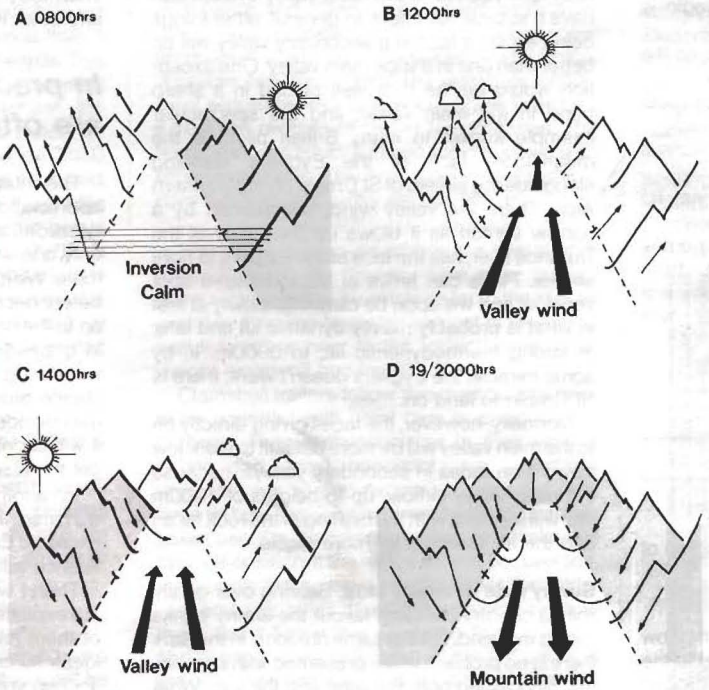
French National Centre at St Auban

- *courses last for two weeks*
- *they aim to teach mountain flying and cross-country techniques*
- *minimum requirements —100hrs and checked out for cross-country flying by your CFI*

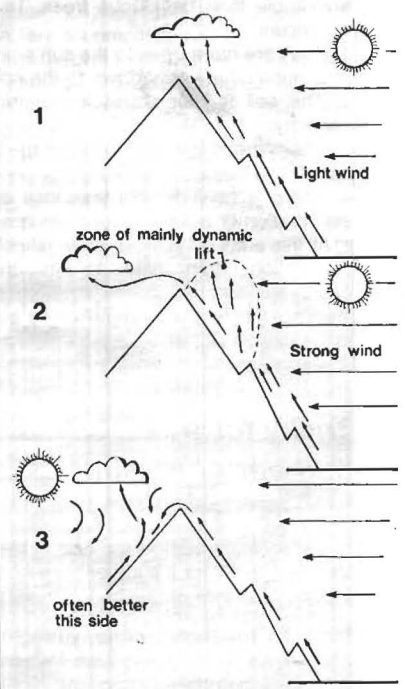
For details of dates, accommodation and charges write to the Centre National de Formation Aéronautique, 04600 St Auban sur Durance, France.



Morning development of thermodynamic lift on east facing slopes.



Valley and mountain wind circulation.



Sunny side or windy side.

found in the Alps are intermediate in this respect, with 15-30% reflected.

The high reflectivity (albedo) of snow explains partly why distance flying in the high mountains in the northerly zones is best between May and September, because during that period only the peaks higher than 2200m are snowcovered. The snowline will be higher in the southern zones and the good season longer.

Type of rock. To simplify Alpine geology, there are two categories of rock for the soaring pilot, the "good" and the "less good." The good are stratified rocks which have become distorted and eroded, often consisting of slate, shale and gneiss. They may be recognised by their gentler slopes littered with debris, their rounded peaks and enough soil cover lower down to encourage vegetation. They include certain limestones which are soft and friable, such as are found in the Dachstein near Zell-am-See and Nieder Oblarn.

The less good rocks are harder and smoother, composed of granite or hard calcareous deposits. They are recognised by their steep, bare escarpments and lack of vegetation. Typical examples are the granite mountains of Savoy, the Bernese Oberland and the imposing vertical rock face of the Dolomites.

Humidity of soil. Some Alpine slopes are covered with soil and the humidity of the soil will affect its heat capacity. The higher the humidity the better its capacity to store heat because of its improved conductivity, even allowing for some heat loss by evaporation of the water. Thermals will tend to start later over damp soil, but once started they will be more reliable, particularly during periods of cloud shadow. On the other hand, dry soil will give thermals earlier in the day.

Type of trees. Evergreens are much more favourable than deciduous trees. The logic is as follows:

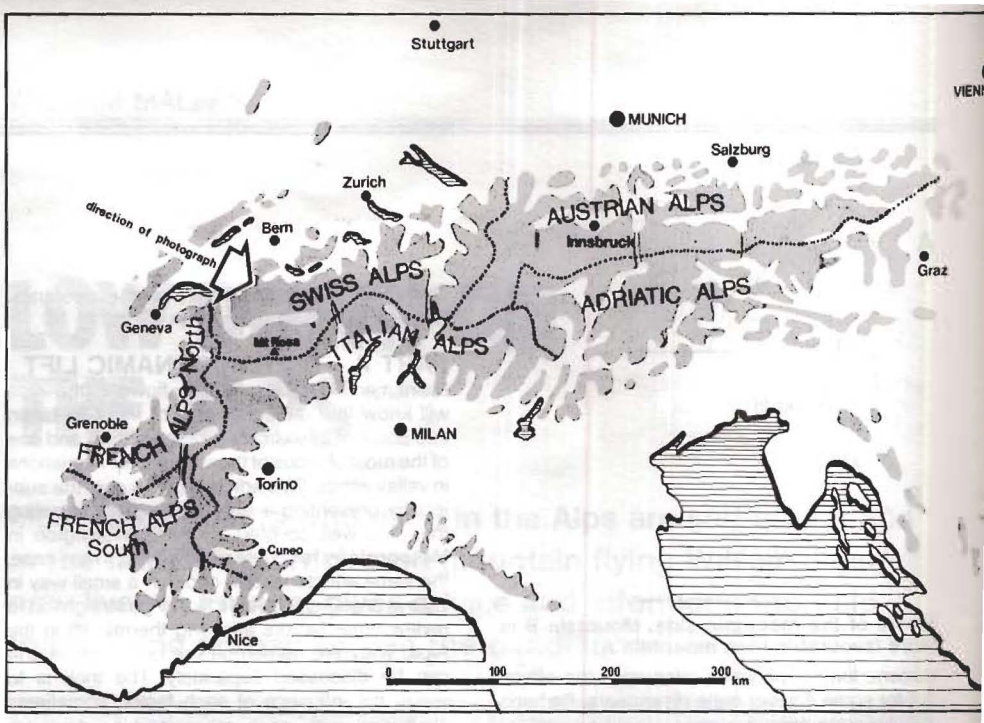
1. They are more open to the sun's rays, so the heat penetrates easily down to the soil.
2. The soil is damp and has a higher heat capacity.
3. Their albedo is less than that of the broad leaf deciduous trees.
4. There is considerably less loss of heat by evaporation of water vapour from leaves.

All this adds up to much more reliable thermal production from pine forests than from deciduous forests and when both types are working, the thermal strength will be greater over pine-covered slopes.

Tricky for a number of reasons

The southern edge of the Alps in the region of Varese is tricky for a number of reasons, including the presence of deciduous forests.

Make for the high ground, young man! How many times on the plains have we peered at the ground to determine where the higher ground lies. The same applies (in spades) in the Alps.



The area where the photograph on p66 was taken is marked on the map.

Other things being equal, the higher valleys and higher mountains will give better lift. The air is cleaner and drier, the insolation stronger, the thermals stronger and cloudbase higher over higher mountains.

Profile of the mountain side. A regular unbroken mountainside is better than one with a number of projecting ledges or other irregularities tending to push the rising air away from the mountainside. Although this "maverick" air usually rejoins the upward current close to the face higher up, it has lost time when it would otherwise have been close to the mountainside and warmed by it. This phenomenon can make a significant difference to the strength of the thermal at the top of the mountain and to the height of cloudbase.

Position of the mountain side. Quite apart from the position relative to the sun, the position of a rock face relative to the main valley system can have a substantial effect. In general, other things being equal, a face in a secondary valley will be better than one in a wide main valley. One exception would be the face well placed in a sharp bend in the main valley, and the spectacular example known to many British pilots is the magnificent face of the Eygliers standing alongside the airfield of St Crepin on the southern Alps. There the valley wind, constrained by a narrow venturi as it blows up the valley of the Durance river, hits the face of the Eygliers at right angles. Pilots can arrive at this privileged spot very low and will soon be climbing, slowly at first in what is probably mainly dynamic lift and later in strong thermodynamic lift, to 3000m. If, by some miracle, the Eygliers doesn't work, there is St Crepin to land on.

Normally, however, the faces giving directly on to the main valley will be more difficult to work low down than faces in secondary valleys, because the main valley airflow, up to heights of 1000m agl, will interfere with the heating of the rock faces and the air itself will be more stable.

Sunny side or windy side. Soaring over gently rolling country we often favour the sunny banks facing the wind. For the same reasons, in the Alps there is no problem when presented with a mountain side facing both the wind and the sun. What should we do, however, if presented with the choice between the wind on one side of the ridge and the sun on the other? The natural tendency for a pilot brought up on ridge soaring will be to go for the windy side. He will usually be mistaken – the golden rule in the Alps is to go for the sun (or if you prefer, go for the wind shadow thermal). If the wind is strong, the thermal may be very turbulent, may be detached from the slope before it reaches the top, will drift rapidly downwind and will be surrounded by heavy sink.

A word about the wind in the Alps during the afternoon of a good summer day: there are usually two – the valley wind (or anabatic wind, or *Hangaüfwinde*) which flows up the valley, operating up to heights of, say, 1000m above the valley floor; and quite separately, the gradient wind which is blowing over the tops of the mountains.

Well-reasoned choice. So far I have reviewed the principal factors in developing thermal lift in the Alps, often referred to as "thermodynamic" lift to distinguish it from purely dynamic lift (or hill lift). Thermodynamic lift is the type we use more than any other in the Alps durng the summer.

In practice decisions are often simple

The number of factors is large and their appreciation complex. Fortunately, in practice decisions are often simple. Sometimes there is only one way to go – only one mountain on our route. We must make the best use of what is there before deciding that we are high enough to press on to the next. Sometimes we stumble on lift and in gratitude concentrate on working it without wondering why it is there. However, often a clear choice must be made. A well-reasoned choice may decide whether we arrive at our destination; it will certainly make a difference in whether we get there sooner rather than later.

In another article I propose to touch on dynamic lift and wave (only briefly, because excellent English texts already exist) and on confluence and restitution in the Alps.

Then I will discuss how all these phenomena are exploited by experienced Alpine pilots. Many of them have contributed over the years to the ideas summarised in these articles, particularly Jochen von Kalckreuth to the theory and Roger Biagi to the practice.

DON AUSTIN

TRAILER STABILITY

Recently in *S&G* there have been several reports and letters concerning trailer instability. It is my belief that the problem is caused by the mostly German "fad" of putting the wing root first in the trailer. It appears that the general principles of stability of trailers is not as well known as it should be.

One of the factors involved is the relative weights of the two parts of the combination. For example a lorry towing an open K-6 trailer is unlikely to be affected in any way by the trailer. It can be seen that the reverse is true of a Mini towing a two-seater.

The total weight is less important than its distribution. This affects the leverage the trailer can exert on the car. This is governed by the distance the trailer wheels and the rear of the trailer are away from the cars back wheels. This means that a car with an overhanging boot is a less stable towing vehicle than a car with a wheel at each corner. The difference is sufficient to make one car safe with a particular trailer and the other unsafe.

Trailers tend to follow a vehicle with a slight snaking motion. The front attached to the car moves very little but the back of the trailer is free in space and can move. At a certain speed a particular combination reaches a resonant frequency and if the trailer rear has enough leverage over the car the results can be disastrous.

The remedy is simple, if the oscillation is not severe a proprietary stabiliser will often suffice. A better answer is to move the axle rearwards. This reduces the momentum the rear can accumulate and dramatically changes the resonant frequency no matter what is towing the trailer.

The calculation is simple. Determine the C of G of the major components by weighing each end, (bathroom scales). A Kestrel has a total wing weight of 180kg at 6.35m from the tip and a 169kg fusalage at 4m from the tail. Put the tip in first; this also allows wheels at both ends which is a real boon. The fusalage is short so push it 1m further up the trailer and the C of G will be right at the centre. The moments from the front bulkhead are as follows:

Wings 180×6.35=1143kg.m.
Fuselage 169×5=845kg.m.
Total 1988, divided by total weight of 349kg is 5.696m or 5.7m.

A 10m trailer with a fin box and sloped front will balance 6.13m from the front and the pivoting weight is about 300kg. Place the axle at 5.7m and the aircraft has no effect on the empty or loaded towbar weight which will be:

$$.57 \times 2\ (1.14\text{m}) \times \frac{300}{10} = 34\text{kg}.$$

If you have a hydraulic damped overrun brake on a trailer as above your biggest problem will be forgetting it is there. Exactly the same mathematics apply in proportion to a 15m aircraft trailer. If you try the figures I have given on root first Kestrel with the fuselage as far to the rear as possible then the best you can get is the wheel just forward or near to the trailer centre, nose weight empty nil and loaded 35kg.

Clamshell trailers follow this method and have to be operated with great care to avoid aircraft damage. They are unsociable in their rigging habits and, most important, are potentially unstable due to the excessive overhang and large fin box. If you are lumbered with an unstable trailer use the above information to recalculate the axle position. If the wings cannot be reversed, try moving the spare wheel to under the trailer rear and any other items it is possible to stow there. Don't forget that removing from the front and placing at the rear has double the effect. A move of only 4in rearward by the axle can be enough to stabilise a trailer.

LARRY SANDERSON

RUNNING ON EMPTY

A new Chris Woods' film

Invite the neighbours and put the dog outside. It's time to watch the latest, and perhaps best, film about soaring. "Running on Empty" is Chris Woods' most recent offering concerning our sport. The 25 minute film gives soaring enthusiasts all they could hope for . . . not only is this a great soaring film, it is something to make friends and neighbours go "Ohh and Ahh."

Last May Chris had everything he needed at Estrella Sailport, Arizona, to produce his film – World Class sailplanes, World Class pilots, a World Class location and World Class weather. The setting, the 2nd Hitachi Masters of Soaring, gave a dramatic story-line. Actor and soaring enthusiast Cliff Robertson volunteered to be the narrator.

Mobile home protected equipment from the ravages of desert temperatures

The project was the idea of the Soaring Society of America and Hitachi with added funding by private sources within the SSA. Chris, whose new production company was Denali Productions, operated two film crews. His elaborate equipment was stored in a 25ft mobile home to protect it from the ravages of desert temperatures. The home also served as a studio for interviews with pilots and crews. The first hand interviews and comments by the pilots set this film apart from Chris' previous work, "The Quiet Challenge".

The first day Chris aimed to put some good tow footage "in the can". His father, "Woody" Woods, flew his Cessna towplane over from Carefree, Arizona, and the film crew lifted its tail on to a 50 gallon barrel to install a special tailmount. "Woody's" Cessna then joined the regular tugs and inbetween tows lenses were cleaned, films reloaded and ropes checked.



Chris Woods (right) with Cliff Robertson.

One day was spent filming the finishers as they made high speed final glides. Viewers have a sense of being right on course and to achieve this Chris was helped by long-time Arizona soaring pilot, Paul Dickerson. A specially designed film camera mount, a lightweight camera, some remote triggering cord and the judicious application of duct tape changed a garden variety Ventus into a camera platform capable of joining the competitors in mid-flight.

Towards the end of the contest Chris filmed from a helicopter, the back door removed to make way for a sophisticated camera mounting mechanism. Chris sat with his feet and arms extended outside the helicopter.

Trish Durbin, veteran soaring writer, helped with the final scripting and editing and Cliff Robertson, an accomplished writer, reworked the script into his own words for the narrative. Not noted for showing significant emotion during a project, Chris began to feel this was something special.

The film, which brings the special message of soaring to the public who may never have had the opportunity to view the sport, is to be shown in America this March and is now on sale by the BGA at £19.99 including p&p.

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ALAN DIBDIN

VARIOMETERS EXPLAINED

Alan, an electronics engineer, passes on his experience of experimenting with and building variometers

Alan, an electronics engineer, has been gliding since 1968, flies a Dart 17 and is CFI of the Cambridge University GC.

Having spent the last couple of years of spare time building various vario systems I thought it might be useful to write down the results

Back to basics. All vario systems, with the exception of absolute altitude systems (see later), operate by utilising a thermally insulated bottle of air as a reference and sensing the flow of air out of the bottle for climb, or flow into the bottle for descent. The bottle is normally known as the capacity and is often a vacuum flask to obtain the best possible thermal insulation.

Current Systems. Any effort to build a better vario system will naturally start with a review of what is currently available in the market place.

1. Mechanical systems

These systems all operate on the principle of restricting the flow of air into or out of the capacity and then measuring the pressure drop across the restriction. They all have the obvious advantage of needing no power supply. However, since the only way to generate a usable pressure difference across the restriction is to make the restriction a severe one, this inevitably leads to a long response time (of the order of four seconds to give half the true reading). There also seems to be a problem at low climb rates in turbulent air which manifests itself as a drastic over-reading at climb rates of a knot or so. We have no sensible explanation for this effect except it may be a combination of pilot over-optimism and the fact that at least one widely used mechanical vario is only guaranteed to come back to within 1kt of zero when the climb rate is in fact zero.

2. Electrical systems

These fall into three categories:

a) Thermistor systems. These operate by the air passing in or out of the instrument flowing past a pair of heated thermistors (see Fig 1). The first

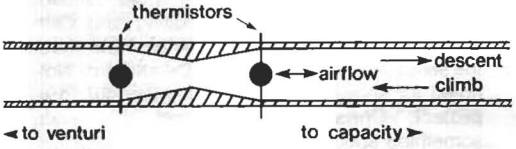


Fig 1

thermistor to meet the air is cooled by the airflow, the second is also cooled but not by as much as the first one since the air has been warmed by passing over the first thermistor. The resulting temperature difference between the thermistors is therefore a function of the flow rate of the air past the thermistors and thus a function of the climb or descent rate.

The good feature of these systems is that they can be made extremely fast since there is practically no restriction needed in the airflow. Their major failing is that the output is generated as a temperature difference between the thermistors thus, unless the two thermistors are extremely well matched, ambient temperature changes will cause zero drift (remember the ambient temperature can go from +20°C to −25°C in a climb from the surface to 15 000ft. There also seems to be some evidence that the thermistors age over a period of years so that the initial matching of the thermistors may change with time. Some experts also cast doubt on the instrument's effectiveness for small climb/descent rates around zero. The doubt centres around the fact that the air is heated as it passes the thermistors, therefore if the glider is alternatively climbing and descending gently (in turbulent zero sink for example) lumps of pre-warmed air will be blown back and forth across the thermistors. It is somewhat unclear what the instrument will read under these circumstances.

b) Absolute altitude systems. These operate by using what is in effect an electric altimeter and sampling its output every second or so. The altitude is then stored and subtracted from the next sample. Since the sample rate is constant the difference in altitude gives the climb rate directly.

In principle this seems a near ideal system, in practice we have yet to see one work correctly. The main problem seems to be that the electric altimeter is very prone to vibration and shocks. As an example:- suppose the output of the altimeter is 0 to full scale output for a 0 to 40 000ft altitude change, the sample interval is ½sec to give a reasonable response time.

Now a 1kt climb = 100ft/min
= 100/60ft/sec
= 100/(60×2)ft in½sec

thus we are trying to measure
100/(60×2)ft on a 40 000ft altimeter.

So you end up trying to measure altitude changes of less than a foot on a 40 000ft altimeter; not a straightforward thing to measure. To the best of our kowledge there are no longer any varios in current production using this system.

c) Pressure transducer systems. In many ways they are similar to mechanical vario systems except that the measuring of the pressure drop across the restrictor is done with an electronic pressure transducer. Since the pressure drop is now only being sensed and does not have to drive the meter itself, the restriction can be made much less severe with a much improved response time.

The only failing of most of the systems on the market at present is that they use standard pressure transducers which have a much larger pressure range than is required for this application. The result is that the output of the transducer needs a lot of electrical amplification which introduces the possibility of zero drift in the amplifier system which cannot be easily compensated out. The tranducers themselves are not completely temperature stable and their apparent drift is made worse by only using a small part of their output range.

Designing a better vario

Having looked at what is currently around I laid down some general design goals in what I feel are of decreasing importance.

1. Highest possible zero stability.
2. Fast response time.
3. Switchable ranges to allow wide range operation.
4. Linear and temperature stable calibration.
5. Low power consumption.
6. Small physical size.
7. Low weight.
8. Ability to add an audio.
9. Ability to add a second meter such that each pilot has complete control over his display in terms of range and damping.
10. Ability to add an averager.

Having surveyed the current systems I dismissed the mechanical systems due to the response time limitations and also the requirements for watchmaking engineering facilities. I also dismissed the absolute altitude systems since I could see no way of eliminating the sensivity of the altimeter to shock and *g* effects.

This left me with thermistor or pressure transducer systems, so chose to go down the pressure transducer path since this seemed to offer the most development scope.

In order to meet requirement 3 and 9 it is essential that the basic vario has a single wide range high speed output with the range selection and damping being done in a separate panel mounted control head. This also leads to the possibility of the main measuring system being remotely mounted from the display and control head. This possibility also eases requirement 6.

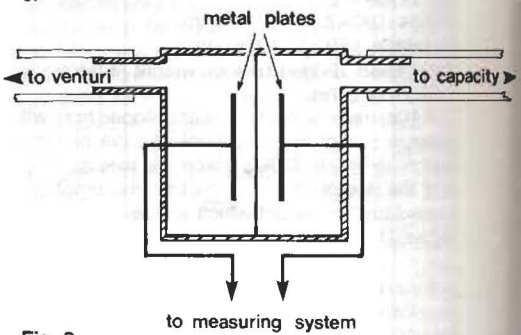


Fig 2

In order to overcome the limitations of commercial pressure transducers I have developed my own sensitive pressure transducer using an aluminium foil diaphragm, the position of which is sensed by the capacitance between itself and two nearby metallic plates (see Fig 2). This system works well, its only major limitation being its sensitivity depends on the tension of the diaphragm. I then went a stage further and made the transducer a force balance transducer. This operates as follows (Fig 3):-

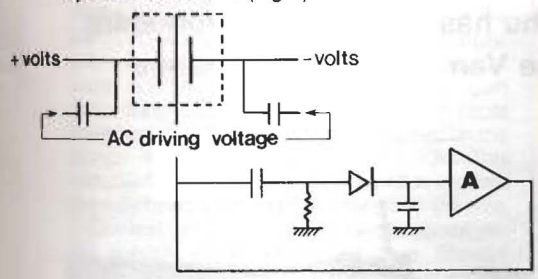


Fig 3

As the glider starts to climb or descend a pressure difference develops across the restrictor which starts to deflect the diaphragm giving a signal from amplifier A. This signal is then fed back in the form of a DC voltage to the diaphragm. This DC voltage changes the electrostatic forces between the diaphragm and the metal plates in a sense which forces the diaphragm back to its original position. This version of the transducer is now faster since nothing moves in the transducer and its sensitivity is no longer dependent on the stiffness of the diaphragm.

This system works very well and meets most of the design goals I set myself. It does however have a limitation which I believe applies to most other systems. This limitation is that whilst the zero stability is fine at any defined temperature, the zero wanders off while the temperature is changing. Some of this effect is due to the air in the capacity slowly changing its temperature, but a more significant problem is that there are temperature gradients across the transducer. This problem is not simple to cure by compensation schemes since neither the direction of the temperature gradient nor its magnitude are easily predictable. This may be caused in service by, for example, the sun shining on one end of the vario. This seems to be a fairly major limitation of standard systems.

I overcame this by incorporating an automatic zeroing system within the vario. This operates by disconnecting the vario from the aircraft pressure supplies every 20sec, an internal error amplifier then forces the vario back to zero ready for the next 20sec of measurements. This process takes about ½sec during which time the vario is held at its last reading. In practice the ½sec holds are not noticeable.

I have now ended up with a vario system with the following characteristics:

Zero stability	approx +− 0.1kt over +20° to −20°C temp range.
Calibration	approx +− 5% at 20°C calibration does not change by more than 10% over to −20°C temp range.
Response time	½sec increasing to 10sec by panel mounted damping control.
Ranges	The meter has the following switchable ranges +− 2kt +− 5kt +− 10kt +− 20kt

Power consumption approx 30mA from a 12v supply

Choosing a vario

I suggest you use the general limitations listed in the survey of types listed in this article as a starting point for what to expect of the various vario types. You may also wish to consider the design goals listed previously as a starting point for your requirements. Having formed a short list of possible varios make every effort to obtain proper specifications for each instrument. Take note of what is not in the specification as well as what is specified. There is a fair chance that if a parameter such as zero drift is not specified it may well not be that particular instrument's strong point!

Having done a completely unscientific survey it seems that most people are now using either 5Ah lead acid or various sizes of ni-cad as the glider electrical supply. If you use rechargeable batteries do not worry too much about the power consumption. I would strongly recommend that instruments with long scale meters (250-270° total meter travel) are chosen rather than digital or short scale (98° meter travel) meters. I advise this as much on flight safety grounds as anything else since it is much easier to read a long scale meter.

I also feel that the size of the system (provided most of it can be remote mounted) is not detrimental; you may spend an extra eight hours fitting a multi box system but hopefully will spend much more than eight hours flying behind a better vario.

Installations

This is generally straightforward. A few points to note for success are:-

1. If it is a multi box system try not to mount the boxes where the sun can shine on them.
2. Take note of any instructions about mounting restrictions. This may affect the units sensitivity to *g*.
3. If the unit uses a bottle keep the tube between the bottle and the measuring system as short as possible (I recommend 1ft maximum) since this pipe is part of the capacity. It will have a small effect on the calibration but a much larger effect on the zero stability with temperature, since it will allow heat to leak in or out of the capacity. If you must mount the bottle away from the measuring system then insulate the pipe between the two (use the plastic "snakes" sold for insulating water pipes).
4. Make sure you have no leaks in the plumbing.

Checking an existing vario

If you have an existing vario and wish to check its performance there are two tests which are easy to perform:-

1. Remove the system from the glider and wire it up on a piece of plywood or similar; attach a dry battery or similar temporary power source. Allow the system to stabilise at room temperature (generally around 20°C). Leave the static/venturi pipe open to atmospheric and note the zero value displayed. Put the entire system into the domestic freezer and record the displayed vario reading every 15min or so. This will soon show up any zero drift problems (most domestic freezers seem to run at −20°C).
2. Build a vario calibrator (see below). Adjust the valves to obtain a gentle climb on the vario and maintain the climb for 1min. Stop the climb and measure the difference in height of the water in the manometer columns. The actual distance climbed is 1ft for every 0.367mm of water level difference in the manometer. This may be compared with the climb rate indicated on the vario and thus will show up any calibration errors.

Vario calibrator

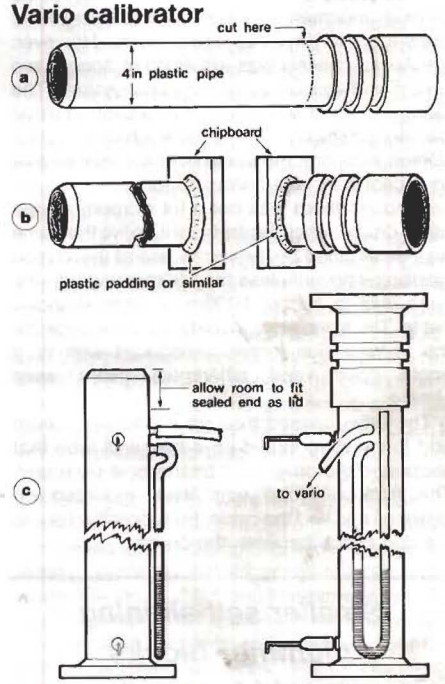


Fig 4

See Fig 4 for details. Obtain a length of 4in drainpipe. These normally come in 4ft lengths with a rubber seal at one end. Cut off the end with the rubber seal and fit a piece of formica faced chipboard over the end. Seal the cut end of the pipe in a similar manner. Obtain two model aircraft engine needle valves and fit one near each end of the drainpipe. Glue two small pieces of rigid pipe to connect 5mm plastic tubing near the open end of the drainpipe (allow room to fit the piece of pipe with the rubber seal over the top of the main tube). Fit 8ft of plastic tube to one of the rigid pipes and tape to the side of the plastic pipe in the form of a manometer. Half fill the manometer tube with water. Three-quarters fill the drainpipe with water and fit the cut off piece of drainpipe as a lid. Fit a length of plastic pipe between the remaining 5mm pipe on the drainpipe and the vario static/venturi connection. By opening the lowest needle valve with the top valve closed the vario will apparently climb. By closing the bottom valve and opening the top valve the vario will descend.

J. C. RIDDELL

NEW WINCH AT SUTTON BANK

Chris writes about the winch he has designed for Yorkshire GC which he says matches the Van Gelder performance

The new two drum winch is a well researched design that benefits from the experience of thirty years of winch building at Sutton Bank. Designed and built by members at the site over a period of years, it is now launching our K-21 two-seater up to 1500ft on the 1000m of the long runway in no wind conditions. The initial acceleration has been improved now that cable weak link's break out load have been upgraded.

The winch is powered by a six cylinder Gardner diesel engine that drives the drums through a fluid flywheel and Wilson epicyclic gear box. Such arrangement was used widely on buses when the engine and transmission started out in life. It was built into a single drum winch and later mounted on an Austin FGK 100 chassis cab.

It was David Chaplain who suggested the inline drive arrangement and asked me to design and draw it out to drive two cable drums. However, the Austin chassis was too small to accept two drums and was replaced by a bus chassis. The Gardner engine was mounted on a subframe that transferred easily to the new chassis. Chris Wilson extended the frame over the rear wheels to accept the cable drum supports.

Although there was not a lot of room for the cable drums - their centre height above the frame was determined by the centre line of the Wilson gearbox - nevertheless the 130mm wide drums were able to accept 1000m of 5mm stranded cable. The inline drive layout had merit because the transmission losses associated with right angle drives and differential gears were absent.

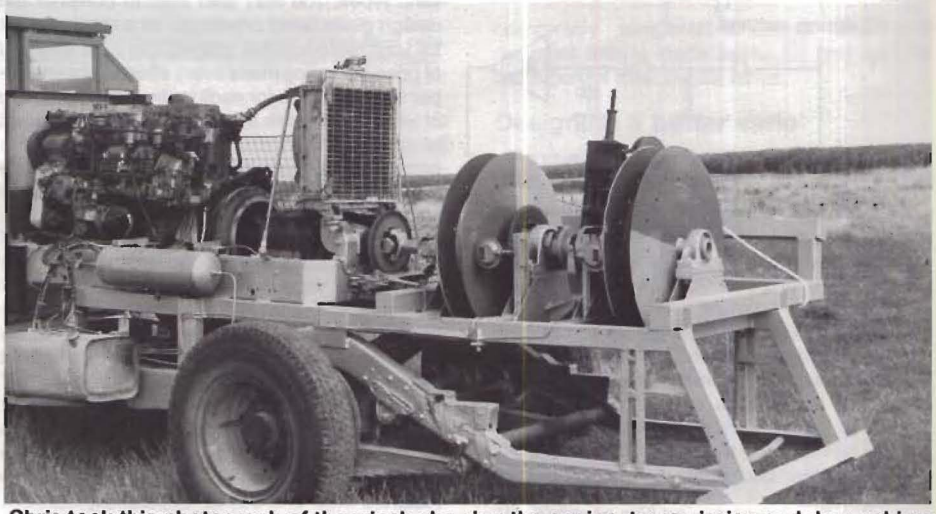
The drive passed through the forward drum and this was mounted on a thickwall tube that supported the drive shaft bearings at each end. The thickwall tube was itself mounted on bearings and had the cable drum directly close to the dog clutch between the drums.

Smaller self-aligning plummer blocks could be used

The dog clutch moves between the driving flanges of the drums on a splined section of the drive shaft. The extreme end of the drive shaft was turned to accept a small pilot bearing in the driven end of the aft drum. As the aft drum did not need to have a drive shaft passing through it, it could be mounted on a much lighter tube. This allowed smaller self-aligning plummer blocks to be used.

An arrangement of this sort requires careful alignment of the drive shafts and cable drums. The plummer block mounts were set up in the time honoured tradition of making them short and then packing them up until they were both inline and rotated freely. Micrometer clocks were used to check alignment. This process was time consuming and uncomfortable in an unheated workshop.

Designed in this way stresses were low and so commercial grade mild steel was used widely. Only the drive shaft required higher tensile steel for the stress analysis showed that the steel would be required to carry higher shear loads than mild steel could support. A standard Hardy Spicer drive shaft coupled the drive shaft to the gearbox. Experience in changing the dog clutch suggested that a transmission brake was necessary, and one from a Bedford commercial vehicle was fitted.



Chris took this photograph of the winch showing the engine, transmission and drums driven from the central dog clutch. You can also see the transmission brake.

Drum braking had been a difficulty on previous winch designs for the rear axles used were fitted with servo brakes and rarely did the winch have an oil or air pressure source to actuate them. Cable and long levers, although widely used, were no substitute. Fortunately the Gardner engine came equipped with an air pump and sizeable reservoir. It was not a difficult decision to fit Twiflex air operated disc brakes.

The snag with air brakes is they are either on or off. It was not easy to set an intermediate pressure to provide sufficient drag on the cable drums when drawing out the cable. I therefore built a two pressure pneumatic control system from Martonair assemblies using a pressure reducing valve and cam operation on the selector valves, one for each drum.

The two circuits were built into a Sarel Enclosure, better known in electronic circles but sufficiently large to allow pressure gauges and switches to be mounted on the lid. The brake levers were fitted either side and the hydraulic throttle control was placed in the centre. This arrangement makes it difficult for careless operation to overload the system and should increase reliability in operation.

Pneumatics also operated the gearbox drive, and a small electric solenoid valve opened and shut the supply to take up the drive. The cable was first led to the drum through the swivel pulley assembly of my design that had been used for several years on the previous winch with considerable success. Adrian Hatton made up a pair of spring loaded cable cutters to fit behind the lead on pulleys. No cable spreader gear is fitted.

The selection of the size of cable drum is a sensitive process and therein lies the success of the winch. The difficulty is that the winch is not the only source of power during a winch launch; the other is the wind. As the sailplane rises, an increasing proportion of the flow over the wings is provided by the local wind. This is one of the reasons why the winch engine speed has to be reduced in the later stages of the launch. The winch is therefore more a constant torque than a constant speed device. It is not possible to optimise the winch for all conditions.

A well designed winch drum will do some of this on its own, as the drum diameter increases as the cable is wound on. As the radius is increased, the cable tension is reduced by an equivalent amount. Hence a large internal diameter for the drum will show this effect less than one with a smaller diameter. The popularity of a large diesel engine comes from its capacity to give a substantially constant torque over the operating speed range.

However, the practice of fitting large diameter



Chris started gliding in 1950, has some 3000 hrs, a Diamond, Gold C and flies a Nimbus 2. He built the Torva series of gliders and trailers, as a consultant engineer advised the Min of Defence on ground equipment for ten years and is now a director of a group of engineering companies.

drums had one practical disadvantage that the inertia of the system was increased substantially. In this design a smaller internal diameter drum of some 500mm was chosen, and it was spun rather faster than usual to give a maximum cable speed of 55kt. The operating cable speed on the launch is usually between 35 and 40kt. This reduction in system inertia has helped to improve the sailplane's take-off performance on the wire.

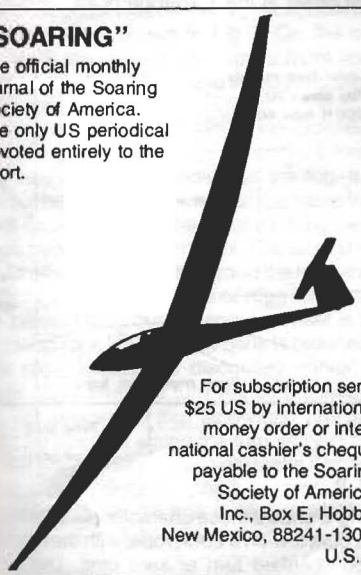
One last task remained. The winch was not giving enough power when first tried. Stewart Heaton, who had done a first class job on setting up the engine and throttle control, called in Gardner's service engineer who gave us about 200hp from the unit. With engine and auxilliary power losses, we believe we are getting about 180hp on the wire and that is giving up the height we need to encourage use of the winch on light wind days.

In addition to those mentioned, the thanks of the club are due to David Hayes, who did much detail work, to Tony Kane, who required the engine electrics, to Colin Almack, who provided the cab woodwork, and to many others who painted, aided and abetted the others from time to time.

One final point. In the recent debate nothing has been said about the effect of the position of the hook on the sailplane's winch capability. The C of G hook position as fitted to the K-21 will give a very high launch. The Pegasus position is further forward and as I found, in that position it is not possible to climb as high in the Pegasus under the same conditions as the heavier K-21. So don't automatically blame the winch if you are not getting as high as you think you should.

"SOARING"

The official monthly journal of the Soaring Society of America. The only US periodical devoted entirely to the sport.



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AWARD SCHEME INCLUDES GLIDING

A young woman lies on her back, hooking the winch cable on to the belly hook of a Bocian. "Brakes closed and locked?" Inside the glider, P2, a gangling youth gingerly feels the lever, and is reminded from behind to look at the airbrake paddles and check the lever is locked in position. Another girl is pulling a glider back to the launch point with the tractor, concentrating hard as she has only just learnt to drive it.

Apparently a normal Wednesday club evening, but none of the young people have any previous connections with gliding. They are part of the Duke of Edinburgh's Award Scheme, a nationwide programme of different activities which must be followed for between six and 18 months, leading to the award at Bronze, Silver or Gold standard. The scheme aims to offer youngsters aged between 14 and 25 the chance to explore their surroundings and their own interests and abilities with the help of adults, who give their time voluntarily.

Aims to encourage young people to explore new pursuits

Award Scheme participants must fulfil certain requirements in three sections: service to the community, physical activity, and skills and everyone must also undertake an expedition, graded according to the level of the award being attempted. On completion of each section, the participant is assessed, not so much for the level of attainment, as for evidence of progress and sustained effort. The skills section, which includes gliding, aims to encourage young people to take up and explore new pursuits, and especially to lead to contact with experienced adults, ideally through membership of a club.

Although some secondary schools run the award scheme groups, our youngsters came from a Job Training Unit, a Scout group and a Church Girls' Brigade division. They met each Wednesday at the award headquarters, and a rota of parents, scheme leaders and occasionally club members ferried them thirty miles or so to Coventry GC. Indeed most of the adults who brought them had a trial lesson themselves when they saw gliding from close quarters!

Each evening there was at least one, and sometimes two, instructors dedicated to the scheme, but except on very busy evenings the young people shared the training gliders with club members and they joined in with all the normal launch point jobs. To ensure as many people as possible could fly each evening, all pre-solo students were limited to two sequential winch launches.

The course started at the beginning of May until the end of September, with a session on the principles of flight, glider inspection and ground handling. None went solo but all had progressed to flying the aircraft ground to ground without assistance, and could cope with stalls and incipient spins. They showed considerable interest and enthusiasm throughout the five months.

Club joining fees were met by specific donations to the award scheme by Rotary Clubs, and several industrial companies sponsored individual youngsters. The participants themselves each contributed £1 weekly towards transport, and they paid half their own flying fees (approximately £3.50 each evening). The balance was met by an award scheme fund set up within the gliding club and administered by the manager, to which sympathetic club members contributed (usually £5-10).

Many club pilots were keen to encourage these young people, although a few were initially concerned at the thought of inner city youths tearing about the airfield uncontrollably. In the event, the three who came fitted in well with the regular Wednesday evening winchers, who in turn enjoyed the enthusiasm they brought. A BBC local radio presenter (Radio WM) even arrived one evening to record interviews with the youngsters and the organisers.

Following last year's course, a number of others are interested in trying gliding this summer and we hope the course will continue. It has not been a difficult project for the club to organise, nor a tedious burden on the instructors involved. Young people from our inner cities may not be successful in other aspects of their lives but learning a different and respected skill, like gliding, allows them to prove they can undertake something unusual and begin to master it. Perhaps it also gives them a touch of glamour. It is just this self-confidence which may help them achieve a satisfying and useful job in the future and help them see a little bit more than the depressed inner city.

If other clubs are interested in offering similar facilities for the Duke of Edinburgh's Award, please contact Nick Gair, (operations officer) Central Office, Duke of Edinburgh's Award Scheme, 5 Prince of Wales Terrace, Kensington, London. For details of the gliding scheme, contact Harry Middleton (manager), at the Coventry GC, Husbands Bosworth, Leicestershire.

JOHN GIBSON

A LOOK AT AEROTOWING Part 2

John concludes the article published in the last issue, p10

The problems found in lateral station keeping are less dramatic than those discussed in Part 1 of this article. Nevertheless the task can cause significant difficulties for inexperienced pilots. The tendency to drift to the inside of the tug at the start of the turn is well known. Less noticeable on a short rope, it requires very positive avoidance on long ropes. A simple analysis shows how the rope length affects the turn and the entry to it.

Straight Flight

The basics of keeping position in straight tows are worth reviewing because on long ropes the contact between tug and glider is less direct and a more positive pilot effort is needed. Methods have been argued about endlessly over the years but the best is whatever seems easy and natural to the pilot.

The four basic techniques, though with an infinite variety of combinations, which will bring a glider from one side of the tug back to the centre line are:

- Matching the glider bank angle to the tug's.
- Co-ordinated S-turn.
- Wings level ruddered skid.
- Crossed control slip.

The first has been widely used for some years. The small lateral pull from the rope gently ushers the tug back into place and keeps it reasonably well centred. There is a small steering input from the rope, but there is more to this than meets the eye. The widespread use of military gliders by Germany in the last war inspired analysis of towed stability. The best hook position was found to be below and a little forward of the C of G. Although a nose hook tends to steer the glider more strongly towards the tug, it also produces a heading instability in the form of a slow diverging oscillation if no pilot control inputs are made.

A more rapid reaction may sometimes be required, *eg* from deliberate offsets in training or check flights, or after coming out of a turn as noted below. On long ropes it once seemed natural to perform co-ordinated turns to re-centre. All too often, overshooting the centre line led to a weaving oscillation identical in principle to the pitch PIO discussed in Part 1. Bank angle produces the lateral *g* to drive the PIO. The natural use of small angles keeps the pilot gain, in this case the lateral *g*/unit lateral offset, to a low value and therefore the PIO remains slow and unlikely to diverge. The long known cure for this is of course to get the glider turning back to the tug heading before crossing the centre line. If it is pointed continuously at the tug it will settle into place without overshoot, just as in height control by pitch attitude aiming.

The wings level ruddered skid has been much favoured. Its effect depends on the lateral drag of the glider and the balance of rudder against the pull of the rope. Stopping at the centre line merely requires the rudder to be centred and overshoot PIO cannot occur. It is an obvious choice to avoid catching a wingtip in the take-off transition with glider airborne and tug still on the ground, though in a crosswind it strictly turns into a non-skidding drift.

The crossed controls slip, banking towards the tug but keeping the glider pointing forwards by outside rudder, is a more efficient way of producing side force and is equally effective with any glider. It is also easy to stop at the centre line.

Turning Flight

While it is fairly obvious that the glider should be pointing to the outside if it is to stay behind the tug in a turn, just how to get into this position in the transition is not much discussed in the literature.

The mechanics of the towed turn can be visualised very easily by a sketch such as Fig. 5 showing three basic tracks. There is an inner with the glider flying at lower speed, pointing at the tug along the rope which trails inwards from the tug; a middle track of the same diameter and speed as the tug's with the rope at an equal angle from both, and the correct outer track at a higher speed with the rope straight behind the tug and the glider pointing outwards from the tug.

The starting point is when the tug banks, assumed instantaneous to simplify the analysis. It is obvious that if the glider also banks at this point it will perform the same turn displaced by one rope length, so that after changing heading by 90° it would be alongside the tug, or ahead of it after 180°. Clearly this is the basis for any tendency to go inside the tug's turn.

It turns out that for any tug speed and bank angle, the glider's turn entry can be uniquely described in "rope length time units", real time being about 1sec/100ft of rope. Starting at zero time with the same bank as the tug, the glider heads off to the inside of the turn at A. Checked to point at the tug, it finishes up on the inner track. Starting after a one rope delay with the same bank as the tug, the glider follows the tug round the middle track at B, with no loss of speed but pulling the tug tail sideways.

Flying straight on, the glider crosses the outer track again at two ropes but in the wrong direction. To keep the rope straight behind the tug, the glider can S-turn outwards on to the correct track at zero time at C. More easily, if the glider starts to turn at 1.25 ropes at D, it will arrive smoothly near the correct track after three ropes. These times would be 5 and 12sec on a 400ft rope, but only 1.25 and 3sec on a 100ft rope. The nominal bank angle to sustain the outer track is only a degree or so more than the tug's. As it must be reduced a little to compensate for the tow rope pulling the glider inwards, the bank angle is the same in practice.

While the glider flies straight on, the rope first increasingly trails to the inside from the tug, then at the one rope position it starts to swing back beind the tug. After this point both the rope offset angle at the glider and the glider speed will increase very rapidly, so the delay should not be overdone. As a guide to where the tug should

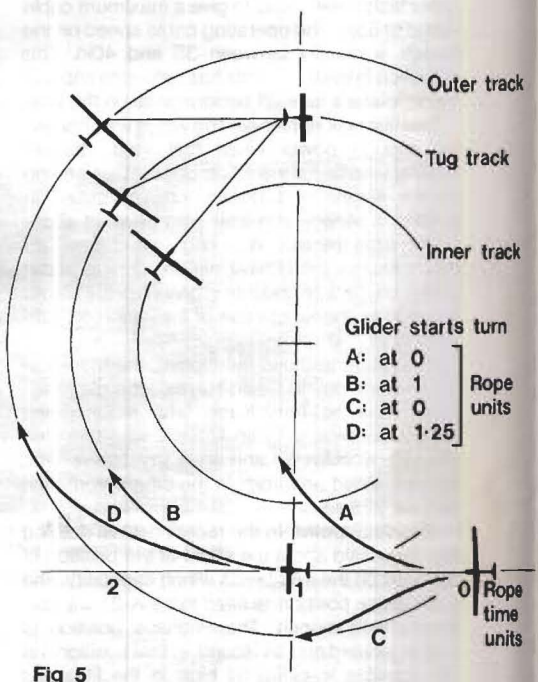


Fig 5

finally appear in the turn, it will be close to the right offset at the 1.25-rope point.

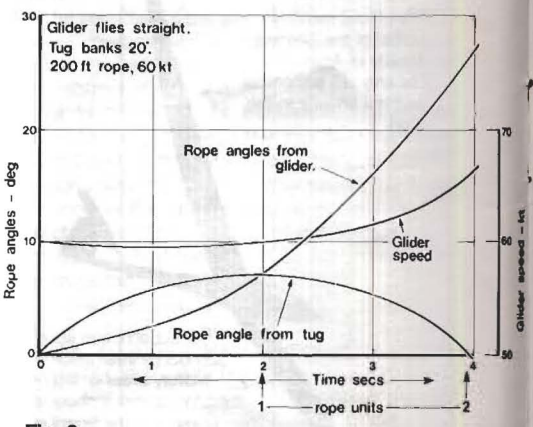


Fig 6

Fig 6 shows these characteristics for the case of a 60kt tow on a 200ft rope, with the tug starting a 20° banked turn at zero time. The glider is assumed to maintain a straight track regardless

of the lateral pull from the rope. During traverse of the first rope length, the glider speed reduces by ¼kt. This loss does not exceed 1kt even on a 400ft rope. After one rope the speed is always higher than the tug's. The rapid divergence soon after the 1.25 position at 2.5sec is obvious. On a 400ft rope the angle offsets from the tug and glider are doubled but because the rope lengths take twice as long to be traversed the rates of angular offset are the same.

TUG BANK (Deg)	GLIDER BANK (Deg)	TUG RADIUS (Ft)	GLIDER RADIUS (Ft)	GLIDER SPEED (Kt)	ROPE ANGLE (Deg)
200ft rope					
10.00	10.06	1810.95	1821.96	60.36	6.30
15.00	15.20	1191.72	1208.38	60.84	9.53
20.00	20.47	877.32	899.83	61.54	12.84
25.00	25.91	684.78	713.39	62.51	16.28
300ft rope					
10.00	10.13	1810.95	1835.63	60.82	9.41
15.00	15.45	1191.72	1228.90	61.87	14.13
20.00	21.04	877.32	927.20	63.41	18.88
25.00	26.98	684.78	747.62	65.51	23.66
400ft rope					
10.00	10.24	1810.95	1854.60	61.45	12.46
15.00	15.78	1191.72	1257.06	63.29	18.55
20.00	21.80	877.32	964.21	65.94	24.51
25.00	28.37	684.78	793.05	69.49	30.29

Fig 7. Geometry of turns.

Fig 7 is a table of steady turn characteristics at 60kt for a range of tug bank angles and rope lengths, with the glider on the outer track and the rope straight behind the tug. It is obvious that there is no unique aiming point at which to direct the glider nose such as the tug wingtip. The rope offset angle from the glider increases in proportion to the tug bank angle and to the rope length, so to restrict it to a comfortable limit the tug maximum bank angle should be inversely proportional to the rope length.

Thermal turns can be made more manageable if the tug shares the rope offset angle with the glider. If the glider flies on the tug track, both have half of the offset shown in Fig 7. On the inner glider track the glider loses slightly more speed than the increases in Fig 7 and the tug has slightly greater rope offsets.

Coming out of the turn, similar considerations apply. The glider clearly has to continue turning until it has the same heading as the tug. It will come out behind the tug when on the same track, but will be outside it on the outer track by the difference between their turn radii. The table shows that this offset can be well beyond the tug wingtip and increases as the square of rope length for a given banked turn, but the angular offset is proportional to rope length. If the bank is reduced for longer rope lengths as discussed earlier, the angular offset after the turn will be the same.

It is not suggested that stopwatch precision should be used for timing the turn entry in practice. The tug will almost certainly make it impossible by rolling gently into the turn, anyway. The above analysis shows that a delay is desirable before the glider follows suit, but only on very long ropes is this enough to consider counting it off. Normally this delay could be translated into simply using less bank at first, increasing it to match the tug when the rope has swung nearly back behind it. When there is plenty of speed margin, banking too much too soon is merely a nuisance requiring a bit of repositioning. If the glider is heavily loaded and not much above its stall speed, getting to the inside of the turn could be very unpleasant.

Safety Summary

In most circumstances there is not much risk to the tug from problems with lateral positioning of the glider. The two obvious cases where steering the tug is dangerous are on take-off if there are obstacles to one side, and during any attempt to use hill lift while below the top. In a 20kt wind the glider in the proper formation will be one third of the rope length nearer the hill than the tug. A nervous glider pilot edging away could well cause the tug to drift into the hill, and any emergency requiring a rapid turn off the hill puts both aircraft at risk.

Tug pilots should consider carefully just how tight it is reasonable to turn, taking into account the length of the rope, the experience of the glider pilot, the tow speed and the wing loading of the glider. It is their responsibility not to put the glider in a difficult situation.

Longer ropes make life harder for the glider pilot in turns, but the beneficial consequences for safety in pitch outweigh any such minor difficulties. ■

GEL COAT DURABILITY

A review by Doug, chairman of the BGA Technical Committee

In the June 1983 issue of *S&G*, p113, I wrote an article, "What is a gel coat?", highlighting the importance of polishing with pure wax, explaining the brittle nature of gel coats and concluding by suggesting a survey of gel coat defects. In retrospect this was to some extent prophetic in the light of recent articles published in the USA, Australia and the UK. (See *S&G*, June 1985, p148; October 1986, p226; February 1987, p17, and August 1987, p194.)

Considerable attention has also been given to the subject in Australia where the rate and incidence of gel coat deterioration has been more extensive than in the more temperate climates.

Comprehensive compendium of information

Copies of the airworthiness advice notice GFA/AN 69th Issue, 23.6.87, defining quality assurance procedures for re-gel coating; an article in *Australian Gliding* in September 1986 on the importance of polishing and application procedures and a technical article written by Noel Roediger for the GFA on the procedure for re-gel coating, are available from the BGA. Coupled with the features in *S&G*, they form a fairly comprehensive compendium of information.

The evidence to date indicates that the earlier generation of GRP sailplanes which embodied Schwabalat gel coat are less susceptible to brittle fracture paths than the Vorgalet gel coat used more extensively from the mid 1970s.

As yet no perfect finish has been developed and a compatible finish with the sailplane fabrication method is limited in scope. It is likely there will be greater emphasis on paint type finishes such as acrylic or polyurethane which in recent years have dominated aircraft and car finishes. One of their main advantages is that they have a higher degree of flexibility so are able to absorb the strains experienced by the structure. In addition the higher flexibility enables the paint finish to cater for the effects of varying temperature more readily than traditional polyester gel coats.

The various articles mentioned cover the majority of defects which have so far arisen. Care and maintenance of the finish is essential. Regular polishing with bees wax to alleviate the hygroscopic nature of gel coats will reduce the risk of large numbers of small water blisters occurring due to the absorption of condensation.

However, wax polishing is not a panacea to prevent all defects. To date no preventative action has been established which will alter the brittle nature of gel coats. In the light of the interest, and in some cases concern, by owners/operators, it would be helpful if manufacturers gave their views and their options for the future. ■

DOUG JONES

GLIDING FOR THE YOUNG

The German Aero Club's youth organisation is again running subsidised courses, consisting mainly of gliding, for 16 to 25 year-olds from all over Europe. They are held at Hirzenhain near to Marburg. If interested, write to *S&G* enclosing a sae for more details.

REGIONAL COMPETITION

Apply to Coventry Gliding Club for the best regional competition of the year.

May 28th–June 5th 1988

Entry fee: £100

T. L. CLOWES (Insurance Brokers) *have agreed to sponsor each entrant with one free aerotow*

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Husbands Bosworth Airfield, Lutterworth
Leicestershire LE17 6JJ

BLUE SILVER

When Bernard went to Welland GC last September 13 he hoped for two or three circuits and a little thermalling

I'm in that strange position where I've got Bronze C, heard all the lectures twice, read the books over and over and am struggling to prove to the instructors that I can find thermals and stay with them. Up to this point in my Silver C challenge I'd been told whenever I'd hinted at going cross-country, "You're not ready yet", as if I didn't know my limitations. I now know what new wine feels like when some old sage takes a sip and firmly replaces the cork.

Many times I had wondered about flying from my familiar and secure site. Now it may be possible! The long awaited permission had been granted and I was virtually on the line in the club L-Spatz. It was a bit like standing on the river bank ready to jump into the cold water – I wanted to but wasn't sure. Going solo is considered to be the big step, but to me this appeared even bigger and far more dangerous.

I zipped up the winch launch as clean as a whistle and at 1200ft flew straight into lift and straight out of it. I was back on the deck in four minutes. In hindsight I feel the reason for returning so soon was because I was keyed up.

"It wasn't easy cutting the psychological strings

On the next launch I was away at 1100ft, climbing slowly and watching the field shrink. It was time to make that final decision – to go cross-country. It wasn't easy cutting the psychological strings. I can hardly say I was navigating, just staying up. As the lift disappeared at 3000ft I turned my nose north-west, Rutland's large expanse of water was no more than a flat puddle.

My real headache was thermalling. My grip on the stick was like steel. I found an odd bump and turned in zero sink, my right wing flicked up and I pushed back. The flight was on. I tightened the turn, found a firm 2kt and waited. My head was screwing round more than the aircraft. If there's a fine line between genius and insanity how fine is the line between danger and pleasure?

I saw the vario showing two down. I looked outside – not a whisper of cumulus, all blue. A super view but I was going down. Some half listened to lectures came rushing in as I relaxed a little. I noted I had slipped to 2700 and relaxed some more. Blue thermals – what was it that John Williamson wrote in *S&G*. Something like "If you can't see clouds suitable for thermalling, head in the direction you want to go and wait for lift." So just press on. At 2600ft I pulled back and found three up. I was heading for Stamford.

It was just beyond Stamford I met my downfall. I was lost and going down fast. At 1500ft and totally dispirited I picked a field and turned on to base leg at 1100ft. My wing flicked up, I straightened out a little but I was still being pushed over. My scratching vario swung into acceptable action and soon I was rocketing around in a thermal at 50kt with 4kt lift.

At over 3000ft I couldn't find a familiar landmark and the folded piece of the map I was trying to use was of ground already covered. Then followed an hilarious activity – refolding the map. The L-Spatz has a stick trim and it's impossible to set it to fly hands off, so with my left hand, teeth and knees I struggled.

Meanwhile I had drifted down to 2000ft and signals for field landings had started, while I tried to follow the road. At 1700ft the road had changed to a dyke and on the horizon was something I should have recognised in the first place, The Wash.

I was now convinced I had Silver distance and flying straight and level I found Boston. On this glorious day fashioned for pilots I wished you could have all been with me to rejoice in that wonderful moment of triumph. The cross-country bug bit deep and this was one of my finest moments. I offered a small prayer to God and thanked Him wondrously. But He must have considerd me a true sinner, for at this moment I remembered I had forgotten to switch on the barograph.

(Bernard covered 74km and discovered later that he had switched on his barograph so was able to claim his Silver C.)

BOOK REVIEW

Instant Weather Forecasting by Alan Watts. Published by Adlard Coles Ltd, 1968, re-issued as a paperback, 1985, and priced at £3.95

This book was originally published nearly 20 years ago and has since been updated and re-issued in paperback. The book is in two sections. It starts with an explanation of how to use the book and goes on to provide a glossary of Met terms which the reader will meet later on.

The main part consists of 24 colour pictures of the sky, each one chosen to show signs of deteriorating, improving or unchanging weather. The reader is expected to find which picture best resembles the present sky and then look at the text on the opposite page to see if certain "Major Clues" are present. These clues are rather a mixed batch of items which are not necessarily visible in the picture but should be noticeable to anyone who has been out in the open and watching the sky for some time. If these clues are present then one reads the Major Inference, which provides a very brief summary of the weather, and the Explanation which covers various features of the picture.

Rather more than half the page is filled with a list of items which can be combined to produce a forecast. These are wind, visibility, precipitation, cloud, temperature and pressure. For each element there are columns for the trend, normal change (and how long it will take), what there is a risk of and finally a column headed "Possibly".

The reader has to observe quite a lot of details before arriving at an "instant forecast" which (the author hopes) should prove largely correct on 75% of occasions. This may be so since the columns for the normal change, the risk of something worse (or the possibility of it turning out rather better), combine to cover most kinds of weather.

Since there are only 24 pictures of rather mixed quality to scan through one cannot expect to find a good match for every occasion. The problem is increased because the direction of viewing and the way the clouds were moving is seldom mentioned. As a result one feels inclined to argue about the interpretation of several pictures and dispute the "instant forecast".

Does this little book offer value for money? For £3.95 you cannot really expect reliable instant forecasts but you do get a lot of condensed weather information based on years of practical experience. It is probably more suited to yachtsmen or people who keep their feet on the ground than to pilots but most readers will find useful features.

TOM BRADBURY

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RETRIEVING MARY

Or how to find a Granny glider pilot

This story is unusual in that it is *about* Mary, rather than *by* her. Every last detail is dutifully recorded, as Mary's readership has come to expect. Not *all* of the *dramatis personae* are actually named explicitly, however, owing to the number of threats reportedly received from potential litigants in the past.

The scenario is a promising but not wonderful day in early August, during which our Mary decides to have yet another crack at 300km - this time O/R Shobdon, in a Pegasus. She is of course flying from Booker, and so a mere 300km declaration does not at once arouse any surprise. Unknown to me, this particular Friday had been forecast by the sages as long ago as the previous weekend and so - adhering to the principles that a) walls have ears as far as good forecasts go, and b) some people will believe anything - the airfield was more than adequately populated at an early hour. Indeed it transpired that Mary herself had been the first and keenest pilot, arriving at 4am.

It allows her to slumber on having bagged the glider for the day

As an aside, I can reveal at this point that occupying the entire rear two-thirds of Mary's shooting-brake (where the tools, crates of beer etc *ought* to be) is a large mattress. Not, I hasten to add, for that purpose which the quick-witted and salacious will already suspect, but to allow Mary to slumber on after having bagged her glider for the day. So she claims. As a further aside, I can also reveal that sleeping in your car after bagging a glider **can damage your car,** owing to the fervour of the SAS-style alarm calls freely given by those other pilots who arrive just too late to get a single-seater. There are only ten single-seater gliders in the Booker fleet, and this meant that I (a habitual late riser) and one other sucker spent the day wedged into the Janus.

The soaring was, as always, good fun; and we meandered in the general direction of Shobdon well laden with sandwiches, beer, chocolate, etc - but sadly in possession of only half a map (owing to its impromptu use as a sick bag the week before!). The day duly clouded over, leaving Mary pressing on determinedly to make the furthest possible outlanding, and the Janus's crew struggling to get home, having undeterminedly decided to turn back near Pershore. I would like to say we reached Booker only after an epic struggle with steadily weakening thermals - but in fact we cruised home effortlessly under the overcast, courtesy of the excellent - if deafening - lawnmower engine so thoughtfully provided by Messrs Schempp-Hirth. Just as well it always starts, too - since a) the trailer had disappeared and b) the occupant of the rear seat (no names, no pack-drill) guiltily revealed himself to be Mary's crew as soon as he realised that we may in fact have had to land out.

By the time we reached Booker I had a suspicion of what was to follow, and sought to distance myself rapidly from the evolving "where's the trailer keys" situation. This suspicion strengthened when Mr No-names, No Pack-Drill began to look a bit lost, then made it clear that he'd never driven a trailer before, and finally added that he wasn't sure that he and Mary (strong lungs, weak arms) could cope with derigging her glider.



Mike, an aeronautical engineer, flies for fun at Booker and started gliding with the Air Cadets.

Without wishing to plug the Pegasus too hard (and, particularly, without wishing to go on this retrieve) I gave the opinion that a dog and a midget amputee could jointly derig a Pegasus in 90 seconds. Too late, and I felt that sinking feeling which (to cut a long story short) shortly saw me pulling out of Wycombe Air Park in Mary's car, destined for some unmarked-on-any-map spot in the Malverns.

It was already some hours since Mary had phoned in, and Mr NN, NP-D clearly felt some pangs of conscience as we rattled off westwards: the Malverns looked very dark and empty by 9.30pm however, and I demanded a full tank of petrol and beer and sandwiches before venturing into such obvious bandit country only to face Mary's anticipated wrath. Needless to say, it was consequently late before we got even to the general area - still hoping foolishly to find the glider before it got *really* dark.

Inquiries soon revealed that the place-not-marked-on-any-map was unknown, but there was a parish with a similar spelling some miles further on: or, rather, three such parishes. Did we want the Upper, the Lower or the Little? We tried the nearest of the three parishes (notice the repeated use of this word, folks, designed to give you the impression of wide open spaces with sparse habitation) and were told by a man - who later turned out to be a compulsive liar - that there were several farms of the name we sought in the Upper Village alone. The Upper Village, in the form of a mentally retarded drunk, duly denied this and sent us "down the valley" where there "might be..." etc. By now, however, I was warming to the scent: I've been on retrieves like this before. So, ignoring protestations along the lines of "but the man said..." I pressed on down the widening valley, confident of Mary's healthy fear of slopes. Having recently had a wizard prang myself in a small field, I now pride myself on a newly-acquired (and as yet largely untested) ability to nose out sheer acreage, and stuck to the "main" road, ignoring protestations such as "it wasn't more than a mile", "he said we couldn't miss it" and such drivel.

Peered at a large white item nailed to a gate

Suddenly we stopped (actually the brakes on Mary's car don't permit sudden stops; in truth we squealed to a halt and then backed up a bit) and peered at a large white item nailed to a gate. The name of the farm? Not quite, it was in fact a large arrow on a bit of cardboard, bearing the legend (in childish crayon script) "Granny glider pilot this way". A mile and a half, and about a dozen signs, later (at *every* turning, and a couple on the straight which just said "keep going, crew") we saw what turned out to be the last of a fleet of scratch-trained child cyclist bill-posters just stopping at a farmhouse which bore the legend "Glider pilot in here". We knocked - alert to the fact that we hadn't made good time, and ready for recriminations - and the farmer said "Good Lord, you're bang on time. I didn't believe her when she said you'd be here at 10.30!" I was amazed: we hadn't left Booker until at least three hours after she rang in, and we'd scarcely had a rapid trip. "Just what sort of retrieves have you been involved in, Mary?" I demanded, once we had prised her away from the remains of what turned out to be dinner, half a dozen kids and some assorted cats, dogs and hamsters.

Following a short - but nonetheless tricky - trip across seventeen fields, involving some of those interesting double-S shaped gates with a ditch on either side, we once again validated the concept of derigging a Pegasus in the dark with a minimal crew (Mary being usefully - and fully - employed during this by fishing stray children, dogs, hamsters etc out of the trailer). And we repaired in good heart to the farmhouse for a snack, only to discover that Mary had meanwhile negotiated the purchase of some kittens! Mercifully they proved too young to travel, and we hastened to clear off before Mary bought up any more of the farmer's livestock. Even so - just as we left - she had an ugly idea. "Say, Mike, if I flew the Super Cub into that field to pick up the kittens, would you come and help out?" I was aghast, but I kept a straight face and gravely replied that I thought the noise would be too much for young cats; perhaps the Robin . .? I knew she wasn't checked out for the Robin.

I don't know if the farmer ever took up Mary's offer of "a flip" - after all, he'd seen her ground-loop down a 1 in 5 slope...

This episode is essentially fictitious, and the characters bear only coincidental resemblance to any living person. The name, Mary Meagher, for the principal character was drawn at random from the Oxford telephone directory. (Mike, you're a coward! ED.)

A FULL CIRCLE

Lemmy and Alistair Forrest are claiming the first UK Diplomas with flights from Aboyne on January 1, and in this article he questions whether this new badge is the real answer in generating interest in cross-country flying

The recent introduction of the UK Cross-Country Diploma took many of us by surprise. (See the last issue, p34.) There had been no correspondence concerning the gap between Silver C and Gold C. The assumption is that there is not enough challenge between the Silver distance and the 300km Gold distance, and that 300km is difficult for those people with either limited time or no access to high performance gliders. There are actually two assumptions here; one is that a challenge is needed and the other that high performance gliders are not available to make a long flight. The BGA News suggested that acquisition of a Silver C often signalled the end of a cross-country career when it should mark the beginning.

This set me thinking as I was not convinced that these suppositions were true. It was time to look at the records and see what had happened over the last twenty or thirty years. There were one or two surprises. In searching through old *S&Gs* it was clear that the gliding movement had followed this path before. Ann Welch, in 1964, had described club operations as a "treadmill on which less than 5% of new members reached Silver C". The rest gave up before or soon after solo because of the frustration of trying to get airborne in too few gliders. The gap between C and Silver C was too great and the training was not effective enough to ensure that new members were guided through to Silver C.

Shortly after this the Bronze C was implemented. At about the same time there was correspondence from several people suggesting that the gap between Silver C and Gold C was too great and that there ought to be an intermediate badge. These proposals did not then meet with great enthusiasm and it was alleged that any private owner who did not have a Gold C must be a clot! There have also been a few voices from the wilderness crying about the near impossibility of achieving much with club gliders when the launch lists were oversubscribed.

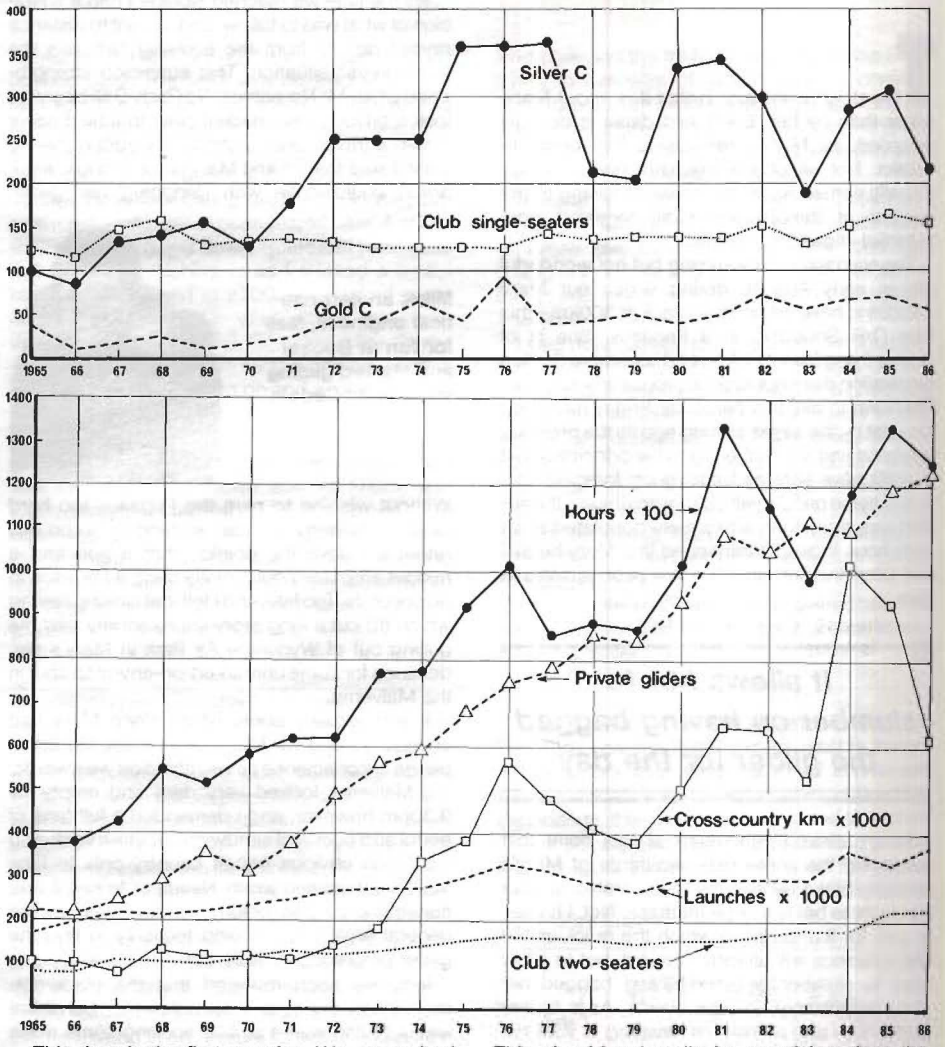
So, how have we been doing over the years?

In 1956 about 30 clubs operated 177 gliders which included just 31 two-seaters, 99000 launches produced 15 700hrs. This works out at 560 launches and 88hrs/glider. Of the 2300 members 69 achieved Silver C and three Gold C. Thus one club member out of 33 gained a Silver C.

Ten years later the number of clubs was 52 (reporting) operating 420 gliders by 5585 members. 200 000 launches achieved 38 000hrs giving 476 launches and 90hrs/glider. Silver C statistics are questionnable for 1966 but are in the region of one for every 50 members. Gold C were five.

Twenty years later (remember the summer of 1976?) some 70 clubs were operating 1030 gliders by 8500 members. 327 000 launches produced 106 000hrs or 317 launches and 102hrs/glider. Silver Cs were 360 and Gold Cs set a record of 97! (still unequalled). The Silver C club member ratio was 1:24.

Thirty years on in 1986, there are 82 clubs operating 1613 gliders by 8300 members. There were 349 000 launches and 124 000hrs, giving 216 launches and 77hrs/glider. Silver Cs were at 220 and Gold Cs 56. Silver C member ratio 1:37.



This then is the first surprise. We are as bad now at getting members to Silver C standard as we were thirty years ago, despite the tremendous increase in glider performance.

Significantly the ratio of Silver C to Gold C has improved over the years from 23:1 to about 4:1.

This latter improvement of achieved Gold Cs also shows up in the certificate issue numbers; in 1976 total Silver C issues were 4210 and Gold C issues 493 (8:1). In 1986 they were 7345 and 1171 respectively (6.2:1).

I draw the conclusion that more pilots are going on to Gold C from Silver C than ever before. This should not really be surprising since the number of privately owned gliders has risen by 800% in twenty years and the performance has also increased significantly.

Is there then a problem? The answer is definitely **YES!** Look at the number of Silver C issues. This has remained almost static over the last 15 years, at an average of 280/year. Every other statistic except two shows (by varying amounts) an increase.

This is the second surprise. The two that don't are club members and club single-seater gliders!

Thirty years ago there were about 100 club

single-seater gliders serving 2300 members. About 200 of these members were private owners which left the rest to share the 100 gliders. (I assume that there is an average of four pilots/private glider.) One club single-seater glider for every 21 members.

Twenty years ago there were 117 club single-seaters to serve 5500 members. Of these about 450 were private owners so the remaining 5050 had to share the 117 gliders. One glider for every 43 members.

Ten years ago on the same basis there were 5600 members sharing 130 gliders or 43 members/glider.

Today the ratio is slightly better for there are 160 single-seater gliders spread round 82 clubs, and the private owner population is still growing. Also since club membership is down over the last ten years the genuine club pilot is marginally better off than he or she was ten years ago at 26 members/glider. However, the ratio of single-seaters/club is down to two from a high point of 3.3 thirty years ago.

So, the third surprise is that we have a worse member glider ratio than we did thirty years ago. Is it any surprise then that members are not staying and Silver C numbers are static?

"What he or she needs is more single-seaters."

I very much fear that the introduction of a new badge is not going to improve the lot of the club pilot. What he or she needs is more single-seaters. What is also apparent from the comparison of hours flown with cross-country kilometres is that the two graphs are almost identical. It is arguably the increase in private gliders which accounts for this. Certainly the peaks show up the good soaring years!

If this is so then it is clear that the club glider is not being used for cross-country flying but for local soaring. It is my personal belief that this is indeed so, partly because demand for the glider prevents a pilot from going away for more than an hour at a time and partly because many of the pilots who are local soaring are quite content to do local soaring and no more. And why not? For many pilots, going away from the airfield is to local soaring what big game fishing is to dangling a line in the local pond! OK for some!

What is needed is a big increase in the number of club owned single-seater gliders that are cheap to purchase and operate and are good for local soaring. Perhaps the Sports Council could be persuaded to make a large loan to the BGA to finance the re-opening of a production line for about 30 or 40 club single-seater gliders, *eg* Sport Vega (or better K-8!) and for clubs to realise that they have a responsibility to provide the single-seater gliders for the members they take for training.

We have come full circle and are running harder and harder in order to stand still.

(The launches, hours, members and gliders are taken from civilian clubs only. Up to 1975 the Silver and Gold figures are civilian, after that date they are totals issued by the BGA.)

WILLIAM MALPAS

FRENCH COMPETIONS

How about flying in a French contest this summer? You have the choice of nearly 40.

I have been living in France for most of the last twenty years and I have noticed that while the number of visiting British glider pilots has increased several fold during the period, very few participate in French competitions. This is in marked contrast to visiting pilots from other European countries, notably Belgium, Holland, Germany and Switzerland, who have been competing in large and increasing numbers since the early days of the Angers and Vinon competitions.

It is worth asking the question "What are the attractions of French competitions?"

The attractions are threefold: they are of wide variety; on average the weather is better than in the UK and there is such a large number of competitions they are rarely over-subscribed - with the result that organisers are usually happy to accept foreign visitors.

Consider the number and variety during the 1987 season, which is typical of recent years:
Three Nationals (one for each Class).
Vinon Mountain Flying (four separate Classes).
Two International Comps (Issoudun and Bailleau, each in two Classes with about 50% foreign participation).
Fourteen Regionals.
Eight local competitions.
Trans-European (10th year).
Young pilots (for those under 25).
Vieux Criques (for those over 50).
Two-seater Championship (Poitiers).
Plaimont (one week in the Alps and one week in flat country).
European Club Class Championship.
Military competition.

That makes nearly forty competitions for a country which has about the same number of gliders as the UK!

And quality? I have participated, in one capacity or another, in nearly every type of competition listed above and I can vouch for the general excellence of organisation and last, but not least, the never-failing courteous welcome for foreign visitors. I am also pleased to report that French task-setters are gradually moving away from the treadmill of eternal speed triangles towards some of the popular alternatives that are now the vogue.

Apart from the Trans-European, in which my partner normally flies, my current favourites are the Plaimont and the Vieux Criques. The Plaimont is a very relaxed and friendly affair taking place during the last week of July and first week of August. The mountain week is confined to the lower valley of the Durance, where there is no shortage of airfields and landing areas. Its distinguishing characteristic is its itinerant nature, which means that its trappings are few. It is competitive without being fierce (if you are lost you can always find someone on the frequency who is prepared to help) and it is run by an absolute minimum of organisers, who also manage to fly the tasks. (Phototime camera is a "must".)

"Vieux Criques" is difficult to translate, because the French cannot agree among themselves as to what it means. One theory is that it means an old piece of furniture that creaks! Since we are all either over 50 years of age or have a gliding qualification for at least 25 years, some of us do creak a bit. However, the task-setter is a young man given to organising National Championships and he does not spare the whip. He sets tasks which he would also set for young pundits, but since they are not there to show up our deficiencies, we can take our time.

This year I was one of two foreign pilots and more would be very welcome. It takes place at Brienne le Chateau during the second half of August - very handy for the Channel ports and at a season when the surrounding countryside is one vast stubble field (sometimes with stubble fires for good measure). Camping on the airfield is excellent, champagne vineyards are nearby, and the ancient city of Troyes is just waiting to be explored.

If anyone is interested in flying a competition in France, I may be able to help. Write to me at Le Thoureil, 49350 Gennes, France, or telephone 41.57.94.73. If you prefer to write directly to the Federation Francaise de Vol a Voile, the address is FFVV, 29 Rue de Sevres, 75006 Paris.

TRANS-EUROPEAN 1988

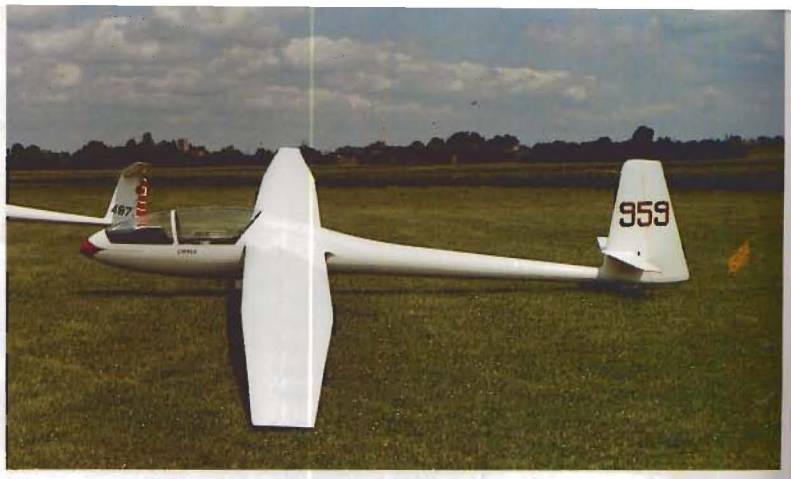
The Trans-European Rally is open to all pilots, French or otherwise, having experience of cross-country flying both over flat country and in mountains. It is a 2200km race across Europe. Pilots try to cover the longest possible distance each day exploiting to the full the meteorological conditions.

The circuit has not yet been finalised but Patrick Stouffs has offered to organise the departure on July 2 from St Hubert in Belgium. The first TP will be in the region of Salzburg, the second in the French Alps and the third in the Massif Central. The finish on July 1 will probably be near Paris.

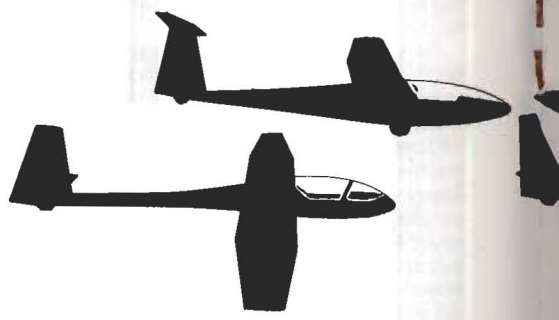
For further information and entry forms write to AVAT, 10 Ave de la Grande Gree, 49240 Avrille, France.



ASW-15



Cirrus



DEREK PIGGOTT

WHICH GLIDER?

Part 1

Some years ago Derek wrote a series wooden glider. Since then there have at the glass-fibre gliders suitable for t be published in the June issue.

I am often asked to give advice to pilots contemplating buying their first glider. Obviously the amount of money available is the main consideration for many people.

Should they buy a cheap low performance machine which they could afford by themselves, or should they form a syndicate with one or more other members?

A number of people I know have bought a Tutor, T-31 or similar machine and only later have realised its limitations. If they have already been flying K-13s and K-8s or better, they soon find that it becomes a bore to keep making circuit flights while their friends are up soaring most of the day. The occasional climb to 3000 or 4000ft, though exhilarating and something to boast about, is a freezing experience that soon tires. Most of these gliders spend almost all their days sitting in their trailers or at the back of the hangar.

Even if you are not interested in competitive flying there is no doubt that you will almost certainly find a share in a better machine more satisfying than owning a low performance glider by oneself.

If flying from a smaller rough site it's wise to own an older, slower machine for a season

Back in 1981 (June p120, August p160 and October p224), I wrote a "Which Glider" series on the older wood and metal gliders suitable for the average Bronze C pilot and there are still many of these types available at surprisingly low prices. Flying from a small or very rough gliding site I still consider it is a wise move to own one of those older and slower machines for a season or so before going for glass.

This time I am going to review the glass machines which I think are suitable for that standard of pilot. Of course they will cost more, but the pleasure of owning a share in a beautiful machine with much higher performance is undeniable.

If you haven't seriously considered private ownership you may not realise what a good investment a glider will be. History shows that their value is held or even increased year by year. Unfortunately a number of this class of glider get written off or badly damaged every season. This means that there is always a ready market for them and even after a few years you will not be landed with an unsaleable machine.

It is never a good idea to analyse the cost of your flying too accurately. But being realistic, unless your syndicate can use your machine for at least 100hrs a year, the cost/hr will be far higher than the cost of paying normal club fees for using a club glider. The attraction of private ownership is that you can always fly on those very few days when the conditions are good, and that you do not need to be at the gliding site at dawn to get your name on the list.

The major costs involved are the loss of interest on your capital, the insurance premium necessary to protect your investment and the cost of the annual C or A inspection. Insurance rates for a Bronze C pilot are likely to be about 8% of the value. The cost of the annual inspection for the C of A depends on the condition of the glider, but you could save a lot of money by helping with the inspection rather than having it all done professionally.

If you cannot afford the glider you really would like, it is always worth considering enrolling another syndicate member. If you choose carefully you might find someone who doesn't fly much, or who only wants to fly on days when you cannot get to the gliding site.

In suggesting that the average Bronze C stage of pilot should be able to manage these gliders without any serious problems I am assuming that they can get at least a few launches in a glass two-seater to become accustomed to the more critical speed control and lighter elevator forces of the modern machines. In any case you should always consult your CFI to see that he agrees with your choice.

I am not considering any of the flapped 15 metre gliders which might need a pilot of more experience to exploit their potential.

I have divided them into three categories:
The older glass-fibre machines.
Modern "Club" Class gliders.
High performance Standard Class gliders still in production.

PIK 20B



Astir CS

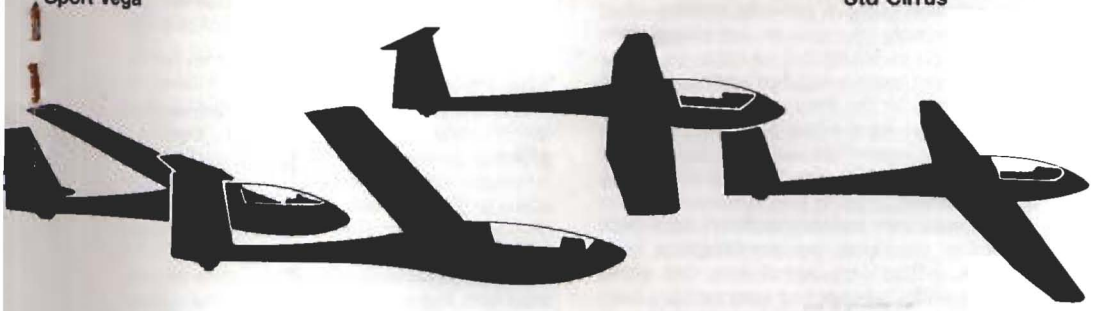




Sport Vega



Std Cirrus



ries of articles to help the relatively inexperienced pilot choose a ave been many requests from readers for him to take a similar look for the first time owner. This he does in three articles, the second to

The earlier glass-fibre machines I have chosen to review include the ASW-15, Open Cirrus, Std Cirrus, Club Libelle, Astir CS and Sport Vega. All of them were designed with large safety factors because of the then new materials. As a result they are all very strong and unlikely to suffer fatigue problems in the future. However, buyers should be super cautious about checking the surface finish and the cockpit limitations as most of these gliders are likely to be at least ten years old. Refinishing a glass machine is a very time consuming and expensive business.

I have also included notes on the Libelle and Phoebus C and PIK-20B which are, in my opinion, only suitable for pilots who have cross-country experience including a few field landings.



ASW-15

In good condition this has a very high performance, claimed 38:1 at about 50kt. It has quite powerful top and bottom surface airbrakes making it relatively easy for field landings. Unfortunately it has an almost unique problem of a definite swing on take-off caused by the offset tow hook. Particularly in a crosswind it is important to start the take-off run with full rudder and to have the wingtip runner on the downwind wingtip. The worst situation is aerotowing in a light, following crosswind from a hard surface or runway, with the crosswind helping the swing from the off set hook.

The tail skid offers little or no resistance to swinging and it is easy to swing badly or ground-loop. At other times it is no problem but on all modern machines with a forward main wheel, it is sensible to start the take-off run with the left hand on the release toggle so that the cable can be released if a wing drops. Compared with the glass two-seaters the aileron forces of the ASW-15 are incredibly light and seem to snatch slightly in rough air. The elevator is also light, but after one or two flights these features will not cause any difficulties.

Open Cirrus

This is a 17 metre machine with good handling, large cockpit and acceptable airbrakes. It is totally outclassed now as an Open Class machine as it has to compete with the Nimbus 3s. However, for Regionals it is competitive with an over 40:1 best gliding angle in good condition. Being a bigger span, the Cirrus does not have quite the rate of roll of a 15m glider, but it has good handling, is docile and is very suitable as a first glass machine.

Std Cirrus

Early versions of the Std Cirrus were rather under braked and might be a problem for early field landings. The later Cirrus 75 has an improved wing and better airbrakes and a few Std Cirrus have been modified to have a double area airbrake blade similar to the Pirat. This appears to be a very worthwhile modification as it improves the power of the airbrakes considerably.

The all moving stabiliser and spring trimming make it sensitive if not twitchy at higher speeds. With the C of G near the aft limit, inexperienced pilots may run into pitching problems, so to improve the stability the initial flights should be made with extra ballast in the cockpit to bring the C of G well forward. Pilots should be carefully briefed to avoid over-controlling, particularly just after take-off on aerotow.

In all other respects the Std Cirrus is a nice machine with good handling and stalling and a competitive performance. But it is only for the very competent Bronze C pilot and is perhaps a better second glass machine.

Hornet

The Hornet is a 15m Standard Class machine fitted with trailing edge airbrakes. For some reason it did not sell well in England but is very popular in Australia and many other countries. It has good handling and flying characteristics.

The trailing edge airbrakes are powerful enough but increase the lift slightly when they are opened. This makes the Hornet less forgiving than other types with normal airbrakes. Reducing the setting during the hold off to float a little further up the field can result in landing even shorter as the extra lift is lost by closing the airbrakes.

Apart from this it is a very nice glider with a good performance.

Club Libelle

The Club Libelle, like the Hornet, was made by Glassflügel, one of the finest manufacturers of glass-fibre machines.

Experience has shown that the Club Libelle is suitable for a first glass machine. Frankly I was

Std Libelle, Photos: Robert Bryce-Smith



surprised that it did not cause problems as beneath its docile stall is hidden a fairly pronounced wing drop which may have been the cause of several serious stalling accidents. With a claimed performance a believable 35:1, our Club Libelle has made many fine flights in the hands of our Imperial College pilots and, to my knowledge, has never been damaged by inexperienced pilots. However, like the Hornet, it has trailing edge airbrakes which increase the lift slightly making closing the airbrakes at low speed near the ground a "no, no."

Astir CS and variants

This is a well proven, easy to fly machine suitable for the average pilot. The earliest version has a larger cockpit than the pointed nose Astir 77 and very much better lateral handling. Why this is I am uncertain but they do seem to have a little more sweep back on the later ones and this may increase the lateral stability and so reduce the power of the ailerons. Fly before buy, I always say.

Production aircraft use a large number of alloy castings for the various fittings. In particular the main fuselage load carrying frame is a casting and these seem to break rather too easily in a heavy landing. If you are buying an Astir, get this frame checked for damage by a competent inspector before you hand over the money. Some of the early production machines had wooden main frames which are not so easily damaged.

Sport Vega

This was designed as a club version of the original flapped 15m Vega. Lateral control during the ground run was improved by reducing the ground incidence of the wing and the combined cruise flaps and airbrakes were replaced by a plain trailing edge airbrake.

The Sport Vega is the only glider with trailing edge airbrakes I have flown on which the airbrakes do not increase the lift or reduce the stalling speed slightly. This seemed ideal and it was after several years of intensive operating with a number of these aircraft that we came to the conclusion that the trailing edge airbrake is less forgiving than other type of brakes. If ballooning occurs during a hold off so that the glider is desperately short of flying speed, closing the airbrakes does little to help the situation. Whereas when a normal airbrake is closed the lift is increased reducing the stalling speed as well as reducing the drag, the trailing edge airbrake only reduces the drag.

So although giving a powerful braking effect on an approach, this type do not give such a safety margin in this kind of situation. Moreover making a spot landing requires additional skill to judge just how far the glider will float. With normal airbrakes, opening the final part of the airbrake results in an immediate sink and touchdown. With the trailing edge type it will go on floating some distance.

Early machines certainly suffered from poor inspection standards but modifications have turned it into a very acceptable first glass machine which is quick and easy to rig.

Now for some gliders which I would not recommend for inexperienced pilots.

Libelle

The beauty of the Libelle is the lightweight of the wings and the ease of rigging and derigging. Truly a "ladies' favourite". However, it is **not** for you unless you have already made a few field landings and are an above average pilot. An extra 5kt on the aproach and you will be in the far hedge or the next field. It also suffers a serious loss of performance and buffets badly unless it is flown accurately.

It is not so directionally stable as later machines and this makes the use of the rudder more critical than on most other types. It is essential to be able to sideslip quickly and accurately while using full airbrake on the final approach as it is inevitable that the occasional approach will end up a little high or fast.

In the air it is docile and pleasant to fly but the poor airbrakes make it unsuitable for any inexperienced pilot.

Tall pilots may be able to get in, but if you have broad shoulders this may not be a comfortable glider for you.

Phoebus C

The Phoebus C is another early 17m glass machine of slightly better peformance than the Open Cirrus. However, the airbrakes are very ineffective making it unsuitable for inexperienced pilots. The construction is largely of glass and Balsa wood and with ageing the Balsa tends to spoil the surface smoothness. The cockpit is also rather small.

The PIK-20B

This is a flapped 15m Standard Class machine which at first sight looks a good buy. Instead of airbrakes it uses a plain flap for approach control. Although these flaps are very effective their operation is different from normal airbrakes. This makes it likely that a pilot will instinctively make a wrong move with disastrous results.

I would never recommend any glider which is fitted with flaps only for approach control. Airbrakes are so much more forgiving and make approaches so much easier than flaps.

In the next issue I will comment on the Club Class 15m machines: The DG-100, ASK-23, Grob 102, SZD Junior and IS-29D Club.

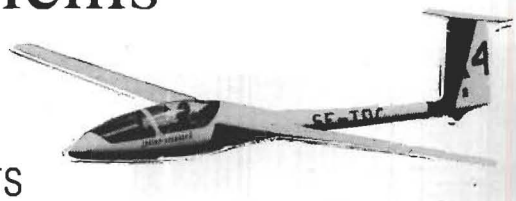
I try to fly at least one flight in every type of glider. However, there are still quite a number of 15m types which I have not yet flown and will not be able to comment on. For example, the DG-300, LS-6, Phoebus A&B and Speed Astir. ■

S&G CLASSICS

After the reprint of the article by Bill Crease in the first of the *S&G* Classics series, last issue, p20, several readers wanted to know if Bill is still gliding. But sadly he had to give up through arthritis.

Bill, who has retired to west Somerset, left the Clwyds in 1960 to become a lecturer in engineering, flew until 1973 at Lasham and some times Cambridge and is hoping that one day he will equal Doc Slater's record of being the oldest holder of an A certificate (No. 635, he thinks).

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USA

Simon Mackintosh writes about the Black Hills Soaring Association where a vintage aircraft plays a major part

Their field is an old Second World War training camp in South Dakota on the edge of the Black Hills. It is an all Schweizer fleet, two 2-33s, a 1-26 and a 1-34, with some privately owned Standard Class glass-fibre gliders and, unusually for an American club, a winch instead of a tug.

What makes the club particularly interesting is that their combined clubhouse, hangar and operations post is an old Douglas C24 Globemaster. This 1950s vintage aircraft was bought in the late 1960s by several members interested in aircraft preservation. They restored it in three years to flying condition and then fitted it out for club use.

At the beginning of each flying day the aircraft is taxied out to the downwind end of the active runway, parked facing into wind and the forward loading doors are opened. Their winch is a retrieve system and the retrieve cable is attached to the loading winch at the front of the cargo hold.

The club fleet is removed through the rear loading lift. The log keeper/signaller and retrieve winch operator occupy the pilot's and co-pilot's seat and they are ready to begin launching, often within 30min of the first person arriving.

The Globemaster is flown several times a year. Though it would obviously be impossible to aerotow behind such a monster, they can actually launch the 1-26 out of the cargo hold while airborne. They place the glider on the rear loading lift attached by a short cable to the tow hook, then lower the lift into the slipstream at which point the pilot pulls the release.

The first time, for some inexplicable reason, they launched the glider nose down. Launching tail first was more successful, though considered only suitable for experienced pilots. Nowadays it is rarely done during normal club operations due to the horrendous cost of the launch, but it is an integral part of the display the Globemaster puts on at several airshows each year.

The Globemaster makes a few low passes, climbs to 6000ft agl and launches the 1/26 which does an aerobatic display and lands. Then the aircraft follows up with a limited aerobatic display. Its flight engineer, who was once in a Boeing 707 that was looped over downtown Seattle, claims to be the only man alive to have drunk a bottle of beer while at the top of a loop in an ex-USAF four engined transport aircraft.

I must confess I have never seen this aircraft myself. The day I turned up it had been flown out to another field for its annual C of A which comes due on April 1 each year.

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By L. GLOVER senior inspector



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Red leather-cloth binders specially designed to take copies of the magazine and gold-blocked with the title on the spine are only available from the BGA.

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ANNUAL RECORDS

INTERNATIONAL GLIDING RECORDS (as at 4.2.88)

SINGLE-SEATERS

Height Gain	12 894m	P. F. Bikle, USA	SGS 1-23E	25.2.1961
Absolute Altitude	14 938m	R. R. Harris, USA	Grob- 102	17.2.1986
Straight Distance	1460.8km	H-W Grosse, W. Germany	ASW-12	25.4.1972
Goal Distance	1254.26km	B. L. Drake, D. N. Speight, S. H. Georgeson, New Zealand	Nimbus 2	14.1.1978
Goal & Return Distance	1646.68km	T. L. Knauff, USA	Nimbus 3	25.4.1983
Triangular Distance	1362.68km	T. L. Knauff (Nimbus 3), L. R. McMaster, J. C. Seymour K-H. Striedieck, (USA) (ASW-20B); R. L. Robertson, Gt Britain (in USA)	Ventus A	2.5.1986
100km Triangle	195.30km/h	I. Renner, Australia	Nimbus 3	14.12.1982
300km Triangle	169.49km/h	J. P. Castel, France (in South Africa)	Nimbus 3	15.11.1986
500km Triangle	164.11km/h	J. P. Castel, France (in South Africa)	Nimbus 3	10.12.1986
750km Triangle*	158.40km/h	H. W. Grosse, W. Germany (in Australia)	ASW-22	8.1.1985
1000km Triangle	145.32km/h	H-W. Grosse, W. Germany (in Australia)	ASW-17	3.1.1979
1250km Triangle	133.24km/h	H-W. Grosse, W. Germany) (in Australia)	ASW-17	9.12.1980

MULTI-SEATERS

Height Gain	11 680m	S. Josefczak and J. Tarczon, Poland	Bocian	5.11.1966
Absolute Altitude	13 489m	L. Edgar and H. Klieforth, USA	Pratt Read	19.3.1952
Straight Distance	993.76km	S. H. Georgeson and Helen Georgeson, New Zealand	Janus C	31.10.1982
Goal Distance	993.76km	S. H. Georgeson and Helen Georgeson, New Zealand	Janus C	31.10.1982
Goal & Return Distance	1052.74km	E. Müller and K. Senne, W. Germany (in Australia)	Janus C	26.12.1983
Triangular Distance	1379.35km	H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)	ASH 25	10.1.1987
100km Triangle	177.26km/h	E. Sommer and I. Andersen, W. Germany (in USA)	Janus C	26.7.1984
300km Triangle	158.47km/h	H-W. Grosse and W. Grosse, W. Germany (in Australia)	ASH 25	21.1.1987
500km Triangle	155.14km/h	H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)	ASH 25	9.1.1987
750km Triangle	141.80km/h	H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)	ASH 25	26.12.1986
1000km Triangle	129.54km/h	H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)	SB-10	21.12.1979
1250km Triangle	143.46km/h	H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)	ASH 25	10.1.1987

SINGLE-SEATERS (WOMEN)

Height Gain	9119m	Anne Burns, Gt Britain (in South Africa)	Skylark 3B	13.1.1961
Absolute Altitude	12 637m	Sabrina Jackintell, USA	Astir CS	14.2.1979
Straight Distance	949.7km	Karla Karel, Gt Britain (in Australia)	LS-3	20.1.1980
Goal Distance	748.37km	Joann Shaw, USA	Nimbus 2	17.8.1983
Goal & Return Distance	1126.68km	Doris Grove, USA	Nimbus 2	28.9.1981
Triangular Distance	847.27km	Joann Shaw, USA	Nimbus 2	5.8.1984
100km Triangle	139.45km/h	Susan Martin, Australia	LS-3	2.2.1979
300km Triangle	138.71km/h	Inge Müller, W. Germany (in SW Africa)	Ventus B	8.12.1984
500km Triangle	133.14km/h	Susan Martin, Australia	LS-3	29.1.1979
750km Triangle	110.53km/h	Pamela Hawkins, Gt Britain (in Australia)	ASW-17	17.11.1984

MULTI-SEATERS (WOMEN)

Height Gain	8430m	Adela Dankowska and M. Mateliska, Poland	Bocian	17.10.1967
Absolute Altitude	10 809m	Mary Nutt and H. Duncan, USA	SGS 2-32	5.3.1975
Straight Distance	864.85km	Tatiana Pavlova and L. Filomechkina, USSR	Blanik	3.6.1967
Goal Distance	864.86km	Isabella Gorokhova and Z. Koslova, USSR	Blanik	3.6.1967
Goal & Return Distance	649.63km	Tamara Sviridova and V. Toporova, USSR	LAK 12DP	24.5.1986
100km Triangle	126.28km/h	Adela Dankowska and E. Grzelak, Poland	Halny	1.8.1978
300km Triangle	123.33km/h	Inge Müller and C Müller, W. Germany (in SW Africa)	Janus C	7.12.1984
500km Triangle	95.72km/h	Daina Vilne and V. Toporova, USSR	LAK 12DP	16.5.1986

BRITISH NATIONAL RECORDS (as at 4.2.88)

SINGLE-SEATERS

Height Gain	10 965m	D. Benton	Nimbus 2	18.4.1980
Absolute Altitude	11 500m	H. C. N. Goodhart (in USA)	SGS 1-23	12.5.1955
Straight Distance	949.7km	Karla Karel (in Australia)	LS-3	20.1.1980
Goal Distance	859.20km	M. T. A. Sands (in USA)	Nimbus 3	23.4.1986
Goal & Return Distance	1127.68km	M. T. A. Sands (in USA)	Nimbus 3	7.5.1985
Triangular Distance	1362.68km	R. L. Robertson (in USA)	Ventus A	2.5.1986
300km Goal and Return	153.3km/h	M. T. A. Sands (in USA)	Kestrel 19	10.5.1983
500km Goal and Return	152.7km/h	M. R. Carlton (in South Africa)	ASW-17	24.12.1980
1000km Goal and Return	105.79km/h	M. T. A. Sands (in USA)	Nimbus 3	7.5.1985
100km Triangle	143.3km/h	E. P. Hodge (in Rhodesia)	Std Cirrus	30.10.1976
300km Triangle	146.8km/h	E. Pearson (in South Africa)	Nimbus 2	30.11.1976
500km Triangle	141.3km/h	B. J. G. Pearson (in South Africa)	ASW-20	28.12.1982
750km Triangle	109.8km/h	M. R. Carlton (in South Africa)	Kestrel 19	5.1.1975
1250km Triangle	109.01km/h	R. L. Robertson (in USA)	Ventus A	2.5.1986

MULTI-SEATERS

Height Gain	9836m	T. J. Wills and B. Iggulden (in New Zealand)	Twin Astir	13.1.1982
Absolute Height	10 607m	T. J. Wills and B. Iggulden (in New Zealand)	Twin Astir	13.1.1982
Straight Distance	472.43km	M. R. Carlton and M. French (in South Africa)	Calif A-21	18.12.1979
Goal Distance	472.43km	M. R. Carlton and M. French (in South Africa)	Calif A-21	18.12.1979
Goal & Return Distance	692.02km	M. R. Carlton and C. Greaves (in South Africa)	Calif A-21	23.12.1978
Triangular Distance	825km	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	7.2.1987
300km Goal and Return	118.75km/h	B. T. Spreckley and Gillian Spreckley (in Australia)	Nimbus 3DT	5.2.1987
500km Goal and Return	113.08km/h	M. R. Carlton and C. Greaves (in South Africa)	Calif A-21	23.12.1978
100km Triangle	137.22km/h	M. R. Carlton and Leonie Lawson (in South Africa)	Calif A-21	27.12.1978
300km Triangle	138.37km/h	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	6.2.1987
500km Triangle	108km/h	M. R. Carlton and C. Greaves (in South Africa)	Calif A-21	21.12.1978
750km Triangle	114.18km/h	B. T. Spreckley and P. Jones (in Australia)	Nimbus 3DT	7.2.1987

SINGLE-SEATERS (WOMEN)

Height Gain	9119m	Anne Burns (in South Africa)	Skylark 3B	13.1.1961
Absolute Altitude	10 550m	Anne Burns (in South Africa)	Skylark 3B	13.1.1961
Straight Distance	949.7km	Karla Karel (in Australia)	LS-3	20.1.1980
Goal Distance	528km	Ann Welch (in Poland)	Jaskolka	20.6.1961
Goal & Return Distance	545km	Anne Burns (in South Africa)	Std Austria	6.1.1966
Triangular Distance	814.01km	Karla Karel (in Australia)	LS-3	9.1.1980
300km Goal and Return	107.5km/h	Karla Karel (in South Africa)	ASW-15B	1.1.1975
500km Goal and Return	102.6km/h	Karla Karel (in Rhodesia)	ASW-15B	16.10.1975
100km Triangle	110.8km/h	Karla Karel (in Rhodesia)	ASW-15B	2.11.1975
300km Triangle	125.87km/h	Karla Karel (in Australia)	LS-3	12.2.1980
500km Triangle	120.69km/h	Karla Karel (in Australia)	LS-3	20.2.1980
750km Triangle	110.53km/h	Pamela Hawkins (in Australia)	ASW-17	17.11.1984

* Subject to homologation

UNITED KINGDOM RECORDS (as at 4.2.88)

SINGLE-SEATERS

Height Gain	10 065m	D. Benton	Nimbus 2	18.4.1980
Absolute Altitude	11 031m	D. Benton	Nimbus 2	18.4.1980
Straight Distance	827.9km	T. J. Wills	LS-6	29.5.1986
Goal Distance	579.36km	H. C. N. Goodhart	Skylark 3	10.5.1959
Goal & Return Distance	801.3km	C. Garton	Kestrel 19	22.7.1976
Triangular Distance	770.5km	C. C. Rollings	Jantar 2A	28.5.1985
300km Goal & Return	114.5km/h	D. S. Watt	ASW-22	18.8.1983
500km Goal & Return	93km/h	M. B. Jefferyes	DG-202	12.5.1984
100km Triangle	123.2km/h	R. Jones	Nimbus 3	13.8.1983
200km Triangle	108.6km/h	R. Jones	Nimbus 3	14.8.1983
300km Triangle	117.14km/h	R. Jones	Nimbus 3	28.5.1985
400km Triangle	114.3km/h	R. Jones	Nimbus 3	1.8.1984
500km Triangle	106.9km/h	R. Jones	Nimbus 3	31.5.1975
600km Triangle	88.8km/h	C. Garton	Kestrel 19	10.6.1976
750km Triangle	77.98km/h	C. C. Rollings	Jantar 2A	28.5.1985
100km Goal	150km/h	T. J. Wills	LS-4	12.5.1984
200km Goal	127.1km/h	A. H. Warminger	Vega	12.5.1984
300km Goal	132.8km/h	A. H. Warminger	Kestrel 19	24.4.1976
400km Goal	73.8km/h	T. J. Wills	Std Libelle	7.6.1976
500km Goal	90.7km/h	H. C. N. Goodhart	Skylark 3	10.5.1959

15m CLASS

Straight Distance	827.9km	T. J. Wills	LS-6	29.5.1986
500km Goal & Return	79.1km/h	J. D. Benoist	ASW-20	9.4.1983
100km Triangle	119.7km/h	T. H. Wiils	LS-4	18.4.1981
200km Triangle	104.34km/h	T. J. Wills	LS-6	31.8.1986
300km Triangle	105.99km/h	A. J. Davis	Discus	5.8.1987
400km Triangle	95.88km/h	D. S. Watt	ASW-20FL	29.5.1985
500km Triangle	90.18km/h	D. S. Watt	ASW-20B	16.5.1986
200km Goal	127.1km/h	A. H. Warminger	Vega	12.5.1984

STANDARD CLASS

Straight Distance	718km	T. J. Wills	Std Libelle	1.8.1976
100km Triangle	119.7km/h	T. J. Wills	LS-4	18.4.1981
200km Triangle	104.87km/h	D. R. Campbell	Discus B	9.9.1986
300km Triangle	105.99km/h	A. J. Davis	Discus	5.8.1987
400km Triangle	91.7km/h	S. J. Redman	Std Cirrus	31.5.1975
100km Goal	150km/h	T. J. Wills	LS-4	12.5.1984
300km Goal	131.1km/h	T. J. Wills	Std Libelle	24.4.1976
400km Goal	73.8km/h	T. J. Wills	Std Libelle	7.6.1976

UK 750km DIPLOMA

1. Goal & Return	801.3km	C. Garton	Kestrel 19	22.7.1976
2. Distance	761km	D. S. Watt	ASW-20L	9.5.1980
3. Triangular Distance	770.5km	C. C. Rollings	Jantar 2A	28.5.1985
4. Distance	827.9km	T. J. Wills	LS-6	29.5.86

MULTI-SEATERS

Height Gain	7985m	M. B. Jefferyes and L. Sommersell	Silene	30.9.1987
Absolute Altitude	9009m	M. B. Jefferyes and L. Sommersell	Silene	30.9.1987
Straight Distance	421.5km	J. S. Fielden and Valerie Fielden	Bergfalke 3	14.8.1970
Goal Distance	421.5km	J. S. Fielden and Valerie Fielden	Bergfalke 3	14.8.1970
Goal & Return Distance	429.6km	M. B. Jeffereys and P. McElarney	Silene	7.7.1985
300km Goal & Return	81.91km/h	J. R. Jeffries and N. Foster	Calif A-21	17.8.1975
100km Triangle	106.25km/h	J. R. Jeffries and N. Foster	Calif A-21	17.8.1975
100km Triangle	106.25km/h	J. Edyvean and R. J. Crouch	Janus C	9.91986
200km Triangle	96.5km/h	R. Jones and M. Hackett	Janus C	10.8.1984
300km Triangle	85.87km/h	B. Fitchett and A. Miller	Janus	9.5.1979
400km Triangle	86.6km/h	D. S. Watt and I. Hargrove	Janus C	1.8.1984
500km Triangle	88.4km/h	J. R. Jeffries and Gillian Case	Calif A-21	31.5.1975
100km Goal	120.87km/h	M. B. Jefferyes and J. Fricker	Silene	27.7.1986
200km Goal	113.3km/h	R. Miller and B. Tapson	Janus C	11.5.1984
300km Goal	107.4km/h	P. R. Pentecost and A. H. Pentecost	Janus C	7.5.1984

SINGLE-SEATERS (WOMEN)

Height Gain	7833m	Alison Jordan	Astir CS	8.10.1978
Absolute Altitude	8701m	Alison Jordan	Astir CS	8.10.1978
Straight Distance	454km	Anne Burns	Skylark 3B	10.5.1959
Goal Distance	309km	Anne Burns	Skylark 3B	12.4.1958
Goal & Return Distance	334.2km	Ruth Housden	Libelle	29.5.1982
300km Goal & Return	60km/h	Anne Burns	Nimbus 2	25.7.1975
100km Triangle	80km/h	Anne Burns	Cirrus	14.6.1970
200km Triangle	69.3km/h	Anne Burns	Std Austria	22.8.1964
300km Triangle	76.8km/h	Jane Randle	Kestrel 19	18.8.1976
400km Triangle	60.6km/h	Anne Burns	SHK	5.8.1967
500km Triangle	76.1km/h	Anne Burns	Nimbus 2	31.5.1975
100km Goal	89.3km/h	Vivien Haley	Pirat	4.5.1986
200km Goal	85.5km/h	Anne Burns	Olympia 419	2.6.1963
300km Goal	63.9km/h	Anne Burns	Skylark 3B	12.4.1958

MOTOR GLIDERS (+Also British National Record; †British National Record only)

SINGLE-SEATERS

Straight Distance†	652.7km	B. J. Wilson (in Australia)	PIK-20E	10.1.1983
Goal Distance†	415.1km	B. J. Wilson (in Australia)	PIK-20E	11.1.1983
Goal & Return Distance†	510.45km	T. J. Wills (in Norway)	DG-400	6.7.1986
100km Triangle+	76.5km/h	I. W. Strachan	PIK-20E	11.8.1984
200km Triangle	48.2km/h	I. W. Strachan	SF-27M	23.8.1976
300km Triangle+	83.1km/h	I. W. Strachan	PIK-20E	19.8.1984
500km Triangle†	71.75km/h	B. J. Wilson (in Finland)	PIK-20E	22.5.1980
100km Goal	85.7km/h	I. W. Strachan	SF-27m	16.7.1971
500km Goal & Return	93.09km/h	T. J. Wills (in Norway)	DG-400	6.7.1986

MULTI-SEATERS (†Also BRITISH NATIONAL RECORD)

Height Gain†	4355m	R. I. Lloyd and J. Fox	SF-28A	22.10.1982
100km Triangle†	35.6km/h	P. T. Ross and H. Daniels	SF-28A	27.6.1976
100km Goal	76.2km/h	P. T. Ross and K. Winfield	SF-28A	22.8.1976
200km Goal	66.3km/h	P. T. Ross and P. Fletcher	SF-28A	18.7.1976
500km Triangle	78.45km/h	B. T. Spreckley and O. Pugh	Janus CM	16.5.1986

INTERNATIONAL MOTOR GLIDERS (as at 4.2.88)

SINGLE-SEATERS

Height Gain	9935m	M. D. Stevenson, USA	DG-400	25.10.1985
Absolute Altitude	10 408m	G. Cichon, W. Germany	Nimbus 2M	27.5.1979
Straight Distance	663.68km	D. Aitken, USA	??	25.6.1987
Goal Distance	655.07km	F. F. Ott, W. Germany (in USA)	PIK 20E	8.5.1987
Goal & Return Distance	1008.89km	F. Rueb, W. Germany (in South Africa)	Nimbus 2M	7.1.1981
Triangular Distance	1089.98km	F. Rueb, W. Germany (in South Africa)	Nimbus 3MR	16.1.1987
100km Triangle	170.8km/h	F. Rueb W. Germany (in South Africa)	Nimbus 3MR	3.1.1987
300km Triangle	165.51km/h	B. Bünzli, Switzerland (in South Africa)	DG-400	22.12.1984
500km Triangle	158.82km/h	F. Rueb, W. Germany (in South Africa)	Nimbus 3MR	9.1.1987
750km Triangle*	162.29km/h	B. Bünzli, Switzerland (in South Africa)	DG-400	12.12.1985
1000km Triangle	139.96km/h	B. Bünzli, Switzerland (in South Africa)	DG-400	28.12.1984

MULTI-SEATERS

Height Gain*	5650m	H. Köhler, W. Germany and J-C. Batault (in USA)	Taifun 17E	28.4.1986
Absolute Altitude*	8000m	H. Köhler, W. Germany and J-C. Batault (in USA)	Taifun 17E	28.4.1986
Straight Distance	952.53km	W. Binder and K. Heimann, W. Germany	Janus M	16.5.1980
Goal Distance	646.42km	G. Jacobs and G. Hüttel, W. Germany	SF-25E	28.4.1976
Goal & Return Distance	617.95km	L. de Preter (Belgium) and D. Sohn (W. Germany) (in South Africa)	Janus CM	29.12.1981
Triangular Distance	1095.69km	E. Müller and W. Binder, W. Germany (in Australia)	ASH 25M	27.12.1986
100km Triangle	135.51km/h	W. Binder and M. Heide, W. Germany (in Spain)	ASH 25MB	13.7.1986
300km Triangle	152.53km/h	W. Binder and K. Senne, W. Germany (in Australia)	ASH 25MB	2.1.1987
500km Triangle	140.95km/h	E. Müller and K. Senne, W. Germany (in Australia)	ASH 25MB	9.1.1987
750km Triangle	119.83km/h	W. Binder and M. Heide, W. Germany (in Spain)	ASH 25MB	11.7.1986
1000km Triangle	129.98km/h	E. Müller and W. Binder, W. Germany (in Australia)	ASH 25MB	27.12.1986

* Subject to homologation

New records have to exceed the old ones by: Distance 10km. Heights 3%. Closed circuit speeds 2km/h. Goal speeds 5km/h.

For records, no side of a triangle may have a length less than 28% of the total distance of the course, except that for triangles of 750km or more for International and British Records, or of 500km or more for UK Local Records, no side may have a length less than 25% or greater than 45% of the total distance.

Conversion Factors: Multiply km or km/h by 0.621 to get statute miles or mph. Multiply km by 0.54 to get nautical miles or kts. Multiply metres by 3.28 to get feet.

(See also p90.)

BGA NATIONAL COACH

It is possible that the BGA may need to employ a National Coach. If you haven't already applied and would like to, then please do so immediately to the BGA office.

BRITISH OWNED GLIDERS

The following is the current list kept by Dick Stratton, BGA technical officer, of the 1645 British gliders with Cs of A.

ASW-15	11	8B	61
17	4	13	56
19	19	18	11
20	51	18X (DIY)	1
20BL	2	21	13
22	4	23	6
Acro (Twin G103A)	1	Kestrel 17	4
Astir CS	55	19	59
Club 3	4	20	1
Speed	3	22	2
Twin	12	KH-1 (Holmes)	1
Bergfalke 2	6	Kite 1	2
3	1	2	2
4	2	(King)	1
BG-135	2	Kranich	2
Blanik L-13	38	L-Spatz	11
Bocian ID	5	Libelle Club	5
IE	13	Std	49
Cadet 2 (Tutor)	2	LS-3	10
3 (Tandem Tutor)	13	4	25
Calif A-21	1	6	3
Capstan (T-49)	16	M-100-5	6
Carman (JP-15-36)	2	200	3
Centrair 101 (Pegasus)	19	Minimoa	3
Cirrus	12	Monerai	1
Std	36	Mosquito	21
Cobra (SZD 36)	12	(Glasflügel 304)	2
Condor (Manuel)	1	Moswey	4
Dart 15	13	MU 13D	2
17R	29	Nimbus 2	24
DG-100	14	2B	3
101	14	3	8
200	9	3T	2
202-17	4	Mini (15m)	13
300	6	Olympia 1	8
Diamant 18	4	2 and 2B	37
Discus	7	401	1
B	1	419	3
EON Baby	2	460 & 463	36
Falcon 3	1	465	1
Fauvel	1	(Meise)	1
Fauvette	6	Petrel	1
Foka 4	3	Phoebus C	6
5	1	PIK 20B	8
Gnat (Manuel)	1	20D	14
Goevier	1	Pilatus B-4	29
Grasshopper (T-38)	1	Pirat (SZD-30)	42
Grunau Baby 2B & C	7	Prefect	8
3	1	Primary (SG-38)	1
Gull 1	1	Puchacz (SZD 50-3)	4
Harbinger	1	Rheinland	1
Hornet	2	Rhönbussard	2
Hütter (H17)	1	Rhönsperber	1
Iris (D-77)	1	Sagitta	1
IS-28B2	7	SB-5B	1
29D	9	SB-5E	1
30	2	Schneider (SG-38)	1
32	1	Scud 3	1
Jantar	6	SF-26A	3
2	3	27A	4
2B	1	34	2
Std	8	SHK-1	15
Janus B	1	SIE-3	3
C	2	Silene	1
Jaskolka	2	Sky	3
Javelot (Super)	1	Skylark 1	1
2 (Super)	1	2	27
K-2 & 2B (Rhönschwalbe)	14	3	32
3	2	4	32
4 (Rhönlerche)	4	Specht 138	1
6	1	Std Austria	3
6CR	68	Swallow	30
6E	53	SZD-51 (Junior)	2
7	52	T-21	54
42 (Eagle 2 & 3)	4	Wassmer (Bijave)	2
53 & TS-53	4	26P	1
55 (Regal)	1	Weihe	2
Vasama	1	YS-55 (Consort)	3
Vega	51	Zugvogel	3
Ventus	17		

BGA ACCIDENT SUMMARY –

Compiled by JOHN SHIPLEY, Chairman, BGA Safety Panel

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew Age	Pilot/Crew Injury	Pilot/Crew PI/Hrs	Summary
PHASE OF FLIGHT - OFF CIRCUIT (Includes field landings)									
138	Astir CS	2200	M	6.9.87 1330	Dallachy	40	N	60	On a closed circuit cross-country flight the pilot found that he was unable to return to the site. A field was selected and a landing directly into a strong wind was attempted. The approach was made at 50-55kt with half airbrake until just before landing when full airbrake was extended causing a hard landing on the mainwheel which cracked the main bulkhead.
142	Blanik	2172	S	9.8.87 1810	Marton-Le-Moor	53	N	8	The pilot attempted to soar in weak lift and drifted downwind of the field. He decided to return to the site but, in sink, he found the headwind was too strong and chose a field. It appeared that he might hit the downwind fence so he decided to land short in a corn field which damaged the glider.
147	Pirat	1552	WO	5.9.87 1500	Sheffield	29	M	59	On a Silver distance attempt the pilot had to land. A field was selected but he could not reach it due to 8-10kt sink. A landing was made in another field but this was unsuitable and the glider crashed in a small quarry, wrecking the forward fuselage. Conditions were not suitable for this flight, but was cleared by instructor in charge.
149	Pegasus		M	30.9.87 1400	Dakley	45	N	100	On a short cross-country the thermals started to decay. It was decided to land in a stubble area of a nearby airfield. He landed normally, slightly out of wind due to heavy vehicles, but during the landing run the u/c collapsed. The area was crossed by 6in ruts caused by vehicles. Some sign of fatigue damage to u/c reported.
PHASE OF FLIGHT - ON APPROACH									
140	Kestrel	1797	S	6.9.87 1527	Aboyne	43	N	86	After a wave flight the pilot went too far downwind on his base leg and, realising that he was undershooting, put landing flap away and increased speed. He misjudged his pull up over some trees and was not able to reach the strip but hit the slope leading up to it. Poor height judgment may have been due to time spent at altitude.
141	K-13		M	19.8.87 2025	Carlton	58	N	1620	PI reports that his pupil was slow in completing the final turn and the landing had to be made slightly downhill. The glider over ran into rough ground damaging the trailing edge of the left wing. (Note the time of the flight Ed).
					P2	25	N	+190pwr -	
146	Kestrel 19	1857	S	19.9.87 1100	Aboyne	42	N	595	On base leg the pilot found the wind to be stronger than thought, so had to angle the leg towards the airfield. Arriving low but fast over the strip he selected flap during his final turn. During this he allowed the left wingtip to hit the ground and the glider was spun around 60° before dropping level on to the ground breaking the fuselage.
150	K-7	3281	M	14.8.87 1700	Nympsfield	32	N	16.5	After an hour flight the pilot returned to find that the wind had veered increased turbulence. After a good circuit he encountered heavy turbulence and wind gradient on finals and did not reduce airbrake sufficiently to prevent a hard, nose skid first landing. The glider balloon back up to 20ft and was then landed normally.

S = serious; W/O = write off; M= minor; N = nil.

YOUTH IN THE AIR YEAR

The Royal Aero Club launched Youth in the Air Year at the Royal Aeronautical Society in February when their president, HRH The Duke of York, announced that 14 to 21 year-olds could compete for a new award, the President's Rolex trophy, and prizes.

The Duke explained that the idea for the trophy really came about because he noticed it was usually the older people who won aviation awards and felt there should be something to encourage the young to become air minded. HRH also showed concern about the current shortage of airline pilots. A point he discussed later when he met members of the aviation press.

Youngsters are asked for ideas and initiatives to further their own or other people's involvement in air awareness and this could be any air related activity from aeromodelling to flying. Prince Andrew has promised to watch the scheme's progress. Entries, which may be from groups or individuals, must be in by January 1989 and this is to become an annual award.

Youth in the Air Year is being supported by more than 40 air-associated groups, clubs and associations and as well as working for the award young people will be encouraged to take part in air activities and helped in finding career opportunities in aviation.

BABY WINDSOCKS

Alice Anson, whose husband Colin flies at Dunstable, has been making miniature windsocks for the Vintage Glider Club which have been so well received she is offering

them to the general gliding fraternity with profits to the VGC. They are extremely realistic, look great on cars, caravans, awnings, tents and, of course, glider trailers.

In orange, they are approx 16cm long, ready for hanging and cost £1 including p&p (Europe £1.50, USA £1.75) from Alice Anson, 22 Elm Avenue, Watford, Herts WD1 4BE.

AIR LEAGUE SCHOLARSHIPS

If you are over 17 and under 22 and like the idea of power flying you may be interested in applying for an Air League Educational Trust Flying Scholarship which gives 15hrs instruction. For more details and an application form, which must be returned by July 29, write to the Secretary, The Air League Education Trust, Grey Tiles, Kingston Hill, Kingston-upon-Thames, KT2 7LW.

NEW EQUIPMENT

New on the market is an air mobile transceiver manufactured by Sky Hawk Systems. It took 18 months to develop the Sky Hawk I single channel 2w nominal output transceiver which is housed in an ABS shatterproof case. It comes complete with an integral speaker and hand held microphone. An 8ohm ear socket allows the unit to be tucked away out of sight and the boom mic and headphones with VOX give a complete hands off operation.

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This spring sees the launch of a multi channel version of the single channel unit with auto squelch.

The single channel set is £167 plus p&p. More details from Alec Janaway, Sky Hawk Systems, 10 Laburnum Road, Wellington TA21 8EL. Tel 082347 4109.

GLIDING CERTIFICATES

The new UK Cross-Country Diploma came into operation on January 1 and before noon on that very day Alistair Forrest of Deeside GC had qualified for both parts! He completed a 105km triangle from Aboyne in the BGA's ASW-19 at a handicapped speed of 76km/h. Alistair doesn't yet have Gold distance, and his achievement epitomises the spirit and objectives of the Diploma. Lemmy Tanner, who does have all three Diamonds, took off shortly afterwards at Aboyne in his Vega to complete a different triangle and became the second Diploma holder. (See the last issue, p51.)

A new edition of the **BGA Notes for Official Observers** will be published in April, and commensurate with this OOs will be invited to re-register with the BGA. Detailed arrangements will be mailed shortly to all clubs and OOs individually. Please respond promptly to ensure your continuation as an OO.
Gordon Camp, *FAI certificates officer*

ALL THREE DIAMONDS

No.	*Name*	*Club*	*1987*
240	Roberts, D. G.	Cotswold	25.10
241	Langrick, D. J.	Coventry	20.12

DIAMOND GOAL

No.	*Name*	*Club*	*1987*
2/1560	Williamson, C. G.	Derby & Lancs	5.8
2/1561	Greensmith, A. R.	Fulmar	6.8

DIAMOND HEIGHT

No.	*Name*	*Club*	*1987*
3/830	Roberts, D. G.	Cotswold	25.10
3/831	McQueen, B.	Deeside	21.11
3/832	Langrick, D. J.	Coventry	20.12

(The first two Diamonds were flown from Aboyne, the third from Dishforth.)

GOLD BADGE

No.	*Name*	*Club*	*1987*
1241	Clarke, C. J.	Cotswold	25.10
1242	Barker, K. D.	Bristol & Glos	28.10
1243	Greensmith, A. R.	Fulmar	6.8

GOLD HEIGHT

Name	*Club*	*1987*
Thomson, R. D.	Avon	26.9
Reasbeck, P.	Booker	9.10
Clarke, C. J.	Cotswold	25.10
Gardner, T. R.	Cotswold	28.10
Barker, K. D.	Bristol & Glos	28.10
Caswell, T. J.	Shropshire	20.11
Paterson, I. W.	SGU	21.11
Royds, L. J.	Midland	20.11
Scott, K.	Welland	20.12

GOLD DISTANCE

Name	*Club*	*1987*
Williamson, C. G.	Derby & Lancs	5.8
Greensmith, A. R.	Fulmar	6.8

SILVER BADGE

No.	*Name*	*Club*	*1987*
7616	Hale, R. J.	Portsmouth Naval	8.10
7617	Jobar, R. S.	Lasham	13.7
7618	Baker, I. C.	Cambridge Univ	21.11
7619	Docherty, J. C.	Midland	13.9

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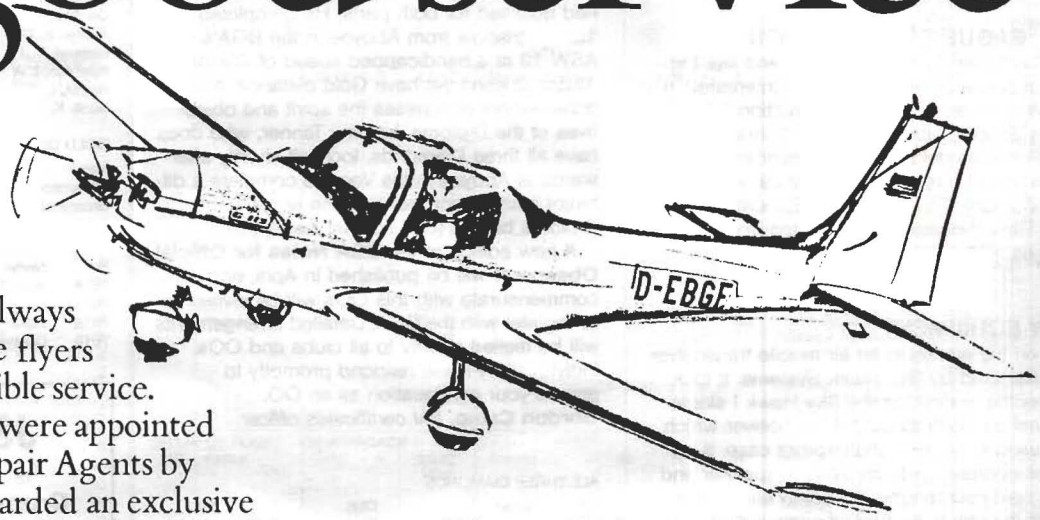
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AIRSPACE CHANGES

Chris, chairman of the BGA Airspace Committee, writes about the rules relating to gliders crossing airways

All gliding clubs were sent a copy of NOTAM A803 during December with an instruction to publish it among their members. This concerns changes in the rules relating to gliders crossing airways, and since, it is essential that all pilots understand the new legislation, it is repeated below.

The exemption published in the *UK Air Pilot* permitting glider crossings of all airways has been withdrawn and superseded by a new Rule 21A which has been added to the Rules of the Air and Air Traffic Control Regulations. Rule 21A permits gliders to cross specified airways only, excluding Purple Airways. The map accompanying the NOTAM shows the crossable airways and the maximum heights at which they may be crossed. Note especially that glider crossings of Daventry and Worthing CTAs are no longer permitted.

The new Rule also specifies the manner of crossing, as follows:

(a) The crossing is to be carried out in the most expeditious manner and, as far as is practicable, at right angles to the airway centreline.

(b) The crossing must be carried out in VMC, by day.

(Above FL245 the whole of the country is covered by the Upper Air Space Special Rules Area – Rule 39 – and gliders are exempted from the provisions of this Rule).

Background

The airways crossing exemption for gliders has been under attack from the airlines since it was first introduced some thirty years ago. Although such "mixed" airspace use has been withdrawn in some areas (*eg* the London TMA up to 5000ft was accessible to gliders until 1975), our airways crossing exemption remained unscathed despite continually rising traffic levels. During all that time there were very few reports by airline crews of glider sightings in airways and no serious incidents.

In 1979 NATS adopted a new tack. The CAA legal department had advised that the existing exemption, consisting solely of an entry in the **UK Air Pilot,** was without statutory backing. The BGA challenged this interpretation, but since the only way to resolve the issue would be through the courts, which would have been expensive and of uncertain outcome both legally and politically, it eventually accepted NATS' request to negotiate.

During 1984 the BGA undertook a consultation exercise with its clubs to try to determine a negotiating position which would entail the least damage to our operations. Then followed a series of meetings between NATS the BGA and the airlines, culminating in the formal ratification by NATMAC of the new arrangements last May. They could be said to represent a reasonable compromise in that the areas from which gliders are now excluded are those containing the most intensive traffic levels and hence the greatest potential for an incident. Needless to say, the airlines accepted the compromise only with considerable reluctance – they would still prefer to see gliders excluded from airways entirely, or at least require them to be transponder equipped.

Brize Norton

An agreement has been reached between the BGA and Brize Norton ATC to facilitate glider transits of the Brize Norton Special Rules Zone in accordance with the existing rules, *ie* obtaining radio clearance from Brize Norton ATC. The agreement applies:

1. During the hours of daylight, from 30min after sunrise until 30min before sunset.

2. Throughout the week, although pressure of traffic from Monday to Friday is normally such that crossing clearance is unlikely to be issued. Glider pilots are, therefore, advised not to plan a weekday crossing.

3. To individual glider pilots, not competitors in organised competition.

Procedures

To obtain crossing clearance, glider pilots must:

1. Contact Brize Radar 3min before reaching the SRZ boundary on Brize Zone frequency 119.0Mhz. Thereafter, maintain a continuous listening watch during SRZ transit, advising Brize Radar before departing *en route*.

2. Endeavour to cross on the preferred route: north-south or south-north to pass directly overhead Brize Norton airfield.

3. On initial contact pass aircraft type, position, heading and height together with requested track through the zone.

4. Set the Brize Norton QFE and remain at or above 2000ft agl during SRZ transit.

5. Comply with ATC instructions. If this is impossible due to nature of glider flying, clear the SRZ by the shortest available route, compatible with Brize Radar requirements.

6. Obtain clearance before deviating from declared track or commencing circling. The latter is defined as any manoeuvre involving heading changes of more than 180° and should be confined to a minimum within the SRZ.

Emergency Procedures

Military activity may demand that areas of the SRZ be cleared quickly. In this event Brize Radar will pass revised ATC instructions to individual pilots. The revised instructions are to be complied with.

General

Every effort will be made by controllers to accommodate requests for transit. Pilots are requested to minimise time within the SRZ, and to notify Brize Radar as early as possible of any specific requirements for the safe conduct of their flight.

Background

The discussions leading to this agreement followed in the wake of the dispute over the Upper Heyford MRA, when suggestions were heard that some relaxation of the rules at Brize Norton might be forthcoming by way of compensation for Upper Heyford. In the event, and not for the first time, any such possibility was vetoed by MoD. Furthermore, NATS pointed out that although traffic levels at Brize Norton had sunk to a low ebb in the late seventies, more recently there had been substantial growth occasioned by increases in the transport/tanker force following the Falklands conflict, to the extent that Brize certainly now qualified for protection by Special Rules Airspace even if it had been deregulated earlier.

The BGA has been complaining about the Brize SRZ for some fifteen years or more to no avail. Faced with this latest impasse, we decided the only sensible course was to pursue what was on offer, namely the opportunity to regularise glider transists in accordance with the existing rules. The outcome is a Letter of Agreement between Brize Norton and the BGA, the terms of which are described above.

At first sight it may appear that the agreement offers nothing that was not theoretically available before. However, the advantages are that glider pilots can now plan a transit of Brize Norton at weekends with reasonable confidence that they will be accepted, and glider pilots and controllers alike will know that both parties are working to agreed procedures. Nothing in the agreement, of course, prevents a glider pilot from contacting Brize Norton at any time, and it is clearly better to do so than to run the risk of an infringement.

Our hope is that during the coming season glider pilots will take advantage of the new arrangements thus building the experience of both parties to the agreement leading to the possibility of further improvements in future. ■

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THE EARLY BIRD AND THE WORM

John recalls one of those "different" flights that stick in the memory

Nick's hobby was tormenting instructors; he also had a penchant for slow rolling Ford Anglias. He was mad - completely.

An instructor should be like a confessor; the secrets of the cockpit should never be revealed but I am not very nice and this all happened twenty years ago when Blaniks were hot ships.

On the rare occasions when he flew solo Nick was competent and responsible; when he flew dual he was competent.

Once we were peacefully soaring the ridge, myself in the back seat admiring the beautiful view and light and trying to ignore Nick's dreadful attempts at whistling when suddenly the land and skyscapes changed places. Oh dear, he must have been reading the Pilot's Notes again. We regained a semblance of equilibrium, I was green and Nick was laughing like a drain. After landing and counting the rivets in the wings I resolved that I would vanish for a cup of tea next time I saw him approach the launch point.

He caught me again about a month later. It was another good ridge soaring day and having just landed I was still strapped in the Blanik's back seat. A head appeared round the canopy and said: "Hello, nice day, I think I'm next."

"Yes it's a good day-er-how about trying for your five hours in the Swallow?"

"Not today," he replied." I prefer the Blanik. Can I come with you?"

"Um, er, yes sure, jump in but do give me prior notice of any unusual urges that might come upon you."

"OK, but you're a categorised instructor, you should be able to cope."

The wind was about 20kt and we took a wire launch through the rather unpleasant curl-over, but the ridge was working well and Nick's accurate flying was only spoiled by his infernal whistling. It made me think though.

Audio variometers were the in toys that year and music of the right type does help to smooth out one's flying. Couldn't one of those new-fangled cassette recorders be wired into the circuit so as to play different tracks according to the strength and character of the lift? For a smooth, weak thermal La Ronde. For a bubbly inconsequential thermal that bit where the Lord Chancellor dances in G. & S.'s Iolanthe; a perfect British Standard Thermal would need Mozart; Beethoven for the big stuff and Wagner for cu-nims.

I would sell the idea, make a fortune, buy a good glider and become World Champion - but then if everyone else had bought one. Goodness! We had wound up to 3500ft in a thermal and Nick was muttering about going on a cross-country.

I didn't have time to tell him why not. A few minutes steaming downwind and we were going cross-country willy nilly.

"Where shall we go John?"

At last I had a smart answer and quoted Christopher Robin from A. A. Milne's **When We Were Very Young.**

If you were a bird, and lived on high,
You'd lean on the wind when the wind came by,
You'd say to the wind when it took you away:
"That's where I wanted to go today!"

Which meant that we would go straight downwind to our neighbouring gliding club about forty miles away.

The next cumulus was working and I resumed admiring the view while we circled under it. Small fields, hedges and stone walls; on the northern side of each hedge were white lines - snow!' Not to be wondered at because it was the first week in February. What was I doing going cross-country at this time of year? Old Nick had caught me on the hop again whilst I was day dreaming.

No use looking back now, we only needed one more good climb after this one to arrive, and there was another well developed cumulus on track, press on Old Nick.

We arrived at our cloud at about 1500ft and found snow, then rain, then sink. The cloud was over-ripe. Down we went and all around was rock-strewn moor. I was scared, not for my own safety and certainly not for ON's, but by visions of a wrecked Blanik and irate CFI.

"OK John, you can take over now."

Well that day wasn't Isaac Newton's day to get me. We found some weak lift and scratched away along with the wind to our goal, landed and tried to look nonchalant as we asked for a tow home.

Our club awarded us the annual Early Bird trophy for the first cross-country of the season for this epic trip. Only the two of us who were in the cockpit knew which was the early bird and which the worm!

WORLD RECORDS CLAIMED

The following claims for World Records were received too late for inclusion in our Annual Lists on pp84-85. They are all subject to homologation.

Single-Seaters: *750km Triangle* at 170.05km/h (DG-400) by B. Boengle, W. Germany, in South Africa on 7.1.1988.

Single-Seaters (Women): *Height Gain* 9936m by Yvonne Loader, New Zealand on 12.1.1988.

Two-seaters: *300km Triangle* at 171km/h (ASH-25) by H-W. and Karin Grosse, W. Germany, in Australia on 8.1.1988.

500km Triangle: at 163km/h (ASH-25) by H-W. and Karin Grosse, W. Germany, in Australia on 20.1.1988.

750km Triangle: at 147.98km/h (Nimbus 3D) by K. Holighaus and R. van Tonder, W. Germany, in South Africa on 8.1.1988. Also at 151.37km/h on 9.1.1988. At 161km/h (ASH-25) by H-W. and Karin Grosse, W. Germany, in Australia on 10.1.1988.

1000km Triangle: at 135km/h (ASH-25) by H-W. and Karin Grosse, W. Germany, in Australia on 9.1.1988. At 138.15km/h (Nimbus 3D) by K. Holighaus and E. van Tonder, W. Germany, in South Africa on 10.1.1988. At 157.6km/h (ASH-25) by H-W. and Karin Grosse, W. Germany, in Australia on 11.1.1988.

Motor Gliders Single-Seaters: *Goal & Return Distance* 1020km (?) by U. Knaus, W. Germany, in South Africa on 19.1.1988. 1070km (ASW-22M) by O. Schauble, W. Germany, in South Africa on 9.1.1988.

100km Triangle: at 191.19km/h (DG-400) by B. Bünzli, Switzerland, in South Africa on 18.12.1987.

500km Triangle: at 170.09km/h (Nimbus 3) by B. Bünzli, Switzerland, in South Africa on 29.12.1987.

750km Triangle: at 150.81km/h (DG-400) by B. Bünzli, Switzerland, in South Africa on 27.12.1987.

Motor Gliders Two-seaters: *Goal & Return Distance* 790km (ASH-25MB) O. Wegscheider and W. Schoeffer, W. Germany, in South Africa on 19.12.1987. Also 1015kms with O. Schroeder on 9.1.1988.

500km Triangle: at 156km/h (ASH-25MB) by O. Wegscheider and W Schoeffer, W. Germany, in South Africa on 2.1.1988.

750km Triangle: at 127km/h (ASH-25MB) by W. Binder and O. Wegscheider, W. Germany, in South Africa on 25.12.1987.

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Wolds Gliding Club

Your Letters. We love getting your letters and have a record number in this issue, but do try to be concise. The shorter ones often make more impact and certainly have more chance of being read. ED.

YOUR LETTERS

WHY TUGS WENT LEFT

Dear Editor,

I was interested to see Dr Murray Wilson's letter in the December issue, p313. The reasons for Doncaster/Burn GC being out of step over which way to turn after release from aerotow are becoming lost in the mists of antiquity but being a bit of an antique myself (I must be, I was there when the decision was made) I can give the main reasons for Doncaster practising tug left, glider right.

We were using an Auster and with the pilot sitting on the left it was agreed he had a much better view below and to the left of the area in which he proposed to descend as rapidly as was safe and possible. Other considerations were:

1. The glider turning right remained in the tug pilot's viewing sector for a slightly longer period.
2. At the time the club two-seaters were T-21s and with the instructor sitting on the left a right turn kept the tug in view longer.
3. We also had several aircraft with unshrouded skids and mud position hooks (*eg* Swallows) and it was felt that if anybody released badly out of position with a slack rope there was less chance of the rope fouling the skid in a right turn.

Regarding Dr Murray Wilson's final point about tug engine failure on the ground, this seems to be a case for using initiative rather than writing rules.

At the club where I now fly (Wolds) we aerotow off a 25yd grass strip bordering a 50yd wide decaying concrete runway. This would be a scenario for a disaster. One aircraft would go into the crop and the other would probably collide with the cable tractor or a landing aircraft.

The best advice I can think of in this case is for the tug to stop as slowly as possible to give the glider a chance of stopping too. Needless to say the glider pilot can see which way the tug is going if he watches the rudder.

To add to the confusion, my copy of **Aviation Law for Pilots**, p128, states that in respect of aircraft on the ground: "A flying machine which is being overtaken has the right of way and the overtaking flying machine shall keep out of the way of the other by altering course to the left."

MIKE USHERWOOD, *York*

MORE SENSE TO BREAK RIGHT

Dear Editor,

Prior to my leaving the UK in 1972, we always broke left after release from aerotow. When I got to Australia I discovered that we broke right down here. (We still do.) A mere regional difference I thought, like many other things we do differently. But on further reflection it eventually penetrated my thick skull that it really does make more sense to break right in the glider. The simple reason for this is that the tug will naturally break left, and this is important in side-by-side machines like Austers, Cessnas and two-seat Pawnees, where the command seat is conventionally on the left side. Breaking left descends the aircraft into a bit of sky which it is quite easy to ensure is clear. Breaking right takes the aircraft into a giant blind spot. I know which I would rather have. I may be wrong, but I believe there was a fatal accident in Switzerland some years ago, where a tug collided with a K-6 after releasing another glider. I believe it happened for this very reason.

On the matter of the engine failure on the ground, we have recently changed our procedures to allow the glider to go whichever way is practicable. A directionally unstable taildragger glider in a crosswind from the left will be incapable of turning right on the ground, and that fact must be recognised. It is impossible in these circumstances to lay down a hard and fast rule, as so much depends on exactly when the failure occurs during the take-off run. At low speeds, the tug pilot should ideally just trundle on ahead, not using the brakes, watching the mirror to see which way the glider goes and keeping out of the way as best he can. At higher speeds the problem is not so acute, as the tug will naturally roll much further anyway, giving the glider manoeuvring space. I'm just afraid that too rigid a rule will precipitate a collision which the rule was originally designed to avoid.

MIKE VALENTINE, *National Coach, Gliding Federation of Australia*

THOSE BLANK WALLS

Dear Editor,

Why not a contest for the most interesting illustration or decoration on the side of a trailer. Judging by the illustrations in *S&G* there is quite enough talent to produce some amusing results.

BRENNIG JAMES, *Marlow Common, Bucks*

"NOBBLED" BY THE CAA

Dear Editor,

There is a far more sinister explanation for the BGA's often deafening silence on important gliding matters than the "pressure of work" excuse recently advanced by Barry Rolfe. The most likely reason our esteemed officers behave like hypnotised rabbits when confronted with the Need to Make a Decision is that they have been "nobbled" by the CAA.

Last year, as a consequence of my becoming involved in the Upper Heyford fiasco, Lord Trefgarne penned a steaming letter to my MP bitterly accusing the BGA of disseminating information containing material inaccuracies. My credibility with my MP descended rapidly to zero, closely followed by the BGA's credibility with me and their subsequent failure to answer my request for an explanation simply adds to my curiosity as to who is conning who and to what purpose.

I can see how some sylleptic, scribbling gnome might emerge briefly from the bowels of 45 Kingsway, WC2 to prevent the gliding movement giving crippled children their annual treat by the outrageous ploy that the disabled as a class are not capable of receiving tuition and therefore cannot have flights in gliders.

What I cannot see is, after the megalomaniac reality behind the facade has been exposed by the inclusion of Scouts in the prohibition, we are all expected to sit back and do nothing about it.

By Royal decree: no one must be allowed to enjoy themselves.

With HRH The Princess Royal concurrently presenting Institute of Advanced Motorists membership certificates and the Department of Transport organising Mobility Roadshows for the Disabled, it is patently untrue that disabled people are debarred from gliding on the basis of an inability to receive instruction.

The BGA's mute acquiescence in this latest disgraceful affair clearly demonstrates the urgent need for a militant Glider Pilots' Rights Association whose initial brief is to make loud anti-CAA noises and threaten some embarrassing public demonstrations. Convince the authorities that the capability and the will exists to bring Heathrow to a standstill half way through a peak period and I guarantee the gliding movement will have no more hassle from the CAA as from 9 o'clock the following morning.

Before the land reverberates to shrieks of horror from the apologists, there are several precedents worth considering from which valuable lessons may be learned. When the Home Office last caught a bad case of "Legislatitis" the Shooters Rights Association worked wonders for its members, while the CB Radio fraternity simply stuck two fingers in the air and continued happily about their business. The ramblers, the horse-riders and kindred leisure sports have no worries about compulsory medicals, insurances, tests, licences and all the gallimaufry of official regulation – they simply enjoy their chosen recreation to the full and operate without harassment from the authorities.

In a word, if the BGA cannot be motivated to "stiffen the sinews and summon up the blood" in its dealings with the CAA, it should be ditched. Now!!

JOHN G. STORRY, *Boston, Lincs*

Ben Watson, BGA chairman, replies: I enjoyed John Storry's invective which sent me twice to the dictionary. However his idea of the GPRA blocking Heathrow is a bit OTT although a splendid daydream. Would it really win support? If the BGA is to be regarded as a responsible organisation capable of regulating gliding safely it has to be seen to act sensibly while still forcefully arguing its case.

On all the current issues we have had numerous meetings and volumes of correspondence with the CAA at all levels including the highest. We now have a meeting planned with the relevant Minister, Lord Brabazon on February 22 to press our arguments. Please read my Chairman's report for more details. We can of course give trial lessons to anyone including the disabled and Scouts. Many disabled are able to become pilots even if some of them can never fly as PIs. However, we still believe that straight forward joy rides should also be permitted as they were for many years without the gallimaufry of commercial glider pilots licences etc.

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The CAA believes that members of the general public expect CAA to regulate gliding as though it was public transport if money is to be paid for a joy ride (but not if it is free!). We consider this is nonsense and that all sporting and recreational flying should have its own licencing category separated from public transport and aerial work with their complicated definition of hire and reward. We are certainly not "mutely acquiescent hypnotised rabbits". We fight on! And please don't always believe Ministerial replies forwarded by your MP (your paragraph on UHMRA). You should have perserved and not been put down by officialdom. Several of the statements in that standard reply were incorrect and misleading.

EVEN MORE ABOUT AIR CADETS

Dear Editor,

I feel I must comment on both the article "Poles Apart" (August issue, p192) and the letters in the February issue, p39. I have seen both sides as a Flight Staff Cadet at 618 VGS and latterly as an AEI at Surrey Hills GC.

The regimented system of the Air Cadets is ideal for the training they are doing – and I believe a tight rein is essential when dealing with young people near potentially lethal cables, Landrovers, winches and gliders. The average BGA club member is considerably older and therefore requires less supervision. Also at this age pupils realise there is more to gliding than just going solo. And this is where there is the fundamental difference between the two systems – the BGA are training pilots to soar and go cross-country whereas the first solo is the end of training for the majority of Air Cadets.

I disagree with Mike Cuming's statement that "the majority don't enjoy their training." When I went solo I enjoyed it immensely as did everyone else I spoke to during my seven years with the ATC.

I remember seeing the qualification for BGA squad training volunteers – under 30, keen and with your own Standard Class glider. Well I qualified on two out of three – guess which ones!

Whatever is said about the Air Cadets and the BGA (and they both have their faults), we are all glider pilots and should co-operate more than we do. At least the Air Cadets are doing *something* for the young pilot. *What are the BGA doing?*

S. E. ABBOTT, *Keston, Kent*

HELP WANTED TO MOTIVATE YOUNG

Dear Editor,

On the one hand we have the Air Cadets telling us they are "doing their bit"; on the other hand we have "A Poor Pilot" (August issue, p203) telling us not to subsidise gliding for young people, and on a third hand we have a Junior Nationals coming up – partly funded by the Sports Council grant which the BGA has worked so hard to hang on to. If we had a fourth hand we could give up gliding and play bridge instead, but we don't. So what?

"A Poor Pilot" probably, like me, had to sell his train set for his first years' gliding club subscription. I wonder what made him do it? Perhaps he was just tired of train sets, but more likely he was excited by the thought that real flying was within his reach. He was, of course, quite right when he said that many young people could manage to learn to fly – if they set their minds to it – but he didn't identify the vital ingredient: motivation.

That motivation is sparked off by things like the Junior Nationals, the Junior Squad scheme, the Air Cadets' training and by some of the club's own initiatives (notably Booker and Lasham at present). These motivating schemes are generally started up by dint of hearty voluntary effort, but their lasting impact seems to depend more on the amount of subsequent publicity and follow-up action – and such post-processing of even the best meant schemes is, regrettably, conspicuously lacking.

On the plus side, I am happy to report that the BGA have already taken up some of my suggestions (most immediately in the form of an excellently written pamphlet "Gliding in Britain – a Guide for Young Pilots") and that I have been invited to visit the Air Cadets' Central Gliding School.

Additionally, the BGA have allowed me to use their mailing facilities to send out a questionnaire to all clubs about the extent of their efforts for young people and to establish what follow-up does take place, if any. I have also invited each club to nominate a contact person to help to motivate the young. So who will give me a hand?

MIKE CUMING, *London*

GLIDER RADIO INTERFERENCE

Dear Editor,

I must congratulate Colin Dews on his excellent article in the December issue on radio interference problems, p290. But there is one point that I feel I must bring to readers' attention – the suitability of tantalum capacitors for supply filtering.

These very small devices are excellent for use in signal circuits.They cannot, however, withstand the current surges and voltage spikes on a high current supply line. The "tant" is likely to fail/short circuit under these conditions. This may blow the supply fuse, or worse, the suppression components may burn up.

Polyester or polycarbonate capacitors are a better choice. These are bulkier than "tants" but seldom give problems.

I hope this information may be of help.

IAN W. RUDGE, *Dundee*

Colin Dews replies: Mr Rudge is quite correct in his statement regarding tantalum capacitors in that when they do collapse they fail giving a short circuit condition which will blow the supply fuse. My reason for suggesting the use of tantalum capacitors in the interference filters was because of their extremely small size enabling them to be fitted very close to the source of the interference. There is undoubtedly a risk that with high voltage pulses the tantalum capacitors could collapse and therefore they should not be used in the filter circuits. Polyester capacitors should be used instead for the values of 1 microfarad and 0.1 microfarad (100v working). Apologies for this error and many thanks to Mr Rudge for promptly pointing it out.

COME OFF IT BILL!

Dear Editor,

I missed the last deadline with my reply to Bill Scull's fatuous arguments against the older pilot in the October issue, p228. My congratulations to those whose letters were on time for the last issue, p40, on their concisely presented facts which demolished Bill's statistical gobbledegook. But even in his reply to Dennis Neal Bill couldn't resist throwing in some totally unrelated facts and figures. Surely by now he realises that it's this that we are trying to point out to him – all of us.

As to the overriding communication problem and how to rectify the attitude of our representatives at the BGA that they are always right by virtue of the fact that they say we are wrong, might I suggest a "league of gentlemen instructors" who could afford us some degree of control over the players? Come off it Bill. Dennis did tell you his needs and he is now telling you what little good it did him. Perhaps another forum is required?

They could also bring their attention to bear upon the tinkering with an instructors' system which has stood the test of time thanks to our CFIs whose power they seem intent on interfering with. If an overhaul is required, it might be a good idea to start with their mandate. It seems to me that there is now a body of opinion which feels that sweeping changes such as are contained within the 1988 coaching programme should in some way be referred to the grassiest members.

PETER STURDGESS, *Fishguard, Pembrokeshire.*

THROW AWAY THE RADIO!

Dear Platypus,

I have the answer to your radio problems. (December issue, p292.) Throw the damn thing out. Be honest, when was it ever anything but a distracting irritation, and unreliable with it?

Why bother with some hissing, crackling nuisance which occasionally comes out with a burst of garbled rubbish, in which the only readable bit alarms you, or you hear your crew *insisting* on knowing where you are before they go for lunch, just as you are struggling desperately in zero sink over some unappetising field in the back of beyond. (Dunstable?) By the time you think you've told them, you've lost concentration, and are in the field. They've only got half the message, manage to misunderstand that, and dash off 100 miles in the wrong direction to the other Throgthorpe-on-Dene.

I repeat, throw the radio out, replace it with one of those personal stereos and listen to pleasant and appropriate music instead. Much more restful.

Can you imagine a triumphal final glide to the accompaniment of rousing brass band

music? I would choose "Colonel Bogey". Or a gloomy descent into some muddy field miles from anywhere, accompanied by the more sombre parts of Brahms 1st?

Interesting? Think about it.

PAUL BIBBY, *Bolton*

SAFETY BELOW 500FT

Dear Editor,

Derek Piggott's sage advice (*S&G* April 1987, p69) appears to have been interpreted by some as a general instruction always to achieve the chosen approach speed while the (basic training) glider is still on the downwind leg. While this is surely good practice at some sites, we are of the opinion that there are real advantages to be gained from delaying the build-up to the full approach speed until the final turn where training at flat sites is concerned. Chief among these are the benefits accruing from the extra time in the air thus made available. The extra potential energy can also be useful.

As Derek says, inexperienced pilots always find a shortage of time. This problem is exacerbated by unnecessarily high speeds with their associated higher sink rates which reduce the pilot's options, particularly when circuits or landing areas are congested.

The glider must, of course, always be flown at a speed safely above the stall. The circuit speeds used on a given day clearly depend on the conditions. When wind and turbulence are light, two or three knots above the normal cruise speed should provide an adequate safety margin on the downwind leg, assuming that the glider is properly trimmed. Loss of the usual attitude references from then on requires that the specified airspeed be monitored by frequent reference to the ASI (its susceptibility to yaw error being fully understood), and we emphasise the importance of speed control by this means from an early stage.

We like to see a substantial base leg giving time for late adjustments to place the glider in the right place for the final turn, believing this to be an important habit for embryo cross-country pilots to acquire. We advise students to fly this leg at a speed intermediate between the downwind and approach speeds, the latter being reached (and the glider trimmed appropriately) shortly before the final turn is initiated.

At sites where tight circuits and 180° turns from the end of the downwind leg are necessitated by the topography and clutching hands, our more sedate circuit practice is clearly inappropriate. To say this is, of course, merely to agree that there should be good reasons for advising a particular technique, that the student should be helped to understand them and that what is taught at one site may not be universally applicable.

ALAN DIBDIN, *CFI, written on behalf of the Cambridge University GC panel of instructors*

TUG UPSET ACCIDENTS

Dear Editor,

John Gibson's article in the last issue, p10, makes many good points but I think misses the fundamental one.

The only thing common in all upset accidents is that the poor tug pilot is pulling back on the stick with all his strength. Thus surely the best and simplest cure is to arrange a system that cuts/releases the rope if the tug stick is pulled against the back stop with a force of more than say 150lb.

I thought there were only two pilots' rules for aerotowing:

1. Aim the glider at the tug.
2. If you can't see the tug pull off.

I have taught various people to aerotow over the last 15 years and 1 works so well that 2 has never been needed.

TIM MACFADYEN, *Stroud, Glos.*

NO PILOT IS PERFECT!

Dear Editor,

John Gibson's article was interesting but did not get to the root of the problem. It matters not **how** a pilot achieves and maintains his position behind the tug. The essential factor is that the person in the glider must not allow the glider to get high.

All of the pilots who take aerotows have been assessed as safe to undertake the task and have probably demonstrated their ability to remain behind a tug in more or less the right place. In major tug upsets it is clear that the glider pilot has failed to maintain position and has not reacted in time to avert disaster. It is nearly impossible to recognise the potential killer in advance although a lot of pilots will be in the "suspect" category.

These are the "over-controllers" who perpetually waggle the stick and generate their own turbulence. Sure, they stay in position on tow but what bad pilots they really are. There is no doubt in my mind that there are as many bad pilots as there are bad car drivers. You will know a few of the latter but if they offer you a lift do you refuse?

Until there is an auto-release we are stuck with having glider pilots about who will cause an accident. No pilot is perfect!

LEMMY TANNER, *Aboyne*

John Gibson replies: The article did not miss the fundamental point about aiming the glider at the tug – it was a central issue. One letter and one sentence in an article, both in *Soaring*, and Tim MacFadyen's letter are the only references I know to the primary use of this method. Derek Piggott's "Back to Basics" (December 1985 issue, p271) mentions it very favourably but as an optional extra. Experienced aerotow instructors of my acquaintance do not know of it and none ever taught it to me . Lemmy Tanner's stick thrashers might become less bad pilots on tow if they were taught it.

Yes, indeed, if only gliders were always pointed at the tug there would be no upsets, but I do not think it is enough. I seem to agree with both critics!

AEROTOW UPSETS

Dear Editor,

I have read with considerable interest both John Gibson's and Bill Scull's articles in the last issue of *S&G* (p10 and 12) on the subject of aerotow upsets.

Bill asks the question "Is John's article the blinding flash of brilliance we have been looking for to solve the aerotow upset problem?" He also listed a number of possible remedial actions.

Of the ideas put forward, only the upward releasing hook gets to the root of the problem. The others minimise the risk, but won't prevent it. If I were to make any sort of priority, the reference point technique would be almost at the bottom of the list.



I am amazed that one particular item is missing from Bill's list. What, I ask, is wrong with the low tow position? Why has this not been considered? Other countries do it, why not us?

It should be quite apparent to anyone who does aerotows that a glider in the low tow position is very unlikely to precipitate an aerotow upset. The relative height change between tug and glider will have to be at least double to bring it about as compared to the high tow position, I honestly feel that the problem could be almost eliminated at one stroke if this tow position is adopted.

I would be the first to admit that the low tow position can introduce other difficulties (see my article in the June 1987 issue, p124), and at some sites it could be hazardous below 200 or 300ft. This would be a small price to pay as compared with a tow pilot's life. It would not be essential to maintain the low tow position throughout a launch, as clearly there is a safety height from which a tow plane would recover from an upset mode. I venture to suggest a height of 1000ft agl, but this might not be quite enough to ensure safety for all types of tow plane.

Let's be honest about this, Aerotow upsets are caused by three things:
1) Lack of concentration (allowing oneself briefly to look away from the towing aircraft).
2) Lack of experience on type, or just lack of experience.
3) Sudden entry into rough air (such as rotor flow).

I regret to say that the "reference point technique" does nothing to prevent the consequences of 1) or 3).
MICHAEL P. GARROD, *Wokingham, Berks*

Bill Scull, BGA director of operations, replies: So far the attempts to design and develop an upward releasing hook have not been successful. Any mechanism must of course remain serviceable under typical conditions and therefore has to be mechanical rather than electromechanical. (The Technical Committee doubt now whether such a hook is feasible.) The low tow position has been considered and rejected by the BGA Instructors' Committee as not being a solution. The evidence from accidents and incidents in Australia indicates that upsets still do occur from low tow and the transition to low tow at 200-300ft still means that the tug pilot is exposed to the risk in the critical height band. Incidentally, the margins are certainly not double those in the "high tow" position (as Mike terms it) when comparing positions just above and just below the slipstream.

The possibility of using a "reference point technique" is interesting and is currently being looked at by the Instructors' Committee. Using this method to keep the glider pointing at the tug indicates that the glider pilot control input corrects the cause of an eventual displacement before it occurs rather than correcting an actual displacement. It is the hurried correction when the glider is perceived as being too low which is one circumstance which causes the "slingshot effect" described by John Gibson. The risk can be minimised with better supervision. Instructors and pilots have, perhaps, become a little complacent with increasing use and familiarity with aerotowing.

In terms of risk management a tow rope of 180ft (55m) is now being recommended. If rope length squared is the function of time to reach a critical displacement then clearly there is a rope length which would allow enough time for the tug pilot to react.

HIGH TOW/LOW TOW?

Dear Editor,

Recently I experienced two towrope failures, both at the tug end and in the high tow position. (See letters in the June issue, p147, the October issue, p257, and the February issue, p39.) In each case the rope fell away well clear of the glider without incident. In the low tow position the rope would have passed very much closer, and . . . well, your guess is as good as mine!

Fortunately, towrope failures are rare compared with cable breaks, but they do occur for one reason or another, mainly due to wear and tear, failure of the weak links, or incorrect attachment to the tow hook.

Whatever advantages are claimed for the low tow position, it certainly is not the best place to be when a rope failure occurs!
DENNIS CAREY, *CFI, Lakes GC*

DANGER OF LOSING FIELDS

Dear Editor,

There has been a lot of correspondence lately on aerospace regulations and how our precious airspace is constantly being eroded by the powers that be, and I am sure that every glider pilot is eternally grateful to the members of the BGA who carry on the good fight on behalf of our movement. However, I sometimes think the gliding movement is in danger of suffering from a form of myopia in as much as we tend to spend a lot of time gazing skywards.

Although airspace is very important it might be more prudent to look at what is happening on the ground, especially in the south. I am referring to urban development. If it continues apace without any restrictions we are in grave danger of losing our green and pleasant land and the term "field landing" will disappear from the gliding vocabulary because there won't be any fields in which to land. And should this day arrive then I am afraid that gliding will be finished as a sport.
TONY PALMER, *Reading, Berks*

IDENTIFICATION

Dear Editor,

Was this Amy's first flight? (See the photographs in the December issue, p305.) Well I wouldn't know but four founder members of the Leicestershire GC are certain that the gentleman leaning over the cockpit is that great enthusiast, Jack Rice, chairman, CFI, winch builder, Dixon Primary constructor (with one or two others) and a lot more after the war. Jack flew a Gull. He also bought by tender from the Ministry of Defence a Tipsy, Tiger and Miles Whitney Straight.

My favourite was the Miles but so far as I know nobody else flew the Gull.

Sadly in about 1950 he and Mildred were lost when the Whitney Straight hit a Swiss mountain during a RAC rally. Fond memories of a wonderful couple.
DENNIS DAWSON, *Reading, Berks.*

AMY'S FIRST FLIGHT

Dear Editor,

Amy first did three "ground hops" (her words) in an open Dagnal (sic) on September 12, 1937, followed by two flights in a nascelled Dagnal (sic) belonging to the London GC on the same day, gaining her A certificate and the first leg of a B certificate.

The following day she had a further flight on the Downs in a Falcon 2 to complete her B certificate. These A and B flights lasted for a total of four minutes.

I have seen a pen and ink drawing of a nascelled Dagling in a booklet contemporary with her flights which would appear to confirm that the upper photograph is of such a glider. It seems likely it was taken before or after the flight on September 12.

Amy only had two bungy launches, both at Dunstable in March 1938. The first was in her own H-17 and the second in a similar glider belonging to a Mr. Sanders. The lower photograph could be of the H-17 and if so, it would be a reasonable assumption that Amy was helping to launch it before or after she was launched by the same means. This would mean the photograph was taken on either March 6 or 27, 1938.
DAPHNE POYNTER, *trustee of the Amy Johnson Memorial Trust*

(John Sproule tells us that the glider in the top photograph was a Wren and most likely the Green Wren built by the Reid brothers.)



Wow! That was some Thermal!! Cartoon by Gerry Bennett

CLUB NEWS

Copy and photographs for the June-July issue of *S&G* should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 0223 247725, to arrive not later than April 5 and for the August-September issue to arrive not later June 7.

GILLIAN BRYCE-SMITH
February 10

ANGUS (Arbroath)

At the December AGM retiring CFI, Les Joiner, received an engraved glass memento and our thanks for 16 years' of service. Our best wishes to Les and his successor, Alex Black. Mike Davidson continues as chairman.

Congratulations to Andrew Miller on going solo two weeks after his 16th birthday, bad weather preventing him from soloing on the actual day. Also to new solo pilots including Angie Gibb, Susan Burke and Bob Welch; Alan Black on his full Cat rating; to Mark Davies (50km) and David Porteous on Gold height on his first solo flight at Aboyne.

A Pirat from Sweden joins the club fleet. Visitors are always welcome.
H.P.McK.

AVRO (Woodford Airfield)

The annual awards and trophies presented at the AGM on November 20 were: Cross-country trophy, Steve Blundell; the Most Meritorious Flight trophy, Ron Asplin; Jimmy Orrell trophy (greatest gain of height), Malcolm Brocklehurst; Dennis Davenport trophy (instructional effort), Jeremy Niman and the Chairman's award and the Sir Harry Broadhurst trophy, Nigel Jennings. Congratulations to them all.

Chris Webster and Helen Lawless went solo in December - well done.
A.G.C.

BANNERDOWN (RAF Hullavington)

Congratulations to Mark Minary, Martin Ryan, Harry and "Cookie" on going solo. The Discus went north in October, Bruce Hodges taking it to Gold height at Dishforth and Jon Arnold to Diamond height at Aboyne.

The K-21 has had a re-fit and the motor glider given engine and airframe repairs.

Tom Eagles was appointed CFI at the AGM which was followed by a greatly enjoyed dinner with Dick Stratton, BGA chief technical officer, as guest speaker. Dick presented the following trophies; Daniels cup, Simon Hutchinson for competition success in the Discus; GSA George Lee trophy (highest placed in Nationals in his first year coming 15th) Brian Logan; Britton trophy, Jon Arnold; Navigation cup, Martin Goodwin, for an extended 300km; Dawson trophy, received by John Joiner on behalf of his team of workers who keep us flying and Tony Johnson won the BGC cup (continued flying progress) and for success on the club ladder, the Mike Parkin plate, donated by Jill in memory of her husband.
D.C.F.



Andrew Miller, Angus CG, photographed by Iain Wight after going solo, with his instructor, Boyd McLaren, centre, and Alex Black, new CFI.

BASSETLAW (Gamston Airfield)

On February 1 we were within eight of our 2000th launch with our mini winch continuing to give splendid launches - the Swallow reaches 1400ft when the wind is 45° off the runway.

There has been much flying progress despite poor weather. Keith Hebdon, Ian Stoneham, Derek Taylor and Scott Gozney have gone solo, Scott two days after his 17th birthday. John Launders, Alan Marshall and Michael de Torre have re-soloed and Peter Clayton, our secretary, and Adele Swannack have AEI ratings.

We have applied for a grant/loan from the Sports Council, primarily to buy a second single-seater, and are negotiating with our landlord for a grass strip beside the runway to improve our operations.

We held a most enjoyable party before Christmas - Eric and Margaret Marshall laid on a magnificent spread and we made over £150, mostly from a Tombola.

Things are really looking up and we are confident about the future. Visitors by air and road are very welcome (weekends only).
T.H.B.B.

BATH & WILTS (Keevil)

Our annual dinner-dance was a great success. The Gordon Mealing trophy for outstanding contributions to the club was awarded to Dave Strange; the Keevil Ladder to Graham Calloway and the Club Ladder to Phil Gasgoine.

Recent successes were Gold heights for Malcolm Smith and Graham Calloway; 5hrs for Terry Knight, Tony McBride and Mick Gilder; Bronze Cs for Tony McBride, Dave Pengelly and Ron Sexty with Dave Hooper, Charlie Cornelius, Dennis Clack and Antti Joppi going solo.

Our successful six weekend mini courses brought almost a 50% increase in membership in 1987 and we are running several more starting in March.

A recently acquired Bocian gives us four club two-seaters and the new winch means we have three independent launching systems.

We have four soaring weeks and an expedition to the Long Mynd.

We celebrate our 25th anniversary on July 9 with a party to which all past and present members are invited.
M.G.

BICESTER (RAFGSA Centre)

Many weekends have been washed out by fog and rain but the first weekend in February brought good soaring weather for so early in the year with one pilot airborne for over 2hrs.

We say goodbye to "Mossie" Williams, posted to Leeming, and "Nipper" Stonebanks, who has moved to Australia. Our thanks to them for all their work and we welcome John Armstrong.
C.&.G.

BOOKER (Wycombe Air Park)

Our new insurance scheme is working so well that most private owners are saving more on their premiums than the cost of their annual membership.

Enough bits have been acquired to add up to a fifth Pegasus and a sixth K-13 is expected shortly.
M.F.C.

BORDERS (Galewood)

Members from North Weald again visited us over the Christmas/New Year period and enjoyed plenty of soaring. Our all year soaring is becoming more widely known encouraging several new members from less fortunate clubs.

The Super Cub C of A was delayed with a wait for spare parts, but the T-53 is at last flying again.
A.J.B.

BRISTOL & GLOUCESTER (Nympsfield)

Our tug pilots are enthusiastic about our new Pawnee which should be safer for the heavier gliders in crosswinds. A four bladed propeller is deemed essential to keep the neighbours happy. Our K-7 has been converted to a K-10 giving us three K-13 style gliders.

We had our usual winter expeditions to Sutton Bank, Talgarth and Aboyne, sadly in indifferent weather, while back home there have been some good wave flights with Ray Lemin getting 12000ft.

Sadly Pat and Claude, our manager and manageress, are leaving to start a hotel business in Cornwall after two years of exemplary service



Bassetlaw GC's winch was built on an ex-naval 1½ ton dockyard truck for less than £2000. The twin drums are powered by a 3.5 V8 Rover engine and in ten months it has given nearly 2000 launches at 12/14 launches/gallon. Photo: Barrie Codling.

for which we are most grateful. Our thanks and best wishes to them.

Our membership continues to grow and we have a strong contingent from Bristol University who hope to bring a K-6 on site this year. Extra facilities to cater for this increase including a significant clubhouse extension to provide extra training, briefing, catering and accommodation.

We look forward to hosting the Standard Class Nationals and visitors are always welcome.
M.W.

BUCKMINSTER (Saltby Airfield)

Despite poor weather, seven members have gone solo and Roger Keay, Phil Walsh and Dave Housley have Bronze Cs. Congratulations also to Noel Butler (Silver C) and to Doug Upson and Phil Walsh for Silver distances in excess of 100km. We have five members with new AEI ratings.

A K-8 has joined the club fleet, we hope to replace the Skylark with a higher performance machine and the privately owned fleet now has an Astir and Mosquito.

Many members have made winter expeditions to wave sites. The firework night party was a fitting farewell to Guy Campion who has left for Blackpool.

We are open seven days a week during the season with courses from April to October. Visitors are welcome.
R.C.

CAMBRIDGE UNIVERSITY (Duxford Airfield)

Congratulations to Michael Paton, David Levien and Mario Pontiero on going solo and to Iain Baker on his Silver height at Dishforth in the club Astir to complete his Silver C.

There are still places on our three and five day courses. For further information contact Gillian Foreman, tel. 0223 67589.
L.A.W.

CHANNEL (Waldershare Park, Nr Dover)

We are re-covering our Motor Falke and buying it a new engine for this season. We have added a Blanik to our fleet.

Ron Armitage is our course instructor.
S.B.

CLEVELANDS (RAF Dishforth)

The wet, windy winter produced some good wave with several visitors claiming Diamond heights - congratulations to Ernst Specht on his Diamond and to Graham Pitchfork and Arthur Chadwick on their Gold climbs. Arthur just missed his Diamond but did his 5hrs. Congratulations also to our German member, Bjorn Anderson, who soloed when just 16.

Christmas/New Year brought many friends with over 50 flights on Christmas Day, some to 11 000ft, before sitting down to Mandy's excellent dinner.

The mild winter has given us the unusual sight of hangar bats hunting in broad daylight in January.
J.P.

COVENTRY (Husbands Bosworth)

During winter wave expeditions to Dishforth Jerry Landerick and Ernst Specht climbed to over 20 000ft for Diamond heights. Pat Piggot came close and Gary Wills just missed Gold.

Our holiday courses start in April and in addition we are trying advanced courses on thermalling techniques and cross-country flying. Our Regionals is from May 28-June 5 and our club task week from July 23-31. Visiting pilots are welcome.

In January we had a farewell party for our chairman, Stuart Cooper, who has emigrated to New Zealand. he will be greatly missed not only for his friendly personality but his engineering skills. We wish him and Pim happy soaring and lots of Diamonds! Dave Asquith is our new chairman.
D.L.S.

CRANWELL (RAFGSA)

Congratulations to Matt Hocking on his assistant Cat rating.

Our thanks to Helen and Norman Quirke for their hard work and we wish them and Maria and Kevin good wishes on their posting to Germany.

Our clubroom is now finished and looks very smart. Visitors are welcome. We have expeditions to the Long Mynd and Talgarth.
S.J.H.

CRUSADERS (Cyprus)

Our thanks to Nipper for flying out from the UK - the Falke couldn't have had a C of A without his help. John and Pete are renovating the bar.

Bruce Bensted is the new engineering member. The Christmas "do" went well and congratulations to the trophy winners, particularly Myra and Andrea. With luck the pigeons will soon be permanently evicted from the hangar.

Would be visitors can get more information about the club from Peter Ralph, c/o Officers' Mess, Ayios Nikolaus, BFPO 58.
T.J.D.

DARTMOOR (Brentor)

Our very popular CFI, Peter Williams, was injured in a serious car crash. Our thanks to Ivor Phillips, who did so much in founding the club, for being our temporary CFI.

During the awful winter weather a gallant band unloaded the new hangar.

Three courses are planned, our usual charity activities, a 70th birthday party for our oldest solo pilot, Dick Toop (and we all hope to be as fit, enthusiastic and skilled when we reach his age), Bill Evans' fun week and the longest weekend when members are going to bivouac on the field to ensure an early start and high launch rate.
F.J.M.

DEESIDE (Aboyne)

The second half of December produced mild westerlies with abundant wave, after all the visitors had departed of course!

PIGGOTTS

Windcones made in Ministry of Defence Hypalon®, also in nylon and cambric.
Landing Marker Sets in bright orange.
National, Advertising Flags and Banners.
Canvas Covers for all requirements.
Flagstaffs supplied and erected in Steel, Aluminium, Fibreglass and Timber - suitable for Windcones.
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News of the forthcoming 100km UK Cross-country Diploma arrived at about the time of our annual feast. After dinner talk resolved that following a mediocre 1987, 1988 would be the year with Deeside making the first 100km triangle claims by flying on New Year's day. End of year celebrations were therefore muted.

Alistair Forrest (ASW-19) started with the first 100km triangle. The second launch also resulted in success with rather better TP photos! (See also Gliding Certificates.)

There have been more soaring days than usual in January with the airfield mostly free of snow, but not mud. The university course during the first week was notable for wave on most days, a first solo and some Bronze legs.

A cattle grid now guards the airfield entrance and we no longer have the chore of opening the gate.
L.E.N.T.

DEVON & SOMERSET (North Hill)

The AGM in December was well attended and reports from the chairman and treasurer showed a big improvement in our finances with the result we hope to buy another K-13, giving us three two-seaters to greatly help cross-country training.

The president/treasurer, Eric Shore, chairman, Dave Minson, vice-chairman, Les Hill, and the secretary, Joe Watt, were re-elected with Ken Jenkins, Barry Salter, Eddie Bromwell, Dave Brumitt, Simon Minson and Ron Smith on the committee. The AGM was followed by a buffet and disco.

Despite the wet weather, January gave us some good soaring days.
D.A.R.

EAST SUSSEX (Ringmer)

Repairs to the club fleet after the hurricane have been completed, the winch and hangar are receiving attention and the hangar now boasts a concrete floor.

The wet January severely limited flying. We have been taking part in efforts to limit airspace changes in Kent and Sussex to enable cross-country flying to continue.

Apart from the storm, we had solid progress in 1987 and are determined to continue to improve facilities.
F.H.

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ENSTONE EAGLES (Enstone Airfield)

After the successful 1987 Regionals we have had more provisional bookings than ever before with deposits paid on a third of the 1988 places. Ken Sparkes hopes the regulars still to enter will do so quickly to ensure their place.

Congratulations to Chris Jesty on going solo soon after the introductory course. Tony Cox and Ian Cook have AEI ratings and Keith Freshwater Silver distance.

Lengthening the car launch cables has enabled 1900ft launches on windy, winter days. There are two new syndicates. The Dart has new owners and an Oly has joined us. We have an increasing membership and the annual dinner was again a great success.
R.J.P.B.

ESSEX (North Weald)

We had some excellent gliding during two weeks at Borders GC in October. Ken Pearson completed his Silver C with a height (he did his 5hrs at the Long Mynd and distance from Nympsfield); Guy Singer and Jack Doodes flew Silver heights and 5hrs giving Jack his badge; Alan Mason gained Silver height and John Condon went solo from scratch in a week.

It was so successful we went back at the end of the year with excellent wave flights to 15000 and 16000ft. Our thanks to the Border members for their welcome and to Phil Marks and Angie Wilson for organising the visit.

We had a very enjoyable Christmas dinner and our thanks to Paul Butcher, the organiser and cook.
J.F.

Obituary - Bill Corbett

We are very sad to report the death of Bill Corbett on January 26 after a short illness. So many of us are left with very happy memories of a dependable, ever cheerful friend and inexhaustible raconteur. It was a momentous day in 1968 when he took his wife Sheila and son Guy to Bickmarsh on their first gliding holiday course. They returned to join the Essex CC and our lives are the richer for sharing so much of the last 20yrs with Bill.

He will be remembered with gratitude for the encouragement he gave to us all in our flying, for his rare patience with the many pupils he taught during 15yrs of instructing, for his help with numerous retrieves and so many de-rigs, usually in the rain, and for the way he made it all such fun. We offer our deep sympathy to Shelia, Guy and other members of his family
Mike Jefferyes

IMPERIAL COLLEGE (Lasham Airfield)

Mike Carling is the new captain and Phil Moore has an AEI rating, bearing the brunt of the full programme of weekend courses. We had our usual busy autumn with keen potential members having 273 trial instruction flights.

Expeditions have taken us all over the place. We provided the scoring system for the Inter-University task week. Peter Healey gained Gold height at Gap, France, but the ASW-19 had minor damage when outlanded in a "recommended" field which turned out to be full of boulders. While being repaired back home, the small hole became much larger when the wing caught fire in the workshop!

Our thanks to the Midland GC for the excellent hospitality and bungy launches over the New Year.
M.J.

INKPEN (Thruxton Airfield)

At our successful Christmas dinner trophies were presented as follows: 300km trophy, Bill Murray (fastest 300km triangle); Marjorie Tait, Swallow trophy, Mel Ireland (epic duration flight in the Bergfalke) and the prestigious "soddit" awards to Steve Lambourne and Barry Lovett for near misses on Gold distance and Silver duration respectively. Congratulations also to Terry Baulk on gaining his assistant instructor rating.
J.B.L.

KENT (Challock)



Les Connolly, who joined the club in April, photographed before his first flight in his syndicate Vega.

The October hurricane wrought considerable damage to the clubhouse and surrounding area. Many of the caravans were rotated and several trailers damaged, three removed with their concrete fixing pulled from the ground. The clubhouse has been repaired.

Ground equipment is being prepared for our courses which start in April. "Kiwi" Graham is building a new two drum winch, which is much lighter than our other two, and should enable us to use our 12 mile ridge throughout the year in SW winds and suitable weather.

The Big Band evening in the hangar in the autumn was a resounding success and will be repeated again this year.
A.R.V.

KESTREL (Odiham)

Our expedition to Dishforth gave everyone the chance to fly in wave, although not to badge heights. Our thanks to Dishforth for an enjoyable time.

Congratulations to Trevor Brown on going solo in January and our thanks to Ron Mitchell for running the bar.
J.N

LAKES (Walney Airfield, Barrow-in-Furness)

The main topic of conversation is the new club ladder rules designed to prevent the Nimbus winning at all costs.

Peter Craven's award was for the most



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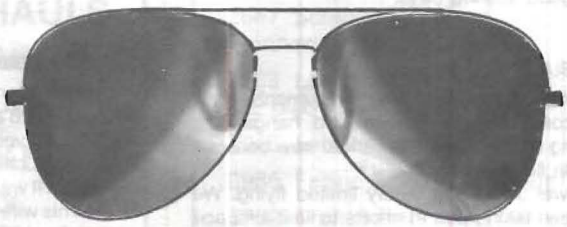
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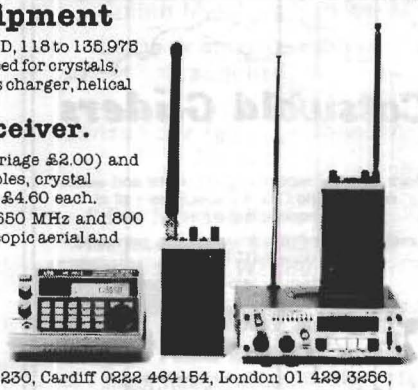
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Charles Wingfield of the Midland GC towing out his Turbo Ventus with his 1911 Argyll car bought new by his father and recently restored to *concours* condition.

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M.S.

LONDON (Dunstable)

It's been a dull winter, enlivened by occasional soaring and the return of MacDonald & Gray as caterers. We have trips to Talgarth in April and Gap, France, in June.

There are still spaces left in the Dunstable Regionals to be directed by Trevor Stuart. Welcome to our new members and congratulations to recent solo pilots.
J.A.K.M.

MIDLAND (Long Mynd)

Roger Andrews flew a 200km cross-country in the Turbo Ventus on January 31, using the engine for only 40min in a 4hr flight.

The club fleet is being updated with our Astir for sale. We have some new glass syndicates, the latest arrival being an ASW-20F.

The central heating has been further extended and the club refurnished ready for the 41 course weeks in 1988.

We have an expedition to Aboyne in early March, the task week is from May 28 to June 5 (visiting Silver C pilots are welcome) and two advanced courses at Sisteron, France, in June.
J.H.

NEWARK & NOTTS (Winthorpe)

We are sorry Mike Ward is taking a break from gliding. With his dog Oly he will be missed.

Our thanks to those who refurbished the K-8. The Christmas dinner, ably prepared by our chairman, Stan Denner, was most enjoyable. Christmas week flying was so well supported it may be considered this year.

Congratulations to Mike Bell, John Maddison and Stan Wright (going solo); to Chris Marriott (Bronze C); Mike Davies (PPL) and Neil Cross (AEI rating).

Our flying weeks are from May 30-June 3 and August 22-26 with a warm welcome assured for visiting pilots.
R.M.T.

NORFOLK (Tibenham)

Although we lost two aircraft, a two-seater which lifted its pickets out of the ground and Terry Duke's microlight destroyed when the roof blew of its hangar, almost everything else survived the October hurricane.

The clubhouse has had an extensive face lift with new exterior panelling, thanks to John Gammage, and the stove the late Ron Brown made is doing a grand job.

At our successful dinner-dance Dave Stabler was presented with the prize for doing most for the club during the year.
M.J.R.L.

NORTH DEVON (Eaglescott Airfield)

We have our spring fly-in on May 21; the longest day on June 18; longest wing European fly-in on June 19 and summer fly-in on August 20. For further details tel 07693 404.
S.C.

NORTHUMBRIA (Currock Hill)

Jack Little, our recently retired chairman, is spending three months in Australia and New Zealand with plans to go gliding.

We are repairing and refurbishing the K-7 damaged in a heavy landing to give us a fleet of three two-seaters and two single-seaters.

We are running five day and five evening courses with trial instruction lessons on Tuesday and Thursday evenings, club flying on Wednesdays until dusk and on Friday evenings as well as the weekends. Visitors are welcome - bunkhouse and cooking facilities are available on site and launching is by aerotow or winch at competitive rates.
R.D.

OUSE & HAMBLETONS (Rufforth Airfield)

We are delighted to welcome Tony Simms as CFI and airfield manager. We are a fully operational seven days a week and able to have winch and aerotow courses.

We have a task week at Easter, a soaring week starting on May 2 and another from May 28 ending with a barbecue and disco on June 4.

We have finished the shrub planting and landscaping of the caravan site but the general tidying up programme and workshop building continues.
G.Z.A.

OXFORD (Weston-on-the-Green)

After a poor attendance at the AGM we appeal to members to make more effort to turn out, if only to grouse. The club will not improve without the support and participation of you all. Our thanks to Carole Parsons-Broad who, as usual, produced a marvellous spread for the party afterwards.

Our new workshop and clubhouse are rapidly progressing, thanks to the fine efforts of members. We should complete the move into the clubhouse by April and the workshop will benefit work on the club fleet Cs of A.

A healthy influx of new members last year is attributable to the successful trial lesson evenings which also helped us achieve a record number of launches.

Congratulations to Colin Shepheard on becoming an assistant Cat and to Arthur Rogerson, Chris Reynolds and John Howard on gaining their Bronze Cs.
C.S.O.

PETERBOROUGH & SPALDING (Crowland Airfield)

The clubhouse is being refitted with new toilets, shower room and kitchen. A third Bocian has joined the club fleet and although in need of repair we hope to have it flying soon.

The annual syndicate shuffle resulted in several gliders having new owners with the CFI buying a share in the T-21.

We are sad to say goodbye to Peter Wilson who is moving to his native whippet country. Congratulations to Roger Gretton and our American member Bill Johnston on going solo.

We hope to rejoin the Inter-Club League and with this in mind John Marshall, an instructor, is ably running dedicated cross-country lectures.
M.J.

PORTSMOUTH NAVAL (Lee-on-Solent)

Good luck to John Williams who is retiring from the Navy and as chairman but remains an active member. It's farewell to Fred Stephenson who has spent many hours repairing and maintaining our gliders and hello to our new chairman, David Murray.

The new bus winch is performing well during trials, thanks mainly to the untiring efforts of Ken Stephenson, David Wadham and a small band of helpers. They are now going to convert a Beaver truck into a winch.

Thanks to a lot of help from the Sailors' Fund, we have a second tug to bring us back to four.
H.C.

RAE (Farnborough)

We operate a "prepayment" scheme with most members paying a set fee covering all flying and membership for the year. This means than even

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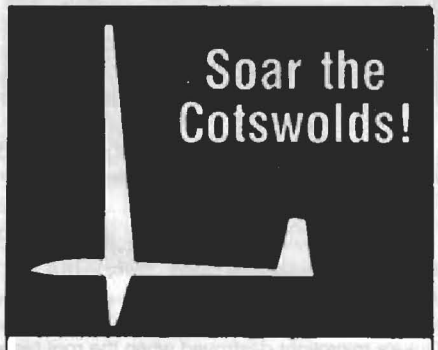
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on dull winter days we glide regularly and enthusiastically.

Congratulations to Raphael Fisher on going solo and to Arthur Pickles on his Gold C.

To keep costs down we hope to complete Cs of A on all five club gliders - our thanks to those involved for their hard work.

There is the possibility of a tug for regular aerotows.
M.T.D.

SCOTTISH GLIDING UNION (Portmoak)

A dull and uninteresting period, with much wind, rain and low cloud since Christmas, but we have plans! We hope to host a BGA cross-country course in May/June and our competition committee, led by John Galloway, is planning monthly task weekends through the season. Hamish will again be looking after the summer courses and visitors. In order not to overload our launch facilities, we are restricting visiting aircraft to 20 in any one week, so clubs planning an autumn expedition should book early.

Congratulations to Neil MacAulay on going solo and to Peter Glennie on his Bronze C.
M.J.R.

SHALBOURNE (Rivar Hill)

When we have had flying weather the airfield has been waterlogged but there has been good progress on Cs of A and work on the clubhouse, workshop and hangar extension.

Visiting pilots are welcome to join us for the task week from May 28-June 5.
S.C.D.

SOUTHDOWN (Parham Airfield)

Winter flying has been poor with only one decent northerly ridge run. It has been the wettest January in this part of Sussex for 100 years.

With more C of A work being done on the site we are going to extend the hangar this year. Membership is up and there is a waiting list of three months.
P.C.F.

SOUTH WALES (Usk)

Our thanks to Ken Counsell for his six years as CFI. Colin Broom takes over in April.

The task week is from July 23-29 and as well as course weeks, we will be open to pilots of all

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standards from July 18-22 and August 8-12.

The wet weather has curtailed flying but the K-8 has been recovered and Saturday night lectures, from February to April, start with a talk on wave at Usk.

Congratulations to Mike Rossiter on using a dry day to gain Silver height.
L.R.B. & J.M.B.

STAFFORDSHIRE (Morridge)

We recently celebrated our 25th anniversary with a buffet supper - our thanks to the organisers, Pauline and Roy Goodwin.

There has been little winter flying, though Dick Bowyer completed his Silver C and on January 31 Eddie Willis had the first soaring flight of the year in the K-18.

There has been a lot of fettling and our thanks to the devoted band of engineers who have given so much time preparing for the season.
M.J.P.

STRATFORD ON AVON (Snitterfield)

We are thoroughly enjoying the new site and realising the possibilities of superb soaring and indications of wave to be explored. A new T-line hangar designed by Stan MacDonald and fabricated in steel has been erected for club two-seaters with plans for the main hangar project to be ratified this week ready for the summer. Water and the telephone are shortly to be connected.

Summer courses will be run July/August and the trial instruction evening programme is under way. Graham Arriss has soloed and Ian Lang converted to the K-8. An ex RAF T-21 has been syndicated with ten enthusiasts and Brian Marsh has his ASW-20 ready to go.
H.G.W.

STRUBBY (Strubby Airfield)

Roger Partington has his Bronze C and many thanks to Wolds GC for the use of their Falke and their CFI, Bob Fox. The Bocian, looking and flying well after her refit, is being entered in Wold GC's Two-Seater Competition.

Mike Fairbairn, our new MT officer, has given our winch a new lease of life and is converting our recently acquired single-drum winch to a twin drum.
C.C.

ULSTER (Bellarena)

We close for two weeks from mid February for Cs of A and open the season proper with our nine day Easter task week beginning on April 2 to which GB visitors are welcome, with or without wings. Tel 0247 457794 for details. We also have our second open day on the May Bank Holiday.

In June the Twin Astir will be slung from the roof of the King's Hall, Belfast for the Great Outdoors Show, a big leisure pursuits exhibition in which we've scrounged a free place.

Also taking shape is a trial scheme under which the Sports Council for NI will subsidise 100 flights for the deserving youth of three Limavady schools.

A single-seater is being sought to replace the K-6 on loan from a syndicate. Meanwhile our depleted P/O fleet is growing again - the Willis brothers have hauled an SHK from Germany; Alan Sands' long restoration of a Grunau Baby 2 nears completion and another vintage machine may be on the way.
R.R.R.

WELLAND (Middleton)

Congratulations to Barry Chadwick and Keith Scott on their Gold heights at Dishforth and to Bernard Underwood on his Silver distance to beyond Boston. (See p76.)

We have a super K-8B to add to our club fleet and have sold our Swallow to our CFI, Peter Andrews.
R.H.S.

Obituary - Ray Clarke

It is with great sadness that we report the death of our former chairman, Ray Clarke. Ray was a tireless worker on behalf of our club and it was his strong guidance that steered us through some difficult times. We obtained our present site due to Ray's persistent and dedicated efforts.

After his retirement and sale of his engineering business he concentrated his efforts on instructing, both at Middleton and Saltby. He gave so much of his time to this that he rarely found time to fly his EoN Baby.

His enthusiasm for gliding and the friendliness he showed to all will be sorely missed. We extend our deepest sympathy to Irene and all his family.
Dick Short

WREKIN (RAF Cosford)

The year finished with several good wave flights and Mick Davies and Pete Evans managed the first hour of the year with a slow climb from a 1200ft winch launch to 3500ft. On the same day Mick Boydon climbed to 6200ft but ran out of daylight.

Our chairman, Joe Watt, flew for 5hrs on the Wrekin, mostly only 300ft above the top except when a snow storm increased the wind and gave him 2400ft.

The K-13 is having a major inspection and being re-covered - our thanks to the Centre staff.

We have an expedition to the Long Mynd and Aboyne in late March.
M.B.

WYVERN (RAF Upavon)

Our winter season has been filled with parties but little flying. Our thanks to Sarah Deck for hosting an enjoyable New Year's party and to Paul Lutley for again organising the Christmas draw.

Ephy Darnbrook, posted to Yorkshire, had a good send off with a "flat cap" party.
D.B.

YORKSHIRE (Sutton Bank)

A long run of winter westerlies gave welcome ridge and wave days on the rare occasions the rain stopped.

The club fleet is back to full strength with an excellent range of single-seaters - Astir, Pegasus, DG-200, DG-300 and K-8. We have three tugs and two winches in use. Visitors are always welcome.
P.L.

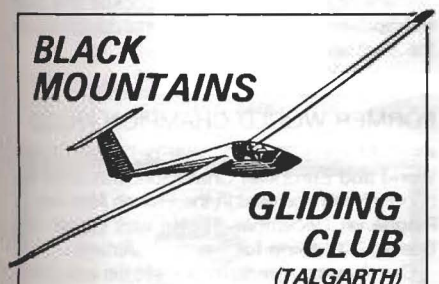
Obituary - Alistair Sheridan

Alistair was killed in a mid-air collision at Sutton Bank on August 16. (See October issue, p250.) At 35, he was a keen club member and conscientious full Cat instructor.

Having joined at Sutton nearly 20 years ago, he started his professional flying career with 18 months as a tug pilot in 1972-73. Against seemingly impossible difficulties, he entered Hamble in 1974 and went on to fly light twins until his arrival at British Midland where the Viscount and 707 were followed by command on the F27.

His fund of stories, particularly from darkest Africa, seemed endless and while those close to him will recall a careful and considerate friend, most will remember his non-stop humour.

Our sympathy is with his mother and finance, Michelle.
Christopher Wilson



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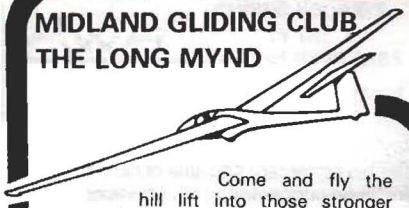
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FRENCH MARIANNE PROGRAMME

The French Gliding Association (FFW) is supporting a re-equipment programme to replace the 250 ageing Bijave two-seaters belonging to its member clubs by Centrair's GRP trainer, the Marianne. Thirty have already been bought by regional clubs and five, belonging to the FFW, are on loan to clubs. The French Air Force Gliding Association has ordered a further six and the French Aeronautical Training and Technical Control Service is awaiting delivery of two.

Reaction to FFW support of the Marianne programme has been mixed and the opinion has been voiced that FFW is under pressure to promote Marianne simply because it is produced by a French company. However, a recent report by Renni Grasset on the glider's qualities as a club training aircraft in Vol à Voile magazine, was more supportive.

Following two flights, he concludes, "After hearing so many opinions on this aircraft, mostly from people who have not flown it, I didn't know what to think. But now I have an opinion of my own: even though the Marianne does not have the interior luxury and comfort of some machines, it fulfills perfectly its role as a modern, high performance club trainer. And above all, it is vice free, which is one of the most important considerations when a club is looking for a training aircraft. The Marianne is also pleasant to fly."

Renni liked its good looks; its surface finish, the cockpit layout, its handling characteristics and especially its lack of vices; the ease of piloting; the noise level, the airbrakes; the all round visibility in the front cockpit and lateral visibility in the rear cockpit.

He liked less the trim lever; forward visibility from the rear cockpit; the time spent in rigging and the wheelbrake.

And didn't like the access to the rear cockpit; the lack of comfort of the rear cockpit (this must be improved) and the rudder pedal design in both the front and rear cockpits.

FORMER WORLD CHAMPION KILLED

Kees Musters, the 41 year-old Dutch former World and European Champion, was killed in a hang gliding accident in the French Alps near La Plagne on December 27. He was captain of a Boeing 737 flying for Transavia Airlines.

Our deepest sympathy goes to his wife Gretha and family.

OBITUARY - DENNIS SCHUIT

Friends of the Dutch gliding team and other visitors to the 1987 World Comps will be saddened to hear of the tragic death, at the age of 18, of Dennis Schuit in Australia. He was killed in January when the tug he was flying hit power wires and crashed near Jerilderie. The other passenger in the plane was rescued before it caught fire.

Dennis held two Diamonds and became the youngest entrant in a World Competition when he

flew in the Nimbus 3D with his father George at Benalla, where they came 14th in the Open Class. His sense of humour and love of life will always be remembered by those who knew him.

In Dennis we have lost a gliding friend who had such a promising future. We send our deepest sympathy to his family. - *Martin Judkins*

PLANEUR CHANGED

Ary Ceelen, editor of *Planeur* the Dutch gliding magazine, tells us that after 15 years they are changing it's name to *Aerosport-Info* and the format from A5 to A4.

Congratulations to Ary for being awarded the Paul Tissandier Diploma for his critical editorials against superfluous aviation rules by the government.

MORE GLIDERS FOR KENYA

Angela Pollard of the Gliding Club of Kenya tells us they have recently imported two Cirrus 75s and a Std Jantar to give them a full range of gliders to exploit Kenya's excellent conditions. The club is now at Mweiga, 15km north of Nyeri.

CAN ANYONE HELP?

The Adelaide University GC are rebuilding their Bocian IE damaged in high winds but are having difficulty in finding a replacement canopy. If you can help, please contact Catherine Hehir, secretary, The University of Adelaide, GPO Box 498, Adelaide, South Australia 5001.

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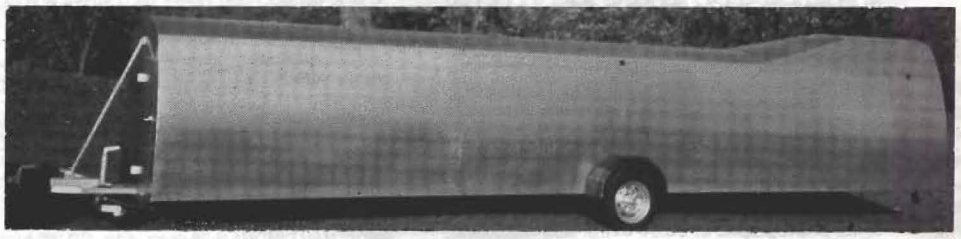
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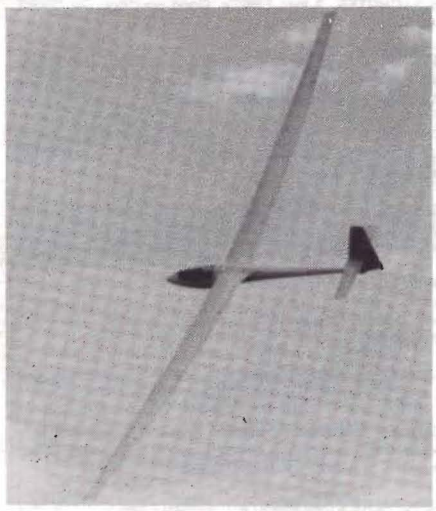
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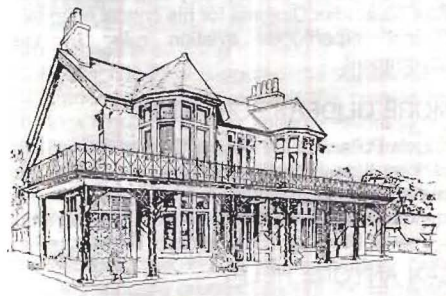
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ADVERTISERS' INDEX

Aero Marketing Associates	98
AMF Enterprises	56
Anglia Sailplanes	60
Anglo-Polish Sailplanes	55
Argyll & W Highland GC	102
J Bally	100
The Bartons	105
Benalla GC	83
Black Mountains GC	103
Booker GC	105
Bristol & Gloucestershire GC	102
British Gliding Association	87
Cambridge Aero Instruments	61
Cambridge University GC	104
Channel GC	107
Charleston Hotel	106
Chiltern Sailplanes	88
Classifieds	105-107
Cornish G	108
Cotswold GC	108
Cotswold Gliders	99
Coventry GC	75
Deeside GC	104
Devon & Somerset GC	103
Electrim Sailplanes	58
Flite-Lines	60
Garrard	69
Glider Instruments	89
Gliderwork	83
Gloster Gliding	76
The Grange	98
H T Communications	83
Herefordshire GC	108
Hinton Hill Aviation	59
Irvin GB	60
J J Associates	54
JSW Soaring	87
Kent GC	102
Lasham Gliding Society	104
London GC	54, 104
London Sailplanes	58
Lowe Electronics	100
Lowndes Lambert	82
Marchington GC	108
McLean Aviation	57
Harry Mendelssohn	107
Midland GC	104
Mowbray Vale Insurance	IFC
Neogene	98
Norfolk GC	108
Oerlinghausen	92
Perry Clamps	102
Peterborough Sailplanes	56
Piggott Bros & Co	97
Price & Buckland	92
R D Aviation	100, IBC
Rematic	98
Sabre AAV	100
Sailplane & Engineering Services	83
Sailplane Services Ltd	56
S&G	83
Schofield Aviation	106
Scottish Gliding Union	104
J L Smoker	98
Soaring Equipment	94
Soaring Magazine	73
Soaring Oxford	61
Southdown Aero Service	92
Southern Sailplanes	BC
Speedwell Sailplanes	56
Stratford-upon-Avon GC	105
Suntiger Europe	60
Brian Weare	98
Wells Design	107
Westley Aircraft	83
C P Witter	107
Wolds GC	90
Yorkshire GC	108

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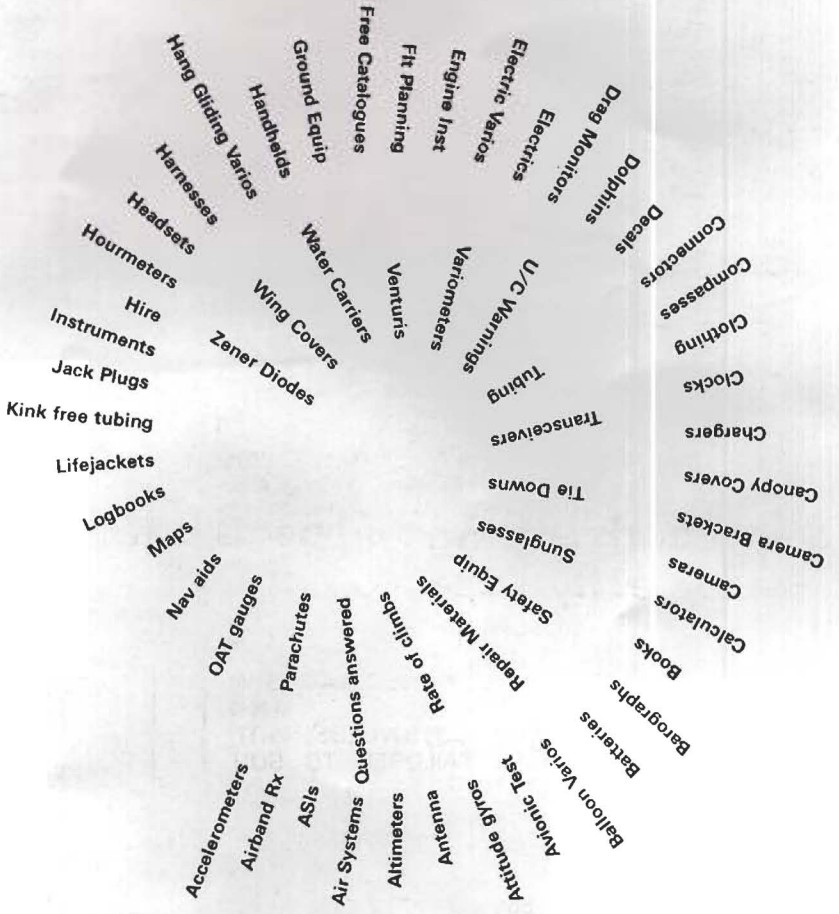
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