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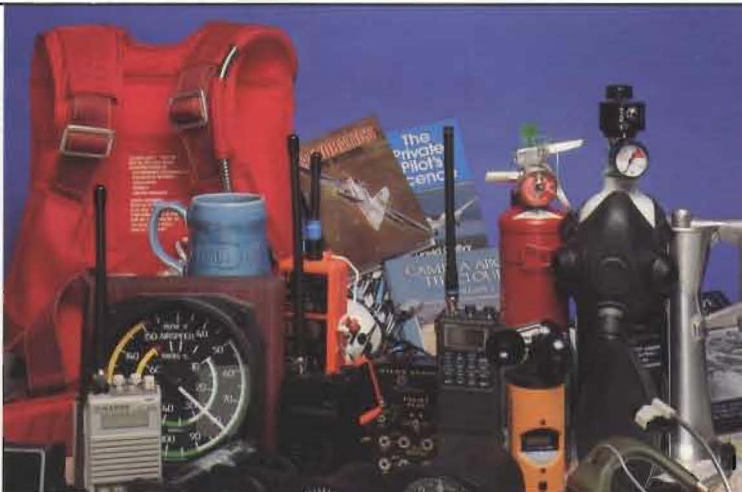
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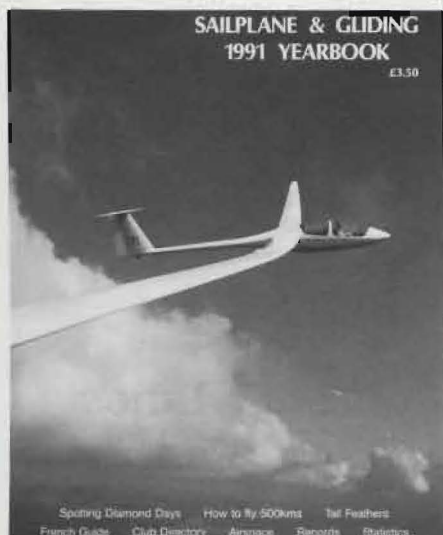
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# SAILPLANE & GLIDING 1991 YEARBOOK

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Cover: An ASH-25 flown by John Jeffries over Shobdon and photographed by Tony Hutchings with a camera on a boom mounted on the wingtip. He used a radio remote control to fire the shutter.



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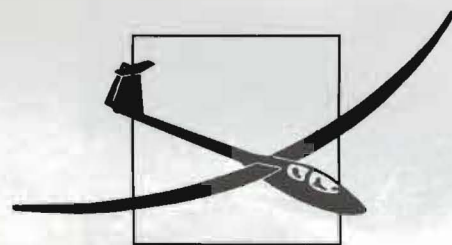
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**E**arlier articles on cross-country weather were published in S&G in 1975, 1978 and 1986 (see footnote), based almost entirely on the Lasham cross-country logbook. They assumed that pilots could ring up their local Met offices for extra data not available from the BBC. That source of free information has been stopped; the data is still available but only as a commercial service.

The list of days includes Diamond goal and distance flights from several clubs; the period has been extended and now covers the years 1973 to 1990.

### What one can get from the media

By combining BBC TV and the little newspaper weather maps one can get a fairly accurate prediction of:

- The pattern of isobars, both past and future and the pressure over the country.
- The surface winds.
- The maximum and minimum temperatures, and
- A symbolic picture of the weather.

### Using the Isobaric pattern

The chart which is almost always available is the forecast for 1200 GMT next day.

A really good soaring day usually needs a ridge of high pressure crossing the area or, if there is no obvious ridge, then a centre of high pressure fairly close. Best conditions are found close to the axis of a ridge or a little way out from the centre of a high. Anticyclonically curved isobars are a good sign but straight isobars may be OK.

Table 1 was found by measuring the distance between ridge and trough, or between high and low, and finding where the soaring area lay in relation to this. For example if the low was 1000 miles from the high and the cross-country area was about 200 miles from the high, then it would count as being in the 20% zone. Cols, which do not fit this classification, are listed separately.

**TABLE 1(a) Distance from ridge axis**

Very close to the axis	50%
From 10-20% away	35%
From 30-40% away	10%

**TABLE 1(b) Distance out from high centre**

Very close to centre	17%
Between centres (col)	14%
From 10-20% away	25%
From 30-40% away	26%
From 50-60% away	12%

The Tables show that distance from a ridge axis is a fairly precise indicator; the percentage of good days falls off rapidly as one gets further away. The distance from a high is less precise as a guide. The best conditions are usually a little way out from the centre. The middle of a high tends to have a lower inversion than the edges so there are more often only blue thermals.

### Wind speed

One can find the geostrophic wind speed from the spacing of the isobars. (See note at end.) Although the geostrophic wind may differ from the actual wind at flying level, it is still a fairly useful guide. It seems that, in spite of the improve-

# PLANNING FOR DIAMONDS USING ONLY MEDIA MET

**This is an attempt to see how well one can pick good cross-country days using just the data provided by BBC TV and the little weather maps in the newspapers. It is chiefly for people planning to take a day off during the week and is not meant to replace the more detailed forecasts one may (at a price) obtain from official sources**

ment both in sailplane performance and piloting technique, a low wind speed is still essential for long closed circuit flights. Wave cross-countries do not have this limitation and such flights have been left out of this summary. Table 2 below shows how the percentage of good days decreased as wind speed increased.

**TABLE 2. Percentage of 300+km closed circuit days with different geostrophic wind speeds**

kt	
0-5	33.3%
6-10	28.4%
11-15	22.5%
16-20	11.7%
21-25	4.0%
26-30	Nil

When speeds are quoted it is the mean wind over the whole area. There may be stronger winds at one edge or even a reversal of wind direction between opposite ends of a long O/R. On more than 84% of days the geostrophic wind, averaged over the area, was less than 16kt. Some days had strong winds at 1200 GMT but the 1800 GMT chart showed a decrease. For 300km flights it may not matter if the wind is strong at midday provided that it drops off during the afternoon.

Wind speed seemed to be more important than

cloud amounts on some days. This was shown up on August 6 and 7 1990. On the 6th clouds were high and well distributed with strong thermals but the geostrophic wind was at least 17kt and it seemed much stronger at flying level. Although a 500km was done I saw no reports of longer flights. Next day, August 7, the geostrophic wind was down to about 9kt and distances in excess of 750km were flown, even by 15 metre gliders. This was in spite of large areas of spread out which reduced speeds in some places and delayed starts in others.

### Estimating upper winds from surface wind forecasts

TV charts appear so briefly that it is hard to get a geostrophic wind from them unless you make a video recording and use a freeze-frame technique on replay. Most newspaper charts are rather small and *The Times* uses a non-standard projection which is useless for winds. Instead one can estimate the winds aloft from the forecast winds at the surface.

BBC TV often displays charts showing arrows with the wind speed in mph inside little circles. These are surface winds based on the forecast winds aloft. Over land the surface speeds are always less than the upper wind; this is because friction reduces the speed near the ground. Table 3 shows the approximate relationship between

**TABLE 3. Estimating 3000ft winds in knots from surface winds in mph.**

Over land		Over sea		
(A) (mph)	(B) (Kt)	(C) mph	(D) (Kt)	(E) (Kt)
05	07	05	5	5
07.5	10	07.5	7.5	7.5
10	14	10	10	11
12.5	17	12.5	12.5	13.5
15	22	15	15	16
17.5	28	17.5	17.5	20
20	35	20	20	23
22.5	39	22.5	22.5	26
25	43	25	25	31
27.5	48	27.5	27.5	34
30	52	30	30	37.5

- is the surface wind in mph over land.
- is the 3000ft wind in knots (unstable air).
- is the surface wind in mph over the sea.
- is the 3000ft wind in knots if the air is unstable.
- is the 3000ft wind in knots if the air is stable.



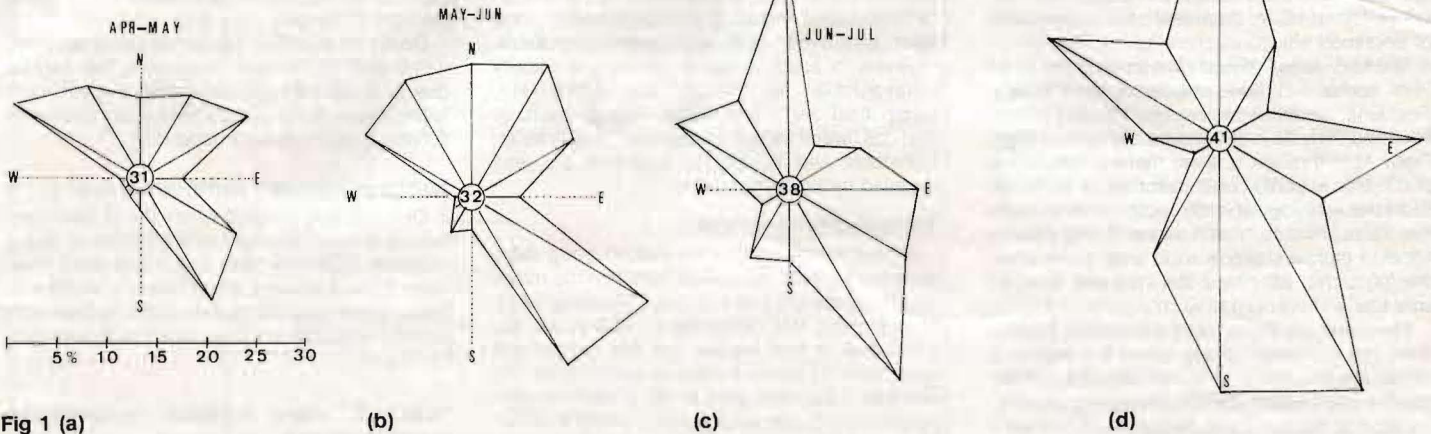


Fig 1 (a)

(b)

(c)

(d)

the forecast speeds at the surface (given in mph) and the 3000ft wind in knots. It assumes convective conditions. If the air is stable the winds decrease much more between 3000ft and the surface. This doesn't matter if you are only concerned with days when there are thermals.

The Table shows that even on unstable days the difference between surface wind over land and the 3000ft wind can be considerable. For example if (on a convective day) the BBC wind chart gave a speed of 15mph the 3000ft wind would be nearer 22kt. The stronger the surface wind the greater the difference. Thus a 25mph surface wind means the 3000ft wind would be 43kt. In contrast there is practically no difference over the sea provided the air is unstable. 20mph over the sea represents 20kt at 3000ft. The difference becomes significant if the air over the sea is moderately stable. Then 30mph over the sea means that at 3000ft the speed will be just over 37kt.

**Best wind directions**

The Lasham log suggested that southerly winds were bad for cross-countries while winds with a northerly component produced most of the good days. Reports from a large number of clubs show that the wind direction is less critical, but even so the northerly component shows up best. Table 4 below shows the percentage distribution of wind directions as shown by the isobars at 1200 GMT.

**TABLE 4. Distribution of geostrophic wind directions (April-September) (A) as a percentage of cross-country days (B) of all days**

	(A)	(B)
Light variable	33.4%	33.0%
From 360°	13.3%	16.2%
030°	4.0%	9.6%
060°	4.9%	10.0%
090°	4.3%	8.3%
120°	3.7%	13.2%
150°	3.7%	16.0%
180°	2.8%	5.8%
210°	2.8%	5.7%
240°	1.9%	1.7%
270°	4.6%	3.4%
300°	12.1%	13.3%
330°	8.4%	11.5%

The figures in column (A) are just the number of cross-country days for each direction divided by the total of cross-country days. However, this doesn't tell the whole story.

If one divides the total number of cross-country days by the total number of all days one finds the percentage odds are about 10%. In other words Diamonds were only achieved on one day in ten. Column (B) was found by dividing the number of cross-country days by the number of days that wind direction occurred. Thus if there were 278 days when the direction was from 360° but only 45 were listed as Diamond days, then the percentage works out as 16.2%.

Column (B) makes the odds look better for south-easterly winds. With 12 Diamond days out of only 75 the odds work out at 16.0%. The old Lasham figures had suggested that south-easterly was always a poor direction. By including reports from other clubs one finds the odds for a south-easterly day are really quite good. The reason may be that winds off the continent bring drier air which gives good thermals once the air has recovered from its cold Channel crossing.

**Seasonal changes**

It turns out there is a seasonal variation. Although the odds on a Diamond day work out at 1:10 (10%), the monthly figures show a steady improvement from spring to summer. It is given in Table 5.

**TABLE 5. Percentage frequency of Diamond days month by month**

April	5.7%
May	10.9%
June	9.1%
July	14.8%
August	15.4%
September	3.2%

Fig 1 shows four sets of "winds roses". These show the frequency of good days as a percentage of all the wind directions in these months. The months have been paired to get larger samples and smooth out fluctuations.

In these "wind roses" the longer the lines the higher the percentage of good days. A percentage scale is shown beside the April/May diagram. The figure in the circle is the percentage of light and variable winds.

The figures show that although winds in the sector 300-360° brought a high proportion of good days the odds are not as good as expected. This is because there are quite a lot of these northerly days which failed to give good soaring, so the percentage is lower. The disappointing lack of good days is chiefly due to showers or cumulus spread out spoiling the thermals.

**Some features shown by the wind roses**

From June through to August there is a notch at 330°. One would expect an even distribution from 300° through to 360°. I believe this notch is due to winds blowing through the North Channel and the Cheshire Gap bringing a band of extra moisture which results in a zone of showers or excess cloudiness across the Midlands. Winds from 360° are dried out by passing over the Highlands of Scotland (but give poorer weather along the east coast). Winds from 300° are dried out by crossing the Welsh mountains.

Over the UK prevailing winds are from a westerly direction and there are a great many days with winds from 210 to 270°. Very few gave good soaring so all the wind roses show very low percentages for these directions.

The percentage of good days with light and variable winds (the figures in the central circles) show a steady increase as spring gives way to late summer. In July alone there appeared to be a 50% chance of getting a good day when the wind was light and variable, but including August brings the percentage down. (The July figure was boosted by two exceptional years in 1976 and 1989. In July 1976 there were eight days when 500km was exceeded. In those days some 500km triangles were flown in wooden gliders like the K-6CR.)

**Bi-monthly variations**

The April-May figure shows, as expected, a fair percentage in the sector 300-060° but there is an unexpectedly good sector from 120-150°. The spring north-easterlies also show up with many splendid days when winds were from 060°. Highly soarable north-easterly winds do not occur every spring. They are a feature to look out for in late April or May. The air comes from the arctic and is dried out by crossing Scandinavia. It does not pick up much extra moisture crossing the cold North Sea. If the air comes straight down



the North Sea it is nearly always too moist and brings lots of wintry showers to the eastern side of England.

The May-June figure shows an increase in the 030° sector, but this is chiefly confined to May. The June values show a marked drop. The few south-easterly days still show a high percentage. From April through to June there is a notch at 090°. This is partly due to a tendency for North Sea stratus or fog, which is most common while the sea is still cold, to drift inland during the day spoiling thermals over a wide area. Even when the fog burns off inland the inversion remains very low.

The June-July figure shows the north-easterly days are no longer much good but northerly winds are becoming more reliable and the few south-easterly days are still OK.

The July-August figure favours both northerly and south-south-easterly winds. Provided the air originally came from polar regions, and has not been too long over Europe, winds off the continent can give good soaring except near the onshore coasts. This is because excess moisture picked up over the North Sea is lost while the air is over Germany and France. The Channel crossing tends to spoil soaring near the coast but thermals improve well inland.

An August/September wind rose was not drawn because there were too few Diamonds days in September to give a representative shape.

**Where the air has come from**

The origin of the air is more important than the actual wind direction on the day. The surprisingly good days with south-easterly winds were due to air which originated in polar regions and then curved round a high to reach the UK with a southerly component. To see where the air came from one has to watch the charts for a day or two beforehand; even then it is difficult to give a precise figure for direction. However, it is clear from Table 6 that winds from polar regions nearly always produce the stronger thermals, especially early in the soaring season when the heat from the sun is less powerful.

The Table below shows that although air which came from a northerly direction (330-030°) gave a fair proportion of the Diamond days early and

**TABLE 6. Where the air came from (Monthly percentages)**

Dir	Apr	May	Jun	Jul	Aug	Sep
360	26	13	9	7	13	6
030	23	8	13	4	1	12
060	11	6	2	-	3	-
090	3	3	-	1	-	-
120	-	-	-	-	1	-
150	-	-	-	-	-	-
180	-	-	-	-	-	-
210	-	-	4	-	1	-
240	-	14	12	15	7	-
270	9	5	13	29	18	24
300	14	10	12	12	16	24
330	9	19	13	13	19	29
Local	6	14	13	18	20	6
N'y	57	48	44	24	33	47 (Dir 330-030)
SW-W	9	19	29	44	26	24 (Dir 210-270)

**TABLE 7. Temperature spread and good soaring**

Range (°C)	6-7	8-9	10-11	12-13	14-15	16-17
300km+	1%	8%	20%	33%	25%	13%
500 km+	-	4%	15%	39%	26%	15%

late in the year, this direction was not so important in July and August. Then trajectories from the west and even south-west were acceptable. However, a south-westerly trajectory is usually unfavourable for places like North Hill, Nympsfield and (to a lesser extent) Lasham. Stations further away from the coast like Bicester, Dunstable and Husbands Bosworth are less troubled by south-westerlies.

**Temperature range**

An earlier article showed that on good days there was a wide separation between the maximum temperature and dew point. The simple rule of multiplying this difference by 400 to get the cloudbase in feet implies that the greater the separation the higher the condensation level. For example if the dew point is 10°C and the temperature 20°C, one would expect a 4000ft cloud-base while convection is active.

*See where sea breezes are likely to cool coastal areas and spoil soaring*

The dew point is not given in media forecasts but one can still get a useful result by looking at the difference between night minimum and day maximum temperatures. These are almost always shown by the BBC TV. When they also provide coloured maps of isotherms one can see where sea breezes are likely to cool coastal areas and spoil soaring.

Using max and min temperatures is not as accurate as using max and dew point, but Table 7 below shows there is usually a fair relationship between the temperature spread and good soaring days.

The Table below shows that almost all Diamond days had a temperature spread of 10°C or more and the majority lay in the range 12-15°. A wide spread of temperature usually indicates dry air with clear skies and almost calm winds at night and plenty of sunshine by day. Very high values suggest a rather low inversion and little or no cumulus to mark the thermals. The days with

flights of over 500km show a higher proportion in the 12-17° range.

Do not be put off by a small spread of temperature if other factors look favourable. This may be due to a cloudy night preventing the minimum falling much. If this cloud clears away soon after sunrise it may still be a good day.

**Night minimum temperatures**

One way of estimating where the air has come from is to study the night minima. Polar air with a northerly trajectory often has a low night minimum. Table 8 shows the night minima which preceded good days during the soaring season from April to September. (There was insufficient data for March.)

**TABLE 8. Night minimum temperatures month by month**

Month	Av (°C)	Lowest	Highest
April	-0.4	-6	+6
May	3.0	-1	+7
June	6.6	+2	+2
July	10.0	+4	+17
August	10.1	+6	+15
September	6.7	+3	+10

This suggests that it is a good sign if air temperatures fall close to freezing point in April and May and are below the seasonal average in any month. Predictions of ground frosts are a hopeful sign too. Air temperatures are measured in a screen 4ft above the ground. Ground frosts are detected by thermometers exposed in the open with the bulb in contact with the tips of short grass. These "grass-minimum" temperatures can be several degrees lower than the "screen" temperatures.

**Pressure**

MSL pressure by itself is not necessarily a reliable guide to good soaring. However, the block diagram (Fig 2) shows that there is a clear peak in the range from 1024-1026mb. 76% of days had pressure in the range 1018 to 1029mb. The highest value found was 1037mb in March on a 300km day; pressures are liable to rise higher and fall lower in early spring, late autumn and winter. The range of pressure is smaller in summer. The next highest pressure on cross-country days was 1032.

When pressures are near the top of their range the day is apt to be blue. Early morning cu is likely to burn off leaving a cloudless afternoon. While this is no longer a big problem for 300km flights it does seem to make first flights of over 500km difficult.

**Pressure changes**

Rising pressure is a sign of more settled weather arriving but the first days of a strong surge of pressure are apt to be both too windy and too cloudy. The best soaring days are likely when, or just after, the pressure has peaked and is beginning to fall. Some of the best soaring occurred the day before the next front moved in.

**Astronomical variations**

Fig 3 shows a graph of the sun's declination together with the length of day in the Midlands.



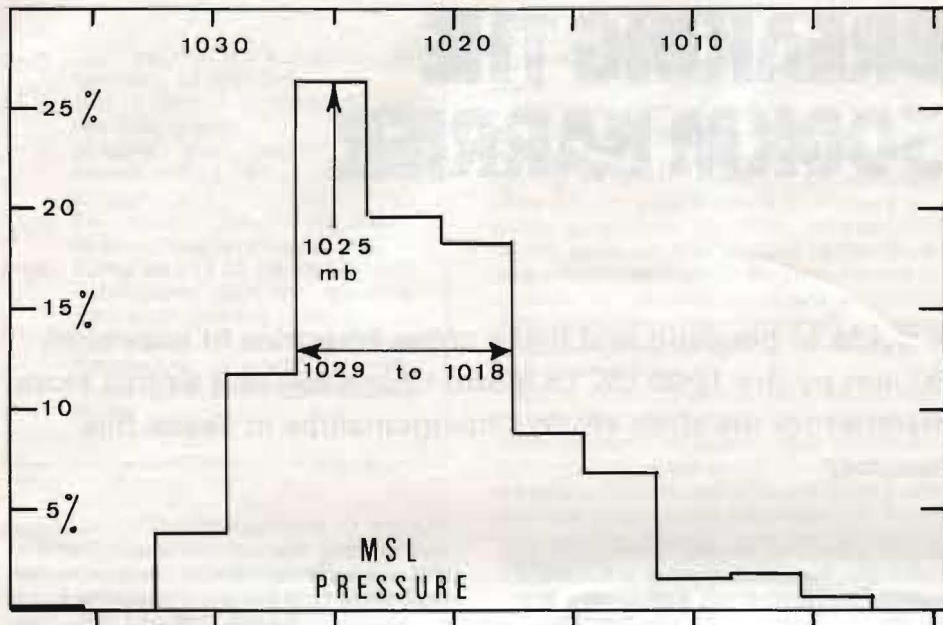


Fig 2

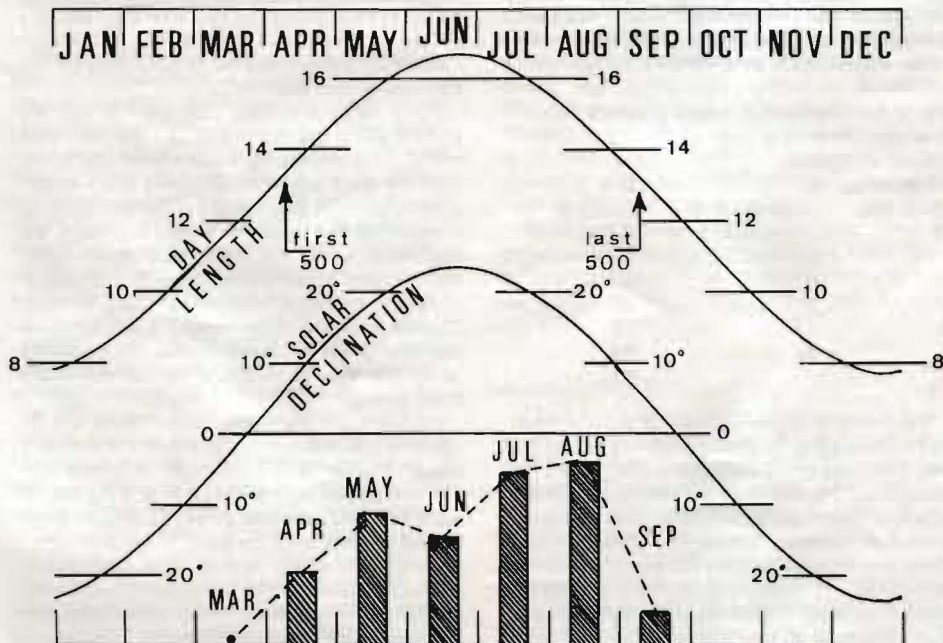
Little arrows show the first and last days in the year when flights of over 500km were made exclusively in thermals. The graphs show that the day length was always over 13hrs and the sun's declination was at least 6° north of the equator. A declination of +6° means that the solar elevation would be about 45° over central England.

The graph also shows a block diagram of the frequency of Diamond days in each month, given as a percentage of the total number of such days. April and September might be expected to have lower values but the dip in June is surprising. Certainly June 1990 was a miserable month.

**Sunshine**

Sunshine figures showed a wide variation over

Below Fig 3



the cross-country areas. High values usually (but not always) indicate a good cross-country day. However, sea breezes gave some coastal stations clear skies and lots of sun; this was not good for soaring there. Patches of cloud reduced the sunshine totals inland but this did not necessarily mean poor soaring.

On 90% of days the lowest sunshine figure in the area was at least 7hrs and most stations reported 9hrs or more. On 94% of the 500km days sunshine exceed 11hrs. Some days had 15hrs sun.

**Summary of items which gave good soaring days**

1. Being very close to the axis of a ridge or fairly close to the centre of high pressure. Anticyclonic curvature to the isobars and no fronts nearby.

2. Light winds. Geostrophic speeds less than 16kt; inland surface winds not more than 12kt.
3. Air which has previously come from a region well to the north of the UK, (even if has since halted or returned from a south-easterly direction). Good indications are a low night minimum temperature and a spread of 12-15°C between min and max temps.
4. Wind directions with a northerly component, especially if the cross-country area lies in the shelter of high ground. An exception to this is the period of spring north-easterly winds.
5. MSL pressure in the range of 1018-1029mbs (1025 is very good). Best days likely when or just after the pressure has peaked.

**APPENDIX  
Finding winds from charts**

A rough and ready method is to take dividers or a strip of paper and mark off a distance of 300nm (which is 5° of latitude). Lay this at right angles across the isobars and find the pressure difference between the ends. Multiply this value (in millibars) by 2.5 to get the geostrophic wind speeds in knots. For example if the pressure was 1024 at one end and 1014 at the other the 10mb drop indicates a wind of 25kt.

The multiplication factor is good enough for the Midlands and south of England. At other latitudes use the Table below.

Latitude	Multiplication Factor
70°	2.1
60°	2.3
55°	2.4
50°	2.6
45°	2.8
40°	3.1
35°	3.4

Footnote: "Cross Country Gliding Weather", October 1975, p194; "A Good Soaring Guide", August 1978, p155 and "500km Days," April 1986, p60.

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# BREAKING THE 500KM BARRIER

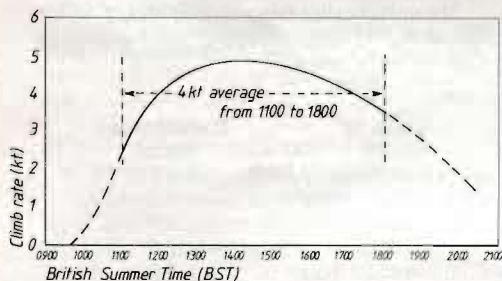
## A guide to planning and flying cross-countries in excess of 500km by the 1990 UK 15 Metre Champion and British team member for his sixth World Championships in Texas this summer

**T**om Bradbury in his article on p4 has identified many of the weather factors that are a requirement of a good soaring day. His statistics show that typically one day in ten throughout the summer is suitable for 500km flights. A pilot flying just once a week throughout the soaring season should encounter at least two potential 500km days. The following should help pilots hoping to complete flights of 500km or more in the UK on one of those days.

### Planning

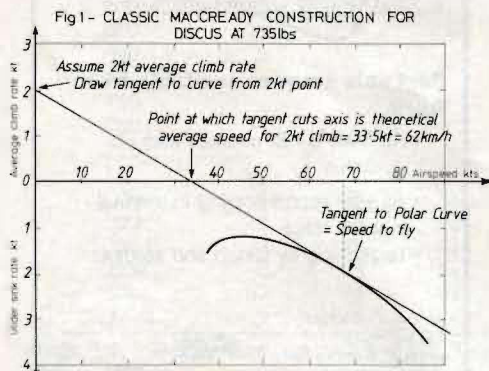
Try to consider all the aspects of your intended flight and complete as much planning as possible well in advance. In order to set a cross-country target which is both ambitious and realistic, you have to analyse your potential performance level.

Typically a really good day in the UK will offer regular thermals from 1100 to 1800 BST. Clearly the day will peak in mid afternoon but throughout this period as a whole climb rates will average about 4kt. Any useful soaring before 1100 can be treated as a bonus and anything after 1800 a safety margin to get home if there should prove to be an unexpected delay *en route*.



**Fig 1** It can be seen from this profile of a good soaring day that a 500km attempt is unlikely to be successful unless pilot and glider can sustain an average cross-country speed approaching 70km/h for extended periods. Most experienced cross-country pilots know how fast they are likely to go for any given set of conditions but the less experienced will have to deduce this for themselves, using their glider's polar curve and the classic MacCready construction.

Fig 2 shows the polar for a Discus achieving a 2kt average climb rate: the point at which the



**Fig 2. Classic MacCready construction for Discus at 735lbs.**

tangent to the polar crosses the horizontal axis equals the theoretical average cross-country speed for the 2kt climb rate. (Refer to **New Soaring Pilot** by Welch and Irving for full details.)

By drawing tangents to the polar curve for a selection of climb rates from say 1 to 6kt it is possible to tabulate the theoretical average cross-country speed in km/h against average climb rate as shown in Fig 3, column A.

Although the very best cross-country pilots will equal and sometimes exceed the theoretical cross-country speed for their gliders, more commonly the average speed is somewhat less due to a number of factors such as wind effect, tactical detours and pilot experience level. Fig 3 column B represents the likely average cross-country speed for a competent pilot, being the figures in column A reduced by a somewhat arbitrary 10%.

The actual reduction factor can be fine tuned and revised by the pilot by comparing actual results with achieved average climb rates. This sort of analysis is much easier if you are lucky enough to use one of the modern electronic barographs or alternatively a statistical vario-meter system such as a VARCOM.

**Fig 3. Average cross-country speed vs average climb rate**

Discus at 735lbs		
Av achieved climb rate	A	B
kt	Theoretical av x-c speed km/h	Likely av x-c speed km/h
1	44	40
2	62	56
3	77	69
4	87	78
5	94	84
6	101	91

The examples shown in Figs 2 and 3 are based on the Discus and the pilot will have to reproduce the MacCready construction and table of average speeds based on his own glider's polar. However, the values shown in Fig 3 are representative of any modern Standard or 15 Metre Class glider and illustrate that the 7hr soaring day profile in Fig 1 is quite adequate for a competent pilot to complete 500km since the flight will take about 6½hrs at an average speed of 78km/h.

Furthermore, this example shows that the latest acceptable planned start time for a glider of this performance is 1130hrs. This argument may be repeated for the individual pilot and glider combination to see not only if 500km is a reasonable proposition but also the latest acceptable start time. Don't be discouraged if your glider is of a lower performance and things look a bit marginal for completion inside the profiled 7hrs, for K-6s have flown 500km closed circuits in the UK. You must plan to use more of the day, as discussed later for flights in excess of 500km.

Pilots aspiring to complete flights well in excess of 500km will almost certainly have to plan on using the period of early morning soaring before 1100hrs. Usable thermals may start as early as 0930 but initially are broken, weak and low with a greatly increased risk of a frustrating early outlanding.

Fortunately, however, the early thermals are often closely spaced and surprising progress can be made by gently dolphining along the early lines of lift. Usable thermals may be found as late as 2000hrs although by this time they are very widely separated and likely to be very weak - 1930hrs is a more realistic time to plan for last thermals in mid summer.

For a really ambitious task, plan to use the entire soaring day from 0930 to 1930 as shown in Fig 1. By comparing the achieved climb rate hour by hour with the tabulated likely cross-country speed it is possible to estimate just what is possible. For example, a pilot achieving the speeds shown in Fig 3 column B could realistically expect to complete 700km in a Discus or similar by starting at 0930 and finishing at 1930. Clearly, however, such a flight would only be possible if the pilot encounters no problems along the way as it plans to use the entire soaring day.

I haven't yet mentioned waterballast but its effect is well worth considering at the planning stage. Clearly it considerably improves the average speed during the peak soaring hours, but is a terrible handicap during the first climbs in the early morning thermals.

Fortunately, climb rates improve fairly rapidly as the day develops so it is only a problem for the first hour or two. In the evening waterballast can be progressively dumped to match the weaken-



- ★ Plan as much as possible in advance of the day.
- ★ Set yourself ambitious yet realistic goals.
- ★ Monitor the weather daily throughout the soaring season.
- ★ Fly conservatively to avoid time consuming low points.
- ★ Keep an eye on your schedule – continue with the possible and abandon the impossible.
- ★ Be aware of your physical limitations, in particular consume sufficient liquid during flight.

ing conditions. The optimum trade off seems to occur with a partial load of water:- Klaus Holighaus recommends 100lbs of water for the Discus although I prefer rather more for these very long flights (about 200lbs) as I feel that it offers the possibility of very high speeds over the peak of the day if it should prove exceptionally strong.

Somewhere between these figures is probably good for current generation Standard and 15 Metre Class gliders. The only exception to this is if the day proves to be windy with significant streeting when I load considerably more water and accept a slightly later start.

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***“All the normal cross-country planning rules apply equally well to long flights . . .”***

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Having decided on the maximum realistic distance you intend to fly it is time to get down to detailed planning. All the normal cross-country planning rules apply equally well to long flights, but there are two particular points to note. First, **the day** is likely to be strong with high cloudbase and widely spaced thermals. Try to avoid areas where overhead airspace restrictions will severely affect your freedom to climb high. Planning to operate under a 3500ft ceiling during the peak of the day is just not acceptable unless it can easily be diverted around. Secondly, plan to operate downwind on the first leg whilst thermals are weak and if possible also arrange to have a downwind component on the last leg.

If you have a glider with waterballast it also helps to arrange the into wind leg to lie **directly** into the wind to take advantage of any streeting. Keep track lines and particularly TPs away from coastal areas, especially the upwind coast.

Generally the further from the coast the better the soaring. I prefer to set myself tasks up and down the centre of the country where temperatures are usually higher with stronger thermals and a higher cloudbase. The quadrilateral rules

for 500km distance flights allow plenty of scope for optimising soaring possibilities whilst avoiding controlled airspace and other problem areas.

Most good soaring days in the UK occur with wind directions from west clockwise around to north-east, so try to plan several alternative routes at the required distance to take advantage of the different wind directions. Don't totally rule out the possibility of a good day occurring with another wind direction, because as Tom Bradbury explains the **origin** of the airmass is just as important as the wind direction itself and 500km flights have recently been completed in returning Polar airmasses carried by winds from a southerly direction.

Aim to collate a file containing all the task options, noting down such details as task leg distance, whether acceptable for badge claims, airspace restrictions and so on. When the big day arrives you can refer to this file and select a suitable task secure in the knowledge that it has been carefully planned, away from the heat of the moment.

### **Equipment**

Before the season starts check over the glider, instruments, trailer, barograph, maps and camera. **Always** use two cameras, preferably in fixed mountings to guard against malfunction or finger trouble ruining your day. Cross-country flights of 500km or more involve being airborne for a long time so pay particular care to items of pilot comfort. In particular make provision to carry at least a litre of liquid for drinking in flight.

### **Medical considerations**

There is no question that the fitter you are physically the better you will be able to perform mentally, particularly towards the end of a long flight. I am not suggesting that everybody takes up aerobics and jogging but sensible diet and exercise does help.

Try to lay off the booze and get adequate rest before a big day. Eat a sensible breakfast and carry a light snack for the flight. I can't over-emphasise the importance of drinking sufficiently during the flight. Dehydration is extremely insidious and a potential killer, even in the UK. Condition yourself to take regular sips of fluid even if not particularly thirsty. 500km flights are inevitably going to exceed 6hrs and you **must** drink that litre of fluid.

Be aware that your performance is going to deteriorate towards the end of a long flight. Take special care thermalling or manoeuvring at low level, when landing at your goal or when executing a field landing.

### **Monitoring the weather**

Once the soaring season starts, monitor the weather daily. A 500km day can be expected any time from April onwards. Using the information in the newspapers and on BBC TV weather forecasts it should be possible to spot a good day coming about three days in advance (see also Tom Bradbury's article).

Not all the possible days actually turn out to be good on the day, but once the possibility is identified monitor the weather situation in more detail

to keep in touch with how it develops. It is a good idea to do this even if unable to fly on the day as it helps to develop personal forecasting skills.

The evening before the big day try to watch the forecast following the BBC TV News. This gives a good synoptic summary indicating the origin of the airmass and forecasts wind direction, cloud cover and maximum and minimum temperatures. If things still look good this is the time to make sure that your cameras are loaded and the barograph is ready. The most suitable task for the coming day may be provisionally selected at this time.

### **On the day**

There is always something very special about the early hours after dawn on a really good day. The air is often crystal clear with superb visibility, the sky a deep blue with little or no cloud except perhaps some scattered thin cirrus. On stepping outside the air should feel noticeably cool with just a light breeze. Ideally there will be a light dew or ground frost indicating sufficient moisture for the formation of cumulus.

If thicker or significantly high cloud is visible it should be well towards the eastern horizon from where it should be carried away from the task area by the prevailing upper winds. If bands of thick cirrus are visible to the west it is unlikely to be a good day.

If the ground is saturated by heavy rain either overnight or the previous afternoon the day is unlikely to be suitable for really long flights. Either the sun will take too long to dry and heat the ground for an early start to thermals, or if the air is very unstable the huge amount of moisture carried up from the surface by the first thermals may cause early spread-out. However, once the ground dries soaring conditions should improve dramatically giving an excellent afternoon in which to fly a shorter task.

On weekdays I always watch the morning BBC TV forecast at 0725 or 0755. Not only does this confirm that the expected changes in the synoptic situation have indeed occurred overnight, it shows the movement of weather and cloud by time lapse satellite photography. By careful observation of the satellite images it is possible to spot potential problem areas and adjust the proposed task accordingly. For example avoiding the slow clearance of frontal cloud.

Finally, the **actual** minimum night temperature is reported which may be compared with the forecast day's maximum to estimate the likely cloudbase. A cloudbase which rises quickly to 4000ft or more by early afternoon is really the minimum requirement for flights in excess of 500km.

Don't be put off if the forecast indicates a blue day when all the other factors look suitable. Many 500km flights are completed in blue weather and haze caps or wispy cumulus may well appear anyway. At weekends when the morning BBC TV forecasts are unavailable I try to build a mental picture of the weather situation by watching the teletext weather maps and listening to the Radio 4 forecasts. It may also be possible to receive VHF Volmet broadcasts on the ground which give actual weather reports and dew point temperatures for selected airfields throughout the UK. ➔



### Task setting

Having listened to as much weather information as possible and looked outside to check that local conditions confirm the forecast, select the most appropriate task from your file, not forgetting to consult NOTAMs for anything that may affect your planned route. Calculate the latest acceptable start time for your planned task and estimate the scheduled time at significant points around the task; - ie the time at which you should be passing those points in order to finish at the planned time.

If unable to take-off before the latest acceptable start time, due to late development of usable thermals or any other reason, revise your task to a shorter one that can be completed within the time allowed by the estimated start time. As an example, on August 6, 1990, which was clearly a very good day indeed, I suffered two successive winch failures declaring a revised shorter task each time before eventually launching successfully at the third attempt to complete a 550km task on schedule.

If delayed on the ground try to monitor the weather visually, by listening to the radio chatter of other pilots or to Volmet to identify the development of problem areas, and be prepared to revise your task route around them.

### At the airfield

If the flight is planned to take advantage of the whole soaring day, try to be rigged, ballasted, DI'd and ready to go with declarations complete by 9am. If using aerotow, consider briefing the tug pilot to release you overhead the start point at 1000m. This will save valuable time that otherwise would be spent climbing in the first weak thermals.

Don't be tempted to take-off at the very first sign of distant ragged cumulus, but wait until cumulus with defined bases are within gliding range. This may be some 30min after the first ragged cumulus appear. My logbook shows that over the last two years I have released from tow overhead Nympsfield twice at 0915 BST and several times at 0930, soaring away successfully on the early thermals. On certain days usable thermals really do exist at this time of day, but take-off time must be very carefully chosen.

If the day is likely to be blue watch for other signs of thermal activity as the morning progresses. The formation of haze caps associated with sudden gusts of wind indicate the start of convection. Of course, other gliders soaring overhead are the best indication, but if you wait for this sign you have probably already missed out on some of the soaring day (and they are probably waiting for you to prove that it's soarable anyway!).

### In the air

Once airborne if conditions appear reliable, even if rather weak with low cloudbase, set off without delay. Don't be too impatient to race on at this early stage, but fly conservatively to safeguard your limited altitude. Be prepared to detour around low lying valley areas if there is no sign of useful convection. Generally the first usable lift will be over high, dry rolling hills and it may well pay to plan to detour over such areas from the start.

As the day progresses and conditions develop, aim to progressively increase your average speed by pressing on more. Although it is important to cover as much ground as possible during the peak of the day, don't be tempted to take too many risks as the recovery from one bad low point can cause unacceptable delay and put the flight too far behind schedule. Remember that it is a distance flight, not a race, and that at the end of the day 2 to 3km/h difference in average speed really isn't going to matter very much.

Almost inevitably you will find that at some point it will be necessary to detour around a patch of bad weather. In the UK this is most likely to be an area of spread-out. Start to deviate around difficult areas in good time and don't worry if you find yourself up to 20 or 30 miles off track. On a long leg this makes very little difference to the overall distance flown. As in all cross-country flying, keep a watchful eye out for major widespread weather deterioration. On a long cross-country this will make the task impossible and you should consider returning directly home while there is still a chance.

At all stages of the flight continue to monitor your progress against the required schedule. Don't worry too much if you are behind schedule early in the day as there is a considerable amount of time left to make it up, but if well behind schedule by mid to late afternoon consider abandoning the task and returning home in the remaining day. **The emphasis should be on continuing to attempt the possible, but abandoning your attempt on the impossible.**

### Gradual increase in \_\_\_\_\_ the spacing between \_\_\_\_\_ the active clouds \_\_\_\_\_

As late afternoon and early evening approach the day will progressively start to die. The first indication is a gradual increase in the spacing between active clouds, although the climb rates may remain quite good in the wide and settled late afternoon thermals.

Be patient with each climb gaining as much altitude as reasonably possible before crossing the gaps to the next active clouds. Expect to make increasingly large detours from track to remain in soarable areas as the evening wears on. Eventually the thermal strengths will start to decrease noticeably so be prepared to progressively dump waterballast to maintain an acceptable climb rate.

If all goes well you will eventually realise with some pleasure that you have reached a point at which the current climb will take you high enough to final glide. There is really no point in willingly setting off on a marginal final glide following such a long flight. After all it is a distance attempt rather than a race.

If at all possible take an adequate height margin before leaving the last thermal. When it finally becomes clear that you are going to comfortably make your destination, don't be tempted in the euphoria of the moment to get involved in a spectacular display of low flying. It will have been a long flight and you will probably be much more tired than you realise. ✕

# SHOPPING THE BGA WAY

If you have a present to buy for another glider pilot or simply feel like indulging yourself, it is worth visiting the BGA shop at the Leicester office or looking through their mailing list. They hold a very comprehensive list of books including their own publications and all kinds of accessories from blazer badges, bow ties, desk clocks with a glider design, cloud charts to sweatshirts and ties.

To give you an idea we have listed some of the books in stock with the mail order price which includes p&p.

- Accidents to Gliders 1990 - £1.75
- Aircraft Inspection & Repair - £15.95
- Beginning Gliding, Derek Piggott - £11.95
- British Isles Airfield Guide - £2.75
- CAA Flying Displays Manual CAP403 - £2.95
- CAA Radiotelephony Manual CAP413 - £3.95
- Competition Handbook - £1.85
- The Complete Soaring Guide, Ann Welch - £13.90
- Cross-Country Soaring, Helmut Reichmann - £27.00
- Derek Piggott on Gliding - £10.50
- Glider Logbook - £3.50
- Glass-Fibre Repair Manual, Slingsby Aviation Ltd - £22.50
- Gliding, Derek Piggott - £13.50
- Gliding in 8 Days, Adrian Morgan - £9.45
- Going Solo, Derek Piggott - £8.35
- Laws and Rules for Glider Pilots - 80p
- Meteorology and Flight, Tom Bradbury - £13.45
- Meteorology for Glider Pilots, Wally Wallington - £21.40
- Meteorology Simplified, AOPA - £3.50
- Pilot's Logbook - £1.35
- Deluxe Version - £4.95
- Pilots' Weather, Ann Welch - £19.35
- Principles of Flight, Bill Scull - £3.95
- Soaring Across Country, Bill Scull - £12.95
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- Theory of Cross-Country Gliding, Anthony Edwards - £2.50
- Theory of Flight for Glider Pilots, Ray Stafford-Allen - £3.95
- UK Airspace. Is It Safe? David Ogilvy - £6.50
- Understanding Flying Weather, Derek Piggott - £7.45
- Understanding Gliding, Derek Piggott - £14
- Yorkshire Gliding Club, Chris Riddell - £1.25 ✕



# THE INTER-CLUB LEAGUE

If your club isn't in this friendly competition, then you are missing out as you will probably agree after reading this article

**T**he Inter-Club League is a series of friendly meetings between neighbouring clubs, and are a good way of promoting contact and co-operation. As well as providing encouragement and experience to early cross-country pilots, they are lots of fun too!

The intention is not to give great glory to individuals, rather to provoke healthy club rivalry. At the same time, club pilots and crew do gain the opportunity to fly from other clubs in their area.

In short, the Leagues are made up from a small number of clubs - between three and five, who enter three gliders in competition against their fellow League members. These three glider pilots are categorised into Novice, Intermediate and Pundit Class. Each Class flies a task and end up scoring a few points - not hundreds of points as in rated competitions but, in a four League meet for example, 4pts for coming 1st, 3pts for 2nd etc. You only score 0 if you don't compete.

In this way, no club can build up an unassailable lead after one weekend. In a four Club League, the maximum lead in any Class is 4pts - and then only if one club doesn't even launch.

So, if your club is feeling left out in the cold, then why not join in? You are very welcome to!

You've only got a winch at your site? No problem. You can negotiate with your fellow League members and agree to winch launch on your day. My own club operates by winch launch and, by agreement, waterballast is not carried on this day. Alternatively, clubs can often collaborate in order to borrow a tug for the weekend.

You've not got a Silver badge yet? Not a problem - There are a number of tales of Novice entrants obtaining their Silver distance and winning a day for their Class!

You've no pundits? Any one can be a pundit, even a novice! and you get one point for launching so you aren't out for a duck... You might even improve on that!

"But we aren't into competitions..." This is more of an organised fun event with the "competition" at all levels - arguing over the rules, organising the best bean feast and out-drinking each other on the Saturday night... as well as a little bit of flying.

The aim of the League is to get people to participate if at all possible. Often, if your club isn't sure, it may be worth talking to your local League to see if they will let you come and fly *hors concours*. Or if you are really keen, challenges are

made to be overcome. The Nottingham Police wanted to enter, so they made up a team, but lacked an airfield on which to hold their meeting... Enter RAF Cranwell who loaned them a field for their meeting... And RAF Cranwell aren't even in the League!

So come on, form a League with your neighbouring clubs. If you're running out of ideas, give Mike Jefferyes a ring to see if he knows of others interested in participating.

The rules are more like guide lines - any of them can be modified with agreement of the clubs involved in that League, but typically...

A League is made up from between three and five clubs.

There is a meeting at each of the club sites (except in five League clubs, the recommendation is that only four meetings be held).

Any one pilot may only fly a maximum of four contest days per season, prior to the final.

The Inter-Club League final is held annually over August Bank Holiday weekend, with a team from the winning club of each League participating.

There are about 35 clubs in seven Leagues, drawn from the 100 clubs in the country. There's room for more Leagues, especially from the West Country, Wales, up north and Scotland.

I wonder which League Glyndwr will be joining?

## Current Leagues

**Northern** - Derby & Lancs, Nottingham Police, Marchington, Newark & Notts, Trent Valley.

**Rockpolishers** - Bristol & Gloucester, Cotswolds, Hereford, Midland, South Wales.

**East Anglian** - Cambridge University, Essex & Suffolk, Norfolk, Peterborough & Spalding, Rattlesden.

**South Eastern** - Booker, East Sussex, Kent, Lasham, Southdown.

**Midland** - Avon, Enstone, Oxford, Sleep, Stratford on Avon.

**Eastern** - Buckminster, Bicester, Coventry, Essex, London.

**South Western** - Keevil, Oldham, Shalbourne, Swindon.

There is also a **Yorkshire League**, but it seems to be currently having a sabbatical. They are:- Burn, Cleveland, Ouse, Wolds, Yorkshire.

## THE BGA EXECUTIVE COMMITTEE



Don photographed after taking office in 1990.

**Chairman** - Don Spottiswood  
**Vice-chairman** - Chris Nicholas  
**Treasurer** - Keith Mansell  
**Secretary** - Barry Rolfe

**Patron** - HRH The Duke of Edinburgh

**Vice-presidents** - Air Chief Marshall Sir Theodore McEvoy, Chris Simpson, Roger Barrett, Tom Zealley and Ben Watson.

**Committee** - Max Bacon, John Cadman, Mike Cuming, Terry Holloway, Diana King, Tony Mattin, John Spencer, Hugh Woodsend and Robin Worters.

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**Airspace** - Chris Garton  
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**Development** - Humfrey Chamberlain  
**Government Liaison** - Chris Simpson  
**Instructors'** - Bernie Morris  
**Magazine** - Anthony Edwards  
**Political** - John Holland  
**Publicity** - Mike Cuming  
**Safety** - John Shipley  
**Technical** - Howard Torode

## Rules

All qualifications are as at April 1 of the year in question.

A Novice is a pilot who has not flown a 300km Gold distance qualifying flight, or participated in a rated competition (like a Regionals, Nationals or the Junior Nationals or Inter-Services). Also the glider may be any Standard Class glider, or an Open Class glider whose handicap does not exceed 100.

An Intermediate pilot may not have yet entered a Nationals, or flown a 500km flight qualifying for Diamond distance.

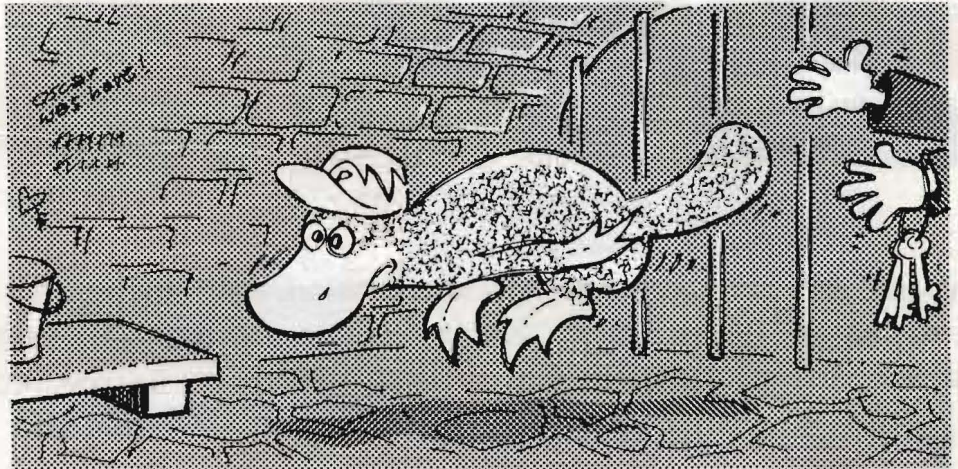
The Pundit can be anyone - there are no restrictions on the Pundit Class.

For more details on the Inter-Club League, contact Mike Jefferyes on 0277 823066 or write to him at Tanglewood, Fingrith Hall Road, Blackmore, Nr Ingatestone, Essex, CM4 0RU. ✉



# TAIL FEATHERS

The men with the white coats are coming for us



Debtor's prisons.

having to listen to the excuses manufactured by the makers - sorry, I meant the excuses made by the manufacturers. "Well, in the old days of *schwabbelac* (a lovely sound that, you can roll it around the tongue - the word, I mean, not the actual stuff) it was made of a mixture of arsenic and radio-active waste, and the government won't let us use it any more; it's *verboden*."

They never say "Look, mush, the new method is quicker and easier and therefore cheaper, and produces a marvellous result for the first few years; then you get rid of your glider at a thumping great loss to someone who is prepared to do a lot of work on it, and we sell you a brand new one. Now put down a deposit and stop whingeing!"

---

## The manufacturers' agents will egg you on to buy a replacement

---

Such frankness would come as a welcome breath of foul air, even if it wouldn't solve the chief problem of Britain's bankers, which is whether to re-open our 18th century debtors' prisons specifically for glider pilots. The manufacturers' agents - I mean the real smooth public school<sup>2</sup> types - will egg you on to buy a replacement rather than have it re-gelled: "I say look here, old fruit, old bean, you owe it to yourself to buy a new one. Those refinishing johnnies can never get the profile a hundred per cent right and it'll glide like a concert grand; besides, you have no idea how long a fancy facelift will last. If it's anything like my aunt Agatha's it'll be barely long enough to get her married off to some mug in the City who's paying for it in more ways than one. No, no, take my advice, get rid of the old girl, old boy."

Seriously, though (What do you mean

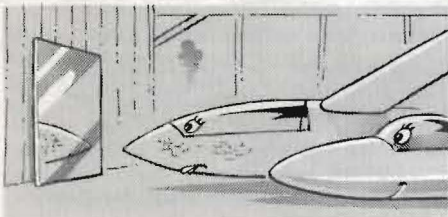
*seriously?* We've got three writs already. Ed) any well-organised syndicate should set aside about £1000 a year solely to cover the eventuality - no, the near certainty - of either re-coating their glider or selling it at a loss in the not too distant future. A special bank account, inflation-proofed if possible. A Sinking Fund, an accountant would call it. No, I don't like the sound of that: call it a Soaring Fund, sounds more positive. The Soaring Fund, remember, is in *addition* to the cost of depreciation, obsolescence, routine wear and tear and maintenance, annual Certificate of Airworthiness, insurance etc etc.

For most syndicates that is an extra five to ten pounds an hour just for the pleasure of watching the ultra-violet eat your wings.

*By the way, I hope we are not going to have people writing in with a lot of drivel about gliders maintaining their value over long periods; 99% of the time it's an illusion caused by inflation. Of course if money is falling in purchasing power at ten per cent a year a glider will appear to maintain its value; but just try selling it and using the money to buy anything else - in particular an identical replacement glider - then see whether value has been maintained. Occasionally the price stability is a short-term phenomenon caused by waiting lists for new gliders - but then by definition an identical replacement glider is not readily available, and when it does become available it will always cost significantly more than your old machine will fetch second-hand. Let's face it, modern gliders haemorrhage money, and it's folly to pretend otherwise. Why kid yourself?*

Re-gelcoating by a competent workshop has historically produced gliders that performed superbly and lasted for years: it used to be said in the 1970s that the very best Nimbus 2s were those that were just a few years old and had been comprehensively pranged - written off, ideally - and then had the wings rebuilt and reprofiled by one of the masters of the art. By that time the shrinkage and waviness, which is nothing to do with gelcoat deterioration but with the "curing" of the underlying structure, had stabilised and could be filled in to give a perfect aerofoil that would stay put. Why did the machine have to be pranged in order to produce this happy result? Because only an insurance company could

**N**o lady of fashion looks so anxiously each morning for lines, cracks, wrinkles, blotches and other signs of ageing skin as does a modern glider. The same mixture of ignorance and dread, pseudo-science, myth and old wive's tales, circulates amongst the victims:



There's another line.

"All you need is to get your man to rub in royal jelly and beeswax last thing at night, darling... You *must* stay out of the light... Good Lord, you *don't* mess around with silicones?... Sunblock 15-plus, and don't lie around uncovered, with everyone staring at you and comparing notes... I hate it when the young chaps peer at you from three inches away and say 'She's really let herself go, looks like crazy paving'... Don't go up too high and don't get all hot and cold, that's ruin... Soap? You must be mad, you might as well use Brillo pads; water only - distilled water of course, none of that London muck... Oh my God, there's another line, I swear that wasn't there yesterday... Do you know Alphonse of Enstone can do you a whole new skin from face to fanny! for just £10000 plus tax?... It's all right for you, ducky, you've got three rich lovers... You absolute *bitch*, come outside and say that!... Don't be silly, I *never* go outside, as you know perfectly well..."

Even more galling, the 1983 glider watches the obsolete 1973 Kestrels and Libelless swanning around still crackless and lineless; it's so unfair. At least not many women have the humiliation of seeing other women two or three times their age flaunting far better skins. The dreariest thing is

<sup>1</sup> Using the term strictly in its American sense, of course.

<sup>2</sup> Using the term strictly in its British sense, of course.





**Filled in.**

afford to pay for such a luxury as re-gelling a complete wing. (It's Mowbray Vale on the blower. They're worried people will get ideas . . . Ed.)

I saw, and tried hard to catch, a refinished ASW-22 in Australia that looks and flies beaut and fair dinkum in searing sunshine, cobbbers, so there is every hope that the master-reprofilers are as good as they used to be. It gave me heart, that did. Maybe I won't have to sell the farm after all.

*Didn't know you had a farm!*

Figure of speech, sweetie, a metaphor for one's life savings

*Thank Heaven for that. Life's hazardous enough without the thought that Platypus was feeding the nation . . .*

No, I might just have to mortgage the barn and the cowshed, figuratively. I am in no position to give you any advice what you should do. Gliding is going to be ruinous whichever course you take. Yer pays yer money and yer takes yer choice, old fruit.

wish. However - and I did not think there would be any howevers - there are people who have a problem, especially at altitude.

**Plat to Ed:** I'm not sure whether Peter Fuller should try and illustrate this bit.

**Ed: to Plat:** Let me worry about that.

The, er problem - have you got a **Roget's Thesaurus** or a **Shorter Oxford Dictionary** handy? - well, it's that some people's diet and physical make-up puts them in a category (*You're making heavy weather of this Ed*) whereby, er, um, oh dear, might as well be hanged for a sheep as a lamb: what I mean is the blighters fart, often without warning. (*Well now it's out at last, in a manner of speaking. Ed*) The first person who did it said "Sorry, Plat!" but didn't say what he was sorry about, though I understood only too well a few seconds later. I was in the back seat, and found that holding my breath did no good. You'd need the lungs of an underwater swimmer or a professional trombone player to postpone breathing long enough for the miasma to dissipate in such a confined space. I applied my by now purple face to the ventilator, opened the clear vision panel, and gesticulated violently to the P1 that he should do likewise. It was no good. I'm told by people who have suffered this in other gliders that there is not much benefit if the offender is in the rear seat and the offende in the front: it's not clear which direction the air flows in modern ships; it certainly doesn't flow out very fast, that's for sure.

**Solutions?**

A sign saying *Thank you for not farting* won't do much good. One would sooner have a pilot whose mind and body were not in an unnatural state of tension.

A rubber tube from the ventilator to the mouth, with an airline de-compression mask, or something similar, would provide uncontaminated air, if you were quick enough.

A full oxygen set - bottles, regulators, masks, the lot - for each party is very expensive, and it represents a standing temptation to go to vast altitudes, which we know is bad for the gel coat. (Of modern gliders there is only one kind which is ideal for high-altitude flying, and that is somebody else's.)

We might design an electrically-driven sliding window separating the pilots, either

manually actuated or automatically triggered by chemical sensors, which brings us to the problem of early warning systems in general.

During World War II there were large yellow boards in public places that turned green (or the other way round, I can't remember) to inform you that if you were not already wearing your mask, you were dead. Too long a response time, I feel, for what we are seeking.

How about a pet canary that turns purple and croaks on to its back in time to warn of an impending gas attack? Protests from Royal Society for the Protection of Birds?

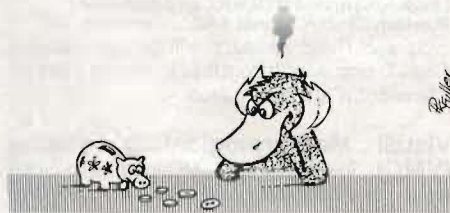
Early warning, however, ought chiefly to be a matter of self-knowledge and good manners on the part of the farter, who should speak up promptly, loudly and clearly and not mince words. Vague apologetic mutterings may not percolate through to your partner's awareness before the subject of the apology has itself percolated through.

**It will be no longer sufficient that a prospective partner be safe**

Prevention is better than cure, of course. Just don't get into a glider with a notorious farter. If it gets around that a pilot has this problem then such a person will be condemned to fly around solo, at least till a change of diet has been (no pun intended - I don't believe beans have anything to do with it) proved effective. Certainly the current proliferation of privately owned two-seaters means that selecting future syndicate members will involve delicate inquiries in advance. It will be no longer sufficient that a prospective partner be safe, financially reliable, tidy, and unselfish about flying days. Just as stating "I'd never marry a man who snores!" poses a problem for the fastidious, namely "How do you find out?", it will be equally difficult to weed out the flatulent.

For myself, pending a better solution, I'm practising under-water swimming and the trombone. No, not at the same time, silly . . .

P.S. My past and present syndicate (or rather the lawyers) have asked me to point out that the above piece refers in no way to anyone of them.



**Too - Phew?**

In the past I've gone on at huge length about the miseries of having a pee in a single-seater, and have suggested that a two-seater is by contrast an unalloyed pleasure in this matter of bodily functions. Not just the convenience of letting someone else fly while you pee, but the luxury of eating and drinking a three-course meal if you



(Sorry Platypus has lowered the tone of our Yearbook but we did warn you he would be at his most outrageous. Ed.)



**Aerodrome Traffic Zone (ATZ).** An ATZ comprises the airspace extending from ground level to 2000ft above the level of the aerodrome and within a radius of 2 or 2½nm of the centre of the aerodrome, depending on the length of the main runway. An ATZ is only active during the notified hours of operation of the airfield.

The following categories of airfield are protected by an ATZ: government aerodromes, licensed aerodromes with an Air Traffic Control Unit or Aerodrome Flight Information Service (AFIS) unit, or Air/Ground (A/G) radio service. In all cases, a glider pilot wishing to enter the airspace must first call the airfield on the notified radio frequency, or if non-radio, obtain advance permission by telephone.

At an airfield with an ATC unit, that unit is able to give or refuse permission for any aircraft to enter the ATZ and to give clearances to take-off or land.

At an airfield with an AFIS or A/G service only, that unit is able only to pass information from which a pilot may judge whether or not it is safe to enter the ATZ or to take-off or land, ie the unit cannot issue clearances or withhold permission.

At airfields without ATZs, including most gliding sites regardless of how busy they are, an itinerant aircraft may legally penetrate the airspace near and over the airfield, provided the pilot conforms to the traffic pattern or keeps clear of the circuit airspace, and observes the normal rules of good airmanship to avoid collisions.

For landing at airfields with or without ATZs, it should be noted that many are listed in the **UK Air Pilot** as "PPR", "PPR to non-radio aircraft" or even "not available to non-radio aircraft." PPR (Prior Permission Required) means that landing permission must be obtained in advance of the flight, eg by telephone. All military airfields are effectively PPR and will not permit, other than pre-arranged, landings by civil aircraft except in an emergency.

**Military Aerodrome Traffic Zones (MATZ).** A standard MATZ comprises the airspace within a 5nm radius of the centre of the airfield extending from the surface to 3000ft above airfield elevation. In addition, projecting stubs 5nm long and 4nm wide extending from 1000ft to 3000ft above airfield elevation are aligned with the approach to the main runway at one or both ends. Some MATZ may lack stubs, or form part of a combined MATZ (CMATZ).

The rules applicable to the penetration of a MATZ are not compulsory for civil aircraft and the same applies to the **Honington Military Control Zone**. However, inside every MATZ there is an ATZ, the rules of which must be observed. (See above.)

**Controlled Airspace (Rule 21).** Where Controlled Airspace is notified as subject to Rule 21 of the Rules of the Air Regulations, then that airspace is subject to Instrument Flight Rules (IFR), whatever the weather may be. In order to fly IFR in controlled airspace a flight plan must be filed, the aircraft must be flown strictly in accordance with ATC clearances on a specified route or under radar control, and there is a specified standard of radio and navigational equipment fit.

# GLIDING AND UK AIRSPACE

**Chris Garton, chairman of the BGA Airspace Committee, gives the latest airspace position with this update**

Since gliders cannot comply with these requirements, a glider pilot is not permitted to fly in or request entry clearance from ATC to any Rule 21 airspace (unless, exceptionally, the flight is the subject of pre-arranged permission or a Letter of Agreement).

Rule 21 airspace comprises:

<b>Daventry CTA</b>	<b>Worthing CTA</b>
<b>London TMA</b>	<b>London Heathrow CTR</b>
<b>Manchester CTR</b>	<b>Airways</b>

The dispensation permitting gliders to cross all airways in VMC was withdrawn in December 1987, and replaced by a new Rule 21A, which permits gliders to cross specified airways below certain flight levels, and specifies the manner of crossing, as follows:

1. 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.
2. The crossing must be carried out in VMC, by day.

The **UK Air Pilot** contains a map showing the crossable airways, with maximum permitted crossing levels. In summary, these areas are: Crossable below FL245: A25, B2, B3 (NW of Manchester), B226, G1, R1, R14, R39. Crossable below FL95: A1, A2 Crossable below FL55: B3 (NW of Luton), R8 (west of Midhurst)

As from November 1991, the designation of Rule 21 airspace will be changed to **Class A airspace** for the purpose of international standardisation.

**Other Controlled Airspace.** The **Manchester TMA, Scottish TMA/CTR and Belfast TMA below 6000ft** permit aircraft (including gliders) to fly in these areas without ATC clearance subject to maintaining VMC. As from November 1991, this airspace will be redesignated **Class E airspace** for the purpose of international standardisation. Some Special Rules Zones are also designated as Control Zones, the two designations applying to the same volumes of sky. In such cases it is the "special rules" that affect glider transits, and these are considered below.

**Special Rules Airspace.** Special Rules Airspace is of a less restrictive nature than Rule 21 Controlled Airspace, being accessible, subject to various weather limitations, to any aircraft fitted with a radio capable of contacting the designated ATC unit.

The "Special Rule" of interest to glider pilots is Rule 36, which requires a pilot wishing to enter the nominated airspace to:

1. Contact the ATC unit and pass details of the flight.
2. Obtain entry clearance
3. Remain on the frequency whilst in that airspace.
4. Comply with ATC instructions.

While all Special Rules Airspace, in theory, is available to glider pilots who are able to follow the above procedures – some SRAs and SRZs are notified as allowing an exemption to these provisions to gliders, provided that they maintain VMC.

Special Rules Airspace which gliders may penetrate in VMC without ATC clearance:

**Aberdeen SRZ & SRA**  
**Bournemouth/Southampton SRZ & SRA**  
**East Midlands CTR/SRZ & SRA**  
**Leeds/Bradford SRZ & SRA**  
**Lyneham SRZ & SRA**  
**Newcastle SRZ & SRA**    **Southend SRZ**  
**Teesside SRZ & SRA**  
**Scottish TMA/SRA above 6000ft (Rule 40)**  
**Cross-Channel SRA (Rule 38)**

(Note: Rules 38 and 40 are similar in their effects on gliders to Rule 36.)

Guidelines for the use of the above airspace by gliders have been drawn up by the BGA and approved by NATS. These are described at the end of this article.

Special Rules Airspace in which gliders need ATC clearance at all times

**Belfast CTR/SRZ**  
**Birmingham CTR/SRZ and SRA**  
**Brize Norton SRZ**    **Bristol SRZ & SRA**  
**Cardiff CTR/SRZ and SRA**    **Edinburgh SRZ**  
**Liverpool SRZ**    **Glasgow SRZ**  
**London (Gatwick) CTR/SRZ and SRA**  
**Luton CTR/SRZ and SRA**    **London City SRZ**  
**London/Stansted CTR/SRZ and CTA/SRA**  
**Manston Cross-Channel SRZ**    **Prestwick SRZ**

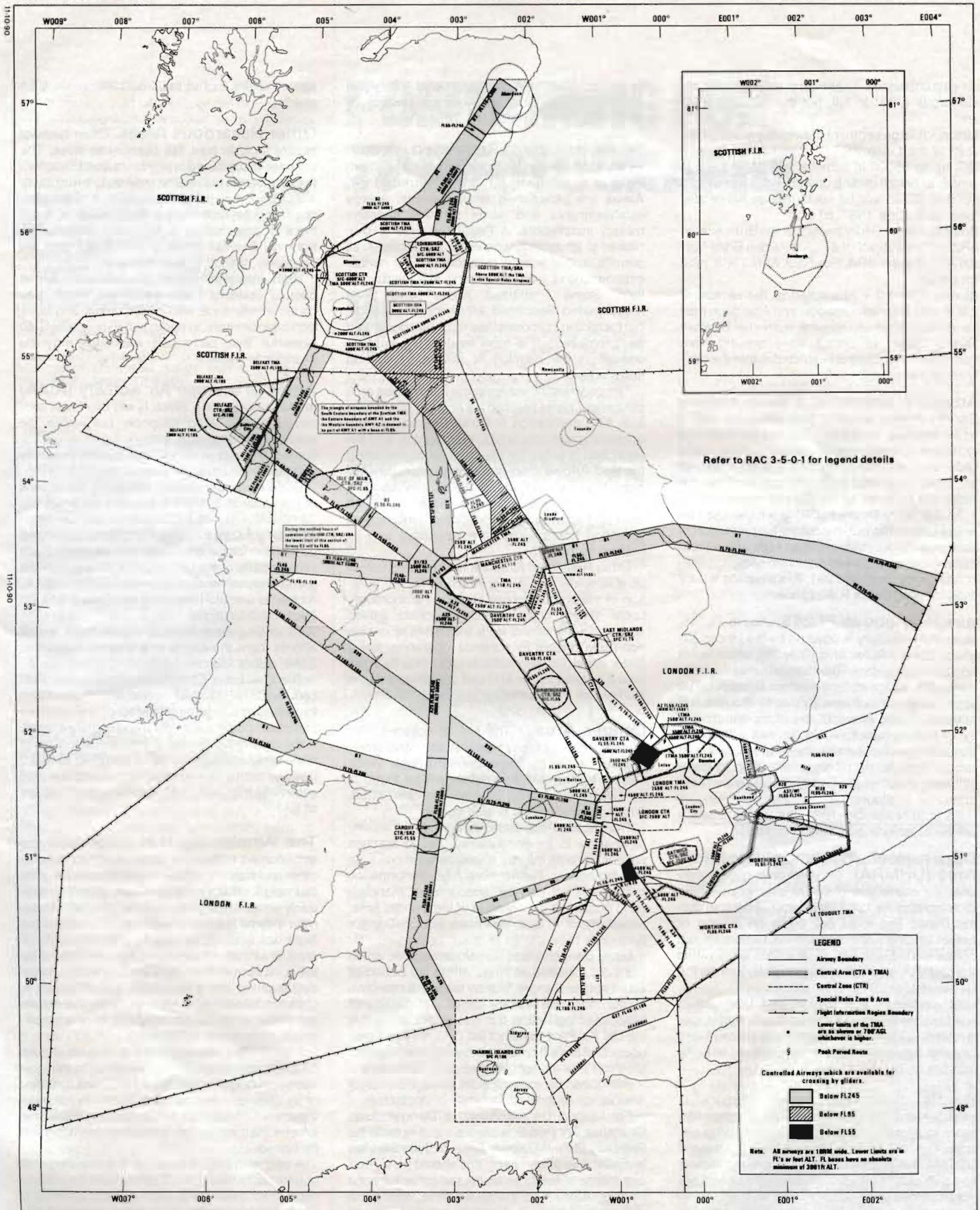
Special Rules Airspace will be redesignated Class D airspace as from the November 1991 for international standardisation.

**Visual Meteorological conditions (VMC).** To comply with VMC in order to cross an airway in accordance with Rule 21A, or for the purposes of using the exemption described above to fly in certain Special Rules Airspace, a glider shall remain at least 1000ft vertically and at least 1nm horizontally from cloud in a flight visibility of at least 5nm.

**Local Agreements.** A number of local agreements exist which modify the effects of some of the airspace listed above. Letters of Agreement (LoAs) between a gliding club and a nearby airport can make airspace either more or less restrictive than described above, depending



Controlled Airspace and Special Rules Airspace within the UK FIRs - Controlled Areas (Airways) available for crossing by gliders.



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on circumstances. These arrangements are too numerous to list in full, but the principal ones are:

**Luton** - A large segment of airspace in the north-west of the Luton SRZ is delegated to London GC, up to 3500ft in summer and on request in winter, to permit gliding operations at Dunstable. London GC should be contacted for full details. (See S&G, June 1987, p141.)

**Brize Norton** - Glider transits of the Brize Norton SRZ are the subject of a LoA between Brize Norton ATC and the BGA. See S&G, April 1988, p89, for details.

**Airway Bravo 2** - At weekends, the section of this airway between Glasgow and Aberdeen may be de-regulated on request from the Scottish Gliding Union to permit wave soaring from Portmoak to proceed unrestricted within the confines of the airway.

**Advisory Airspace: A Radar Advisory Service Area** is airspace in which a pilot may, if he so chooses, avail himself of the services of a radar unit. There is no requirement to do so, and a glider pilot should not assume that other aircraft are being separated from him, nor even that the radar unit is aware of the glider's presence.

An **Advisory Route (ADR)** is a route used by airline type traffic, but without the full protection of an airway. Gliders may cross an ADR without restriction, but care should be exercised.

As from November 1991, this airspace will be redesignated **Class F Airspace**.

**Airspace above FL245.** Above FL245, most of the country is covered by the Upper Airspace Special Rules Area (Rule 39), which is not applicable to gliders. The same is true of the Hebrides UTA, which covers western Scotland. The upper airspace contains Upper Air Routes and Military Training Areas. Glider pilots intending to fly at high altitudes would be well advised to acquaint themselves with these areas, since jet aircraft speeds are much greater than at lower altitudes, and their pilots may not be aware of the presence of gliders.

As from November 1991, the upper airspace will be redesignated **Class B airspace**.

**Upper Heyford Mandatory Radio Area (UHMRA).** On weekdays gliders may only penetrate the UHMRA after establishing radio contact on 128.55MHz, must listen out during transit and must call again on leaving or before landing within its confines. Gliders should not be issued with ATC instructions while within the UHMRA, unless they appear likely to enter the Upper Heyford ATZ.

At weekends and on UK and USA public holidays there is no requirement to contact Upper Heyford. Gliders based within the UHMRA are covered by special procedures defined in LoAs with the clubs concerned.

**Purple Airspace.** Purple Airspace is established from time to time on a temporary basis to protect Royal Flights in fixed wing aircraft. Full details are promulgated by special NOTAM. It is important that gliding clubs receive and publish this information, because gliders are not permitted to fly within Purple Airspace, even by contacting ATC. Royal Flight NOTAMs also cover royal helicopter flights. These are not pro-

hibited by Purple Airspace, but all pilots are required to look out for and keep well clear of the royal helicopter.

**Prohibited and Restricted Areas.** Apart from certain security areas in Northern Ireland, **Prohibited (P)** and **Restricted (R) Areas** are established around atomic energy establishments and some similarly sensitive military installations. A Prohibited Area is prohibited to all aircraft, whereas a Restricted Area permits limited access by aircraft under certain circumstances, such as landing at a nearby airfield. Some Prohibited Areas have been redesignated Restricted Areas for this reason, but for gliding purposes they must be considered as "prohibited". It is most inadvisable to place oneself in the position of having to land in these areas.

The only Restricted Airspace established on a permanent basis that can be entered by a glider with ATC permission is **R313 Scampton**. The controlling authority is ATC Waddington, and the restriction is solely for the purpose of protecting the Red Arrows display training - normally not more than two periods of 20-30 min/day. The area is a circle of 5nm radius extending to 9500ft amsl and active only during Scampton's normal operating hours, which are weekdays and as notified by NOTAM.

Other Restricted Airspace is often established on a temporary basis, for example for the duration of major air displays, such as Farnborough. Local gliding clubs usually negotiate limited access routes to and from their sites to enable non-radio gliders to continue operating, but a glider equipped with suitable radio may fly in the area if it contacts the ATC unit designated by the NOTAM as the controlling authority.

**Danger Areas.** The UK is covered with Danger Areas of many types, shapes and sizes. They are active part-time, permanently or when notified by NOTAM. Full details will be found in the **UK Air Pilot**, RAC Section. The chart of UK Airspace Restrictions is also useful.

The **UK Air Pilot** lists only the type of activity most likely to be encountered, but in practice various hazards may be encountered in one area simultaneously. Furthermore high performance military aircraft may be encountered manoeuvring outside of the confines of the Danger Area, especially, if it is a Weapons Range Danger Area.

Many Danger Areas contain areas over which flight is prohibited at times within the period of activity of the Danger Area by reason of bye-laws made under the Military Lands Act 1892 and associated legislation. It is also worth noting that the **UK Air Pilot** does not list Danger Areas with upper limits 500ft or less above the local surface, to which prohibiting bye-laws may also apply.

With these exceptions, flight through a Danger Area is not prohibited, but may be foolhardy.

For Certain Danger Areas, a **Danger Area Crossing Service** is available, most notably for Salisbury Plain. A **Danger Area Activity Service** is available in other cases: this should be viewed as a means of establishing the state of activity of a Danger Area at a particular time, not as a clearance to cross it. A convenient summary of these two services and the ATC units to contact is

printed at the foot of the 1:500000 series CAA charts.

**Other Hazardous Areas.** Other types of hazard include **free fall parachute sites**. The airspace is contained in a circle radius 1½ or 2nm from the centre of the drop zone up to a maximum of FL150. It may not be apparent to a glider pilot, observing the drop zone in flight, whether or not there is parachuting in progress; parachutists normally free-fall down to 2000ft agl and are extremely difficult to see. Beware!

**High Intensity Radio Transmission Areas** contain powerful radio emissions which may cause interference with glider radios and electronic variometers. In particular, Fylingdales is so powerful that prolonged exposure may be injurious to health.

### Areas of Intense Air Activity (AIAA)

An AIAA is airspace which is not otherwise protected by regulated airspace, but where the activity of civil and/or military flying is exceptionally high, or within which aircraft regularly participate in unusual manoeuvres.

Gliders may penetrate these areas, but in view of the hazards, a sharp lookout is essential.

### Military Low Flying System.

Low flying by high performance military aircraft takes place in most parts of the UK up to 2000ft agl, with the greatest concentration between 250ft and 500ft. A chart is available denoting the system (**UK Air Pilot**, RAC Section).

All gliding sites are notified to MoD, which affords them the status of a Military Avoidance Zone, radius 1½nm.

The Low Level Civil Aviation Notification Procedure (CANP) enables civilian aircraft operators to give advance warning to MoD of any activities that could conflict with low flying military aircraft. In the case of winch launching permission this is done automatically, but clubs planning to make use of a temporary aerotow or motor glider site, especially midweek, may wish to take advantage of CANP.

### The Airmiss System.

Glider pilots are accustomed to flying in close proximity to each other and may not appreciate that it can be quite alarming for the pilot of powered aircraft to suddenly encounter a glider at close quarters. An airmiss may be filed by any pilot who considers his flight has been endangered by the proximity of another aircraft. All airmisses are investigated by the Joint Airmiss Working Group (JAWG), whose deliberations are confidential, except where a commercial airliner is involved, when the details are released to the press under new arrangements announced in 1988.

A glider pilot wishing to file an airmiss should initiate action as soon as possible after the incident, reporting it to the nearest ATC unit by radio, or by telephone after landing. The more accurate the detail and the sooner the report is made, the greater are the chances that the other aircraft will be traced.

A pilot who finds himself on the receiving end of an inquiry from JAWG should not be unduly concerned (assuming he has not committed some transgression), since the purpose of the investigation is to determine what lessons can be



learnt, not to take punitive action. JAWG is well aware that random conflicts occur between aircraft in unregulated airspace as a matter of course.

**References.** The airspace situation is complicated and changing all the time. The following publications collectively provide a thorough and up to date information on UK Airspace.

Air Navigation Order 1989	Available as CAP 393
Rules of the Air Regulations 1990	from Her Majesty's Stationery Office

#### Laws and Rules for Glider Pilots (BGA)

UK Air Pilot, RAC Section  
NOTAMS  
General Aviation Flight Guide

Aeronautical Information Circulars, available FREE from Aeronautical Information Service (AIS 2c), Tolcarne Drive, Pinner, Middx. HA5 2DU.

Chart of UK Airspace Restrictions	both FREE from: CAA Chart Room, Room T1120, CAA House, 45-49 Kingsway, London WC2 B 6TE
Chart of UK AIAA's and Military Low Flying System	

#### New ICAO airspace classifications.

The International Civil Aviation Organisation (ICAO) is attempting to standardise different types of airspace throughout the world. The UK will be complying with ICAO requirements by introducing the new ICAO airspace categories in November 1991. These will be essentially changes in name only and the rules relating to gliders will not be affected.

Some types of airspace fall outside the ICAO categories and will retain their present designations, notably, ATZs, MATZs, UHMRA.

#### Code of conduct for glider flights through Special Rules Airspace.

1. Glider pilots should plan to route their flights through Special Rules Airspace only when it is clear there are significant advantages from so doing, such as better soaring weather and shorter track distance.
2. Flights should be arranged so that the minimum amount of time is spent in Special Rules Airspace. Pilots should avoid circling on or close to the runway extended centre lines, since this may interfere with aircraft carrying out instrument approaches or departures.
3. Good lookout is vital at all times, and glider pilots should be prepared to initiate avoiding action notwithstanding their right of way priority. Gliders are not always visible on radar, and other aircraft, including commercial jets, may not have been warned of a glider's presence.
4. Pilots of gliders equipped with suitable radio should listen on the appropriate frequency for information on other traffic in their vicinity.
5. Competition tasks should only be set through Special Rules Airspace after consultation with the appropriate ATC unit. Where a task leg has to be set close to but not through Special Rules Airspace, the ATC unit should be informed. When possible, photographic control point(s) should be established, to help ensure that gliders remain outside the airspace.

# POSITIONING FOR TP PHOTOGRAPHS

**W**ith modern compact cameras and fixed mountings in the glider, most pilots take recognisable photographs of their TPs. Many, however, prove unsatisfactory for competition or badge flight purposes because the glider was not in the photographic zone at the time the photo was taken.

Marking the zone on the map does not always help as the worst field of vision in a glider is vertically below it. The exact ground position of the glider is almost impossible to determine, particularly when at a reasonable altitude.

The following method of positioning the glider gives a high degree of success in all normal circumstances.

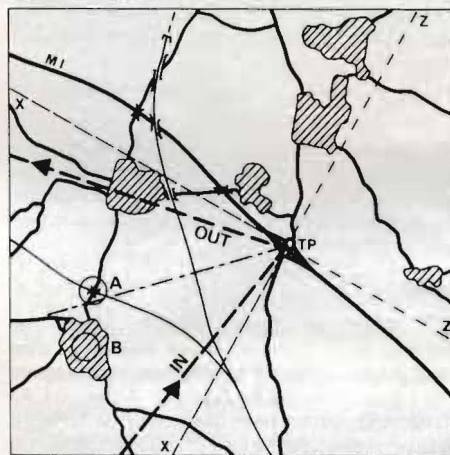


Fig 1

Fig 1 shows a map of a typical TP, often used in UK competition, junction 15 of the M1 motorway south of Northampton. A track in is shown on a NE heading, with a track out WNW. Under the present rules the photographic zone is the sector ZZ. This is a 90° sector remote from, but aligned with, the bisector of the incoming and outgoing tracks.

It can be seen that if a straight line is formed by any feature in sector XX, the TP and then the glider must be in the photographic zone.

Any feature easily seen could be used, but in practice a feature as close to the bisector as possible should be chosen, eg the village at B, or the rail/road crossing north of the village at A. This target feature can be any distance from a few hundred yards to several miles from the TP, providing it can be clearly seen from the photographic zone.

The glider is simply flown just past the TP and

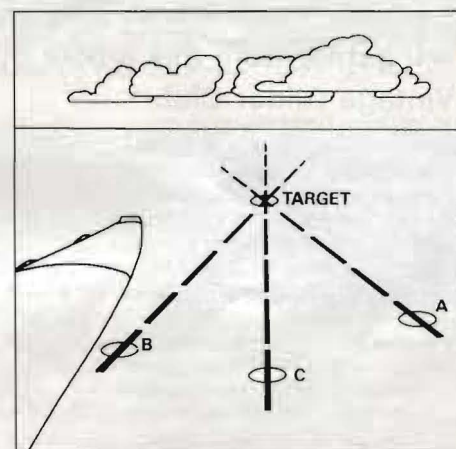


Fig 2

turned toward the new leg of the task. When the TP appears as at C in Fig 2 the glider is banked and the photograph taken. If the TP appears at A or B in Fig 2, the photograph would be taken too soon or too late respectively.

Fig 2 is drawn to show the relative positions of the glider, TP and target feature. In practice the TP can be rounded much more tightly than the diagram indicates.

***“The target feature can be selected and ringed before take-off if required”***

The only map marking normally required will already be there – the track lines in and out of the turn. The target feature can, however, be selected and ringed before take-off if required. Should two features exist either side of the bisector it is even possible to line up with the “non-existent” area between the two.

In some competitions, often those held overseas, other rules can exist for determining the point from which the photo must be taken. The above method will still work, once an appropriate target feature has been selected.

Provided the features are correctly lined up, the photograph will be acceptable whatever the gliders altitude or distance from the TP, subject to any specific maximum distances or altitudes given in local rules.



# THE VINTAGE GLIDER WORLD

While the latest glass-fibre sailplane might cost as much as a house, there is a far less expensive way of gliding as you will gather from this article by Chris Wills, president of the Vintage Glider Club

**T**he Vintage Glider Club, formed in 1973, is an international club which has managed to maintain a membership of about 650. We believe this makes us one of the largest gliding clubs.

Because of a low accident rate we are allowed an especially cheap third party insurance through Mowbray Vale. Vintage gliders are usually much cheaper to buy than the new glass ships and, if kept properly, their maintenance costs are low.

To give an idea of what can be achieved in a vintage glider, Keith Nurcombe headed the 1990 National Ladder with his Tutor in spite of its reduced handicap since 1989. He only failed to remain at the top through not taking declaration board photos until after his flight from Husbands Bosworth to North Wales on an attempt to reach Anglesey.

We also congratulate Werner Tschorn, a German member, who flew two 300km triangles last summer with his Weihe, finishing only 15min behind glass ships which only got away from him during the final glide.

## Restoration work

Internationally there is a general move towards the restoration of vintage gliders to their original forms and colours.

We congratulate Andrew Coates on restoring the last Swedish built Weihe which Paul MacCready flew to 2nd place in the 1950 World Championships. It was given its C of A in December. Five out of six Weihe's in Britain are airworthy.

That prodigious restorer Mike Beach is renewing almost every part of the Scud 2 which we believe was brought to the 1934 Sutton Bank Nationals painted green and sold to Kit Nicholson and Philip Cooper after their Willow Wren had been broken by someone else.

Mike Birch is continuing to improve his Condor 4 which, as the V-2, was built by Heini Dittmar as a special Condor to be flown solo in the 1952 Spanish World Championships by the Egyptian, Hassan Kamil. Mike and Graham Saw have also

been leading a team restoring a Tutor at Booker.

I hope the six owners of 12 very historic vintage gliders in store in Britain will soon be able to restore them or offer them to someone else as there will be few restoration projects left in Britain.

## Hangarage and shelter in Britain

None has been found except at the Royal Scottish Museum. Museums have indicated that we are not the only part of our national heritage that has to be left outside during winter. We shall just have to have the best trailers and make sure they are tied down.

## France

A group at Angers (GPPA), under the leadership of Christian Ravel, has aeroplanes and gliders entrusted to it for restoration in worthy condition by the National Musée de L'Air in Paris. They have been given two new hangars. A Casein glued Weihe (one of four Weihe's owned by the Musée) has been restored and successfully flown, as has a MS 505 Storch tow-plane, and they are now working on the Fouga CM-8-13 aerobatic sailplane.

Fire at the Musée's Le Bourget storage and restoration facility last summer destroyed unique aeroplanes and six vintage gliders - a Choucasse, Fauvette, C-25S, Weihe 50, K-2 and the last Kranich 2 in France.

Another group at Paray le Monial (ASPAC) has finished the restoration of a C 301 - the first prototypes flew in 1941 as the C 30S Moustique (Mosquito). They have also finished a Nord N 2000 (Meise) and both have been painted in the colours of the late 1940s when they were new. From 1944-45 277 were built.

## Holland

Neelco Osinga has a Spanish built Kranich 2b-2 from Günther Weizhofer's collection at Gunzburg. It's on a ten year loan after restoration and should be flying next year.



Above: The second prototype special Condor 4 designed and built by Heini Dittmar and



Above: A family of Spalinger S18s taking part in the 18th International Vintage Rally last

## Germany

Two jovial over 70 year-olds from the Wasserkuppe Oldtimer Club organised such successful bungee launch courses last summer on the Wasserkuppe with two SG-38s they are running them again this season. A new bungee rope was bought in England.

Enthusiasts have started to restore the German Museum's 20 gliders at Oberschleissheim and the Luftwaffe Museum's gliders at Uetersen.

## Vintage Clubs

Many countries now have their own vintage clubs, except for Germany and Austria, but our Vintage Glider Club administers all of them through the VGC News magazine which is supposed to be a quarterly.

We have held 18 International Rallies in 17 years, the 1990 in Belgium being especially successful. Rendez Vous International Rallies are held the week before and are on or near the International.





now owned by Mike Birch. Photo: Chris Wills.




summer in Belgium. Photo: Chris Wills.

Some members feel that our International Rallies have become too large and lost the spirit of the intimate camaraderie of the earlier ones. It has also become almost impossible to find large enough sites. Therefore this year's at Schaffhausen in Switzerland from July 13-20 will have a limit on the number of gliders from each country, preference being given to the older gliders.

For more details of the Rally, contact Willi Schwarzenbach, Route de Cossonoy 52, 1008 Prilly, Switzerland.

The Rendez Vous Rally will be on the Wächtersberg, near Calw in the Black Forest from July 7-12. Details from Jörg Ziller, Brucknerstrasse 20, 7032 Sindelfingen, Germany, tel 7031 85 468.

If you are interested in British National Rallies, contact the VGC Rally secretary, Geoff Moore, "Arewa", Shootersway Lane, Berkhamstead, Herts, tel 04428 73258.

Membership details of the VGC are from Peter Woodcock, 61 Matlock Road, Sheffield S6 3RQ, tel 0742 349875. We believe we are the cheapest gliding club. 



Above: The Cumulus 3F photographed at Dunstable by Tony Hutchings. Below: Ian Tunstall took this picture of the two-seater Harbinger.



Below: Tony Hutchings' photograph of Ted Hull in his Kirby Kite 1.





## S hall I take a Glider?

If you take a glider to France you will have many options. You can participate in competitions and itinerant rallies, make your own tour of France or Europe, or choose a club and stay for a while, sharing the day-to-day life of the club. Or your own club may like to do what several French clubs do every year, migrate with several gliders and a winch to an airfield further south for a few weeks.

A few Dutch and German clubs migrate in this fashion regularly. Sometimes they set up in business on airfields which normally have no regular gliding activity and are completely independent. Be careful about bringing tugs to France, other than for tourist reasons. The normal temporary export document does not cover towing and there are problems with breakdowns on aircraft with LAMS schedule.

If you come to France without a glider, your options are fewer in number, but you may find it cheaper. Many French clubs have high performance gliders sitting in hangars, under-utilised during weekdays outside the main holiday period of July/August. Most are happy to rent them to suitably qualified visitors, especially if the latter are prepared to stay a while; long enough to be checked out, long enough to absorb some of the local folklore, long enough to develop a relationship and trust. Some clubs offer an all-in-rate to cover all flying hours during a fixed period (say two weeks or a month). In their information sheets they call this *un forfait*

Alternatively, without a glider, there are three advanced gliding centres which offer courses to visitors. Two of these are at St Auban: the Centre National de Formation Aéronautique, (CNFA), and the Centre de Formation Haut Niveau (CFHN). Places for foreign pilots are very limited so it is necessary to book well in advance. The third centre, the European Soaring Club is at Le Blanc. Further details of all three appear later.

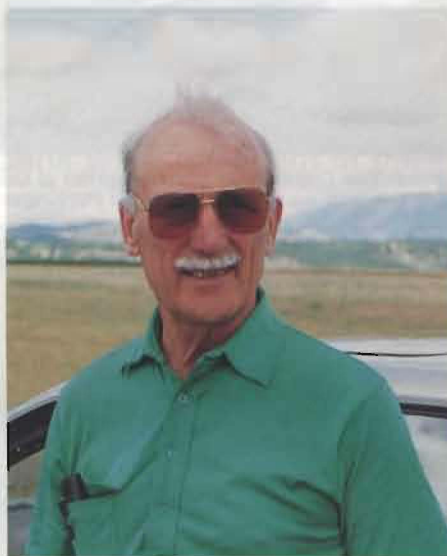
### French competitions

Pilots from many European countries have been flocking to France to participate in competitions for over twenty years. The attractions are manifold. In general, the weather is better than in Northern Europe; the types of competition are very varied, providing something for all levels of ability and depth of pocket and they are rarely over-subscribed so organisers are usually happy to accept foreign visitors, even for those Comps which do not call themselves "European" or "International". The welcome given to foreign visitors is invariably warm and the Comps are well run. At the time of going to press here is a list of competitions for 1991. Apart from the Regional competitions, most take place every year at the same place and at the same time of year.

### French Competitions 1991

International, Amiens - April 27-May 6  
International, Issoudun - June 30-July 9  
International, Vinon - July 17-26  
International, Bailleau - July 30-Aug 9  
International, Puimoisson - Aug 29-Sep 8  
Tour d'Europe, Lille - July 5-20  
(Paris -Morocco) Routes des Cigognes, Persan-Beaumont, April 20-May 12  
Trans-European, Orleans - July?

# A GUIDE TO GLIDING IN FRANCE



**William Malpas has lived most of the last 22 years in France and has flown from most of the 43 gliding clubs listed at the end of this guide. To help you with your gliding holiday in France you will find advice on:**

- Shall I take a glider?
- When to go?
- What maps and documents will I need?
- The Licence-Assurance FFVV
- Radio frequencies
- Where to go?
- How to book
- How much will it cost?

**In compiling the guide help was received from Gillian and Brian Spreckley. Thanks are also due to the Fédération Française de Vol à Voile, whose president, Raymond Gros, has kindly written a welcome to France.**

Friendly competition, Carpentras - May 7-12  
Friendly competition, Arcachon - May 18-20  
Friendly competition, Montpellier - May 17-20  
Open (Dist Comp), Fayence - June 22-July 3  
Pyrenean rally, Bailleau - July 17-20  
Veterans, Brienne - Aug 1-10  
Coupe d'Europe (2-seater), Poitiers - Aug 4-17

### Aerobatic competitions:

Coupe des Lavandes, Puimoisson - April 27-28  
Grand prix de Luchon, Luchon - Aug 10-11  
3rd Coupe de Voltige, Fayence - Oct 5-7

### Regional Championships:

At Pont St Vincent, Bordeaux, Amiens, Haguenau, Romans and Falaise in May. At Bailleau & Montpellier in June. At Beynes, Pont sur Yonne, Le Mans and Sisteron in August.

In addition there may be places available for some foreign pilots flying *hors concours* in the French Nationals. This would probably have to be negotiated between the BGA and the FFVV. The dates are:

Young Pilots, Nancy - July 24-Aug 2  
Club Class, Le Blanc - June 30-July 10  
Standard & 15m, ? - Aug 10-24

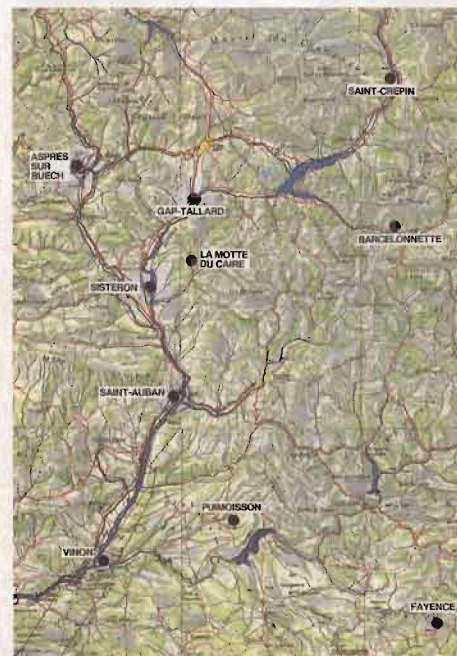
For further information on these competitions contact the organising club or the FFVV. (Or Brian Spreckley for the Club Class.)

### Centre National de Formation Aéronautique

In addition to courses at various levels for instructors, and courses for tug pilots and parachute packers, the CNFA offers "*Perfectionnement de pilote de planeur*". The objective of these two week courses is to give advanced training in pilotage, soaring and mountain flying. The programme is **Ground School (30hrs)**.

Soaring and cross-country techniques; flight limitations; instruments; meteorology; using soaring weather; rules of the air.

**Below: Gliding clubs in the Southern Alps.**





## A WELCOME TO FRANCE

### By Raymond Gros, president of the FFVV

*Yes, it is possible for a foreigner to fly a glider in France, and for a very long time now many glider pilots have been coming here to share the joys of flying in our thermals.*

*For twenty-five years French gliding has been organised and developed under the auspices of the Fédération Française de Vol à Voile which, in collaboration with the Ministry of Transport and the Ministry of Youth and Sport, has legal responsibility for gliding in France. Today the French gliding movement has 20 000 pilots flying from 170 different non-commercial clubs, totalling 450 000hrs and 4 000 000km cross-country each year.*

*Working together the air authorities and the French gliding movement have been able to preserve a considerable amount of freedom, which enables us to make the best of our excellent and varied conditions. We owe this freedom to the responsible attitude of French pilots and we intend to preserve it; it is by respecting others using our airspace that we are able to prevent severe restrictions.*

*That is why I want to say very strongly to our foreign friends: Yes, you will be very welcome in France as long as you are scrupulous in respecting our rules. Whether you come alone or in a group, our rules are simple: you must obtain an FFVV licence to use our facilities and equipment and you must respect French air laws. For example, for radio communication you must use the frequencies that have been allocated by the French authorities and you should speak in French or English.*

*No matter where you are operating the local club and the FFVV can help you in dealing with the authorities. On our airfields your flying will be co-ordinated with that of the local club, of which you will be a full member; before flying, you will attend the daily briefing during which you will be reminded of the safety regulations. By being part of this system, you will experience along with us the excitement and pleasure of flying over our beautiful country.*

*I conclude with the hope that we shall soon have the pleasure of meeting you at our airfields, and that together we will make gliding a part of the new Europe.*

#### Flying (25-40hrs, two-seater and solo)

Advanced piloting; mountain flying; cross-country technique.

The candidate must have a valid glider pilot licence, 100hrs solo and be checked out for cross-country. The cost is approximately £350 plus £110 for food and lodging. For further details contact: CNFA, 04600 Chateau-Arnoux/St Auban, tel 92641715.

#### Centre de Formation Haut Niveau

Whereas the CNFA is run by a government department, the CFHN is run by the FFVV. They operate in parallel on the same aerodrome at St Auban. The CFHN offers courses in advanced mountain soaring, advanced competition flying, advanced soaring, long distance flying and aerobatics.

Courses run all the year round, from Sunday to Saturday, and it is possible to stay two weeks consecutively. Open to pilots with Gold C or 300hrs plus cross-country experience, they are heavily subscribed during the summer by French pilots, but you may be lucky in obtaining a place by contacting: CFHN, BP 33, Aerodrome, 04600, St Auban sur Durance, France, tel 92-64-29-71.

#### European Soaring Club

This is a British Club run by Brian and Gill Spreckley which operates from a number of locations in Europe and offers both club and private owner facilities.

In 1991 the season starts with five weeks at Cerdanya in the Southern Pyrenees for the wave and spring thermal soaring, then in April a two week course in mountain flying at St Auban, in conjunction with the CFHN. The bulk of the flying, however, is at Le Blanc from May to September in conjunction with the local club. Here all pilots can

develop their cross-country talents at a site in the prime flat terrain of Central France with good weather and safe outlanding possibilities.

The ESC provides guidance and help in cross-country flying at all levels with a briefing every day in English together with tasks set for all abilities. The club also offers courses in soaring and cross-country flying and has a comprehensive fleet of single-seaters as well as two two-seaters.

**Below: An ESC Astir over Le Blanc Airfield. Photo: William Malpas.**



The emphasis is on exploring new soaring possibilities in Europe in a safe and friendly environment. The club is an excellent host for inexperienced but ambitious pilots wanting to spread their wings but perhaps lacking the knowledge to fly alone in Europe. For the more experienced pilot, in June and August the ESC also holds two rallies, a mountain and a flat lands rally.

For details of The European Soaring Club's activities contact - Kiera Hibberd, 45 Sandiford Drive, Holmes Chapel, Cheshire, CW4 7BU.

#### When to go?

Wave conditions are frequent all the year round in the Alps, the Pyrenees and the Massif Central. However, now that they have easy access to Scotland, few British pilots think of basing a glider in France during the winter. The sensible visiting season is March to September for the southern half of France, and June to mid-September for Central France. Here are general assessments of the "best periods" for some popular areas:

#### Southern Alps

Any time! July/August are often best but very crowded (roads, hotels, restaurants, gites, launch queues, sometimes even land-out fields). But the worst feature is the crowded airspace along the well-worn routes. Avoid Easter holidays for the same reason.

#### Northern Alps

The season starts later and ends sooner, so let's say April to August. Ditto crowds.

#### South-West

Wave all the year round close to the Pyrenees. Mountain thermals March to September (good conditions less frequent than for the Alps). It is possible to cross to the southern side of the Pyrenees from June onwards. Exploitation of the south flank is in the pioneer stage with development of new launching pads in Spain.





1.

# GLIDING IN FRANCE

1. An ASH-25 at sunset near Sisteron. Photo: J. Noel. 2, 5, and 6. are shots of a Janus in the Alps by A. Bouchardon and taken from his two highly successful gliding films, "Les Portes du Ciel" and "An Autre Monde". 3. C. Jerman took this picture in the Rhône valley. 4. Peter Selinger's photograph of a Wassmer on approach seen against a more gentle landscape.



2.

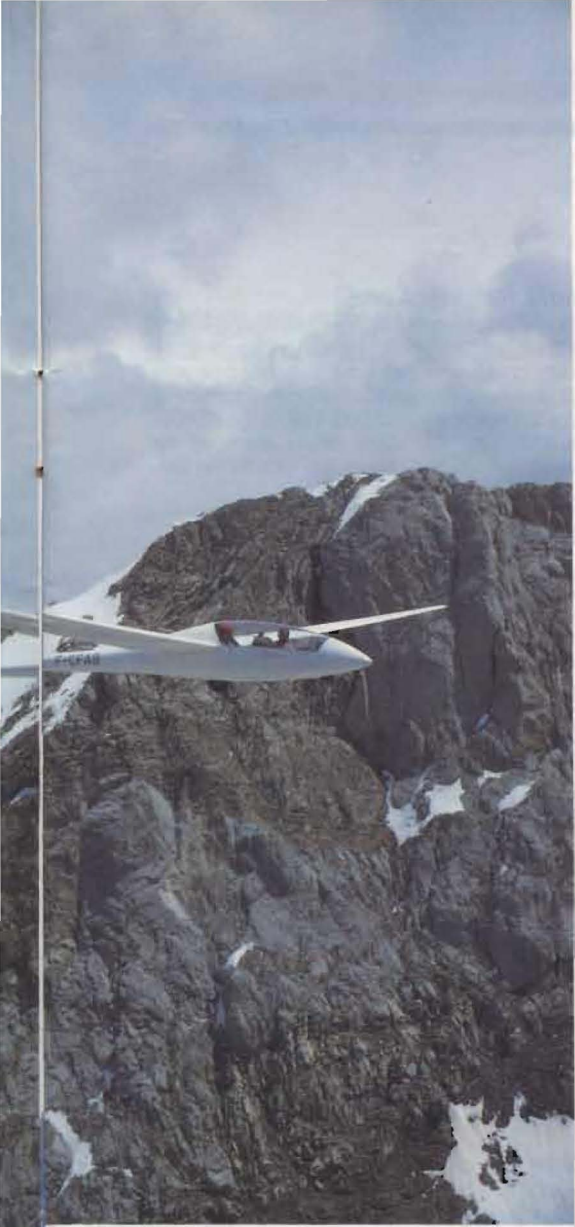


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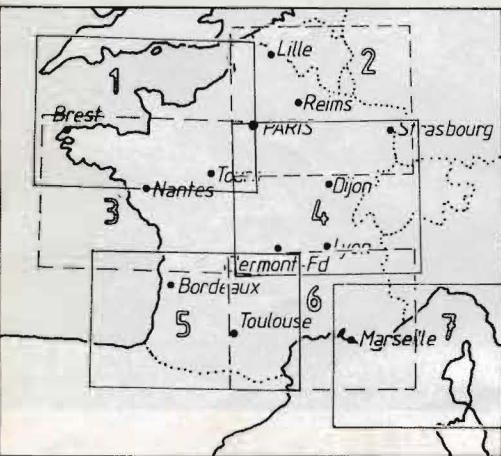


## Central France

The area of France north of the Massif Centrale has the same general climate as Southern England. It is subject to Atlantic depressions which sweep across from the west to east and it is not unknown to suffer a complete week of rain interspersed with brief bright periods. The danger increases with latitude. That is why my recommended zone, shown on the map of gliding sites, tends away from both the Atlantic and the Channel.

It is an excellent area for long distance flat-land circuits. June/July/August are best. Large fields abound, but if you are nervous about crops, later is better because the choice of cut fields is greater. One last word about those fronts that ravage southern England; very frequently, they extend their clammy fingers only as far as Normandy and pass north of the Loire.

## What maps will I need?



A map showing the seven areas.

For cross-country you must have France 1:500 000 Aéronautique 7 sheets: No. 1. Brest; 2. Reims; 3. Nantes; 4. Dijon; 5. Toulouse; 6. Marseille; 7. Ajaccio.

These maps are not always on tap. Make sure that the club you are going to has them, or order in advance from: IGN, 107, rue de La Boétie, 75008 Paris. Present price per sheet (1990) fr52 VAT included but not postage.

For local flying anywhere and for cross-country in the mountains IGN Serie Rouge, Carte touristique, 1:250 000 is excellent and can be obtained in any paper shop (*Maison de presse*). Michelin maps 1:200 000 are a good substitute.

For local flying in the mountains IGN Serie Verte, 1:100 000 is very useful because it has contours. It encourages intimate knowledge of local ridges and there is no better way of starting in the mountains.

Before flying cross-country, consult France Radionavigation 1:1 000 000 for further info on Airways and special zones (parachuting, forbidden, dangerous and special rules). Most clubs have these displayed in the briefing area.

## What documents do I need?

The first thing to understand about the French bureaucratic mind is a total absence of interest in

the integrity of machines and the competence of their pilots. Their only concern is keeping their files neat and their responsibility disengaged.

Among the gliding fraternity the attitude is quite different. However, it can save a lot of trouble if you take everything you have. In order to fly cross-country, the law says that you must have with you, in the glider:

**Pilot's glider licence, aeronautical maps, glider logbook, C of A, aircraft certificate of registration, speed and weight limitation placards, glider flight manual and the licence to operate the radio.**

This seems a formidable list; I have been flying in France for 22 years and never been asked to produce any of them, but if you land out in a conspicuous place a zealous police officer may well put the arm on you.

When you go to a competition you may be asked to show any of these documents and you will certainly be asked to produce proof of adequate third party insurance.

## Flying solo in French registered gliders

For pilots coming from other EEC countries life is simple. Their pilots' licences are accepted as equivalent to the French licence. It is the practice in some clubs to include British pilots in this category, despite the absence of gliding licences in the UK. To satisfy the need for a piece of paper, the FAI Gliding Certificate or the FAI Competitors' Licence is accepted as proof that the chap has sat in a glider before, and a check-out by the CFI does the rest. However, there is muttering among the bureaucrats that something more is needed for those perfidious Brits!

## Licence-Assurance FFVV

The French BGA (FFVV) often receives letters from foreign pilots who are surprised at having been required by the host club to subscribe to a licence-assurance FFVV, when the pilot and his machine are already insured. The explanation is as follows:

The licence-assurance comprises three parts:

1. Personal accident insurance.
2. Glider and third party insurance.
3. A levy by the FFVV without which all services provided by the host club would cost about 20% more.

If you fly French club gliders you normally pay the lot. If you already have personal accident insurance you qualify for a reduction. If you fly a foreign glider which is already adequately insured you qualify for a further reduction. But everybody, without exception, pays item three.

**NB.** The licence-assurance is **not** a licence in the English sense of the word.

## Ferries

It is many years since I shuttled across the Channel, so I asked Brian Spreckley. He suggested that you contact the following for reduced price tickets for glider trailers:

JJ Promotions, Joe Johns, 159 Cottingham Grove, Bletchley, Milton Keynes, tel (0908) 370902.

Alternative Promotions, Brian Ashton, First Floor, 45 the Agora Centre, Wolverton, Milton Keynes, MK12 5LG, Tel (0908) 222900.

## Radio frequencies

Some frequencies allocated to gliding in the UK are used for other things in France so visitors should check with their host club, or come with 720 channels. Frequencies allocated to gliding clubs in France are: 122.500, 122.650, 123.050, 129.975, 130.125. Many others are used for take-off and landing on airfields with mixed traffic, and for special rules zones.

## Where shall I go?

Look at the map and you will see there are many gliding fields in France. There are a few others, which are not on the map, where gliding camps or Comps are organised during the summer. At the risk of losing some good friends here is a short list. It is based on cross-country activity (which gives some kind of guarantee that the field is operational most of the time) and some personal knowledge.

## Central France

The map shows a pentagon with the north-east corner cut away to allow for Paris. This is an excellent area for cross-country soaring over flat, but interesting countryside; an area which was largely exploited during the highly successful 1978 World Championships at Chateauroux. It is relatively free of special zones (by today's standards) and it includes very active clubs at: Bailleau, Chartres, Buno Bonnevaux, Orleans, Angers, Issoudun and Le Blanc (ESC). La Roche sur Yon is on the fringe, but it is a very friendly club and not far from some beautiful beaches in case you have the children with you.

## Jura

Apart from being beautiful in themselves, the French Jura give access to the Swiss Jura and hence to Southern Germany, but it is not easy for out-landings. The more active clubs are Belfort and Besançon.

## Northern Alps

The most active club, and the most popular with visitors, is Chambéry Challes Les Eaux. However, they have a launch limitation and may from time to time restrict visitors to the winch.

## Southern Alps

This is the most popular area for foreign visitors. All the clubs are accustomed to welcoming visitors.

## Pyrenees

Saint Girons is probably the best site on the north flank. It is mainly pilots from there who are pioneering and opening up the southern side. The ESC camp at Cerdagne already operates on the south side.

## South-West

Nogaro is the most active club in the area, but there are several others which are well placed for good flying.

## Wave sites

To complete the picture here is a list of clubs which are reputed for wave: Issoire, Roanne, plus all the fields in the Alps close to the Pyrenees or south of the Massif Central.







**Migration of clubs**

Mass migration of French and foreign clubs takes place to a number of sites, including the following (there are no doubt others): Ancenis (near Angers), Angers, Saumur, Thouars, Roanne, Brienne (near Troyes), Gap, Sisteron, La Motte. If you would like something a bit different, try Puivert.

**How to book**

It is essential to contact the club as early as possible with all the details of your plans: numbers of pilots and machines (also types if they are heavy), type of accommodation, need of local instructors for check-outs and extended instruction (eg in the Alps). We have printed a list of addresses of clubs mentioned in this guide. If you have any problems contact the FFV at 29 rue de Sevres, 75006 Paris. tel 45 44 04 78.

**How much will it cost?**

Here are some typical (1990) costs at a French Club:

<b>Private owner</b>	<b>fr</b>
Membership/flying day	70
Launch to 500m	125
Winch launch	35
Licence-Assurance FFV: 10 days	130
One year	280

**Flying club gliders**

Short period membership: to be negotiated

Modern 15m gliders/hr	100-150
/day	400
Courses for low time pilots, including winch launches	
One week	1500
Five weeks (Max hours:40)	5500
Licence-Assurance FFV: 10 days	160
One year	370

Rates vary from club to club. There are reduction for pilots under 25. Special deals can be negotiated.

**A short list of addresses**

This list includes only the clubs mentioned in this guide. A full list can be obtained from the FFV.

- Amiens - Glisy**, Aéro-club de Picardie, M. Rio Jean, 290 Rue Saint, Fuscien, 8000 Amiens. Tel 22 47 21 22.
- Angers - Avrillé**, Assoc. Sportive de Vol à Voile, 6 bis Av Mendes France, 49240 Avrillé. Tel: 41 34 58 18.
- Arcachon** - La Teste de Buch, A. A. du Bassin d'Arcachon, BP 41 33260 La Teste. Tel: 56 54 15 14.
- Bailleau CVVE - Armenonville**, Centre Velivole du Val de L'Eure, Aéro Bailleau-Armenonville 28320 Gallardon. Tel: 37 31 43/74.
- Barcelonnette - St Pons**, Centre de Vol à Voile de l'Ubaye, Aéro St Pons, 04400 Barcelonnette. Tel: 92 81 08 78.
- Belfort - Châux**, Aéro-Club de Belfort, BP 123, 90300 Valdoie. 84 29 12 47.
- Besançon - Thise**, A. Vol à Voile Aéro-Club du doubs, Aéro, Besançon-Thise, 25220 Roche les Beaux Pres. Tel: 81 61 02 93.
- Beynes - Thiverval**, Centre Aeronautique de Beynes, Aéro, 78650 Beynes. Tel: 1 34 89 10 05.
- Bordeaux - Léognan-Saucats**, Assoc Aéronautique D'Aquitaine, Aéro de Bordeaux-Saucats, 33850 Leognan. Tel: 56 21 07 44.
- Buno Val D'Essonne - Buno-Bonnevaux**, Assoc Aéronautique du Val D'Essonne, Aéro de Buno-Bonnevaux, 91720 Maisse. Tel: 1 64 99 49 41.
- Carpentras**, Assoc Velivole de Carpentras, BP 129, 84204 Carpentras Cedex. Tel: 90 60 08 17.
- Chambery - Challes-Les Eaux**, Centre Savoyard Vol à Voile Alpin, Aéro RT de Barby, 73190 Challes les Eaux. Tel: 79 72 97 19.
- Chartres - Champhol**, Centre de Vol à Voile de Chartres, Aéro Chartres-Champhol 28000 Chartres. Tel: 37 34 14 27.
- Falaise/Caen - Monts d'Eraines**, Monsieur Anfray, 35 Rue Maltot, 14000 Caen. Tel: 31 69 80 38.
- Fayence**, Assoc Aeronaut Provence Cote D'Azur, Aéro de Fayence, 83440 Fayence. Tel: 94 76 00 68.
- GAP - Tallard**, Aéro-Club Alpin, Aéro Gap-Tallard, 05130 Tallard. Tel: 92 54 18 80.
- Graulhet - Mondragon**, Assoc Tarnaise de Vol à Voile, Aéro de Sales, 81300 Graulhet. Tel: 63 34 27 10.

- Issoire - Le Broc**, Aéro-club Pierre Herbaud, BP 33, 63501 Issoire Cedex. Tel: 73 89 16 62.
- Issoudun - Le Fay**, Aéro-Club D'Issoudun, BP 48, 36100 Issoudun. Tel: 54 21 05 38.
- La Motte du Caire**, Club Vol à Voile La Batie Neuve, Mairie 04250, La Motte Du Caire. Tel: 92 68 35 11.
- La Roche sur Yon**, Centre de Vol à Voile Yonnais, Aéro des Ajoncs BP 98, 85003 La Roche sur Yon. Tel: 51 05 01 91.
- Le Mans - Arnage**, Aéro-Club lès Ailes du Maine VV, Aero d'Arnage, 72100 Le Mans. Tel: 43 84 10 23.
- Le Blanc** European Soaring Club, Les Ages, 36300, Le Blanc. Tel: 54 37 34 08.
- Lille - Marcq-en-Baroeul**, UA Lille-Roubaix-Tourcoing, Aéro Lille-Marcq, 59910 Bondues. Tel: 20 72 40 98.
- Montpellier - St-Martin-de-Londres**, Centre Vol à Voile du Pic St Loup, Montpellier-Frejorques, Aéro 34130 Mauguio. Tel: 67 55 01 42.
- Nogaro**, Aéro-Club du Bas Armagnac, BP 17, 32110 Nogaro. Tel: 62 09 00 69.
- Orleans - St-Denis-de-l'Hotel**, UA Orleans Colonel Morlaix, 24 Place du Martroi, 45000 Orleans. Tel: 38 59 57 10.
- Persan-Beaumont**, Aéro-Club du lys, 1 Avenue de Beaumont, 60250 Lamorlaye.
- Pont sur Yonne**, Centre de Planeurs Senonais, Aéro de Pont sur Yonne, 89140 Gisy les Nobles. Tel: 86 95 35 64.
- Puimisson**, Centre VAV, Plateau de Valensole, Aéro, 04410 Puimisson. Tel: 92 74 70 35.
- Puivert**, CA de Puivert-Quillan, Madame D. Rouger, 31 Rue de Callong, 11500 Quillan. Tel: 68 20 17 80.
- Roanne - Renaison**, Centre de vol à Voile Roannais, BP 119, 42332 Roanne Cedex. Tel: 77 66 81 08.
- Romans - St Paul**, Aéro-Club de Romans, BP 257, 26106 Romans Cedex. Tel: 75 70 06 76.
- St Auban/CNFA - Chateau-Arnoux-St-Auban**, Monsieur le Chef de Centre, Centre National de VV, Aéro, 04600 St Auban sur Durance. Tel: 92 64 17 15.
- St Auban - Chateau Arnoux St Auban**, Centre Federal de Haut Niveau, BP 33, 04600 St Auban sur Durance. Tel: 92 64 29 71.
- St Crépin - Mont-Dauphin-St-Crépin**, Aéro-Club Guil et Durance, Aéro St Crépin, 05600 Guillestre. Tel: 92 45 02 95.
- St Dizier - Rolampont**, Aéro-club de St Dizier, Aéro Rue A de Musset, 52100 St Dizier. Tel: 25 05 04 67.
- St Girons - St Girons-Antichan**, Aéro-Club de l'Ariege, BP 32, 09200 St Girons. Tel: 61 66 11 00.
- Saumur - St Florent**, Saumur Vol à Voile, BP 123, 49413 Saumur Cedex. Tel: 41 50 82 44.
- Sisteron - Thèze**, Union Aerienne Sisteron Durance, Aéro de Vaumeilh, 04200 Sisteron. Tel: 92 62 17 45.
- Thouars**, Centre de Vol à Voile Thouarsais, BP 114, 79100 Thouars. Tel: 49 96 22 90.
- Valence - Chabeuil**, Centre Vol à Voile du Valentinois, Aéro La Trésorerie, Cidex 740, 26120 Chabeuil. Tel: 75 85 28 64.
- Vinon** A. Aéronautique Verdon Alpilles, Aéro Vinon s/Verdon, 83560 Rians. Tel: 92 78 82 90.

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**T**he National Ladder is a competition open to every cross-country pilot. It allows them to compare their performance on a day and over the year, and also gives recognition to the efforts of individuals, whether they are doing a Silver badge or their first 750km.

The competition is run at club level by ladder stewards gathering times and distances and publishing scores for each pilot's best four flights. Every S&G deadline (April, June, August and October) I gather the scores from the stewards. In October I verify the top scorers' times, distances and photos and award the four trophies for the Weekend Ladder (for flights on weekends and Bank Holidays only) and the Open Ladder (for any flight).

The rules may look daunting, but they are much easier to use than at first appears. Points are given for speed (for pre declared and completed tasks). Distance points are given for any flight around three or less TPs. The emphasis is on completing tasks quickly. Speed points are given for the square of speed, but are also multiplied by distance, so to do well you must make long fast flights.

But to emphasise speed and distance would cast a false light on the aim of the Ladder. Before all else, it is a vehicle for encouraging pilots to start flying cross-country and to motivate them to stretch and improve themselves. Many pilots find the jump between 100 and 300km daunting and without the motivation to try 150 or 200km they may never make the jump. Many others may be happy with a "milk run" 300km if not encouraged to fly further by others' declarations.

It is also great to see your name on the Ladder, be it for a 50 or 500km. The key is to bring pilots on and encourage them to improve. It is for this reason that the Ladder is mainly a club competition, usually relying on the enthusiasm of the steward and a few key pilots. All the National steward does is create a framework of rules and award the National trophies.

In summary, the Ladder is mainly a club competition. It can be very rewarding for pilots and organisers alike. Its main aim is to encourage improvements in cross-country flying by scoring and comparing flights. Its results are pots awarded at Club and National level and a good deal of cross-country kilometres which might otherwise not have been flown.

## NATIONAL LADDER RULES FOR 1991

- The competition starts on October 1 and ends on September 30.
- Any flight which originates in the UK may count, except for flights in a competition for which BGA entry forms are required. Points will only be awarded to the P1 in a two-seater.
- There will be two separate ladder competitions:-
  - the Open Ladder (for any flight)
  - the Weekend Ladder (for flights made on weekends and Bank Holidays). *No flight may be entered in both Ladders.*
- A pilot may enter up to four flights in each competition but only two in each Ladder may be height gains.
- The pilot's word will be accepted for flight times. His word will also be accepted for

# THE NATIONAL LADDER

**Do you feel your flying lacks motivation and stimulus? If so you might be interested to know more about this competition. Ed Johnston, National Ladder steward, explains its aims in the hope it might encourage more clubs and pilots to enter**

rounding TPs, except that the two top scores in each of the Ladder competitions will only be awarded with the support of photographic evidence. The photographs will be assessed according to BGA competition rules, and must contain the following:

- A startboard clearly showing.
  - The date.
  - Pilot's name.
  - Glider type and identification.
  - Start, turning and finish points.
- Photographs of each TP in the declared order.
- A photograph of the glider fin clearly showing the same identification as on the startboard.

Cut films are acceptable if accompanied by a declaration containing the following for each flight on the film:

- Date of the flight.
- Pilot's name.
- Glider type and identification.
- The declaration "this film was received in a commercial developer's sealed envelope and opened by me".
- Official observer's number and signature.

Barograph traces must be shown to Club Ladder stewards for height claims.

- Declarations must be made before take-off and include the start point, up to three TPs and the finish point. All these must be features shown on 1:50 000 Ordnance Survey maps.
- The current BGA handicap (Si) will apply to the calculation of all open-ended tasks. An adjusted handicap (Si<sup>h</sup>) will apply to all closed circuit tasks. *ie* where the start is within 2km of the finish.
- If incomplete, the distance counted for the uncompleted leg is the length of that leg as declared, less the distance between the landing point and the next TP (as in BGA contest rules).
- Speed points are awarded in addition to distance points if either the flight results in a successful badge distance claim, or
  - The declared start, turn and finish points are all rounded in the declared order **and**
  - The startline was crossed below the

lower of 1000m or 1% of the distance, above the finish line.

- Calculation of points.
  - Distance Points**

**Undeclared Flights** (completed or not)

$$\frac{d \times 100}{Si \text{ or } Si^h}$$

**Declared Flights** (completed or not)

$$\frac{2 \times d \times 100}{Si \text{ or } Si^h}$$

where d = distance in km

Si = speed index for open-ended tasks

Si<sup>h</sup> = speed index for closed circuit tasks

- Speed Points** (declared, completed tasks only)

$$\frac{d \times 100 \times v \times v}{Si \text{ (or } Si^h) \times 2000}$$

where d = distance in km

v = handicapped speed in km/h

v =  $\frac{d \times 100 \times 60}{\text{time in minutes}}$

Si (or Si<sup>h</sup>) × (time in minutes)

- Height Points** (not more than two per pilot per ladder)

- Height points or distance/speed points can be awarded for a flight, but not both.

- No points may be claimed for flights above 15 000ft without oxygen.

- Height gain points are awarded as follows

$$\frac{(\text{height gain}) - 5000}{10} \text{ units of feet}$$

- Details of each flight must be submitted to the Club Ladder steward within one month of the flight taking place. Full details of flights, including photographs when available, must be submitted to the National Ladder stewards within one month of being requested
- Trophies are awarded to the first and



second places as follows:

- a) Open Ladder; **Enigma** and **Firth Vickers** trophies.
- b) Weekend Ladder; **L. du Garde Peach** and **Slingsby** trophies.

A pilot can win only one trophy and if qualifying in both Ladders, will win the trophy for which there have been the greater number of entries. ✕

### GLIDER HANDICAPS IN ORDER OF SPEED INDEX

- \*131 Nimbus 3 (25.5m)
- \*130 Nimbus 3 (24.5m), ASW-22 (24m)
- \*128 ASH-25, Nimbus 3c
- \*121 Nimbus 2cs
- \*118 ASW-17, Glasflügel 604, Jantar 2, Kestrel 22, Nimbus 2
- \*115 Kestrel 20, Ventus (17.6m)
- \*114 ASW-20aL, DG-600 (17m), Jantar 1, Kestrel 19, Ventus (16.6m)
- \*112 DG-202/17
- 112 ASW-20cL
- 111 ASW-20L, Vega L (17m)
- \*110 DG-400, Kestrel 17
- 110 LS-3/17
- \*109 ASW-20a, ASW-20c, DG-600 (15m), LS-6, Ventus (15m)
- 109 IS-32
- \*108 ASW-20, DG-200, Glasflügel 304, Janus C, LS-3, Mosquito, Nimbus 15, Speed Astir, Vega (15m)
- 108 Calif A21, Diamant 18
- \*106 Cirrus 18.8, Janus CM, PIK 20
- \*104 ASW-24, Cirrus 17.7, Discus, LS-7
- 104 Janus B, PIK 20E
- \*103 DG-300, LS-4, Pegasus, Phoebus 17
- \*102 ASW-19
- \*101 Std Jantar
- \*100 ASW-15, DG-100, Hornet, LS-1, Std Cirrus
- 100 Diamant 16.5, SHK-1
- \*99 Astir CS, Std Libelle
- 99 Club Pegasus
- 98 ASW-19 Club
- 96 Cobra 15, JP15-36A, KH-1, Marianne, Motor Cirrus, Silene, Sport Vega, Twin Astir
- 95 K-21, Astir Jeans, SZD Junior
- 94 Acro, K-23, Club Libelle, Dart 17, IS-29b, SFH-34, Viking
- 92 Foka 5, Iris, Pilatus B-4, Torva, Zugvogel 3b
- 90 Foka 4, K-6e, SD 3/15, SF-27, Sie 3
- 88 Dart 15, IS-28b, Olympia 419, SF-27m
- 86 K-18, Skylark 4
- 85 Std Austria S
- 84 K-6ca, Olympia 403, Skylark 3
- 82 BG-135, Fauvette, M200, Olympia 463, Pirat
- 80 K-14, L-Spatz, M100s, Moswey 4
- 78 Bergfalke 4, Jaskolka, K-8, Moswey 3, SF-26, Skylark 2, T-53
- 76 K-13, Blanik, Eagle, Sky, Weihe
- 74 Bergfalke, Bocian, Mucha Std
- 73 Super Falke
- 72 Capstan, K-2, K-7, SFS 31
- 70 Meise, Olympia 2, Swallow
- 68 K-16, Kite 2a, RF-5b, Tandem Falke
- 66 Kranich, Mü 13
- 63 Prefect
- 62 Grunau Baby
- 60 T-21
- 52 Falke
- 48 Tutor

\*Denotes index with waterballast capability ✕

**Make sure of getting your copy of S&G by taking out an annual subscription. Details on p66.**

# THE INTERNATIONAL SCENE

## The FAI and the RAeC

**T**he rules for World Gliding Championships and the gliding badges above Bronze are laid down by the International Gliding Commission which is part of the Fédération Aéronautique Internationale. The FAI is the international governing body for all aviation sports, controlling the rules for Championships and for the establishment of aviation records and other levels of aviation sporting achievement. This is how it works:

### FAI Structure

**President:** Elected at the General Conference. By tradition the post is held for two years and the first vice-president is normally the only candidate.

**General Conference:** This is held every year in a different member country. Every full member is entitled to send one or more delegates. The number of votes for each country depends on its subscription level which in turn is related to the level of air sport activity in that country. The General Conference also elects a first vice-president and a treasurer general.

**Council:** This meets twice a year and every full member is entitled to send a representative. Council members have a single vote each. There are sub-committees of Council such as PR and Finance whose members are appointed by Council.

**Air Sport Commissions:** The Air Sport General Commission (CASI) is principally responsible for all non-specialist general sporting matters and in particular for the General Section of the **Sporting Code**.

There are also ten Specialist Air Sport Commissions - one for each of the different disciplines. The International Gliding Commission (CIVV) is one of these. There are also three "Technical Committees" - Education (CIEA), Home-built (CIACA) and Medical (CIMP). Every FAI member country is entitled to send a representative to attend the meetings of each of the Sporting and Technical Commissions. They usually meet once a year (CASI twice a year) and there is one vote per country attending. IGC is usually attended by about 25 countries - mostly from Europe.

**HQ:** The FAI headquarters' office is in Paris and staffed by a secretary general, a technical officer and three secretary/clerk/book-keepers.

### FAI Rule Books

**Statutes:** The Statutes of the FAI provide the broad basic constitution of FAI and can only be altered by a two thirds majority at a General Conference. The Bylaws to the FAI Statutes cover more detailed administrative and procedural matters.

**Sporting Code:** The FAI **Sporting Code** covers

all sporting matters and is comprised of a general section and ten specialist sections corresponding to the different air sports. The General Section is the responsibility of CASI and applies to all the air sports.

**Section 3, Class D:** The gliding section of the **Sporting Code** is Section 3 and gliders and motor gliders are Class D in the list of different types of aerial vehicles in the General Section. The text and amendments of Section 3 are the responsibility of IGC. Section 3 covers the rules for gliding and motor gliding badges and records and now includes an appendix with detailed rules for International Soaring Championships. Rules for aerobatics in gliders are the responsibility of the FAI Aerobatics Commission (CIVA) and not IGC.

### Membership of FAI

The FAI is not an inter-governmental organisation. A key rule, however, is that only one organisation from any given country will be accepted into membership. Typically that organisation will be the National Aero Club or equivalent. For the UK, the Royal Aero Club of the United Kingdom (RAeC) is the FAI member. The BGA gains access to FAI and the CIVV through its membership of the RAeC. Virtually all countries in the world where any form of sporting aviation takes place are members of FAI. There are about 60 full members.

### The Royal Aero Club

The constitution of the RAeC was revised in 1973 and it is now controlled by a Council comprised of one representative from each of its full member Air Sport Associations. There are currently 13 full members and the BGA is one of the largest. Subscriptions are related to the size of the member organisation and voting power is also graded with the larger bodies having three votes, the medium-sized having two and the rest one.

The RAeC Council currently meets four times a year and also has three principal sub-committees: Medals and Awards, FAI and Parliamentary. Each member Association is entitled to send a representative to these committees and in the case of the FAI committee it is normally the Association's representative on the corresponding FAI Sporting Commission who attends.

The RAeC also has Associate members and Individual members but these do not play a part in the control of the club. The club has no premises of its own and only a relatively small budget. Approximately half its budget is spent on its subscription to the FAI. ✕





Std Cirrus



K-6E



Pilatus B-4

# HELP WITH CHOOSING YOUR NEXT GLIDER

DEREK PIGGOTT

**P**ilots often come to me for an opinion on their possible choice and it is obvious that they could save themselves quite a lot of time by doing their selection systematically.

These notes should be of help to those trying to choose which glider they will try to buy. Eventually the choice for a secondhand machine evolves around what is available at the time more than exactly what it costs. Prices can be estimated from the current issues of *S&G* for the British market, from *Aero Kurier* for Germany and from *Soaring* for the USA.

In looking at the scoring, remember that much of it is just a matter of opinion. Some of the assessments will be inaccurate, especially since some aircraft were last flown 20-30 years ago. Where I have not flown the type the assessment is based on other experienced pilots' views.

## General scoring

- 1-2 poor or inadequate.
- 3-4 average-good.
- 5 very good - excellent.
- R reported, not known or not flown.
- O optional equipment.

## Competition Class

- Non competitive.
- S Standard Class.
- 15 15 metre flapped.
- 15/17 15 metre - 17 metres Open Class with tips fitted.
- O Open Class. Unlimited span.

## Construction

- C Carbon fibre incorporated in the structure.
- F Fabric covered surfaces.
- G Glass-fibre.
- M Metal skins.
- ST Steel tube structure.
- W Wood.

## Type of airbrakes.

- SH Schemp-Hirth.
- DFS DFS type.
- TE Trailing edge.
- TF Trailing edge combined with flap.
- O Other types or manufacturers' own design.

## Cockpit size

- 1-3 Small or restricted in height or width.
- 4-5 Large.

## Rigging

- A Average.
- H Heavy or not easy to rig.
- G Good.

## Ground handling

- A Average.
- G Good - tail handle provided.
- VH Very heavy.

## Stalling characteristics 1-5

- 2 Wing drop without warning buffet.
- 3 Reasonable warning, average stall.
- 4-5 Very docile with good warning.

## General handling 1-5

- 2 Poor harmony, poor rate of roll, or inadequate rudder power.
- 3 Average handling.
- 4-5 Good in all respects - excellent.

Photos: Robert Bryce-Smith

Below: Ventus



Below: Mosquito





## HELP WITH CHOOSING YOUR NEXT GLIDER

Manufacturer	Type	Date of first Flight	Class Std/15m Open	Span (m)	Construction of Fuselage	Wings etc	Type of airbrake	Flaps	Retractable wheel	Waterballast	Cockpit size	Rigging	Ground handling	Best L/D ratio at knots	Stalling characteristics	General handling	Special features etc
Elliots of Newbury (EoN) England	Olympia 2b	47	-	15	W	WF	SH	-	-	-	5	G	G	21/40	3	3	1938 design with good handling and airbrakes.
	Olympia 463	65	S	15	WF	WF	SH	-	-	-	4	G	G	27/45	2	4	K-6cr performance with larger cockpit. Wing drop at stall.
Slingsby England	Swallow	57	-	13	WF	WF	SH	-	-	-	2	G	G	22/43	3	4	Cockpit limited in height. Good handling but disappointing performance.
	Sky	50	-	18	W	WF	DFS	-	-	-	3	H	H	27/45	3	2	Limited shoulder width in cockpit. Big and rather heavy handling and rigging.
	Skylark 2	54	S	15	W	WF	SH	-	-	-	3	H	A	25/48	3	3	Heavy centre-section three piece wings.
	Skylark 3/4	55	-	18	W	WF	SH	-	-	-	5	H	G	30-32/48	3	2	Heavy centre-section, poor rate of roll, very stable.
	Dart 15/17	63	-	15 or 17	W	WF	SH	-	0	-	4	G	G	32-35/48	2	4	Unpredictable stall in turns, otherwise good handling. 15m version poor in climb.
Birmingham Guild/Swales England	BG 100/135	70	-	13.5	M	M	TE	-	-	-	3	G	G	28-30/45	3	4	Flown in 1970 - recollections vague. Quite good handling.
Schleicher Germany	K-8	57	-	15	ST	WF	SH	-	-	-	3	G	G	25/40	3	4	Excellent rough site and beginners' glider but cockpit rather small for tall pilots.
	K-6cr	55	S	15	W	WF	SH	-	-	-	2	G	H	28/45	3	4	Excellent first cross-country machine. Very limited cockpit.
	K-6e	65	S	15	W	WF	SH	-	-	-	2	G	H	34/45	3	4	High performance version of K-6cr. All moving stabiliser makes very light elevator. Small cockpit.
	K-18	74	-	16.5	ST	WF	SH	-	-	-	4	G	H	34/45	3	4	K-6e performance. The ideal first cross-country and club glider. Larger cockpit.
Scheibe Germany	SF-27	57	S	15	WF	WF	SH	-	-	-	4	A	G	34/45	3	2	K-6e performance with poor elevator feel.
Morelli Italy	M100	60	S	15	W	WF	O	-	-	-	R3	A	A	28/45	R2	R3	Not flown by me. Unusual airbrake design.
SZD Poland	Mucha Std	53	S	15	W	WF	SH	-	-	-	4	A	G	26/42	2	4	Superb handling but sharp wing drop at the stall.
	Pirat	66	S	15	W	WF	SH	-	-	-	5	H	G	32/45	3	3	Heavy centre-section, three-piece wings, very big cockpit and good airbrakes.
	Foka	60	S	15	W	WF	SH	-	-	-	3	H	G	34/50	3	5	Heavy rigging. Good handling and airbrakes. Lie down seating position.
	Cobra	70	S	15	W	WF	SH	-	✓	-	4	H	A	36/50	3	5	As for Foka, but seating more normal and retractable undercarriage.
Schempp-Hirth Germany	Austria	59	S	15	W	W	SH	-	0	-	3	H	A	34/50	3	3	V-tail. Rather ineffective airbrakes on early version.
	SHK	61	O	16.5	W	W	SH	-	✓	-	4	H	A	36/50	3	3	Big span version of Austria. Complicated rigging but good performer.
Schweizer USA	1-26	54	-	12.2	M	M	O	-	-	-	4	A	G	21/42	3	4	Light but complex rigging. Spoilers.
	1-34	69	S	15	M	M	O	-	0	-	4	A	A	32/45	3	4	All metal. Similar to Dart in many respects. Rather high wing loading.



Manufacturer	Type	Date of first Flight	Class Std/15m Open	Span (m)	Construction of Fuselage	Wings etc	Type of airbrake	Flaps	Retractable wheel	Waterballast	Cockpit size	Rigging	Ground handling	Best L/D ratio at knots	Stalling characteristics	General handling	Special features etc
	1-35	73	15	15	M	M	-	✓	0	-	4	A	A	35/50	3	4	No airbrakes, uses flaps only. Good handling.
	1-36	79	S	14	M	M	SH	-	-	-	4	G	G	30/50	4	4	Designed to be ideal for club use. Good airbrakes.
Pilatus Switzerland	B-4	72	S	15	M	M	SH	-	✓	-	4	A	A	34/45	3	5	Excellent metalwork. Fully aerobatic. Good first cross-country glider.
Glasflugel Germany	Libelle	67	S	15	G	G	SH	-	✓	✓	2	G	A	38/50	4	3	Superb rigging. Handling good but not easy to fly accurately. Very poor airbrakes.
	Club Libelle	73	S	15	G	G	TE	-	-	-	3	A	A	35/50	3	4	Powerful trailing edge airbrakes. Good handling.
	Hornet	73	S	15	G	GC	TE	-	✓	✓	4	A	A	38/55	4	4	Late versions with carbon spar to reduce weight. Good handling and performance.
	Mosquito	76	15	15	G	G	TF	✓	✓	✓	4	A	A	40/60	4	4	Wing similar to Mini Nimbus with combined airbrakes/flaps.
	Kestrel	68	0	17/20	G	G	SH	✓	✓	✓	4	GH	A	42-45/55	3	3	Complicated cockpit with two flap levers, tail parachute and airbrakes and retractable undercarriage. 19m version made by Slingsby.
Schempp-Hirth Germany	Open Cirrus	68	0	17.6	G	G	SH	-	✓	✓	5	A	A	42/50	4	4	High performance beginners' glider with big cockpit.
	Std Cirrus	75	S	15	G	G	SH	-	✓	✓	5	A	A	38/50	4	4	All moving stabiliser makes elevator very light at high speeds.
	Mini Nimbus	76	15	15	G	G	TF	✓	✓	✓	5	A	A	40/60	4	4	Early versions with all moving stabiliser - handling poor. Later version excellent.
	Discus		S	15	G	GC	SH	-	✓	✓	5	A	A	41/58	5	5	Superb in all aspects - a beginners' glider.
	Ventus		15/0	15/17	GC	GC	TF	✓	✓	✓	5	A	A	44/65	3	4	Very high performance but rather sharp tip stall in some situations.
	Nimbus 1 & 2	71	0	22	G	GC	SH/TF	✓	✓	✓	5	A	A	48/60	4	3	Big glider handling.
	Nimbus 3	81	0	24.5	GC	C	SH	✓	✓	✓	5	A	A	55/60	4	3	Big glider handling. Two-seater version greatly improved.
Schleicher Germany	ASW-12	65	0	18	G	G	-	✓	✓	✓	4	AH	A	46/55	4	3	Relies entirely on tail parachute and sideslipping for approach control.
	ASW-15	68	S	15	G	G	SH	-	0	-	3	A	A	38/48	4	4	Good airbrakes. Offset tow hook induces swing in crosswind.
	ASW-17	71	0	20	G	G	SH	✓	✓	✓	3	AH	A	48/56	4	4	Large glider with easy handling and good airbrakes. Rigging very heavy.
	ASW-19	76	S	15	G	G	SH	-	✓	✓	4	A	A	39/58	4	5	Very nice in all respects. Very light ailerons.
	ASW-20	77	15/0	15/17	G	G	SH	✓	✓	✓	4	A	A	42/58	3	4	Very competitive still, with good airbrakes.
	ASW-22		0	22/24	GC	GC	SH	✓	✓	✓	4+	A	A	55/60	R4	R5	Not flown. Reported very good handling.
	ASK-23	84	S	15	G	G	SH	-	-	-	4	A	G	34/50	5	5	Excellent beginners and first cross-country machine.



# HELP WITH CHOOSING YOUR NEXT GLIDER

Manufacturer	Type	Date of first Flight	Class Std/15m Open	Span (m)	Construction of Fuselage	Wings etc	Type of airbrake	Flaps	Retractable wheel	Waterballast	Cockpit size	Rigging	Ground handling	Best L/D ratio at knots	Stalling characteristics	General handling	Special features etc
	ASW-24		S	15	GC	GC	SH	-	✓	✓	R4	A	A	42/55	R4	5	Not flown. Reported excellent.
Grob Germany	Astir CS	74	S	15	G	G	SH	-	✓	✓	5	A	A	36/55	4	4	Good beginners' machine, but many metal castings used instead of welded steel.
	Astir 77	77	S	15	G	G	SH	-	✓	✓	3	A	A	36/55	4	3	Slightly slimmer cockpit than CS and not so nice lateral control and handling.
	G102	78	S	15	G	G	SH	-	-	-	4	A	G	34/50	4	5	Excellent beginners' machine. Nose wheel version available.
	Speed Astir	78	15	15	G	G	SH	✓	✓	✓	3	A	A	39/60	R4	R4	Not flown.
Rolladen-Schneider Germany	LS-1	72	S	15	G	G	SH	-	✓	✓	3	A	A	38/50	4	4	Assessed in 1974 - recollections are good handling but rather small cockpit.
	LS-3	76	15	15	G	G	SH	✓	✓	✓	4	AH	A	40/60	4	4	Several versions. Excellent performance. Full span flaperons - later with separate ailerons and flaps.
	LS-4	80	S	15	G	G	SH	-	✓	✓	4	A	A	40/55	5	5	Excellent in all respects.
	LS-6		15/0	15/17.5	GC	GC	SH	✓	✓	✓	R4	A	A	42-46/60	R4	R5	Not flown.
	LS-7		S	15	GC	GC	SH	-	✓	✓	R4	A	A	42/60	R4	R5	Not flown.
Glaser-Dirks GERMANY	DG-100/101	73	S	15	G	G	SH	-	✓	✓	2/4	A	A	38/58	4	5	DG-100 originally had all moving stabiliser. Rather narrow cockpit - good handling. DG-101 had larger cockpit and normal tail.
	DG-200/202	77	15/0	15/17	G	GC	SH	✓	✓	✓	4	A	A	42/60	4	5	Excellent handling.
	DG-300	82	S	15	G	G	SH	-	✓	✓	4	A	A	40/60	4	5	Blown wing turbulators. Excellent.
	DG-400		15/0	15/17	G	GC	SH	✓	✓	✓	4	A	A	42/60	4	5	SLMG version similar to DG-202 with very good power and glider performance.
	DG-600		15/0	15/17	GC	GC	SH		✓	✓	4	A	A	45/60	2	5	Very high performance but sharp wing drop at the stall spoils excellent machine.
SZD Poland	Jantar 1 & 2	76	0	19/20	G	G	SH	✓	✓	✓	4	A	A	45/48	4	3	Large span handling with large adverse yaw, but very high performance.
	Jantar Std	73	S	15	G	G	SH	-	✓	✓	4	A	A	40/60	4	4	Various versions. Good all round.
	Junior		S	15	G	G	SH	-	-	-	5	A	G	34/42	5	5	Superb beginners' club glider. Huge main wheel, good airbrakes and lower flying and landing speeds than others.
PIK Finland	PIK-20b		15	15	G	G	-	✓	✓	✓	4	A	A	38/55	4	4	No airbrakes. Very effective flaps for approach control. Experts only.
	PIK-20d		15	15	G	G	SH	✓	✓	✓	4	A	A	38/55	4	4	Good airbrakes combine with flaps.
Centrair France	Pegasus		S	15	G	G	SH	-	✓	✓	4	A	A	39/58	4	5	Very nice in all respects. Similar in performance to ASW-19 but more feel to ailerons.
Slingsby England	Vega	77	15	15	G	GC	TF	✓	✓	✓	3	A	A	41/60	5	3	Combine flaps/trailing edge airbrake all worked by one lever. Cockpit a little cramped.





ASW-24



Olympia 2a



SF-27

Manufacturer	Type	Date of first Flight	Class Std/15m Open	Span (m)	Construction of Fuselage	Wings etc	Type of airbrake	Flaps	Retractable wheel	Waterballast	Cockpit size	Rigging	Ground handling	Best L/D ratio at knots	Stalling characteristics	General handling	Special features etc
	Sport Vega	79	S	15	G	G	TE	-	-	-	3	A	G	36/55	5	4	Club version with improved ailerons, fixed wheel and improved cockpit.
Brasov Rumania	IS-29b	70	15	15	M	M	DFS	✓	✓	-	4	H	A	35/50	2	4	Nice handling but early version had no stall warning and very sharp wing drop. Club version has warning buffet. Not for inexperienced pilots.
Bölkow Germany	Phoebus C	68	0	17	G	G	SH	-	✓	0	2	H	A	42/50	3	3	High performance with big span handling. Restricted cockpit. Very poor airbrakes. ✗

Dart 17r



Below: K-8

Kestrel 19



Below: Nimbus 2

Olympia 463



Below: Libelle







Lleweni Parc, Denbigh, a new site established by Rodney Witter in the Vale of Clwyd, is an exciting prospect. It has a 14 mile ridge and is a prime wave contact area being in the lee of Snowdonia.

# ESTABLISHING A GLIDING SITE

BILL SCULL

**A number of clubs are on the search for a new site and Bill Scull, BGA director of operations, is very much involved. In this article he gives some helpful guidelines**

**L**increasingly there are pressures for clubs to relocate. Cambridge University GC are on the move to Gransden Lodge from Duxford due to increased museum activity and development plans for adjacent land. Essex GC are looking for another site because of the increasing restrictions at North Weald from Stansted and its airspace and Essex & Suffolk GC are being forced

to leave Whatfield because of a swingeing increase in rent.

But it isn't just a matter of finding a piece of land. The site should:

Be accessible (catchment area).

Away from built-up areas.

In a good area for thermal soaring (dry ground, not too near the sea),

**Below: The Long Mynd, home of the Midland GC, is another historic site. The recent acquisition of a further 64 acres of Forestry Commission land will eventually make their operation much more flexible. Photo: Tony Evans.**



Clear of present and possible controlled airspace.

Not in potential conflict with other aerodromes/operations or their patterns.

Clearly it will be difficult to find a potential site with all these advantages and the requirements may be different for a new club and an established one seeking an alternative.

A group forming a new club must have some members with gliding expertise and instructors are essential. It is difficult to predict a club's potential but if the site promises good gliding conditions free of airspace restrictions and has the right equipment (reliable tugs and winches) it is likely to grow quickly. The size and potential size of the club influence the selection of a site.

## Site Criteria

There are many factors to consider – the scale of operation, the number of gliders, the type(s) of launch (winch only, aerotow only or both together). Ultimately, the site may limit a club's development beyond a certain size and be self-limiting due to sheer frustration for the members.

**Orientation** should be based on the prevailing wind but a less-than-favourable direction may have to be accepted, such as an available N-S runway. Ideally, there will be two choices of direction or four with the reciprocals.

**The length depends on the type of launch.** For winching the height has always been reckoned as one third of the cable run and this should be the worst case. A launch of less than 1000ft is not much use for training or contacting thermals but 1200ft with the training two-seater would be a good, minimum height in no-wind. Obviously the better the winch performance the more height you will get from a short site.

For aerotowing the length depends on the tug's performance and on the boundary and climb-out path obstructions, the surrounding terrain and any slope/gradient. Any winch launch site is probably suitable if it doesn't slope too much. Tugs towing a typical two-seater will climb



at rates ranging from 300ft/min (Condor) to 1000ft/min (Pawnee 235) which is relevant to noise-preferential routes.

In an ideal arrangement gliders and tugs will be able to land behind the launch point so that landing traffic does not delay launching. Landing to one side or ahead of the launch point usually delays launching and involves much more time retrieving gliders and for tugs taxiing.

So, a length of at least 1200 yards is desirable with operational efficiency being determined, to some extent, by shape.

### **Shape and Width**

The ideal gliding airfield would probably be circular and one mile diameter! Obviously one can manage with less. A classic example of a special gliding field is at Oerlinghausen in Westfalia, Germany. There are five parallel macadam tracks about 200 yards apart with one landing area. The strips each have a two-drum winch and operate independently.

Now let's suppose a suitable piece of land has been found. It's long enough, of a suitable shape, well drained and level in an area clear of habitation and free of controlled airspace. Moreover, it is available either for sale or on a long lease. Sites like this are rare but are occasionally found after a lot of searching! However, the land may only be of poor or moderate quality otherwise it would not be available. What next? Even if there is some



**Sutton Bank, the Yorkshire GC's site, is scenic, offers all types of soaring and has good general facilities. The scope for expansion may be limited by a lack of further available land. Photo: Jim Smith.**

**Below: Lasham Airfield would seem to offer tremendous scope but has some limitations being relatively narrow on its main E-W run, albeit for 160 plus gliders and more than 42 000 launches a year. Photo: Terry Joint.**





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pressure to buy quickly because it's for sale by auction the answer is to make haste slowly!

There are a number of inter-dependent factors. Without planning permission and a CAA permission to winch launch there is no point in negotiating a lease or buying land. Before this there are other considerations.

### Getting Organised

In principle planning approval should be straightforward since the planning legislation is shot through with the basic proposition that there is always presumption in favour of development (except in the case of Green Belt unless the development is appropriate and outdoor sport is "appropriate"). Even so, there is often a lack of understanding of aviation matters (especially gliding) and, worse, many misconceptions regarding safety (perceived risk), noise, intrusion (loss of privacy) to name but three. The biggest single problem is the NIMBY syndrome - "not in my back yard!" which forms the usual basis of local opposition.

### Making your Case

An information pack is the best way of explaining your (gliding) needs but this may tend to be defensive since you know what the problems will be from previous experience. This approach may actually help the opposition as it explains problems they didn't know existed. Nevertheless such a document seems pretty essential as there are various people you need to convince.

Planning officials may well be sympathetic but less so the members of the planning committee who may see themselves as environmental custodians. The first stage is a preliminary meeting with the planning officials, preferably someone fairly senior. Generally they are most helpful and will give guidance on making a planning application and some clues on the information pack. The next stage is really a public relations exercise, finding out the likely opposition and making contact.

Each parish council may have a voice on the planning committee and the parish councillors and district planning members should be contacted. Arrange a demonstration of gliding for them; explain the club's plight and show them that gliding is environmentally friendly - though less so the tugs. Even with a good PR approach the opposition will emerge, based on the grounds already mentioned. Objectors will write to the planners and get up petitions. All of this is hard to counter and may seem to be given undue consideration by the planning committee.

The PR approach can also be very effective through your MP. We have a Parliamentary spokesman, Bill Walker MP (Tayside North) and through him contacting the local MP we have managed to influence a number of issues to our advantage.

However, before permission is granted it is likely that possible conditions may be discussed. These might include constraints of time (operating hours) and numbers, say a limit on the number of aerotows a day. There may be considerable pressure to agree such conditions, the implication being that without them permission will not be granted. A variation on "conditions" is a temporary permission, say for two years, after which unlimited permission may be

granted if the operation proves not to be contentious. If the planners refuse consent or do not deal with an application within six months then the applicant can appeal to the Secretary of State, making a written representation, requesting a hearing or a local inquiry. Incidentally, at present you can only be awarded costs in the latter case.

Conditions or a refusal ostensibly imposed on grounds of air safety are *ultra vires* the planning regulations. One interesting case in this respect was an enforcement notice served by the Brecon Beacons planning authority because the Black Mountain GC failed to comply with conditions. On appeal the inspector overturned all the conditions.

Essentially, this deals with the application and some of the ramifications.

### Other Problems

A change in the Air Navigation Order (Article 75) now requires the CAA to grant a permission launching gliders, viz:

"A glider or parascending parachute shall not be launched by winch and cable or by ground tow to a height of more than 60m above ground level, without the permission in writing of the Authority and in accordance with any conditions subject to which that permission may be granted".



Lyveden, near Corby, is Welland GC's new site. Its 1200 yard strip allows good launches and the 21 year lease gives security to develop.

The grounds for this change were, ostensibly, to create a known environment and arose because of the alleged practice of step-launching hang gliders to great heights. In practice it gives the CAA control with permissions which are re-issued annually. They represent yet another hurdle with internal CAA/NAS consultation which can take two or three months. Recent experience has seen operators expecting protection in the "open FIR", to the extent of trying to stop a gliding development altogether.

### The Objections

The objections are relevant to getting and, possibly, keeping planning approval without

further conditions. I know of no case where objectors have closed a club down but they have stopped aerotowing (at Shalbourne/Inkpen).

The nature of the objections may become apparent at the planning committee - you have a right of access to their meetings but not a voice. If a meeting defers a decision then try and address the concerns with a letter to the members, but act quickly as the next meeting may be a month hence and two weeks beforehand may be the deadline for circulating papers.

Noise is an emotive issue and some clubs are fitting silencer systems to their tugs and using four-bladed propellers to reduce tip noise. Climb-out paths which cause minimal disturbance are essential. Complaints have to be dealt with promptly and courteously. Despite criteria and the measurements of noise levels by environmental health officers, in the final analysis it is the subjective disturbance which is considered.

Perceived risk is another aspect which may considerably concern nearby residents and be heightened if there is a crash in the area. If an aeroplane flies over houses the owners' perception is that, if the engine stops, the aircraft falls on the house. Gliders must, by definition, be an accident looking for somewhere to happen. Data and statistics give no reassurance to such individuals so avoid disturbing or provoking them.

Even less understandable is the loss of privacy

syndrome. People lying by their swimming pools presumably regard pilots as voyeurs. The mind boggles. I've always been much too busy!

### Airspace Conflicts

Protecting one's interests is an increasing trend. I've seen conflicts arise and be resolved - gliders and hang gliders sharing ridges is a case in point. The problems seem to have disappeared, and so they should given that we are kindred spirits.

Trying to establish a site near another airport is a challenge. The appeal by the Albatross GC against a refusal on a site at Plympton cost the club £7000 and they lost. The case would not have been fought had the CAA or DTp disclosed before the inquiry that the airport (Plymouth) would lose its licence on the main instrument approach. Incidentally, did you know that you cannot take the CAA or the ombudsman?

Given this sort of difficulty it's surprising to find



that, in some circumstances, you can actually start a flying operation on part of an airfield which is already in use. There is nothing in the planning regulations to stop it nor do the CAA takes sides. One such case is at Rufforth where the gliding club own land (the N-S runway) and another operator bought (or leased) part of runway 24. The established use applies to the whole of the airfield so there is nothing to preclude an adjacent operation.

The "open FIR" conflicts are another matter. There have been the strongest possible objections to a recent planning application for a gliding site some 1.3nm away and 5.6nm from the extended runway centreline of an MoD airfield. The conflict is with NDB/ILS and radar recovery patterns which have no protection, not even "fan markers". It seems incidental that the patterns already pass through one ATZ! Any guesses as to which airfield?

### Other Risks

Once you have established an airfield you might think you are invulnerable. Beware! It is not all that unusual to have small industrial estates on dis-used airfields or adjacent to active ones. Supposing the landowner who sold you a part of the airfield gets planning permission to develop the rest of it. This happened at Pocklington airfield. There would have been an 8ft high chainlink fence alongside the runways, which would have meant an end to gliding. Fortunately, a deal was made which allowed development to within 100ft of the runways, using CAP 428 (Safety standards at unlicensed aerodromes) as a guideline. As a trade off the Wolds GC acquired another 37 acres to allow them to move further away from this development and secure their future.

### Summary

From all the above one thing should be clear. A successful planning application entails a lot of work. It needs the time and application of a few, dedicated club members as well as the support of the governing body and the Sports Council. If you're lucky the team will include a professional pilot, someone with air traffic control or airspace management experience and a good, hard negotiator. If you can call on friendly planning consultants then so much the better.

The key points to success are:

Prior liaison with planning officials.

Identifying the likely local opposition and persuading them of your case.

A "plain words" (ie, no jargon) statement of your proposals but not too defensive.

A straightforward planning application for "the development of land in connection with gliding" rather than two-stages (change of use and gliding development).

The application should be for winch and aerotow unless winch launching will be so good that aerotowing is unnecessary.

If "conditions" are threatened then seek to keep them to a minimum. They might be *ultra vires* but if you accept them they can affect the viability of the operation.

If you believe your case is a good one (or are really desperate) then consider an appeal.

Finally, get in touch with the BGA's Development Committee for advice. We're gaining experience fast!

# BGA WOMEN'S WORKING GROUP

**Why are there so few female glider pilots when it is one of the few sports where it is possible to compete on equal terms? This was one of the questions which encouraged Diana King to form and chair this group**

Last year I attended a conference on the subject of women in sport. I found the discussions interesting and stimulating and started asking myself why there are so few women actively involved in gliding. As an extension to that first question, I also wondered whether women's typical levels of gliding achievement matched those of the men.

A little research into flying and other statistics convinced me that they didn't. This seemed to me to be a pity, bearing in mind that this is one of the few sports where strength is not essential and women should not be at any direct disadvantage.

The BGA Executive Committee agreed that a Working Group should be formed, principally to consider the reasons for low participation by women and to make suggestions for improvement.

Work started in summer 1990, with the Group identifying topics of particular interest to women pilots, finding out what factors might inhibit women from taking up gliding and developing projects to encourage women's participation. Work so far has involved:-

- Technical and Safety issues, such as the safe use of ballast and cushions.

- Instructional and coaching matters finding out how women make best progress in the average imperfect club. As part of this topic, several clubs have agreed to run special women's courses this year (see below).
- Physical, medical and child care problems; we hope to establish a fund of knowledge available to anyone needing advice or assistance.
- Communication, both internal and external; in many clubs there are only a few women flying members and they can feel quite isolated. In order to alleviate this problem, a women's newsletter is being circulated as widely as possible. Women pilots are also being asked to volunteer as club representatives. External publicity is being tackled with articles and press releases as appropriate.
- Leadership - encouraging women of ability to have confidence in themselves and to take part in activities they may not have previously considered, such as instructing, competition flying or club administration.

The aim in the long term is to increase the number of women glider pilots and improve their level of achievement. We have been interested to find that some of our researches have brought to light problems which may affect some men as much as some women. We hope the results of our work may therefore be of benefit to a wider audience than was originally envisaged. It is too early to say whether we will succeed in our aims, but we are encouraged by the amount of interest and support the project has attracted already and hope that we will be able to report some positive results within the next year or so.

Anyone wanting information about the Group's work or volunteering as a club representative should contact Helen Evans on 081 540 8304.

The courses are from May 13-17 at Dartmoor GC (contact Karon Corley on 0752 848278); June 3-7 and July 22-26 at Coventry GC (contact Harry Middleton on 0858 88049); August 5-9 and September 2-6 at London GC (contact Liz Veysey on 0582 663419); August 11-17 at Derby & Lincs GC (contact John McKenzie on 0298 871270) and August 27-30 at the Midland GC (contact the course secretary on 058 861 206).

Some clubs may be able to offer child minding facilities.



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**A**lmost every time I have to address a group of BGA club members, I find myself explaining again the purpose of the coaching operation and how it sets about achieving that purpose. It may therefore be worthwhile to make that explanation available to everyone by way of the S&G Yearbook.

At its broadest, the purpose of the coaching operation is to improve the quality, safety and quantity of gliding carried out by the BGA members. This aim encompasses both the raising of general standards and the promotion of excellence.

Since it is apparent that two national coaches cannot effectively reach 10000+ gliding club members, much of our effort is targeted at instructors who will, we hope, pass on what they learn. Even here the numbers are formidable (around 1600 instructors) and a not insignificant proportion of the coaching time is spent on a small group of instructors who we hope will in their time influence other instructors (CFIs and regional examiners are obvious choices here, but there are others too).

So, how do we put this into practice? First and most obviously by running (or sometimes training and supervising the running by others) the instructors' courses and completion courses the movement needs to keep up its supply of instructors. The emphasis on these courses is on teaching how to teach and on safety. Some improvement of the new instructor's flying takes place on the course (sometimes a lot), but it is incidental to the main purpose.

### **Aim is to improve the quality of flying, particularly soaring and cross-country skills**

Our second objective is a little harder to describe, and frequently misunderstood. The aim is simple enough; it is to improve the quality of instructors' flying and in particular their soaring and cross-country skills, and to teach them to pass these improved skills on to others.

The question that must be answered is, "Why?" The answer is, "To retain more people in the movement and to encourage those who stay to do more flying". Many of our instructors, although they do a good job of training pupils to first solo or perhaps Bronze standard, do not have the experience to teach either the skills or the attitude of mind necessary for regular prolonged soaring and cross-country flights. The result is a solo pilot who may pick up a Silver badge on some exceptional days, but whose flying consists largely of flights of around an hour on good days and non-soaring flights the rest of the time. **This gets boring very quickly!**

This statement may seem blasphemous to many solo pilots in this category, but I should be interested to hear if there is anyone who does 100hrs a year of short local soaring flights. Pilots in this category either bump along in the under 25hrs a year, barely current, but not inspired to fly more group, or they recognise that they are bored

# THE BGA COACHING OPERATION

**Just what are the aims of the BGA coaching programme? In this article Chris Rollings, the senior national coach, explains their goals and invites you to come on one of their courses this season**

and give up entirely or they train to become an instructor.

Instructing even to first solo or Bronze standard is not boring, it is rewarding and absorbing. Many who have arrived at instructing by the route I have described above become excellent instructors, but mostly they can only produce more *ab-initio* instructors or bored drop-outs, or permanently out of practice ordinary club pilots. The pilot sufficiently motivated to teach himself to be a good soaring pilot is comparatively rare; and few make the effort to seek advanced instruction once they are beyond Bronze.

The pupil taught by a good soaring instructor will learn early that the freedom and excitement that is gliding can be his; he is much more likely to become a dedicated 100hrs a year plus pilot to the enrichment of the movement. He may or may not become an instructor but he will be a committed club member and glider pilot. If we can succeed in the above objectives then the various soaring and cross-country courses will have been a success. Some of these courses are for instructors only, others are open to all BGA members:-

1. To give all BGA members some opportunity to book on a course with the national coaches.
2. To ensure that the coaches stay in current practice at training non-instructors (we do some *ab-initio* instructing too).
3. To provide an opportunity to teach other

instructors and clubs how to run such advanced courses.

At the end of this article is a list of the soaring and cross-country courses on which at the time of writing (early February) there are still some places available - if interested ask the BGA office for details.

The BGA gliders were bought for the coaches and their assistants to do the jobs described above and this occupies them for a large part of the year. Only as a secondary purpose are they hired out to clubs for use. In particular the Janus was not acquired for 1600 instructors to practice instructing in a high performance aircraft, it was bought so they could **receive** instruction in a high performance glider. The Discus is primarily for BGA soaring courses and secondly to enable as many pilots as possible to discover that modern high performance gliders are not necessarily difficult to fly. The Falke is primarily for instructors' courses, but available between times for field landing training or other purposes. The BGA is not currently running a gliding equivalent of Hertz or Godfrey Davis - perhaps we should?

\* \* \*

#### **Soaring & Cross-country Courses**

Venue	Date	No. of places
Dunstable	May 18-24	10
Aboyne	June 1-9	10

#### **Instructors' Soaring & Cross-country Courses**

Venue	Date	No. of places
Booker	April 20-26	6
Bicester	May 6-10	5
Booker	June 29-July 7	7
Camphill	July 13-19	10
Pocklington	July 22-28	9
Husbands Bosworth	August 19-23	11

#### **Wave Cross-country Courses**

Venue	Date	No. of places
Portmoak	Sept 29-Oct 5	7
Portmoak	Oct 6-12	8

#### **Wave Soaring Country Courses**

Venue	Date	No. of places
Aboyne	Oct 13-19	7
Aboyne	Oct 20-26	6
Aboyne	Oct 27-Nov 3	7

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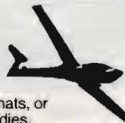
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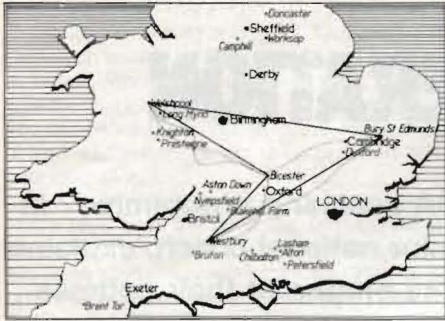
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**BARRIE ELLIOTT**



A 753km (spearhead) from Bicester airfield – Welshpool, Bury St Edmunds, Westbury church in a Nimbus 30T with a P2.

**T**he day started looking good with reasonable cu at 0900. Cloudbase was still low so I chose not to launch until 0955 when it was at 2300ft. With a 1000m tow, we set off directly on track. The first thermal at Banbury took me back up to cloudbase (2400ft). The sky towards Long Marston looked overcast and we flew into this at Edge Hill, but the cloudbase was up to 3000ft.

Immediately on track it was totally grey, so we went west where there were at least embedded cu in the overcast. At the Malverns we headed north, still under total overcast. Cloudbase was at 3800ft so we were able to do long 65kt glides and on each occasion another embedded cu would appear in time.

Had we not had the engine we certainly wouldn't have gone on from there. We went due north because that was the only chance we had of staying up. It was also over flat ground!

By Kidderminster all ahead was grey so we took a chance and, still with lots of water on, headed for the Long Mynd between the Clee hills towards a little sunlight. There were still good climbs, even in the overcast, and we climbed enough over the Long Mynd to glide into the Welshpool valley.

We turned at 1600ft and with the wind behind us covered the ground quite quickly. I actually saw the sun for about 2min at Welshpool!

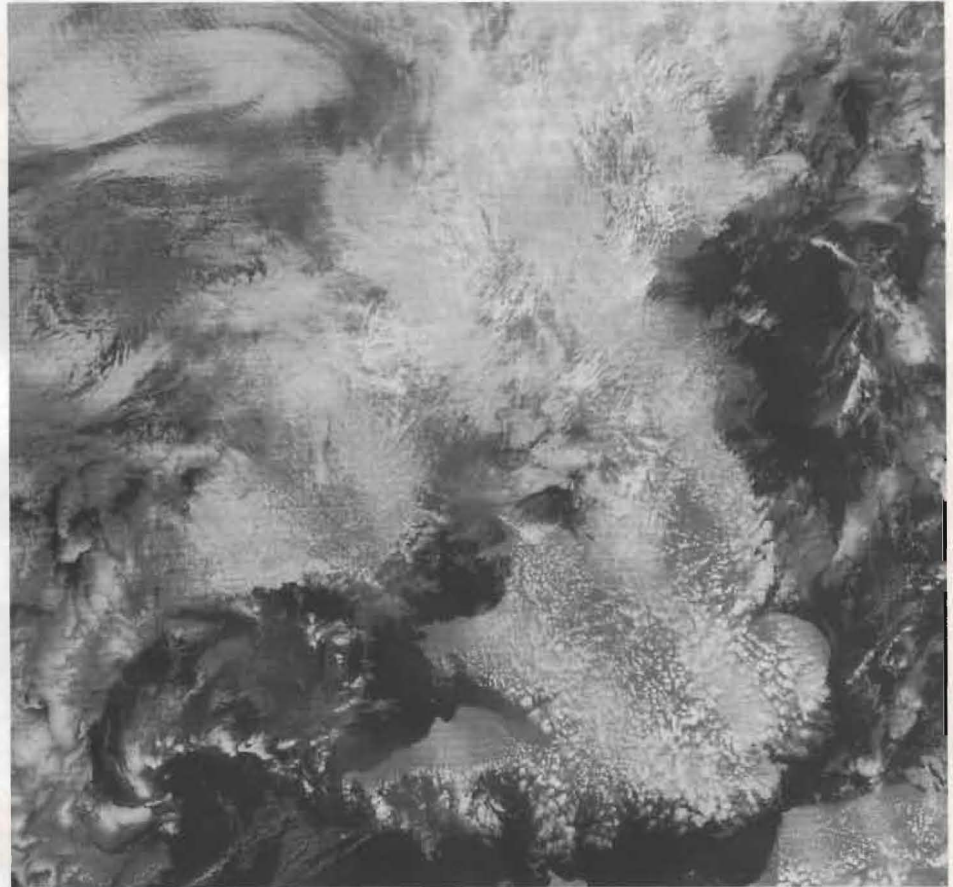
Back in the overcast with the mental decision to return to Bicester, I had to go well south which was almost the exact opposite of the outbound leg. I eventually got out of the overcast at Banbury with a 4000ft cloudbase. I decided to try and make Bury St Edmunds with more long glides and sharing a stubble fire with the rest of the Comp boys at Caxton Gibbet.

With 3000ft glide outs each time, we were covering about 25 miles a go. A good thermal NE of Cambridge was followed by a long glide out to Bury. When we turned all we could see again was grey, so we went back to Cambridge to get the thermal we'd had earlier, then south up to the London SRZ. We had two stubble fires to 3000ft which was as high as we could go. A long glide to Dunstable was followed by another 3500ft climb. The weather had opened up revealing a good looking sky.

The initial plan was to try to make Didcot by 1700hrs and we actually flew past at 1703, so we had to carry on. The weather was much better

# DO YOU REMEMBER TUESDAY, AUGUST 7, 1990?

It was an interesting gliding day. The weather wasn't perfect but nevertheless a lot of big flights were attempted – almost all of them in “little” gliders. Many of the pilots who flew that day have been coerced by Mike Cuming into jotting down some notes and the ensuing “snapshot” of the day's soaring paints an interesting picture of the country. Hopefully 1991 will present us with lots of good flying too and with any luck the examples given in this article will encourage everyone to have a go – and press on!



A satellite photograph taken of the UK on August 7 at 1334hrs. Copyright: University of Dundee.

with 4/8 cu and a 5000ft cloudbase over the Lambourne edge. But it started to get weak at Marlborough.

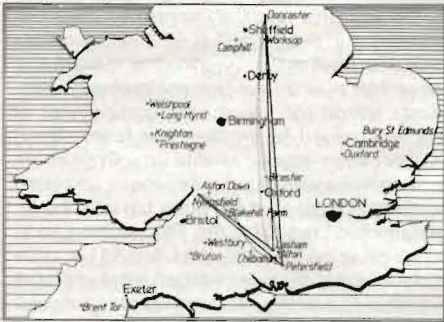
A long glide to Devizes with a good climb and I left the thermal at cloudbase with the intention of returning to it after turning Westbury. It nearly worked but a hang glider from Westbury ridge marked a cracker, so we used this to cloudbase and then started a long glide out again. I decided against the sunny slope of the Downs and went straight over the top again.

I found a weak thermal at Wroughton and flew well off track to a stubble fire near Membury that we took into cloud and popped out at 6000ft. This was enough height to get back but we still topped up at Didcot in another weak stubble fire with the Janus and a Discus. I had far too much height for the final glide and landed at 1908.

**Mike Cuming comments:** Barrie was unable to claim a 750km diploma as he took a pupil, Deren Francis. The BGA Comps and Awards Committee is still thinking about how to handle this!



## ANDY DAVIS



A 757km double dog-leg from Nympsfield - Petersfield, Doncaster, Lasham in a Discus.

For several years I have considered that a Standard Class closed circuit 750km would be possible in the UK, given an exceptionally good day combined with the right choice of task **and** a day off work! Long flights in the UK present many interesting planning problems and then there is the question of waterballast - should the glider be flown with minimal ballast to allow use of the morning's first thermals or maximum ballast to allow higher average speeds from a later take-off?

Experience with the Discus showed that 200lbs of water allowed a reasonable climb rate in the first turbulent thermals of a strong day, whilst maintaining a good average speed during the peak of the day.

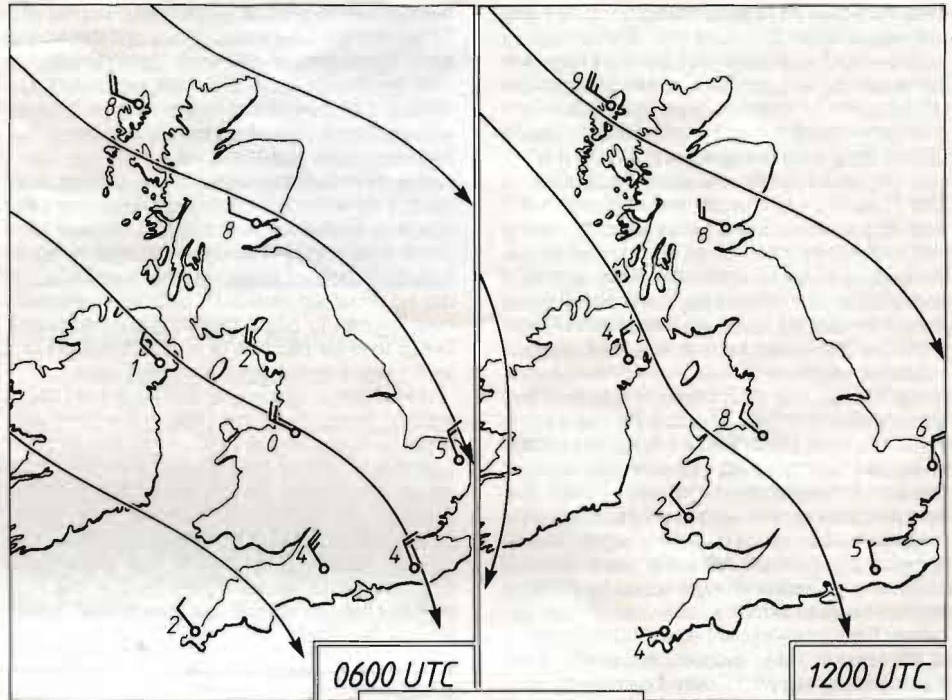
I never saw a suitable day in 1988, but in 1989 set off three times between 0900 and 0930 with 750km declared, only to abandon the task by mid afternoon due to disappointing weather development. Paradoxically I did fly on one day that we all thought too windy that turned out to be suitable, for after completing my declared 600km task I flew another 150km to prove that it would be possible.

And so on this Tuesday I strapped into my ballasted Discus at 0920 with my first 750km declaration of the year.

I had been watching the weather for several days. The passage of a weak cold front on Sunday morning brought excellent soaring to Nympsfield by Sunday afternoon. Strong winds and early overdevelopment spoiled the Monday initially, but the afternoon saw fabulous soaring in the strong northerlies with occasional 8kt thermals and a 6000ft cloudbase.

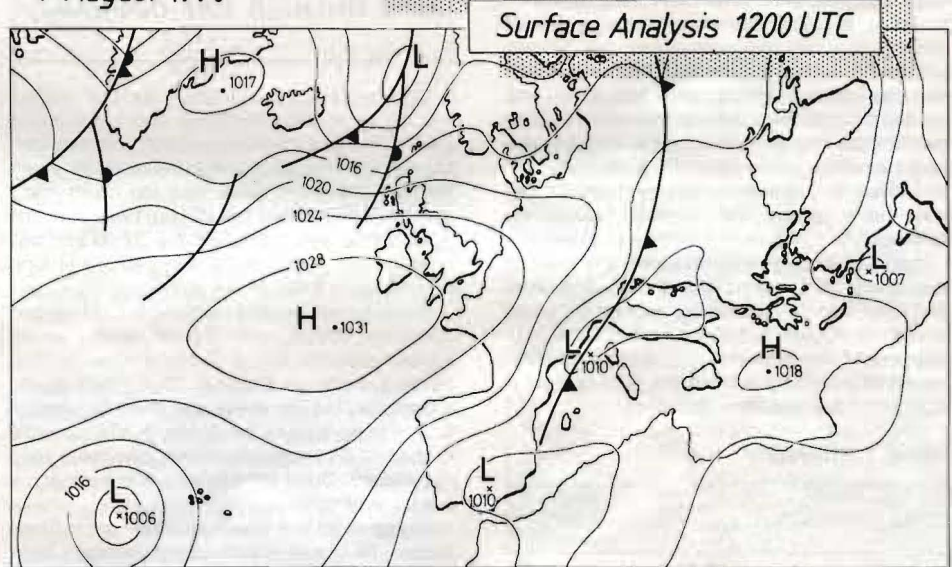
The best synoptic situation probably occurred overnight (doesn't it always?) as the winds abated and then backed north-west to bring more mid level moisture across the western half of the UK by early morning. Even with the associated risk of cloud overdevelopment it looked promising for the 750, especially if the flight could be kept somewhat to the east of the country, *ie* in yesterday afternoon's air.

Shortly after 0900hrs, cumulus started to form to the east of Nympsfield and by the time of my launch at 0925 were lining up in ragged streets with the club K-13 soaring overhead. Releasing overhead Nympsfield (and above cloud!) at 0935 I immediately turned a course for Petersfield. For ten nail-biting miles I bumped along under the forming streets, eventually climbing a few hundred feet at 1kt before pushing on again into 3kt



7 August 1990

850MB Wind Flow



Surface Analysis 1200 UTC

### Steve Longland's interpretation of the weather maps for that day.

just west of Swindon.

Cloudbase was now at 3500ft asl and conditions ahead looked good, but already there were large shadows on the ground as the cumulus started to spread out. Soon the day's pattern was established as I detoured first east and then south to avoid spread out, but by 1030 climbs in the Andover area averaged 4-5kt with well formed cloud streets at 4000ft lying NS.

Just after 1100 I turned Petersfield having averaged 86km/h for the first leg - quite satisfactory for the time of day. Running northwards

along the streets progress was rapid into the Thames valley, but then became much slower as I crossed a large area of spread out with very isolated climbs. Finally at Daventry I hit the weather recycling and rushed on past Leicester towards Nottingham with 5kt thermals and cloudbase rising to 5000ft.

The smoke from the Long Eaton power station had a suspicious amount of westerly component in it and the sun ahead was being filtered through a hazy layer of medium cloud. Running under scrappy cumulus I was thankful to find a 2kt climb near Hucknall and flabbergasted that the cloudbase had dropped to 3500ft. Very little sunlight penetrated the murk ahead, but being well



ahead of schedule I decided to tiptoe on as it was only some 50km to the second TP.

To the north of Mansfield I followed a very dark line of cloud giving zero sink, eventually finding a 4kt core which I took into cloud to 5500ft. A long glide down to 2500ft and another cloud climb to 5500 brought me to my second TP at 1415.

Arriving back under the dark cloud street at 2000ft, a long search was rewarded with a 4kt core and another cloud climb to 5500ft. I knew that Nottingham was bathed in strong sunshine, the calculator said I would get there, and sure enough just downwind of the town under the first good cumulus the averager settled at 6kt from 1500ft up to cloudbase, now at 5500ft again.

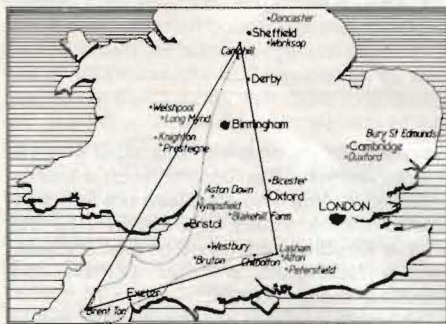
Racing southwards with well spaced clouds giving 5 to 6kt and cloudbase rising to 6000ft, it became clear that the 750 was in the bag as long as I didn't make a mistake. So when a large patch of spread out blocked my path on passing Benson, I happily slowed down to 70kt and detoured well to the west over Newbury and Kingsclere to top up with height before approaching Lasham from the west. Turning Lasham at 1630, the average speed for the third leg had been 115km/h.

Near Basingstoke I climbed to 5500ft, the base of the London TMA, and set off towards home into a gloomy sky with isolated patches of hazy sunshine on the ground ahead. Playing safe, I stopped twice for 3kt before climbing ridiculously high near Swindon for my final glide to finish at 1730 for an average speed of 95km/h.

With the benefit of hindsight I am convinced that the difficult patch near Mansfield was caused by moist air spilling in from the Cheshire gap. To the north of my Doncaster TP there was bright sunshine visible again. I flew relatively conservatively throughout the flight and could probably have raised the average speed to 100km/h.

I could have started 15min earlier and finished with at least 2hrs soaring left in the day. I consider that even with the spread out problems I could have flown 900km on that day. It wasn't a particularly special day so what might be possible given the same instability without the spread out? A Standard Class 1000km perhaps?

## MIKE CUMING



A declared 830km 25% triangle from Bicester - Lasham, Brent Tor, Camphill, with a remote start/finish at Bicester in an LS-4.

To the great amusement but - to their credit - benign tolerance of the Bicester pilots, I rashly declared an 830km 25% triangle. Barrie and I

had been discussing the imminent prospect of a "750" day for three days already and this had to be it! Yesterday had offered 8-10kt thermals but with the disadvantage of a 35kt wind; I had just missed a 400km speed record attempt but had an excellent trip nonetheless and was very full of beans - so the stage was set.

The Inter-Services team were getting very excited at the thought of sending all the Astirs etc off on a 500km race and Brian Hawken, the Comp Met man, put great efforts into trying to keep their task on target. On the morning of the day he remained cautiously optimistic, although even he had to admit that things weren't ideal owing to large patches of strato-cu spread out and a slightly-too-fresh NNW wind.

Nonetheless, ignoring all the detail that I didn't want to hear, I filled the LS-4 to the brim with water and launched at 0920. It had plainly been soarable for half an hour already and nice cloud streets had formed running almost directly in the direction of Lasham. Cloudbase was about 1700ft with 1/2 to 1kt of lift widespread; throw in a 10-15kt tailwind and I cannot now understand why I came to go so slowly on the first leg. Perhaps the one horrible low scrape over Theale slowed me down.

## Was very nearly forced to land through this obstinacy

Conditions improved gradually but without much rise in the cloudbase and I got round Lasham without exceeding 2500ft, still meandering through lots of weak lift in the moist air. In retrospect, 300lbs of water was too much and I should have dumped half of it but I was sure that 10-knotters were just round the corner and so I kept the lot - very nearly being forced to land several times through this obstinacy.

The overcast became much worse as I passed Compton Abbas, with Cardiff Volmet giving several separate layers of cloud - the highest being 6 octas at 2000ft. This didn't sound acceptable but for some reason I pressed on, finding to my delight that it was, in fact, possible to climb at 4kt to almost 4000ft under the spread out and that there were breaks and even some sunshine ahead.

All appeared lost, however, once I got to Sherborne. The gloom ahead was particularly thick with no sun visible. To the far south I could see a menacing wall of cloud, veils of it down to 500ft, and showery looking black tops were visible even in the shadow of the 7 1/2 octas of greyness that by then lay at about 6000ft.

I was about to turn for home (mindful of not having a crew!) when I felt an irresistible urge to head for that cloud wall. Was it a sea breeze? I might never know. I had never consciously used - or often seen - a sea breeze front and this was not quite like the textbooks show. For a start, it was probably a mile out to sea!

I did not reach it, even with 15kt on the tail, and was still a mile inland (with all the water gone) frantically picking which of three candidate fields I would use when by a stroke of luck I found lift. I climbed from 400ish feet to 500ish feet in a very

difficult thermal before realising that I had in fact been soaring a small ridge that lay beside my chosen field. This discovery went to my head and I shouted with delight (still at 500ft, 200km from home, with no crew!) as I wormed up to 600ft and thence into a weak, but genuine thermal, which quickly drifted me into the welcoming wall of what was indeed an excellent sea breeze front.

I didn't know exactly what to do with this front because there was cloud everywhere, so I wandered about a bit (in a bit, out a bit) until the lift strengthened from 2kt to 8kt. This seemed good so I set off along the front which turned out to be the right thing to do. I wished I had not dumped all my ballast. Cloudbase was very variable between 2500 and 4000ft with veils almost down to the ground and the front was about half a mile inland by then.

I covered the 50km from Charmouth to Exeter in 25min and felt a) pleased and b) that perhaps I should decide to go home while I could. I postponed this latter decision until, after crossing the Exe, I could see that there were cumulus over Dartmoor ahead. Unfortunately, as I got nearer, I could also see that their bases were only 500ft agl and that the surface of Dartmoor resembled the Sea of Tranquillity. Curses. Then a bright idea occurred to me - perhaps I could follow the sea breeze further (45° off track) and go round Dartmoor. Was it possible that the sea breeze would even go inland at Plymouth, up the Tamar river valley? Answer - yes!! The next 75km (only 35 of it on "track") took only 21min and it was with some satisfaction that I took a photo of Brent Tor hangar while thermalling overhead - my first turns for nearly an hour.

Should I retrace my steps now? Should I go straight home? Probably I should, but sunshine to the far north and a Cardiff Volmet of only 6 octas tempted me to glide straight on track (for once) towards Okehampton. Incidentally, I now realise that this was a mistake and I should have gone out the way I came in, along the very fast sea breeze, even though it was 70° off the correct outbound track. Regrettably, I was soon low once again and was obliged to ridge soar the north-west slope of Dartmoor, which although high isn't really all that good for soaring since it is rounded and only gently sloping.

It had become completely blue quite suddenly over Exmoor (sea air intruding, with the wind) and so I followed the M5 back almost to Exeter, (unable to make progress directly into the wind or even on track) and then up to Tiverton, where the sea air ended and "proper" thermals began again. I really rather wanted to cross the Bristol Channel still and so - seeing some cumulus to the north - I slowly edged my way up to Minehead (almost back on track!). Alas the wind at Cardiff had gone round to 260° and I could see no prospect of a climb in the sea air on the other side. However, I couldn't face the idea of back-tracking all the way round the Bridgewater flats either. Guessing - in the light of a couple of previous such flights - that there would be some lift over the flats in view of the dry summer, I took a chance and cut the corner, flying slowly back to Taunton, to Glastonbury and finally past the Wells mast into decent lift near Bath.

Encountering a 6 knotter to 6000ft, I thought wistfully of the Inter-Services beer tent at Bicester (now almost within gliding range again) but it still



looked as if the task might be "on." I headed straight towards Camphill up the Cotswold edge in excellent conditions at last, and worked out some speed/time sums; if the day lasted until 1930 (same as last night) I would (with the wind at 330/15kt) possibly get home. If the day stopped at 1900, I would still almost certainly get 750km! In fact the day ended abruptly at 1830 exactly and I glid out to land (after almost 700km and 9½hrs) at Tatenhill, from where I could hear final glides (over the chalk and from stubble fires) until almost 8 o'clock. Lucky fellows.

Disappointed? Not a bit. This was by far my best and most enterprising flight so far and it fills me with enthusiasm for similar future adventures. Anyone who would care to share such adventures need only phone and offer me a drive in their ASH-25 ...

### TIM MACFADYEN



A declared 790km 3 TP zig zag from Aston Down - Bury St Edmunds, Westbury, Cambridge in an ASW-20.

I declared 790km and Geryllyn 510km, Alton, Kidderminster in a Sport Vega. We both landed out, me after 781 and 10½hrs and Geryllyn after 503km and 8½hrs. Her photos came out, mine didn't (one camera each!). I car launched from Aston Down at 1000hrs with my ASW-20 without tips and carrying 200lbs water.

I promptly descended to 500ft due to carelessness and waited an age for a non-thermal to drift into a grotty stubble fire. The two combined to lift Geryllyn and me to 2000ft and we set off about 1030.

Mike Hajdukiewicz (SHK) also got away and flew 503km. It then became 8 octas and unsoarable for the next 3hrs at Aston Down, after which Ruth Housden (CFI) broke the long standing women's UK 200km triangle record only to have it broken again two weeks later by Jane Randle, also from Aston Down.

I went past Bicester as they were starting their 500kms at about 1115 and things gradually improved until I rounded Bury St Edmunds with a 6000ft agl base at 1300hrs and all looking good. I had to do 90km/h after my very slow start and this required 4kt thermals.

There followed some very large areas without decent thermals and I had to push on, several times getting down to 1200-1500ft, with only a 4900ft base, on the way to Westbury and back to Cambridge.

I rounded Cambridge at 1800hrs, still on time, but the track home looked desperate with no decent cu. I diverted a lot and dumped my water

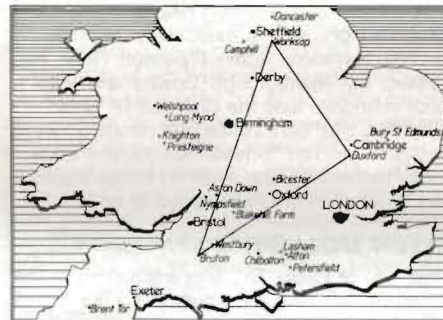
in a 1kt thermal somewhere north of St Neots at 1500ft. Things got steadily worse.

I flew past Bicester at 1930 as the last of the 500km people were finishing and took 1kt from 1000 to 4000ft at Enstone. This was not quite enough to get home, so I diverted to a dying cloud street that didn't work. I arrived in a field five miles short of Cirencester at 2030hrs, just as the sun was disappearing behind some trees. It was pretty dark when some kind people came to fetch me at 2130 and I was completely worn out.

### Had gone very slowly and carefully, keeping high

Geryllyn became the sixth woman to fly a Diamond distance in the UK and we think in the lowest performance glider. After 8½hrs her wheel hit the Kemble runway, four miles short of Aston Down, but at 503km far enough. She had no problems but had gone very slowly and carefully, keeping high.

### RICHARD BAKER



A 616km triangle from Duxford - Bruton, Markham Moor, in an ASW-20, untipped with 100lbs waterballast.

It has been my view for the last year that the main reason for few flights over 520km from our club (and I suspect, others) is a psychological one; people don't believe that they can do it.

Both 1989 and 1990 have been dry years resulting in good soaring conditions on days that in a wet season would have given low cloud-bases and poor thermals. Thus the average soaring day has lasted longer and provided better conditions than for at least the last ten years.

My arithmetic for the day went like this:  
Average speed: 80km/h.

Soaring day (June, July) 0930-1900 (9.5hrs).  
Therefore, distance: 760km.

The details of August 7 are slightly hazy but I think a cold front had crossed the country the previous evening. I was very conscious that the year was waning fast and this would probably be my last attempt in 1990.

As a result of the unselfishness of pilots in front of me, I was one of the first off at about 1015. But after some poor initial climbs I didn't get started on the task until 1041, which was well behind my tentative schedule.

Conditions were reasonable to about Ayles-

bury and then started to gradually overdevelop in typical fashion. At Didcot I contemplated abandoning the task but the sky to the NE looked even worse than ahead, so I pressed on. Surprisingly there were still good climbs to be had under the 8 octas.

Devises to Bruton was the most difficult part with heavy overdevelopment. Nevertheless thermal cloudbase remained over 3000ft with adequate thermals to persuade me not to drop my water.

On the second leg there was an improvement as I passed Bath although I was quite low at Aston Down. At about Winchcombe conditions became very good with about 3/8 cloud to around 5000ft. These conditions persisted around the Birmingham zone up to about Lutterworth.

Poor decision making made the next 30km quite difficult so that it was 1700hrs by the time I rounded my last TP. Thermals were noticeably weaker by now and I had already dropped my water. The chances of completion now seemed no better than 50/50, but I found that as long as I stayed high (3000-5500ft) I seemed to be making progress with a light crosswind just helping.

I had a good climb to nearly 6000ft NE of Corby and began to believe that I could make it. My last climb was near Kimbolton and I finished at 1845 after 8hrs.

The day was not classic. The features which made this flight possible were the instability that caused the overdevelopment earlier in the day resulting in soaring conditions lasting well into the evening. I estimated there were another 45min of soaring after I landed. I pressed on when common sense told me to turn back!

### JOHN HOYE



A 750km from Lasham - Knighton, Alton, Presteigne in a Nimbus 2B.

I launched to a 1500ft cloudbase at 0940 where good cloud streets took me to South Cerney. From there to Shobdon strato cumulus (st cu) made conditions very difficult, but from then on it was generally good with the odd patches left.

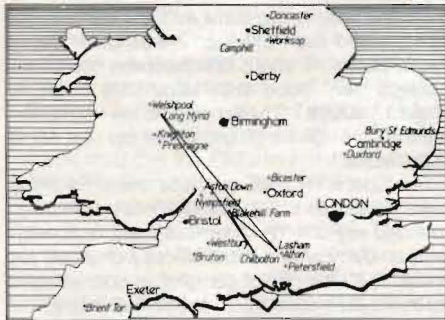
The waterballast was dropped at 1800hrs on the third leg to improve the climb rate as the thermals were now reducing in strength. Sea air was troublesome near Presteigne, dropping the cloudbase 1000ft and disorganising the thermals. I landed at Nympsfield at 2010 when the sun was cut off from the ground ahead by a st cu sheet.



A good day but not a great day! It was spoilt for me by large patches of st cu which made it important to cruise carefully at times. This and the wind helped to drop my average speed to walking pace.

The lesson I learnt from the day was just keep flying and you will be surprised how far you can go.

**JONATHAN MILLS**



A 516km from Lasham - Long Mynd, Chilbolton, Blakehill in an LS-3.

At 0920 the first few gliders were being launched below lovely baby cumulus. I was airborne at 1020 from a 2000ft tow with the cloudbase at 2300ft. I climbed to 2600ft at Basingstoke and

2800ft at Newbury. The day was improving quickly and I was fairly happy with the progress, even though it was into wind.

At Cirencester the clouds spread out and the thermals became easy to miss. I could hear people moaning on the radio and starting to land out. I turned it off - I didn't need that kind of encouragement.

Changing gear into slow, I crept back towards the sun and Cirencester town and eventually found a 4kt thermal which got me to a reasonable height. I headed over the Cotswold hills hoping conditions on the edge near Cheltenham would improve and allow me to fly faster. And they did. But the close call warned me what the day was going to be like. After tiptoeing through the difficult patches of spread out I eventually reached the Long Mynd. It took me 4hrs to travel 200km.

I reached Ledbury quickly, crossed a big blue hole towards Gloucester, topping up with a good thermal, and headed west to the south of Swindon, across Wroughton and towards Shalbourne. Rivar Hill was deserted as I flew towards Andover. After climbing to cloudbase to take the downwind TP photo, I found myself thinking that I could easily final glide into Lasham.

However it was only 1600hrs, which was still the best part of the gliding day, and I had just 100km to go, so I turned away and set off towards Swindon. Again I passed Rivar Hill, crossed the Marlborough Downs and with a quick chandelle took the Blakehill TP photo.

Landing after 8hrs 10min I felt elated. So were the others who had done various 300 and 500km tasks. I had managed to do all my badge flights in the UK, something I had wanted to do.

**PETER MOLLOY**

Peter, CFI of Essex GC, was instructing at the Dublin GC that day and writes that a number of good flights were done the previous day, which was an Irish Bank Holiday. Conditions were excellent on the 7th as well, with two-seaters soaring until 1930hrs.

**BRIAN HAWKEN**

Brian, Met man for the Inter-Services Regionals where the task that day was a 500km spearhead and 31 500kms were flown (most of them first timers, and almost all in Standard or 15m gliders), makes the following observations.

The summer of 1990 was long, hot and dry and the period leading up to the Regionals at Bicester was dry, warm and sometimes hot. The very dry ground and higher than average temperatures gave considerably better thermal activity than in the usual English summer. The Regionals started with high temperatures recorded over many parts of England, exceeding 32°C in many areas. Cooler air spread south to all areas on the 5th.

An anticyclone in mid Atlantic moved slowly east to become slow moving to the SW of the British Isles with a strong ridge of high pressure across England and Wales developing in the cooler air. With the cooler air forecast some days ahead, good soaring conditions were anticipated with the 6th and 7th being shortlisted for a 500km task.

The 6th, after encouraging signs, wasn't quite as good as expected. The clean, dry airmass with high cloudbase and plenty of energy for lift, was

spoilt by too strong a gradient wind. The midnight 5000ft wind recorded at Aughton was 330°/30kt, 25kt at 0600 UTC and not forecast to drop below 30kt in the next few hours. The forecast suggested similar conditions for the 7th but with lighter winds. Plans were made for the Big Day.

Early Met on the 7th confirmed the forecast. The 0600 5000ft wind at Aughton was recorded as 300°/20kt and at Larkhill 340°/25, but were expected to continue to drop. Radio sonde ascents suggested high cloudbases and good thermals. Surface winds were expected to be light and visibly very good.

Cumulus developed as planned and things looked good. However, synoptic charts in the late morning suggested there was some overconvection in the north Midlands and later in parts of East Anglia, Wales and the SW.

The satellite visual photo shows the UK at 1334. The mass of cloud extending across much of Scotland and Northern Ireland is associated with a weak warm front moving east across northern parts. The largely stratiform cloud shows some wave structure from NE Scotland to the Lake District. Cumuliform cloud predominates over England and Wales, although very variable in amounts. The NNW'ly flow at low level is very apparent in places. Note that southwest Wales is largely free of convection but with cumulus forming on the southern coast and drifting south into the Bristol Channel before dispersing. This effect is even more noticeable over Devon and Cornwall where much of the peninsular is free of cloud, but with cumulus forming on a sea breeze front along the south coast from the Lizard to Weymouth and with convective cloud drifting well south into the English Channel. The northerly drift of sea air into parts of Norfolk has limited convection until well inland, where once formed cumulus has become very extensive.

**Large cells of flattened cumulus**

The 1200 ascents from Aughton and Hemsby and the 1100 ascent from Aberporth do not suggest a large amount of overconvection, although some degree of moisture near the inversion indicates the possibility of temporary spreading out as the cumulus cells cycle from the developing to the decaying stage. The ascents perhaps suggest that the stratocumulus reported by pilots and ground observers might well have been rather large cells of flattened cumulus. The satellite photos show this rather well in the area east of a line from east Lincolnshire to Hampshire.

**Mike Cuming Concludes**

All the pilots wrote their pieces without having sight of the other contributions and there is an interesting commonality in many of the remarks made. In particular, having the nerve to make a big declaration in the first place and continuing to press on even when things looked grim! Additionally, most seemed quite prepared to make large detours off track.

This wasn't a perfect day, either, and no doubt the same pilots (and hopefully many more) will really go to town when even better conditions occur.

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UK SERVICE STATION FOR  
**HOFFMANN PROPELLER**



**L**It's the stuff of nightmares. To be flung into the air, pitched nose up on a winch launch only to find you have no means of controlling the attitude. You've forgotten to connect the elevator.

What should you do? What can you do? You could release and attempt to control the pitch with flaps. It's possible, it has been done, although to my knowledge only from an aerotow. You can't really practise it to see if it will work.

Do you wait until you are at maximum height on the launch and jump? This has also been tried before and the pilot survived, but imagine the prospect! Again you could release and hope that during the phugoids that follow the ground is met with the fuselage horizontal and flying slowly. Again this has been survived with nothing more serious than a broken tail boom to show the amazing luck but sheer stupidity of the pilot. This last accident was from an aerotow where the glider pilot realised his mistake before he put the tug pilot at risk as well.

Your response of "It will never happen to me, I'm too careful", isn't valid. I'm afraid it happens to the most unlikely people, pilots who are generally so careful and conscientious. Why?

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### ***Familiar with the process and as a result it would seem they are a lot more cavalier***

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In the good old days of Tutors and T-31s the rigging and de-rigging was a major event. It aroused great interest and dozens of individuals checked the controls out of sheer curiosity. They'd probably never seen it done before and wanted a look. These days, however, gliders are rigged and de-rigged a lot more often. Pilots are familiar with the process and as a result it would seem they are a lot more cavalier.

A new private owner has never had to worry about making the vital connections before. The club gliders were always rigged in the hangar and it is quite possible that if he didn't do the DI the only checks he made were when sitting in the glider at the launch point.

Of course he had helped rig gliders on many occasions but had never been relied upon to connect the controls. Although he may start the season with good intentions and sound prac-

# ACCIDENT HIGHLIGHT-

## ***Making the connection***

**We asked Graham McAndrew, national coach, to highlight a cause of accident and he chose disconnected elevators which resulted in a fatality last season. He called it a particularly silly and unnecessary cause, a view shared by Bill Scull, BGA director of operations, who wrote about the same subject in the April issue. Let's hope this intense publicity will have good results**

tices, these may well deteriorate as he becomes more familiar with his new toy.

Accidents of this type don't usually happen to the new private owner, but good habits taught and learnt at the beginning may prevent silly but potentially fatal ones occurring later.

You get to see some very dangerous practices if you spend any time on an airfield. Have you seen the chap who tows his glider out to the launch queue - we'll call him Ted - who's in such a big hurry to get an early slot he leaves his controls disconnected until he is on line? He knows his glider isn't ready to fly but has rigged and de-rigged so many times he can do it with his eyes closed.

In his rush he forgets to walk to the tail. He fails to get an independent check of the controls, everyone else is busy, it's a good day. He doesn't get a positive control check - surely there is no need, after all you can see the elevator move when you move the stick? That must be all right.

Of course he has failed to realise the elevator will move in the correct sense and by the correct amount even when the elevator pushrod isn't connected because it isn't affected by an airstream and is being assisted by gravity. The story of what happens next will appear on the accident report form which usually has to be filed by someone else.

**Any interruption when rigging can have serious consequences.**

A high proportion of "Failure to connect controls" accidents occur to experienced pilots who have recently sold a glider with self-connecting elevator controls, such as the Kestrel and Libelle, and have bought one whose elevator doesn't link up automatically - the ASW-20L, ASW-19 or the early Pegasus etc. They were in the habit of not needing to check the connection and may well revert back to that habit if rushed or distracted.

It's not that they attempt to connect the control but fail to do it correctly, they just plain forget and

no amount of rule making about the fitting of safety pins or double checks is going to change that. Investigation of wreckage on occasions has shown the elevator or tailplane torn off in a crash with no apparent damage to the elevator pushrod. The conclusion is obvious.

It's not possible to make rules which will prevent these accidents. There are rules and they don't work. Remember we only get to hear about the aircraft that crash. How many other incidents occur that are not notified?

The only way to reduce or eradicate the problem is to instil a high degree of diligence into everyone. You may at your club insist on double control checks or positive checks with one holding the stick and another the control surface, or even dual signatures in the DI books. But at the end of the day it is down to the pilot to satisfy himself that the aircraft is ready to fly.

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### ***The pilot's responsible attitude can be encouraged and enhanced by the instructor***

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We need to nurture a favourable state of mind. One that prevents anyone sitting in a glider without first establishing it is airworthy. It's the responsibility of the pilot but this attitude can be encouraged and enhanced by the instructor. Making a point of being careful and thorough when inspecting the aircraft is teaching through example.

Physically checking other gliders at the launch point establishes a degree of importance and a level of concern. Sending our man Ted away with your well voiced reasons why what he is doing is crass stupidity may well prevent a statistic. ☒

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An ASW-24 photographed in Network 7 TV studios to advertise the spacious facilities. Camera - Linhof 6x12 65mm lens; Kodak Ektachrome film.

## HOW TO TAKE GLIDING PHOTOS

Some tips from Tony Hutchings who has taken this collection plus the cover and many outstanding shots over the years for *S&G*

Sailplanes come in all shapes and sizes and are all without exception interesting to photograph, especially for glider pilots. In my view the most satisfactory way to photograph gliders (or indeed anything else) is to start with a clear mental picture of the image you wish to end up with and then set about working to that and often better images will then present themselves to you along the way. Decide on suitable equipment, film type depending on intended use and, if you have time, wait for good weather. For colour I prefer to shoot on 100ASA Ektachrome or Fujichrome transparency film as these also yield extremely high quality prints if you use a professional laboratory that specialises in hand printing on either Cibachrome or Fuji direct reversal papers. So you file your transparencies easily and only have your favourite images printed.

Below: Gordon Green hill soaring an ASH-20L at Sutton Bank and making high speed passes. Camera - Canon T90 210mm lens; Kodak Ektachrome film.







ASH-25 looping near Thame. Camera - Canon T90 20mm lens, infra-red radio remote firing system with the camera mounted forward of the wind on a boom rig; Kodak Ektachrome film.

Below: K-14 near Hanover-Munden, West Germany. Camera - Fuji GSW690; Kodak Ektachrome film.





**A**s director of operations you may wonder what I do. The job is wide ranging since it involves liaison with six different BGA committees, Airspace, Development, Government Liaison, Instructing, Political and Safety. While strictly answering to the chairman of the Association the work priority depends on the demands in the various areas; occasionally resolving priorities is difficult and here the chairman, Don Spottiswood, adjudicates.

The job has almost infinite variety and could not be described as desk bound. Working from home has its advantages; privacy to concentrate on writing tasks, such as papers, articles and the current review of the **CFIs' Handbook**. It does have an element of "open all hours" - my middle name of Granville may register with television viewers in this context. The one disadvantage, but only to me, is the telephone calls at relatively unusual hours. I may lose my sense of humour with people seeking advice about cut TP films after 11pm on a Saturday, especially since this ain't my business.

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***"... the post continues  
and the messages on  
the answerphone increase."***

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There is seldom any slack time and sometimes jobs which one sub-committee chairman regards as high priority get delayed by other tasks to meet a deadline or meetings which interrupt a bigger task. Often a week may be spent away from the desk, but meanwhile the post continues and the messages on the answerphone increase. Take this week (December 10-15) at the time of writing this article. A good deal of Monday was spent preparing for the week's programme, two inquests, a meeting of the Joint Airmiss Working Group (JAWG) and the BGA Executive meeting. Given the weather conditions I deemed it advisable to travel on the Monday evening to Ludlow for the first inquest. This involved a prior meeting with the coroner and the inquest from 11.30am to 4.20pm followed by a 180 mile drive home.

The journey to Uxbridge for JAWG on Wednesday morning was only 45 miles but could take up to 2hrs, hence I left at 7.30. The attendance at JAWG is as the GASCO (General Aviation Safety Committee) alternative representative but advising on airmisses involving gliding. There were four on the agenda for this meeting which finished at 12.15 for the Christmas lunch; normally the meeting is from 09.30 to 5.30.

The Executive meeting starts at 6pm and usually last for three hours, give or take 15 minutes, so I'm generally home by 10.45pm. This particular week was a bad one in the sense that I don't much like inquests. The next one was at Newport, Gwent, the Puchacz accident. Unusually, in this case, the coroner sat without a jury. Perhaps the rules are different in Wales. The actual inquest lasted for 40 minutes but there was again a prior meeting with the coroner. A shorter day this time leaving at 10.30 and home again by 5.00pm.

## BGA DIRECTOR OF OPERATIONS

### All things to all people!

The mood by now is gloomy, notwithstanding kind words for my conduct of the Ludlow inquest (thanks Keith). I'm frustrated by the unnecessary deaths and sit down to write an article on "DI's and all that" (see S&G, April issue). It's almost finished by dinner time and only needs an hour's work the following morning. A quick call to Gillian elicits a request for another article (this one) for the new Yearbook she's editing. Best do it now while I'm writing easily. Thank goodness for a word processor. I suppress the guilt at not getting on with the **CFIs' Handbook** which really needs whole clear days to get into (my excuse Bernie!).

The other job that really needs some attention today is preparation for the meeting with the Blackpool & Fylde GC's committee on Sunday, to discuss their development plan for aerotowing. I have avoided going to meetings unprepared since I saw the Videoarts/John Cleese's film, "Meetings, Bloody Meetings!" As I said, it's never boring.

My involvement on the safety side is variable. AAIB usually leave fatal accidents to the BGA to investigate. So, at very short notice one may be called to the scene of an accident. I can assemble the kit and be on the way in 30 minutes, usually by road, occasionally by air. The subsequent work involved can be time consuming, writing the report, getting specialist advice from AAIB, Institute of Aviation Medicine (IAM) etc. Conclusions may lead to articles or papers such as "Lightweight Pilots" (June 1990 issue p133). Sometimes there is a legal aspect. Letters to lawyers need careful drafting. Incidentally, AAIB ran a splendid two-day course for the various sporting disciplines in November 1990, thanks to chief inspector Ken Smart's initiative.

The development side too has considerable variety, some issues becoming sagas. Take the Cambridge University GC and their new site. It's too long a story to tell in detail but the planning approval and winch launch permission have involved meetings in Huntingdon, at RAE Bedford, with the CAA at Gatwick, NATS in London and with club officials in Cambridge. A conservative estimate is that this job has taken several weeks out of 1990. But is there anything more important than establishing a new site, a difficult aspect of which may be getting the winch launch permission? My current "sites" file includes possible new sites for Angus, Bath & Wilts, Cranfield, Dorset, Essex and Suffolk Highland and the possible purchase of existing sites for Cornish and Derby & Lancs, all of which have involved inspections and advice. In addition there have

been contentious issues at Pocklington and Ridgewell, involving meetings with and submissions to planning authorities.

On the instructing side my involvement is somewhat reduced due to being grounded in 1988 with severe back problems (too much time in Falkes!) However, I still get to all the instructor courses and to talk about safety, airspace and the BGA. In addition there are occasional safety presentations as demand dictates and time allows.

On the airspace front 1990 seems to have been a quiet year, that is nothing too threatening. We have had successive Airspace chairmen who have done a magnificent job on your behalf, whatever your perception may be. But the process of review seems almost continuous. There are impending changes to the Birmingham airspace, but due consideration has been given to the needs of the Stratford GC at Snitterfield. The possible introduction of BA 146s to London City Airport should be achieved without further increases in regulated airspace. The review of airspace in Scotland will be watched most carefully.

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***"Meetings, to say nothing of  
papers to be prepared and  
briefings to be given."***

---

Government liaison is mostly concerned with CAA, the General Aviation Department and Flight Crew Licensing (FCL). The former deal with launch permissions and safety aspects. As a result of some tug-related accidents we produced a "Guide to Tug Operating Procedures" which was several weeks' work. Sometimes the opposition to a launching permission is considerable and here GAD act as "honest broker" to good effect. It would not do to go into the details of "Hire and Reward" (now "Valuable Consideration") nor the European Community (EC) pilot licence harmonisation proposals, which have required many meetings and liaison at all levels from Ministerial, Department of Transport (DoT), CAA/FCL and the EC Policy Directorate. Meetings, bloody meetings to say nothing of the papers to be prepared and briefings to be given.

What more can one say? Well, the series of articles in S&G starting with "What is the BGA



**D**ecember 1949 was an eventful month. Eisenhower dismissed speculation that he would run for president. Einstein published his "Generalised Theory of Gravitation". Sukarno became president of Indonesia. And the RAFGSA was founded.

By far the most significant of these events took place in an overcrowded London taxi on the way to a Chinese restaurant. Accomplices to the act were a policeman who tried to stop the cab on the grounds of overloading, and the driver who pressed on regardless. Messrs Forbes, Martin, Hanks, Page, Paul - for it was they - in the act of founding exemplified the spirit of tenacity and healthy disregard for bureaucracy which has characterised the RAF Gliding and Soaring Association ever since.

Of course RAF gliding did not start in 1949. There are many well-known pre-war exploits such as that of Flt Lt Murray who in 1937 established a British two-seater duration record of 22hrs in a Falcon 3 over Dunstable. He and his fellow crew member, John Sproule, had arranged for "in-flight refuelling". Essential supplies were lowered to them on a string from another glider flying above them on the ridge. By all accounts the operation was not an unqualified success - the rigging wires got in the way.

Then there were the designers: Cpl Bill Manuel of "Crested Wren" fame and Sqn Ldr "Mungo" Buxton, designer of the Hjordis, in which Philip Wills achieved some of his early records.

Perhaps the most unusual of the pre-war pioneers was Gp Capt Edward Mole. Whilst serving in Egypt in April 1938 he was towed by an Audax in his Turul 1 to 15400ft and then proceeded to perform 147 consecutive loops, finishing at a height of 500ft. When he emerged from the cockpit he was unable to stand up straight. His other main claim to fame is that he persuaded Barbara Cartland to buy him a glider for a cross Channel attempt. Unfortunately for him, and perhaps for Cartland readers, Robert Kronfeld beat him to it.

After the war the main focus of RAF gliding activity was in Germany, where members of the British Air Forces of Occupation rescued countless gliders, not from the Germans, who had hidden them in sheds and outhouses, but from the Americans, who were systematically destroying Kranichs, Weihees and Minimoas because a US colonel had been killed whilst trying to teach himself to fly a German glider. It was during this post-war period that names such as Wally Kahn, Andy Gough and Chris Paul (later to be Air Com-

doing about it?" (October 1990 issue, p243) and others give the clue. Watch out for other such articles.

Contact me if you've got a problem, preferably during normal working hours. There is an answerphone and a fax on the same number 0420 83553. If you're frustrated by answerphones try the BGA. In fact try them first anyway; if they can't help then they will direct you to me. For the basic questions try and find the answer yourself, in **Laws and Rules**, or the CAA publication on Pilot Licensing (CAP53) or even telephone directory inquiries. Finally, if I don't answer your call, message or letter immediately please be polite to my wife, Yvonne, when you speak to her; it's not her fault that I'm away!

# THE BOYS IN BLUE

**Max Bishop, the RAFGSA public relations member, writes about the largest of the Service gliding associations**

modore and RAFGSA founder member) came to prominence.

But it was only with the official support which the foundation of the RAFGSA made possible that solid foundations for the achievements of the last 40 years could be laid. The first RAFGSA flight took place at Detling, and thereafter a network of regional RAFGSA clubs sprang up with the aim of making gliding accessible to all servicemen and their families, wherever in the country they may be stationed. The number and location of clubs has changed slightly over the years but the present distribution of a dozen clubs, from Kinloss in the North of Scotland to Hullavington in Wiltshire, is not untypical. There has always been a concentration of RAFGSA clubs in eastern England, where most RAF bases are located.

The RAFGSA's founders, some of whom are still in regular touch with the Association, are astonished that their brainchild has survived so long and prospered so obviously. Amazingly they encountered much resistance in the Air Ministry to the idea that gliding should be officially recognised as a sport, to rank alongside rugby and cricket and enjoy assistance from Service charities. Happily, wiser counsels eventually pre-

vailed and the benefits of bringing flying opportunities to those who normally worked on the ground were recognised by authority.



The opportunities which the RAFGSA can give to those who would almost certainly not otherwise have them are perhaps best exemplified by the successes of the two most recent RAF National Champions, Cpl Jed Edyvean and Sgt Ken Hartley, and by the unparalleled achievement of three times World Champion Sqn Ldr George Lee, who, although later commissioned, started his RAF career as an apprentice technician at Halton. All three climbed the ladder to success as ordinary club members flying ordinary RAFGSA club gliders. Junior Technician Ritchie Toon, a young man little more than two years into his RAF and gliding career gained 4th place in the 1990 Junior Nationals and will represent Britain at the European Junior Championships in 1991. He and others are following in the footsteps of their illustrious predecessors.

## **The role of honour includes household names**

The RAFGSA role of honour also includes household names such as Air Cdre John Delafield who has won no less than eight National Championships, Flt Lt John Williamson, many-time British team member (who would be without his calculator?), and WO Andy Gough, another British team member and a great instructor, who for many years until his premature death, ran the RAFGSA Centre at Bicester.

1990 was another year in which members of the RAFGSA, past and present, made a big contribution to British gliding. A former chairman, AVM Don Spottiswood, became chairman of the BGA; the first Overseas Nationals were held in France under the direction of Chf Tech Eric Smith; and a spectacularly successful Inter-Services Regional Championships was held at Bicester in which competitors flew a total of 105 000km, 23 pilots (including five in Astirs) on one day achieved their 500km Diamond distances, and Sgt Barrie Elliott, the Bicester CFI, flew the first RAFGSA closed circuit 750km task.

Despite a shrinking air force, the RAFGSA hopes that it can continue for at least another 40 years to make some contribution to the British gliding movement.

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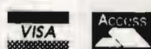
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				2kA/T	W/L	GI/Hr
*ANGLIA	Wattisham	52 08N 00 57E	0449 720631 ex299			
ANGUS	Arbroath	56 35N 02 37W	0241 74001 (sec)	N/A	1.20	10.80
AQUILA	Hinton-in-the-Hedges	52 02N 01 12W	0295 811056	10	2.50	6
ARGYLL & WEST HIGHLAND	Connel	56 28N 05 24W	0631 71243	£14	4.50	By arrngmnt
AVON SC	Bidford on Avon	52 08N 01 51W	0789 772606	11.50	N/A	12
*BANNERDOWN	RAF Hullavington	51 31N 02 08W	06663 233			
BATH & WILTS	Keovil	51 19N 02 07W	0380 870411	9	2.50	4.80-6
*BICESTER	RAF Bicester	51 55N 01 08W	08692 43030			
BLACK MOUNTAINS	Talgarth	51 58N 03 12W	0874 711463	14	N/A	16.20
BLACKPOOL & FYLDE	Chipping	53 53N 02 37W	0995 61267	N/A	2.40	6
BOOKER	Wycombe Air Park	51 37N 00 48W	0494 442501	15.60	N/A	6-23
BORDERS	Galewood Farm	55 36N 00 20W	06686 284	10	N/A	7.20
BRACKLEY	Turweston	52 02N 01 06W	081 9085197 (chm)	N/A	3.50	15
BRISTOL & GLOS	Nympsfield	51 43N 02 17W	0453 860342	12.50	3.50	12
BUCKMINSTER	Saltby	52 50N 00 43W	0476 860385	10	3.50	9-12
BURN	Burn, Selby	53 44N 01 05W	0757 270296	7.90	1.80	9.60
CAIRNGORM	Feshiebridge	57 06N 03 53W	05404 317	N/A	2.50	9
CAMBRIDGE UNIVERSITY	Duxford	52 06N 00 08E	0223 832197	12.75	3.75	9.85-15.60
CHANNEL	Waldershare Park	51 11N 01 17E	0304 824888	N/A	3-4	12
*CHILTERN	RAF Halton	51 48N 00 44W	0296 623535			
*CLEVELANDS	RAF Dishforth	54 08N 01 25W	09012 2147			
CONNEL	Connel	56 28N 05 24W	0369 81256 (sec)	2 (cartow)	2	12
CORNISH	Perranporth	50 10N 05 09W	0872 572124	N/A	2.50	7.20-9
COTSWOLD	Aston Down	51 43N 02 07W	028576 473	N/A	3.50	10.50-14
COVENTRY	Husbands Bosworth	52 26N 01 02W	0858 880521	10.50	2	7.20
*CRANFIELD	Cranfield	52 04N 00 37W	0234 750111 Ex2567	10.80	N/A	5.50-6
*CRANWELL	RAF Cranwell	53 03N 00 30W	0400 61201 Ex250			
*CULDROSE	RN Culdrose	50 05N 05 15W	03265 4121 Ex2415			
DARTMOOR	Brentor	50 35N 04 10W	0752 862961 (sec)	N/A	2.30	7.20
DEESIDE	Aboyne	57 04N 02 50W	03398 85339	10	N/A	12
DERBY & LANC	Camphill	53 18N 01 43W	0298 871270	N/A	3	9
DEVON & SOMERSET	North Hill	50 48N 03 15W	040484 386	9.50	2.50	7.20
DORSET	Old Sarum	51 06N 01 47W	0202 576467 (CFI)	12.50	3	9
DUKERIES	Gamston	53 17N 00 06W	0909 731436 (sec)	N/A	2	8.25
DUMFRIES & DISTRICT	Falgunzeon	54 56N 03 44W	038776 601	N/A	3	9
EAST SUSSEX	Ringmer	50 54N 00 06E	082584 347	13	3	9
ENSTONE EAGLES	Enstone	51 56N 10 25W	0608 72462	11.50	2.80	10.80
ESSEX	North Weald	51 43N 00 09E	037882 2222	8	3.50	9
ESSEX & SUFFOLK	Wormingford	51 57N 00 48E	0245 467547 (sec)	11	N/A	8.40
*FENLAND	RAF Marham	52 39N 00 33E	0760 261 Ex7721			
*FOUR COUNTIES	RAF Syerston	53 02N 00 55W	063685 300			
FULMAR	RAF Kinloss	57 39N 03 34W	0309 72161			
GLYNDWR	Denbigh	52 48N 03 23W	074581 3774	N/A	3	9
GRAMPIAN	By Laurencekirk	56 51N 02 21W	0241 53232 (CFI)	N/A	2.50	12
HEREFORDSHIRE	Shobdon	52 14N 02 54W	056881 8908	14	N/A	10.80
*HERON	RN Yeovilton	51 00N 02 38W	0935 551 Ex 484			
*HUMBER	RAF Scampton	53 18N 00 33W	0522 730421			
HIGHLAND	Dallachy	57 40N 03 04W	0343 820568	N/A	2.50-3	6
IMPERIAL COLLEGE	Lasham	51 11N 01 02W	025683 270	13.50	4.25	8.40
KENT	Challock	51 12N 00 51E	023374 307	11	4	12
*KESTREL	Odiham (Army)	51 14N 00 57W	025671 2134 Ex449			
LAKES	Walney	54 08N 03 15W	0229 41458	9	N/A	6
LASHAM	Lasham	51 11N 01 02W	025683 322	13.50	4.25	16.80-18
*LOMOND	Arbroath	56 35N 02 37W	0241 74001			
LONDON	Dunstable	51 52N 00 32W	0582 663419	13.50	3.75	15-22.20
MARCHINGTON	Marchington	52 52N 01 47W	0283 820009	10.50	3	9
MENDIP	Halesland	51 16N 02 44W	0934 813142 (sec)	N/A	2.50-3	6
MIDLAND	Long Mynd	52 31N 02 53W	058861 206	N/A	3.35	9.60-15.60
NENE VALLEY	Upwood	52 26N 00 08W	0480 301316	N/A	2	5.5
NEWARK & NOTTS	Winthorpe	53 06N 00 46W	0636 707151	N/A	2	7.20
NEWCASTLE & TEESIDE	Carlton Moor	54 25N 01 12W	0642 778234	N/A	2.25	9-12
NORFOLK	Tibenhams	52 17N 01 19E	0379 77207	8.75-9.50	N/A	9
NORTH DEVON	Eaglescott	50 56N 03 59W	07693 404	12-13	N/A	18
NORTH WALES	Rhualt	53 16N 03 21W	0492 515073 (sec)	N/A	3	12
NORTHUMBRIA	Currock Hill	54 56N 01 50W	0207 561286	11.50	2.30	7.20-12
OXFORD	Weston on the Green	51 53N 01 13W	086989 265	N/A	1.75	6
OXFORDSHIRE SFC	Enstone	51 56N 01 25W	0608 677208			
PETERBOROUGH & SPALDING	Crowland	52 43N 00 09W	0733 210463	9	N/A	9.60
*PORTSMOUTH	RN Lee-on-Solent	50 49N 01 12W	0705 550143 Ex113			
RAE BEDFORD	Thurleigh	52 14N 00 28W	0234 261079	N/A	2	
RAE FARNBOROUGH	Farnborough	51 17N 00 46W	0252 24461	N/A	2.25	6.60
RATTLESDEN	Rattlesden	52 10N 00 52E	0449 737789	12.75	3	7.20
RSRE	Pershore	52 09N 02 02W	0684 567588 (sec)	N/A	2.50	9
SACKVILLE	Riseley	52 16N 00 29W	0234 708877	14	3	inc. sub
SCOTTISH GU	Portmoak	52 16N 03 20W	059284 543	12.50	3.50	10.80-12.60
SHALBOURNE SG	Rivar Hill	51 21N 01 33W	0264 89204	N/A	3	6-9
SHENINGTON	Edge Hill	52 05N 02 28W	0295 251716 (sec)	13	2.50	9
SHROPSHIRE SG	Sleap	53 50N 02 46W	0939 32882	8.10-9.40	N/A	N/A
SOUTHDOWN	Parham	50 55N 00 28W	0903 742137	10.50	2.50	12
SOUTH WALES	Usk	51 44N 02 51W	02913 690536	13	2.50	10.80
STAFFORDSHIRE	Morridge	53 08N 01 57W	053834 369	N/A	2.50	9
STRATFORD ON AVON	Snitterfield	52 14N 01 42W	0789 731095	N/A	3.75	10.30-13.20
STRATHCLYDE	Strathaven	55 41N 04 06W	0357 20235	10	3	7.20
STRUBBY	Strubby	53 19N 00 11E	0507 450698	N/A	2.50	6
SURREY & HANTS	Lasham	51 11N 01 02W	025683 322	13.50	4.25	19.20
SURREY HILLS	Kenley	51 18N 00 06W	07375 54319 (sec)	N/A	4	9-12
THRUXTON	Thrupton	51 13N 01 36W	0264 773274	15	N/A	9
TRENT VALLEY	Kirton-in-Lindsey	53 27N 00 34W	0652 64877	9.60	3	6
ULSTER	Bellarena	55 07N 06 58W	05047 50301	11	N/A	8.40
UPWARD BOUND TRUST	Thame	51 47N 00 56W	0442 61747 (sec)	N/A	1.50	9
VALE OF NEATH	Rhigos	51 45N 03 35W	0685 811023	12	2.50	10.20
VALE OF WHITE HORSE	Shrivenham	51 36N 01 40W	0793 783293 (sec)	N/A	2.75	10
VECTIS	Sandown IQW	50 39N 01 11W	0983 405125	11	N/A	12
WELLAND	Lyveden	52 28N 00 34W	0406 22480	N/A	3	6
WEST WALES	Templeton	51 45N 05 32W	0239 614756	N/A	3	6
WOLDS	Pocklington	53 56N 00 48W	0759 303579	8.50	2	6
WREKIN	Costford	52 39N 02 18W	090722 2393 Ex255			
*WYVERN	Upavon (Army)	51 17N 01 47W	098063 351 Ex386			
YORK	Rufforth	53 57N 01 11W	0904 83694	9.50	2.50	10.80
YORKSHIRE	Sutton Bank	54 15N 01 13W	0845 597237	10.90	3.20	9

\*Service club launch rates and glider charges are available on application to the club. Full membership is restricted to Service personnel and their immediate dependants. Speaking for the RAFGSA, Max Bishop, their public relations member, says that certain non-entitled persons (eg instructors, private owners) may be invited to become associate members.

Unless stated, we have given clubhouses telephone Nos and the charges are a rough guide.







# ANNUAL RECORDS

## INTERNATIONAL GLIDING RECORDS (as at 7.3.91)

### SINGLE-SEATERS

Height Gain	12 894m
Absolute Altitude	14 938m
Straight Distance	1460.8km
Goal Distance	1254.26km
Goal & Return Distance	1646.68km
Triangular Distance	1362.68km
100km Triangle	195.30km/h
300km Triangle	169.49km/h
500km Triangle	170.06km/h
750km Triangle	158.40km/h
1000km Triangle	145.32km/h
1250km Triangle	133.24km/h

P. F. Bikle, USA
R. R. Harris, USA
H-W Grosse, W. Germany
B. L. Drake, D. N. Speight, S. H. Georgeson, New Zealand
T. L. Knauff, USA
T. L. Knauff (Nimbus 3), L. R. McMaster, J. C. Seymour
K-H. Striedieck, (USA) (ASW-20a);
R. L. Robertson, Gt Britain (in USA)
I. Renner, Australia
J. P. Castle, France (in South Africa)
B. Bünzli, Switzerland
H-W. Grosse, W. Germany (in Australia)
H-W. Grosse, W. Germany (in Australia)
H-W. Grosse, W. Germany (in Australia)

SGS 1-23e	25.2.1961
Grob-102	17.2.1986
ASW-12	25.4.1972
Nimbus 2	14.1.1978
Nimbus 3	25.4.1983
Ventus A	2.5.1986
Nimbus 3	14.12.1982
Nimbus 3	15.11.1986
DG-400 (sealed)	9.1.1988
ASW-22	8.1.1985
ASW-17	3.1.1979
ASW-17	9.12.1980

### MULTI-SEATERS

Height Gain	11 680m
Absolute Altitude	13 489m
Straight Distance*	1092.08km
Goal Distance*	1092.08km
Goal & Return Distance*	1260.00km
Triangular Distance	1379.35km
100km Triangle	177.26km/h
300km Triangle	170.90km/h
500km Triangle	163.03km/h
750km Triangle	161.33km/h
1000km Triangle	157.25km/h
1250km Triangle	143.46km/h

S. Josefczak and J. Tarczon, Poland
L. Edgar and H. Klieforth, USA
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
M. W. Walker and T. Delore, New Zealand
H-W. Grosse and H. Kohimeyer, W. Germany (in Australia)
E. Sommer and I. Andersen, W. Germany (in USA)
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
H-W. Grosse and Karin Grosse, W. Germany (in Australia)
H-W. Grosse and H. Kohlmeier, W. Germany (in Australia)

Bocian	5.11.1966
Pratt Read	19.3.1952
ASH-25	14.1.1990
ASH-25	14.1.1990
ASW-22	1.12.1989
ASH-25	10.1.1987
Janus C	26.7.1984
ASH-25	8.1.1988
ASH-25	20.1.1988
ASH-25	10.1.1988
ASH-25	11.1.1988
ASH-25	10.1.1987

### SINGLE-SEATERS (WOMEN)

Height Gain	10 212m
Absolute Altitude	12 637m
Straight Distance	949.7km
Goal Distance*	951.43km
Goal & Return Distance	1126.68km
Triangular Distance	847.27km
100km Triangle*	145.49km/h
300km Triangle*	143.9km/h
500km Triangle	133.14km/h
750km Triangle*	127.29km/h

Yvonne Loader, New Zealand
Sabrina Jackintell, USA
Karla Karel, Gt Britain (in Australia)
Joann Shaw, USA
Doris Grove, USA
Joann Shaw, USA
Susan Beatty, South Africa
Susan Beatty, South Africa
Susan Martin, Australia
Susan Beatty, South Africa

Nimbus 2	12.1.1988
Astir CS	14.2.1979
LS-3	20.1.1980
Nimbus 2	2.7.1990
Nimbus 2	28.9.1981
Nimbus 2	5.8.1984
ASW-20a	23.12.1990
ASW-20a	26.12.1990
LS-3	29.1.1979
ASW-20a	21.12.1990

### MULTI-SEATERS (WOMEN)

Height Gain	8430m
Absolute Altitude	10 809m
Straight Distance	864.85km
Goal Distance	864.86km
Goal & Return Distance	649.63km
100km Triangle	126.28km/h
300km Triangle	123.33km/h
500km Triangle	95.72km/h

Adela Dankowska and M. Mateliska, Poland
Mary Nurr and H. Duncan, USA
Tatiana Pavlova and L. Filomechkina, USSR
Isabella Gorokhova and Z. Koslova, USSR
Tamara Sviridova and V. Toporova, USSR
Adela Dankowska and E. Grzelak, Poland
Inge Müller and C Müller, W. Germany (in SW Africa)
Daina Vilne and V. Toporova, USSR

Bocian	17.10.1967
SGS 2-32	5.3.1975
Blanik	3.6.1967
Blanik	3.6.1967
LAK 12bP	24.5.1986
Halny	1.8.1978
Janus C	7.12.1984
LAK 12bP	16.5.1986

## BRITISH NATIONAL RECORDS (as at 7.3.91)

### SINGLE-SEATERS

Height Gain	10 965m
Absolute Altitude	11 500m
Straight Distance	949.7km
Goal Distance	859.20km
Goal & Return Distance	1127.68km
Triangular Distance	1362.68km
300km Goal and Return	153.3km/h
500km Goal and Return	152.7km/h
1000km Goal and Return	105.79km/h
100km Triangle	143.3km/h
300km Triangle	146.8km/h
500km Triangle	141.3km/h
750km Triangle	109.8km/h
1000km Triangle	112.15km/h
1250km Triangle	109.01km/h

D. Benton
H. C. N. Goodhart (in USA)
Karla Karel (in Australia)
M. T. A. Sands (in USA)
M. T. A. Sands (in USA)
R. L. Robertson (in USA)
M. T. A. Sands (in USA)
M. R. Carlton (in South Africa)
M. T. A. Sands (in USA)
E. P. Hodge (in Rhodesia)
E. Pearson (in South Africa)
B. J. G. Pearson (in South Africa)
M. R. Carlton (in South Africa)
G. E. Lee (in Australia)
R. L. Robertson (in USA)

Nimbus 2	18.4.1980
SGS 1-23	12.5.1955
LS-3	20.1.1980
Nimbus 3	23.4.1986
Nimbus 3	7.5.1985
Ventus A	2.5.1986
Kestrel 19	10.5.1983
ASW-17	24.12.1980
Nimbus 3	7.5.1985
Std Cirrus	30.10.1976
Nimbus 2	30.11.1976
ASW-20	28.12.1982
Kestrel 19	5.1.1975
ASW-20a	25.1.1989
Ventus A	2.5.1986

### MULTI-SEATERS

Height Gain	10234m
Absolute Altitude	11 023m
Straight Distance	472.43km
Goal Distance	472.43km
Goal & Return Distance	709.35km
Triangular Distance	825km
300km Goal and Return*	138km/h
500km Goal and Return	113.08km/h
100km Triangle	137.22km/h
300km Triangle	138.37km/h
500km Triangle*	131km/h
750km Triangle	114.18km/h

A. E. Kay and K. Wilson
A. E. Kay and K. Wilson
M. R. Carlton and M. French (in South Africa)
M. R. Carlton and M. French (in South Africa)
R. C. May and S. G. Jones (in Finland)
B. T. Spreckley and P. Jones (in Australia)
G. Dale and M. Bird (in Australia)
M. R. Carlton and C. Greaves (in South Africa)
M. R. Carlton and Leonie Lawson (in South Africa)
B. T. Spreckley and P. Jones (in Australia)
M. Bird and G. Dale (in Australia)
B. T. Spreckley and P. Jones (in Australia)

ASH-25	12.10.1990
ASH-25	12.10.1990
Calif A-21	18.12.1979
Calif A-21	18.12.1979
ASH-25	11.6.1988
Nimbus 3bT	7.2.1987
ASH-25	4.1.1991
Calif A-21	23.12.1978
Calif A-21	27.12.1978
Nimbus 3bT	6.2.1987
ASH-25	3.1.1991
Nimbus 3bT	7.2.1987

### SINGLE-SEATERS (WOMEN)

Height Gain	9119m
Absolute Altitude	10 550m
Straight Distance	949.7km
Goal Distance	528km
Goal & Return Distance	545km
Triangular Distance	814.01km
300km Goal and Return	107.5km/h
500km Goal and Return	102.6km/h
100km Triangle	110.8km/h
300km Triangle	125.87km/h
500km Triangle	120.69km/h
750km Triangle	110.53km/h

Anne Burns (in South Africa)
Anne Burns (in South Africa)
Karla Karel (in Australia)
Ann Welch (in Poland)
Anne Burns (in South Africa)
Karla Karel (in Australia)
Karla Karel (in South Africa)
Karla Karel (in Rhodesia)
Karla Karel (in Rhodesia)
Karla Karel (in Australia)
Karla Karel (in Australia)
Pamela Hawkins (in Australia)

Skylark 3a	13.1.1961
Skylark 3a	13.1.1961
LS-3	20.1.1980
Jaskolka	20.6.1961
Std Austria	6.1.1966
LS-3	9.1.1980
ASW-15a	1.1.1975
ASW-15a	16.10.1975
ASW-15a	2.11.1975
LS-3	12.2.1980
LS-3	20.2.1980
ASW-17	17.11.1984

\* Subject to homologation



UNITED KINGDOM RECORDS (as at 7.3.91)

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	98.36km/h	A. H. Warminger	Ventus 16.6m	7.4.1990
500km Goal	90.7km/h	H. C. N. Goodhart	Skylark 3	10.5.1959

15m CLASS

Straight Distance	827.9km/h	T. J. Wills	LS-6	29.5.1986
Goal & Return Distance	617km	C. Garton	LS-6	28.8.1989
500km Goal & Return	83.42km/h	M. B. Jefferyes	DG-600	25.5.1990
100km Triangle	119.7km/h	T. J. Wills	LS-4	18.4.1981
200km Triangle	114.95km/h	D. S. Watt	ASW-24	3.8.1990
300km Triangle	115.85km/h	J. Gorringer	LS-7	3.8.1990
400km Triangle	95.88km/h	D. S. Watt	ASW-20FL	29.5.1985
500km Triangle	93.1km/h	M. D. Wells	LS-7	26.5.1990
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
300km Goal & Return	104.09km/h	A. Kay	ASW-24	28.4.1989
500km Goal & Return	75.66km/h	P. Jeffery	Pegasus	3.9.1989
100km Triangle	119.7km/h	T. J. Wills	LS-4	18.4.1981
200km Triangle	114.95km/h	D. S. Watt	ASW-24	3.8.1990
300km Triangle	115.85km/h	J. Gorringer	LS-7	3.8.1990
400km Triangle	91.7km/h	S. J. Redman	Std Cirrus	31.5.1975
500km Triangle	93.1km/h	M. B. Wells	LS-7	26.5.1990
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
5. Triangular Distance	770.28km	C. C. Rollings & B. Fairston	ASH-25	3.7.1990

MULTI-SEATERS

Height Gain	10 234m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
Absolute Altitude	11 023m	A. E. Kay and K. Wilson	ASH-25	12.10.1990
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	542.91km	A. E. Kay and A. Kay	ASH-25	12.8.1990
Triangular Distance	770.27km	C. C. Rollings and B. Fairston	ASH-25	3.7.1990
300km Goal & Return	112.2km/h	A. E. Kay and C. Lytleton	ASH-25	27.5.1990
500km Goal & Return	98.20km/h	A. E. Kay and A. Kay	ASH-25	12.8.1990
100km Triangle	123.99km/h	R. C. May and E. Morris	ASH-25	27.7.1989
200km Triangle	119.07km/h	R. C. May and P. Townsend	ASH-25	18.7.1990
300km Triangle	109.08km/h	C. C. Rollings and G. McAndrew	ASH-25	18.8.1989
400km Triangle	113.70km/h	J. D. J. Glossop and I. Baker	Nimbus 3D <sup>+</sup>	30.8.1990
500km Triangle	104.74km/h	C. C. Rollings and P. Price	ASH-25	25.5.1990
600km Triangle	94.94km/h	R. C. May and S. Lynn	ASH-25	19.7.1990
750km Triangle	92.34km/h	C. C. Rollings and B. Fairston	ASH-25	3.7.1990
100km Goal	173.32km/h	D. Hill and J. Gorringer	ASH-25	8.4.1990
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	324.4km	Jane Nash	Ventus B	15.4.1989
Goal & Return Distance	334.2km	Ruth Housden	Libelle	29.5.1982
300km Goal & Return	80.60km/h	Jane Nash	Ventus B	4.6.1989
100km Triangle	80km/h	Anne Burns	Cirrus	14.6.1970
200km Triangle	77.08km/h	Jane Randle	Nimbus 2	12.8.1990
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	135.39km/h	Jane Nash	Ventus B	11.6.1989
200km Goal	85.5km/h	Anne Burns	Olympia 419	2.6.1963
300km Goal	93.16km/h	Jane Nash	Mini-Nimbus	7.4.1990

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

SINGLE-SEATERS

Straight Distance†	652.7km	B. J. Willson (in Australia)	PIK-20E	10.1.1983
Goal Distance†	415.1km	B. J. Willson (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
100km Triangle†	86.1km/h	A. Munro (in Norway)	DG-400	6.7.1989
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. Willson (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†	5882m	M. G. Throssell and P. Bartle	Janus CM	27.9.1988
Absolute Altitude†	6888m	M. G. Throssell and P. Bartle	Janus CM	27.9.1988
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 7.3.91)

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	826.66km	P. Elkmann, W. Germany	ASW-22M	15.4.1989
Goal Distance*	760km	K. Holighaus, W. Germany (in South Africa)	Ventus CM	10.1.1991
Goal and Return Distance	1084.94km	O. Schauble, W. Germany (in South Africa)	ASW-22	9.1.1988
Triangular Distance*	1150km	{ O. Schauble, W. Germany (in South Africa) W. Eisele, W. Germany (in South Africa)	ASW-22BE ASW-22BE	23.12.1990
100km Triangle	191.19km/h	B. Bünzli, Switzerland (in South Africa)	DG-400	29.12.1987
300km Triangle	165.51km/h	B. Bünzli, Switzerland (in South Africa)	DG-400	22.12.1984
500km Triangle	170.05km/h	B. Bünzli, Switzerland (in S. W. Africa)	DG-400	9.1.1988
750km Triangle	150.81km/h	B. Bünzli, Switzerland (in S. W. Africa)	DG-400	17.12.1987
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	969.75km	J. W. Wenger and D. W. Aitken, USA	Nimbus 3D <sup>M</sup>	7.7.1989
Goal Distance	777.81km	J. W. Wenger and D. W. Aitken, USA	Nimbus 30M	???.1989
Goal & Return Distance	1017.17km	O. Wegscheider and O. Schröder, W. Germany (in South Africa)	ASH-25	9.1.1988
Triangular Distance*	1178km	O. Wegscheider and W. Norvickhorst, W. Germany (in South Africa)	Nimbus 3	23.12.1990
100km Triangle*	179km/h	O. Wegscheider and P. Eich, W. Germany (in South Africa)	Nimbus 3D <sup>M</sup>	5.1.1989
300km Triangle*	165km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25E	9.1.1991
500km Triangle*	170km/h	H-W. Grosse and J. Hacker, W. Germany (in Australia)	ASH-25E	31.12.1990
750km Triangle*	156km/h	H-W. Grosse and Karin Grosse, W. Germany (in Australia)	ASH-25E	10.1.1991
1000km Triangle	129.98km/h	E. Müller and W. Binder, W. Germany (in Australia)	ASH-25M <sup>B</sup>	27.12.1986

SINGLE-SEATERS (WOMEN)

Height Gain	8844m	Ingrid Köhler, W. Germany (in USA)	DG-400	12.6.1988
Absolute Altitude	10 245m	Ingrid Köhler, W. Germany (in USA)	DG-400	12.6.1988
Goal & Return Distance	531.10km	Ingrid Köhler, W. Germany (in USA)	DG-400	1.7.1989
100km Triangle	127.49km/h	Ingrid Köhler, W. Germany (in USA)	DG-400	4.7.1989
300km Triangle	87.53km/h	Ingrid Köhler, W. Germany (in USA)	DG-400	6.7.1989

MULTI-SEATERS (WOMEN)

300km Triangle*	66km/h	Isabell Mittag and K. Walter, W. Germany	DG-500M	27.5.1990
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# BGA COMPETITION NUMBERS

The following Competition Numbers are registered with the BGA

- |  |                                       |                                       |                                     |                                     |
|--|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| 1. T. J. Wills                         | 61. C. Borrill                        | 122. I. Godfrey                       | 184. S. E. Evans                    | 249. R. Harris                      |
| 2. A. E. Jones                         | 62. J. A. Kane                        | 123. D. J. Dimmer                     | 185. R. A. Holroyd/<br>F. P. Wilson | 250. W. J. Murray                   |
| 3. J. D. Bally                         | 63. S. G. Olender                     | 124. J. A. F. Barnes                  |                                     | 251. P. J. Hall                     |
| 4. W. A. H. Kahn                       | 64. P. Jeffery                        | 125. D. Hodsmen                       | 186. I. J. Metcalfe                 | 252. Cirrus Gliding Grp             |
| 5. G. D. A. Green                      | 65. A. K. Lincoln                     | 126. M. Randle & Ptnrs                | 187. P. M. B. Jessop                | 253. T. A. M. Bradbury              |
| 6. G. H. Herringshaw                   | 66. J. Delafield                      | 127. K. S. Matcham                    | 188. I. D. Smith                    | 254. D. A. Smith                    |
| 7. D. B. James                         | 67. K. R. Mansell                     | 128. D. A. Kilcoyne                   | 190. J. Rees                        | 255. J. F. Claxton                  |
| 8. C. L. Withall                       | 68. B. L. Cooper                      | 129. A. J. Chappel                    | 192. M. A. Gale                     | 256. D. S. Towson                   |
| 9. C. A. P. Ellis                      | 69. E. C. Wright                      | 130. R. Lemin                         | 193. Bristol & Glos GC              | 257. Yorkshire GC                   |
| 10. L. Watts                           | 70. R. J. S. Knight                   | 131. W. J. Dean                       | 194. E. Ellwood-Wade                | 258. V. C. Carr & Ptnrs             |
| 11. P. Potgieter                       | 71. E. R. Lysakowski                  | 132. T. Harrington                    | 195. S. Bicknell                    | 259. M. S. Chana                    |
| 12. Wyvern GC                          | 72. J. A. P. Evans                    | 133. J. H. Odell                      | 196. K. Hartley & Ptnrs             | 260. P. Pozerskis                   |
| 13. R. May                             | 73. B. Chadwick/K. Scott              | 134. P. G. H. Purdie                  | 197. R. C. Sharman                  | 261. A. French                      |
| 14. J. D. Jones                        | 74. A. Linnee                         | 135. T. Lipscombe                     | 198. C. K. Davis                    | 262. V. S. W. Dawson                |
| 15. G. D. Ackroyd                      | 75. G. Chappel                        | 136. A. Miller                        | 199. P. H. Turner                   | 264. N. Parry                       |
| 16. RAFGSA                             | 76. A. M. Blackburn                   | 137. S. Parsonage                     | 200. P. G. Cook                     | 265. A. O. Harkins                  |
| 17. M. T. A. Sands                     | 77. M. Hudson                         | 138. C. J. Evans                      | 201. C. Lowrie                      | 266. Highland GC                    |
| 18. C. R. Ellis                        | 78. M. Pocock                         | 139. C. M. Davis                      | 202. D. A. Hatfield                 | 268. J. Gatfield/C. Purvis          |
| 19. BGA                                | 79. J. Randle & Ptnrs                 | 140. R. D. Payne                      | 203. R. W. Abrahams                 | 269. T. R. F. Gaunt & Ptnrs         |
| 20. D. D. Carrow/<br>D. H. G. Ince     | 80. A. J. Davis                       | 141. R. E. Cross                      | 204. E. Drew                        | 270. R. I. Hey                      |
| 21. M. I. Gee                          | 81. J. R. Upton                       | 142. J. N. Wardle                     | 205. L. G. Callow                   | 271. C. Armstrong                   |
| 22. T. S. Zealley                      | 82. R. Jones                          | 143. K. S. Davis/<br>G. C. Beardesley | 207. J. W. Wren                     | 272. M. Carolan                     |
| 23. P. Redshaw                         | 83. T. J. Harrison                    | 144. R. J. Baker                      | 208. M. P. Brockington              | 273. J. H. Fox & Ptnrs              |
| 24. RAFGSA                             | 84. G. J. Print                       | 145. S. G. P. Blundell                | 209. R. J. Nicholls                 | 274. E. R. Duffin                   |
| 25. I. C. Woodhouse                    | 85. D. Robertson                      | 146. C. Law/M. Conrad                 | 210. P. R. Jones                    | 275. M. R. Fountain                 |
| 26. RAFGSA                             | 86. J. D. Peck                        | 147. P. Hawkins                       | 211. R. Housden                     | 276. C. D. Lovell                   |
| 27. RAFGSA                             | 87. RAFGSA                            | 148. A. J. Burton                     | 212. Wyvern GC                      | 280. M. Strathern                   |
| 28. D. S. McKay                        | 88. D. G. Roberts                     | 149. K. L. Marham                     | 213. H. Woodsend                    | 281. J. Wesley & Ptnrs              |
| 29. J. D. J. Glossop                   | 89. J. A. K. Millar                   | 150. G. D. E. Macdonald               | 214. H. Evans                       | 282. K. Kingsland                   |
| 30. J. E. New                          | 90. R. A. Foot & Ptnrs                | 151. B. Marshall & Ptnrs              | 215. A. A. Spirling                 | 285. Coventry GC                    |
| 31. C. Garton                          | 91. R. K. Hendra                      | 152. L. S. Hood                       | 216. B. S. Vickerman                | 286. J. M. Beattie                  |
| 32. P. S. Hawkins                      | 92. T. Perkins                        | 153. Surrey & Hants GC                | 217. T. Patterson & Ptnrs           | 287. J. W. Murdoch                  |
| 33. H. Johnson                         | 93. D. M. Smith/R. Harris             | 154. C. J. Wingfield                  | 218. P. Hurd                        | 288. R. Boyd                        |
| 34. T. J. Murphy                       | 94. Nine Foun Aviation                | 155. J. A. Lewis                      | 220. E. H. L. Shore & Ptnrs         | 290. M. C. Russell                  |
| 35. J. Kingerlee                       | 95. J. G. Bell                        | 157. E. J. Dent                       | 221. J. R. Greig                    | 292. T. Norrie                      |
| 36. B. B. C. Watson                    | 96. Imperial Coll GC                  | 158. P. H. Little                     | 222. G. J. Evison                   | 296. Imperial Coll GC               |
| 37. K. Blake                           | 97. BGA                               | 159. J. A. Rollason                   | 223. B. R. Forrest/A. Hallum        | 297. J. C. Bailey                   |
| 38. P. Marriott                        | 98. N. Gaunt/M. Smith/<br>J. Grainger | 160. A. Townsend                      | 224. C. J. Robbinson                | 299. L. J. Hartfield                |
| 39. Deeside Group                      | 99. T. I. Quinn Hall                  | 161. H. & A. Tarnow                   | 225. H. C. Gowdy                    | 300. G. Busby                       |
| 40. B. Fitchett                        | 100. R. Starling                      | 162. B. H. Owen                       | 226. R. Baines & Ptnrs              | 301. J. Burry                       |
| 41. R. Rutherford                      | 101. P. Ramsden                       | 163. N. Goulding                      | 227. A. T. Farmer                   | 302. Polish AFA                     |
| 42. G. N. D. Smith                     | 102. R. Cousins                       | 164. G. Dale                          | 228. M. J. Sesemann                 | 303. S. Olender                     |
| 43. J. M. Gentry                       | 103. C. J. Mayhew                     | 165. A. J. Rooney                     | 229. P. H. Fanshawe/<br>E. A. Smith | 304. Z. Marczinski                  |
| 44. A. H. Warminger                    | 104. G. Metcalfe                      | 166. K. Kiely                         | 230. N. H. Wall                     | 305. M. J. C. Haszlkiewicz          |
| 45. Lasham GS                          | 105. A. P. Moulang                    | 167. B. C. Marsh                      | 231. G. J. Hindmarsh                | 306. A. MacGregor                   |
| 46. M. Pope                            | 106. A. & J. Garside                  | 168. J. W. Le Coyte                   | 232. M. F. Cuming                   | 307. L. F. Parris                   |
| 47. S. J. Hill/J. D. Hill/<br>G. Knipe | 107. J. E. Cruttenden                 | 169. J. L. Smoker                     | 233. Kingswood synd                 | 309. G. F. Fisher & Ptnrs           |
| 48. D. E. Findon                       | 108. C. R. Simpson                    | 170. G. Corbett                       | 234. C. A. D. Paterson              | 310. P. D. Sheard/<br>C. J. Shawdon |
| 49. D. C. Austin                       | 109. B. Fairston                      | 171. M. Thick                         | 235. R. C. Bridges                  | 311. P. C. Gill & Ptnrs             |
| 50. R. Illidge                         | 110. S. Jones                         | 172. G. D. Morris                     | 237. R. C. Haddon                   | 312. Booker GC                      |
| 51. G. W. Camp                         | 111. M. P. Seth-Smith                 | 173. R. J. H. Fack                    | 238. N. Francis                     | 313. Surrey & Hants GC              |
| 52. J. J. Bywater                      | 112. J. Ellis                         | 174. R. H. Wright                     | 239. S. Noad & Ptnrs                | 314. Booker GC                      |
| 53. M. J. Silver                       | 113. G. E. & A. K. Johnson            | 175. J. B. Ranson                     | 240. P. J. Haseler                  | 315. Booker GC                      |
| 54. R. Jones                           | 114. S. J. Reynolds                   | 176. D. S. Innes                      | 241. A. I. Mawer                    | 316. Booker GC                      |
| 55. D. B. Eastell                      | 115. J. M. West                       | 177. IBM                              | 242. R. A. Sandford                 | 317. M. G. Maydon                   |
| 56. S. J. Redman                       | 116. N. J. Ashworth                   | 178. R. H. Prestwich/<br>L. Kirkham   | 243. W. M. Kay                      | 318. Booker GC                      |
| 57. S. G. Jones                        | 117. J. W. Evans                      | 179. P. Fenelon                       | 244. J. J. Mawson                   | 319. I. P. Giles                    |
| 58. E. R. Lysakowski                   | 118. J. Gorringer                     | 180. A. Jacobs                        | 245. J. L. Bridge                   | 320. D. Hatton                      |
| 59. B. T. Spreckley                    | 119. E. W. Richards & Ptnrs           | 181. D. J. Freeman                    | 246. J. P. Gorringer                | 321. M. D. Wells                    |
| 60. S. H. C. Marriott & Ptnrs          | 120. A. Snow                          | 182. P. L. Poole                      | 247. C. K. Hutley                   | 322. J. Forrester                   |
|  | 121. W. R. Longstaff                  |                                       | 248. A. M. Walker                   | 323. A. J. Hulme & Ptnrs            |



324. J. Warbey	413. J. B. & D. Hoolahan	517. K. Small	633. A. J. Beard	732. C. G. Salt
325. P. F. Brice	414. M. F. Evans	518. A. C. Mainsds	636. S. Lewis & Ptnrs	734. F. Bradney
326. J. A. Denne	415. V. F. G. Tull	520. P. Naegeli & Ptnrs	638. R. M. Evans/M. Toon	737. E. R. Duffin
327. I. A. Masterton & Ptnrs	416. P. A. Cook	521. J. Herd	639. G. W. M. Neill & Ptnrs	740. H. B. D. Jeans
328. A. M. Young	417. J. Bennett & Ptnrs	522. G. R. Green	640. R. I. Cowderoy	741. R. Neill & Ptnrs
330. Aquila GC	418. J. C. M. Docherty	523. C. J. Townend & Ptnrs	642. T. Meaker	742. E. K. Stephenson
331. C. G. Taylor	419. M. L. Boxall	525. J. Fisher	645. C. Laxton/D. Tanner/ J. Holland	743. J. Wright & Ptnrs
332. M. Newland-Smith	420. G. E. McAndrew	528. P. G. Marks	646. C. J. Aldis	744. G. F. Read
333. P. Stafford-Allen	421. M. C. Costin	530. A. A. Maitland & Ptnrs	648. D. Tait	745. M. H. Wyde & Ptnrs
334. J. Ayers	422. P. Gentil	535. M. Day	649. R. B. Witter	747. F. J. Sheppard
336. A. B. Adams	423. M. G. Stringer & Ptnrs	536. R. Mortimer	650. B. Scougall	748. D. R. Hurley
338. S. Turner	424. R. A. Hall	540. M. Evans	651. R. B. Witter	749. R. Gray
339. C. Broom	426. H. G. Loftus	541. C. J. Clarke	652. B. Stott	750. G. M. Cumner
340. A. D. Purnell	428. I. Biggs	542. R. S. Hawley/ S. Y. Duxbury	653. J. S. Wilson	751. G. D. Wilburn
342. D. Bowes	430. S. Jobar	543. D. C. Phillips	654. R. Strange	753. T. A. Quigley
343. M. M. Phillips	431. Surrey Univ GC	545. C. V. J. Heames	656. M. B. Jefferyes & Ptnrs	757. M. C. Fairman
344. W. B. Andrews	432. T. Hutchings	550. L. G. Watts	657. J. L. Bleasdale/ A. D. Tribe	758. I. R. Cook/ N. C. Morland
345. I. P. J. Carmichael	433. W. Grundy	551. P. Duffin	658. Central Gliding School	759. Black Mountains GC
347. D. T. Wright	434. A. P. Walsh	554. Cambridge Univ GC	659. A. J. Manwaring	761. C. T. Spiers
349. P. G. Hepingstall	436. L. S. Thorne	555. R. S. M. Fendt	660. R. A. Cheetham	767. A. J. Bardgett
350. M. Collingham	439. R. J. Abrahams & Ptnrs	556. J. W. Le Coyte	661. E. Macdonald	769. H. E. Birch
351. T. Randall	440. G. L. Boaler & Ptnrs	557. P. C. Hassan	662. T. J. Scott	770. A. Veitch
352. D. Roberts	441. R. T. Moses & Ptnrs	566. F. R. & R. G. Stevens	666. M. Kemp	771. I. Champness
353. L. R. Bennett	442. B. W. Svenson/ G. Jones	567. P. A. Bailey	669. G. Macdonald	772. C. Worrell
357. M. Uphill	443. J. C. Bastin	568. A. Johnson	673. D. Lilburn	773. S. J. McNeil
360. C. White	444. D. A. Benton	569. M. R. Dawson	674. D. M. Hayes	774. G. D. Ankers
362. D. M. Steed	445. J. S. Weston	571. D. C. Rich	675. C. Jones	775. Lasham GS
363. D. K. Gardiner	446. P. J. Griffiths	572. R. J. Whitaker & Ptnrs	676. M. Jordy & Ptnrs	776. N. G. Hackett
364. S. Crabb	447. J. Kettlely	573. J. H. Nunneley	678. H. M. Pantin	779. J. P. Ashcroft
365. A. W. F. Edwards	450. P. Coward/T. Slater	574. C. Warman	680. B. Pocock	780. P. J. Wild
366. A. J. Kite	451. G. H. Costin & Ptnrs	575. P. Brightman	681. M. Weaver	781. D. D. Copeland
367. B. T. Pratt	452. E. Smith	576. Devon & Somerset GC	682. C. Pike	782. B. R. Bartlett
369. S. North	454. B. H. Owen	577. M. J. Hastings & Ptnrs	683. J. Reid	786. P. T. Reading & Ptnrs
370. D. R. Campbell	456. M. B. Jefferyes & Ptnrs	579. G. W. Craig	686. A. S. Edlin	787. A. F. Webb
371. D. Holmes	458. C. L. Lagden	580. W. Aspland	688. L. Dent	788. C. K. Lewis
372. R. F. Tindall	460. North Wales GC	582. P. Becker	689. J. T. Phillips	789. J. Gardiner
373. M. Birch	461. T. J. Parker	585. Midland GC	693. Foss/Ownes/Whitmore	790. D. A. Booth
374. A. D. W. Hyslop	463. J. Cloke	587. P. Blackburn	694. H. McDermott-Row & Ptnrs	791. M. J. Thompson
375. C. Chambers	464. R. Ashurst	590. R. G. Furley	695. A. Truman & Ptnrs	794. J. Houghton
377. A. W. Doughty & Ptnrs	465. K. S. Green	593. D. Breeze	696. C. J. Batty	797. Midland GC
378. B. Bamber	466. A. T. Hirst	594. T. Parker	698. A. L. Harris	798. A. Cooper
379. J. Wilson	468. T. W. J. Stoker	595. S. W. Bennett	699. W. R. Brown	799. P. R. Norrison
380. A. J. Baldwin	470. S. R. Lynn	596. D. D. Copeland	700. S. McNeil	800. C. A. Marren
382. C. R. Appleyard	471. M. P. Dale & Ptnrs	597. M. Robertson	701. L. P. Smith	801. G. J. Moore
383. M. C. Foreman	474. Surrey & Hants GC	599. B. Lumb	702. B. A. Thomas	806. A. Wild
384. L. E. Beer	475. C. Hughes	600. A. A. Carnegie	703. G. W. Burge/D. Foster	807. D. H. Felix
385. D. Bowes	476. J. Cowie	601. J. D. Spencer	704. A. J. Watson	808. A. R. Milne
388. J. J. Bywater	477. A. Hobbins	602. D. Manser	705. A. J. Stone/ P. G. Sheard	810. G. G. P. Coppen
390. D. Shrimpton	479. R. Parsons	604. F. K. Russell	706. T. G. B. Hobbs	811. M. C. Burlock
391. Surrey & Hants GC	480. Heron GC	606. P. Gray & Ptnrs	707. G. Lyons	812. D. Jarvis & Ptnrs
392. A. Barron	481. J. M. Woodford	608. Gardner/Wildish/Walker	708. M. C. Fairman	813. B. L. King
393. G. C. Keall	483. F. L. Cox	609. South Wales GC	710. A. Clutterbuck	817. Yorkshire GC
394. Surrey & Hants GC	484. L. E. Beer	610. G. R. Seaman	711. R. Jones/M. Chant	818. D. Starer
395. Surrey & Hants GC	488. P. A. Taylor	611. R. Johns	712. J. A. Stirk	820. E. Giles & Ptnrs
396. Surrey & Hants GC	490. S. J. C. Parker	612. J. Bradley & Ptnrs	713. L. Clark	821. D. J. Minson
397. Surrey & Hants GC	494. D. A. Booth	613. R. Putt	714. T. Hurn	822. M. P. Blake
398. Surrey & Hants GC	495. Cambridge Univ GC	614. D. N. Symon	715. M. J. Bailey	823. D. I. Waldron
399. Surrey & Hants GC	496. Surrey & Hants GC	616. R. Matthews	716. Imperial Coll GC	824. T. J. Mitchell
400. Glaser-Dirks UK	497. N. Stratton	617. H. F. Brown	717. S. Sampson	826. P. Croote
401. R. Ward & Ptnrs	500. J. S. Halford	618. P. & D. King	719. D. J. Macpherson	828. G. R. Green
402. F. N. James	501. A. B. Dickinson	619. A. J. Pettitt	720. P. Walker	829. P. C. Cannon
403. J. Ayers	503. E. Bromwell & Ptnrs	620. D. McCarthy	721. C. Morris	830. P. I. Whitt
404. D. Stabler	504. L. P. Woodage	621. T. Stuart	722. D. B. Andrews	832. C. A. Wayman & Ptnrs
405. C. Hyett	505. R. W. Harding	622. C. Smith	724. M. Kingston	841. G. F. Lloyd
406. D. J. Eade	508. A. Priestley	624. I. Ashton	725. M. Kochman	844. R. Hawtree
407. J. McCullagh/ C. N. Wallis	510. P. B. Merritt	625. D. Cheetham	727. T. P. Docherty	849. F. Townsend
408. A. R. Levi	511. C. J. Stothard	626. L. Bleakin	728. R. Madelin	851. J. L. J. Smith
409. H. Jones	512. K. Mitchell	629. J. R. Reed	731. P. J. Walford & Ptnrs	852. W. R. Mayo & Ptnrs
411. C. M. Robinson/ J. H. Hawkins	513. D. Almey	630. A. & R. Pentecost		855. R. C. Bromwich
412. Wyvern GC	515. J. B. Giddins	631. F. P. Wilson		861. L. R. Merritt
	516. A. H. Baker			862. C. W. Stevens



864. J. C. R. Rogers	896. D. Asquith	917. S. T. Bonser	944. D. Hilton	974. Central Gliding School
873. S. M. L. Young	899. G. Lynch	918. D. Caunt	945. Stratford on Avon GC	975. Central Gliding School
875. R. B. Christy	900. R. M. Grant	919. P. W. Lever	949. A. Hegner	980. K. Harris
876. N. A. Taylor	901. G. W. Kirton	920. K. Neave	951. J. Kaval	981. C. J. Nicholas
877. D. Hughes/K. Laidlaw	902. P. Light	921. S. J. McNeil	955. R. C. Adams/ P. Robinson	982. D. Zarb
879. D. Steele	907. P. Neilson & Ptnrs	924. K. A. Moules	959. D. & J. Evans	983. P. C. T. Whitmore
880. R. N. Dall	909. G. Huggins	930. D. Adams	960. A. Pozerskis	985. F. J. Davies
886. E. W. Johnston	910. S. Smithers	931. R. L. Fox	964. G. Lobb	987. M. Meagher
887. Surrey & Hants GC	911. A. G. Reid & Ptnrs	935. M. D. Crooks	966. S. Roberts	988. M. P. Kemp
888. R. S. M. Fendt	912. A. K. Lincoln	937. N. A. Dean	969. S. Roberts	989. G. O. Avis
890. C. H. Griffiths	913. Bristol & Glos GC	939. R. C. Martin/R. Williams	971. E. F. Davies	990. L. E. N. Tanner
891. E. A. Arthur	915. P. Stammell	941. A. W. A. Kay	973. J. P. Galloway	995. P. R. Gardner
892. A. Preston	916. J. T. Chambers	942. A. E. Kay		997. K. Wilson

# International Gliding Organisations

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**POLAND:** Aero Club of Poland, Krakowskie Przedmiescie 55, 00-071 Warsaw. Tel: 48 (22) 26 76 70/26 20 21. Telefax: 48 (22) 26 02 43.

**PORTUGAL:** Aero Club of Portugal, Avenida da Liberdade, 226, 1200 Lisbon. Tel: 351 (1) 57 21 46.

**ROMANIA:** Romanian Aeronautical Federation, Str. Vasile Contra No. 16, Bucarest Sector 1. Tel: 40 (0) 10 44 70.

**SOUTH AFRICA:** Aero Club of South Africa, PO Box 1993, Halfway House, Midrand 1685 (Transvaal) Tel: 27 (11) 805 31 06/7.

**SPAIN:** ROYAL AERO CLUB OF SPAIN, Carrera de San Jeronimo 15, 28014 Madrid. Tel: 34 (1) 429 85 34. Telefax: 34 (1) 429 71 21.

**SWEDEN:** Royal Swedish Aero Club, Box 20081, S-161 02 Bromma. Tel: 46 (08) 764 60 90. Telefax: 46 (8) 764 56 49.

**SWITZERLAND:** Aero Club of Switzerland, Lidostrasse 5, CH-6006 Lucerne. Tel: 41 (41) 31 21 21. Telefax: 41 (41) 31 14 53.

**TURKEY:** Turkish Air Association, Ataturk Bulvari n°33, 06100 Opera/Ankara. Tel: 90 (41) 310 48 40. Telefax: 90 (41) 310 04 13.

**USA:** Soaring Society of America, PO Box E, Hobbs, 88241, New Mexico. Tel: 001 (505) 392-117. Telefax: 001(505)392-8154.

**USSR:** Federation of Aeronautical Sports of the USSR, POB 395, Moscow 123362. Tel: 7 (095) 491 86 61.

**VENEZUELA:** Venezuelan Association of Aeronautical Sports, Apartado 50088, Caracas 1050 A. Tel: (Pth): 58 (2) 292 12 62. Telefax: 58 (2) 241 20 96.

**YUGOSLAVIA:** Aeronautical Union of Yugoslavia, Uzun Mirkova n°4/1 - Postal Box 872, 11000 Belgrade. Tel: 38 (11) 626 235. Telefax: 38 (11) 627 290.

**ZIMBABWE:** Aero Club of Zimbabwe, PO Box 3371, Harare. Tel: 263 (4) 73 69 91. Telefax: 263 (4) 73 69 93.

**OSTIV:** International Scientific & Technical Gliding Organisation, C/- D.L.R. (Deutsche Forschungsanstalt fur und Raumfahrt) Institut fur Physik der Atmosphere, D-8031 Oberpfaffenhofen, Germany. Tel: 49 (8153) 28 507. Telefax: 49 (8153) 28 243.

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The Gliding Certificate is issued by the BGA under delegation from the Royal Aero Club and indicates the standard of achievement reached by the pilot. The certificate is endorsed for each badge requirement met.

The A, B, and Bronze badges and the UK 750km diploma are national standards set by the BGA. Two passport photographs of the pilot signed on the back are required for the Bronze badge. The Silver and Gold badges, Diamonds and 1000km badge are international standards laid down by the FAI. The respective requirements are summarised below. Application forms, including details of the fees payable, are obtainable from the BGA.

### Badge Tests

The candidate must make at least 20 flights in a glider before attempting any tests unless he is a qualified aeroplane pilot.

The candidate must be alone in the aircraft for each test. Badge attempts may be flown in a motor glider provided there is proof that the engine was stopped after launch and not restarted during the period of the attempt.

A working barograph sealed by an Official Observer must be carried for all the FAI badge tests and the UK 750km diploma except the 5hrs duration where this is made locally and under continuous observation.

If photographic evidence of reaching turning points is used the photographs must be taken in accordance with the FAI requirements (Refer FAI **Sporting Code** and BGA **Notes for Official Observers.**)

Flights for the A, B and Bronze badges must be carried out separately and consecutively. For the Silver, Gold and Diamonds any number of tests may be completed on any flight.

### Authentication

The full procedure for authenticating badge flights is contained in the current FAI **Sporting Code** and BGA **Notes for Official Observers.**

### A Badge

One solo circuit in a glider, or a motor glider in unpowered flight after the launch, followed by a satisfactory landing. Knowledge of the basic **Rules of the Air.**

### B Badge

A soaring flight of at least 5 min at or above the previous lowest point after launch followed by a satisfactory landing.

### Bronze Badge

A minimum of 50 solo flights in a glider. (A 2000ft aerotow counts as three flights and a PPL or similar Service or foreign equivalent, counts as 25 flights.) Two soaring flights each of 30min duration if launched by winch, car or bungee, or each of 60min after release from aerotow at a height not exceeding 2000ft. A minimum of two

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flights in a dual controlled glider with a full rated instructor (or ATC A. category instructor) who will satisfy himself that the candidate is proficient in the following:

1. Well co-ordinated and accurate general flying, especially keeping a good lookout.
2. Understanding and recognition of the symptoms of the stall, incipient spin and full spin followed by the correct recovery. If sufficient height is not available for the full spin then practice to the incipient stage is acceptable.
3. Two field landings into a field, or, if a suitable field is not available adjacent to the club site, into a marked area of the airfield; the altimeter should be covered or the millibar scale offset for this practice. If a marked area of the airfield is used it must be so chosen that there is little or no undershoot and that the circuit and approach does not coincide with the normal circuit and approach to the airfield. Where a suitable two-seater is not available the field landings only may be flown solo.

## Tests completed \_\_\_\_\_ within 12 months \_\_\_\_\_

The candidate must pass written Air Law and General papers and the flying and ground tests must all be completed within the 12 months prior to the application.

### Silver Badge

1. A duration flight of not less than 5hrs.
2. A distance flight of not less than 50km (31.07st miles) made either:
  - (a) In a straight line, or
  - (b) To a pre-declared remote finish point, or
  - (c) From a pre-declared remote start point, or
  - (d) From a remote start point to a remote finish

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point both of which are pre-declared.

The difference in height between release and landing must be less than 1% of the distance covered. The height of a remote finish point is taken into account by assuming that a landing would be made there.

3. A gain of height of at least 1000 metres (3281ft).

### Gold Badge

1. A duration flight of not less than 5hrs.
2. A distance flight of not less than 300km (186.4st miles) made either:
  - (a) In a straight line, or
  - (b) Using one turning point either an out-and-return or as a zig-zag (broken line) with an out-landing or,
  - (c) Using two turning points either as a triangle or as double out-and-return or as a double zig-zag with an outlanding, or
  - (d) Using three turning points either as a quadrilateral or as a triangle with two alternative turning points (one must be common) or as a triple zig-zag with an out landing, or
3. A gain of height of not less than 3000 metres (9843ft).

Turning points must be pre-declared but may be rounded in any sequence; however, each turn point may not be rounded more than once.

### Diamonds

1. A goal flight of not less than 300km, (186.4st miles) made either:
  - (a) As an out-and-return (one turning point), or
  - (b) As a triangle (two turning points), or
  - (c) As a triangle of which one turning point is a remote start/finish point or
  - (d) As a triangle around three turning points but not including the airfield. In this case the distance flown is that measured between the three turning points.

Turning points must be pre-declared and rounded in the designated sequence.


2. A distance flight of not less than 500km (310.7st miles) - requirements as for Gold distance.
3. A gain of height of not less than 5000 metres (16405ft).

Diamonds may only be worn on Silver or Gold badges.

### 1000km Badge

The FAI awards a badge for a distance flight of 1000km or more - requirements as for Gold distance.

### UK 750km Diploma

A distance flight of not less than 750km starting in the UK - requirements as for Gold distance. 



# BRITISH HOLDERS OF ALL THREE DIAMONDS

1955	52. A. A. Vincent	111. M. A. Clarke	173. Pamela Hawkins	235. T. W. Slater	286. D. E. Findon
1. H. C. N. Goodhart	53. R. F. Aldous	112. J. H. Odell	174. T. F. Cockett	236. A. P. Walsh	287. D. J. Eade
1960	54. M. G. Throssell	113. G. Polkinghorne	175. R. J. Knight	237. M. S. Hunt	288. P. F. Whitehead
2. G. A. J. Goodhart	55. B. T. Spreckley	114. C. J. Gildea	176. G. G. Coppen	238. G. D. Green	289. M. S. Armstrong
3. P. A. Wills	56. C. C. Rollings	115. M. T. A. Sands	1985	239. E. W. Johnston	290. C. M. Davis
1961	57. D. C. Austin	116. C. G. Starkey	177. S. Hymers	240. D. G. Roberts	291. W. J. Murray
4. Anne Burns	1976	117. P. L. Bisgood	178. J. R. Edyvean	241. D. J. Langrick	292. I. W. Strachan
5. D. O. Burns	58. H. Cook	118. A. T. Farmer	179. I. J. Metcalfe	242. E. Specht	293. M. J. Webb
6. J. S. Williamson	59. R. W. A. Miller	119. P. R. Pentecost	180. M. J. Young	1988	294. C. Robinson
1962	60. D. W. Evans	120. J. M. Gentry	181. K. R. Buckner	243. D. A. Benton	295. R. Arnall
7. P. M. Scott	61. H. F. Brown	121. A. F. Gough	182. T. A. Joint	244. C. A. Marren	296. W. G. Upton
8. A. H. Warminger	62. C. J. Woodier	122. J. F. Mills	183. S. G. Olander	245. P. A. Swoffer	297. A. J. Buchanan
1967	63. F. G. Wilson	123. M. J. Saunders	184. E. Hamill	246. M. C. Foreman	1990
9. P. S. Dawson	64. T. Pentelow	1982	185. B. Elliott	247. D. J. Macpherson	298. R. N. Dall
1968	65. T. P. Docherty	124. K. Stewart	186. B. C. Morris	248. B. A. Fairston	299. R. F. Harvey
10. A. W. Gough	66. A. T. Kenworthy	125. C. J. Wingfield	187. J. D. Norman	249. C. P. A. Jeffery	300. V. S. W. Dawson
11. D. B. James	67. C. R. Hurst	126. K. Mitchell	188. G. G. Buckner	250. S. N. Longland	301. S. M. Smith
1970	68. V. C. Carr	127. J. A. Evans	189. P. J. Stratton	251. V. J. Spencer	302. W. Aspland
12. B. Fitchett	69. P. B. E. Thomson	128. S. T. E. Walker	190. D. R. Stewart	252. D. L. Pratt	303. I. Smith
13. H. F. Jacques	70. H. R. Dimock	129. C. Brock	191. N. V. Parry	253. M. R. Dawson	304. P. Stammell
14. J. Cardiff	71. D. Cockburn	130. L. S. Hood	192. P. G. Cook	254. K. H. Lloyd	305. J. R. Reed
15. A. D. Purnell	72. R. A. Sandford	131. J. Taylor	193. P. B. Gray	255. P. A. Heame	306. R. C. Sharman
16. A. A. Maitland	73. L. E. N. Tanner	132. J. N. Ellis	194. E. R. Smith	256. P. C. Piggott	307. C. Morris
17. R. Fortescue	74. T. J. Ward	133. R. C. Stoddart	195. A. H. Mather	1989	308. M. J. Fairclough
18. M. P. Garrod	75. A. E. Kay	134. N. Gaunt	196. A. J. Manwaring	257. J. Dobson	309. Jill Burry
1971	76. A. S. Miller	135. G. McLean	197. B. A. Bateson	258. T. M. Mitchell	310. J. C. Kingerlee
19. H. Hilditch	77. J. H. Bryson	136. R. P. Saundby	198. P. L. Manley	259. A. J. Clarke	311. R. Parsons
20. C. D. Lovell	1977	137. K. A. Harrison	199. A. Yorkas	260. Jane Nash	312. D. Starer
21. S. A. White	78. A. J. Burton	138. M. B. Jefferyes	200. S. G. Jones	261. S. C. Bicknell	313. C. Wilby
22. P. D. Lane	79. M. Randle	139. C. V. J. Heames	201. R. B. Walker	262. M. J. Sesemann	314. R. A. Cheetham
1972	80. R. Q. Barrett	140. F. J. Sheppard	202. A. Shelton	263. I. M. Stromberg	315. R. V. Barrett
23. H. V. Howitt	81. H. R. Jarvis	141. J. M. West	203. A. Durbin	264. J. T. A. Hunter	316. R. Dalling
24. B. F. Dobson	82. D. S. Watt	142. C. Davison	204. M. E. Carter	265. C. J. Terry	317. A. J. Davis
25. L. S. Poulton	83. P. S. Whitehead	143. P. G. Sheard	205. C. J. Mayhew	266. A. P. Hatton	318. M. J. Guard
1973	84. D. J. Freeman	1983	1986	267. M. F. Brook	319. A. T. Hirst
26. J. Delafield	85. R. Feakes	144. T. R. F. Gaunt	206. C. G. Corbett	268. E. H. C. Downham	320. D. A. Booth
27. C. M. Greaves	1978	145. R. C. May	207. A. J. Hogg	269. I. D. Macfadyen	321. T. J. Robson
28. A. Somerville	86. J. Mitchell	146. J. M. Luke	208. B. D. Scougall	270. T. C. Harrington	322. G. R. Green
29. J. B. Goldsbrough	87. T. E. MacFadyen	147. J. C. Bastin	209. J. G. Bell	271. D. P. Aknai	323. C. E. Collingham
30. T. J. Wills	88. A. B. Crease	148. R. Penswick	210. M. F. Cuming	272. P. A. Gaisford	324. A. J. Eddie
31. R. Jones	89. M. Valentine	149. B. L. Cooper	211. G. E. McAndrew	273. J. A. Stephen	325. M. W. Durham
32. H. Orme	90. G. S. Neumann	150. R. A. Pye	212. D. Hilton	274. M. I. Hughes	326. J. N. Mills
33. D. G. Lee	91. W. E. Malpas	151. B. B. C. Watson	213. K. J. Cadman	275. T. B. Sargeant	327. P. J. Woodman
34. C. Garton	92. S. J. Easton	152. P. D. Bell	214. M. D. Allan	276. A. P. Moulang	328. A. D. Matyear
35. G. Garlick	93. D. D. Carrow	153. J. M. Bishop	215. J. W. Evans	277. P. J. Coward	329. J. Duncan
1974	94. D. H. G. Ince	154. K. Hartley	216. Annabel Lucas	278. J. C. Riddell	330. C. C. Sherlock
36. L. E. Beer	1979	155. S. N. Hutchinson	217. R. Cousins	279. J. E. Gilbert	331. GERALYN Macfadyen
37. T. A. M. Bradbury	95. I. D. Parker	156. J. D. Benois	218. R. D. Payne	280. J. Armstrong	332. J. G. Arnold
38. F. B. Reilly	96. G. C. Metcalfe	157. R. H. Wright	219. E. W. Richards	281. D. B. Almey	333. W. R. Gibson
39. D. V. Zotov	97. P. J. Richie	1984	220. T. D. Gorely	282. D. K. McCarthy	334. N. I. Claughton
40. J. D. J. Glossop	98. G. W. Camp	158. E. Richards	221. B. R. Wise	283. R. M. Grant	335. M. Critchlow
41. J. J. Ellis	99. A. R. Hancock	159. R. D. Frodsham	222. M. V. Boydon	284. T. H. Eagles	336. C. M. Davey
42. G. R. Paddick	100. C. Dews	160. J. Williams	223. M. B. Judkins	285. R. W. Dixon	337. S. J. Crabbs
43. P. N. Loewenstein	101. M. R. Carlton	161. J. E. Hart	1987		338. R. H. Evans
1975	102. P. Pozerskis	162. J. M. Hoyer	224. A. J. Munro		
44. C. R. Simpson	103. P. L. Sears	163. J. R. Barrows	225. T. H. Brown		
45. M. C. Costin	1980	164. G. A. Thomson	226. S. R. Nash		
46. M. J. Cowburn	104. C. J. Blackwell	165. D. Caunt	227. S. J. C. Parker		
47. D. W. Libburn	105. C. D. Rowland	166. J. Bridge	228. A. Crowden		
48. J. D. Pickett-Heaps	106. L. Bleaken	167. M. F. Hardy	229. C. Hyett		
49. S. G. Davies	107. M. Bird	168. A. D. Cumming	230. R. W. Partridge		
50. W. A. H. Kahn	108. D. R. Campbell	169. A. J. Norrie	231. I. R. Cook		
51. D. J. Robertson	109. R. I. Cowderoy	170. F. J. Humblet	232. P. A. Johnson		
	110. A. D. Piggott	171. J. R. Taylor	233. V. F. Tull		
	1981	172. G. B. Atkinson	234. P. E. Baker		

## BRITISH HOLDERS OF THE 1000km BADGE

1. W. E. Malpas	28.9.81	Pennsylvania, USA
2. M. T. A. Sands	18.4.82	Pennsylvania, USA
3. D. A. Pybus	11.12.82	Australia
4. R. L. Robertson	6.10.85	Pennsylvania, USA
5. D. B. James	19.8.87	FuenteMilanos, Spain
6. Pamela Hawkins	2.1.89	Waikerie, Australia
7. D. G. Lee	25.1.89	Waikerie, Australia

## HOLDERS OF UK 750km DIPLOMA

1. C. Garton	22.7.76	801.3km O/R (Kestrel 19)
2. D. S. Watt	9.5.80	761km (ASW-20L)
3. C. C. Rollings	26.5.85	770.5km (Jantar 2A)
4. T. J. Wills	29.5.86	827.9km (LS-6)
5. A. J. Davis	7.8.90	757km (Discus)

There were two 750km flights in two-seaters in 1990. On July 3 C. C. Rollings and B. Fairston (ASH-25) and on August 7 B. Elliott and D. Francis (Nimbus 3DT) flew 753km.





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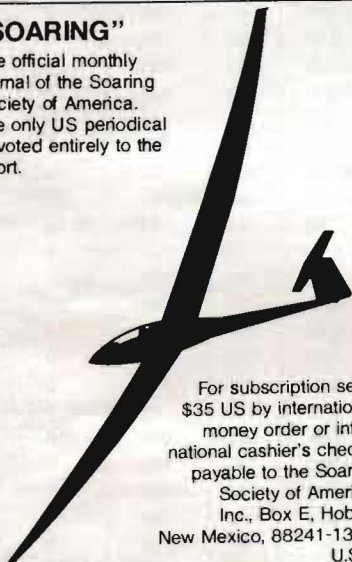
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# ANNUAL STATISTICS

OCTOBER 1, 1989 to SEPTEMBER 30, 1990

GLIDING CLUBS	AIRCRAFT				ALL LAUNCHES	NO. OF AEROTOWS	HOURS	CROSS-COUNTRY KM	MEMBERSHIP		
	Club 2s	Club 1s	PO	Tugs					Flying	Estimated No. of Temporary Members	No. of Female Members
ALTAIR	2	2	3	1	629	49	63	13	12	0	1
ANGUS	2	1	6	0	2532	0	339	603	35	143	8
AQUILA	2	2	11	1	1092	963	264	500	35	75	0
ARGYLL & WEST HIGHLAND	2	0	1	0	1800	13	507	N/K	25	102	3
AVON	5	4	38	4	1950	1950	-	28000	185	1274	30
BATH & WILTS	4	3	18	2	2932	755	964	8000	89	409	7
BLACK MOUNTAINS	2	1	12	1	3108	3108	3508	11 500	98	263	5
BLACKPOOL & FYLDE	2	4	20	0	3743	0	1545	1000	90	70	5
BOOKER	9	11	90	8	15 843	15 843	15 000	250 000	458	2900	26
BORDERS	2	1	19	1	1772	1772	1195	4850	80	210	2
BRACKLEY	1	1	8	0	3501	8	801	1605	51	45	6
BRISTOL & GLOS	4	5	48	3	8585	6340	6945	72 000	246	1042	64
BUCKMINSTER*	2	2	13	1	4020	3720	1093	6180	95	531	7
BURN	4	5	24	1	7807	2853	2720	11 500	140	358	8
CAIRNGORM	1	0	9	0	1144	249	800	500	28	67	2
CAMBRIDGE UNIVERSITY	4	4	42	2	8118	2658	4499	106 704	193	1436	15
CHANNEL	1	3	5	0	3580	0	420	N/K	89	535	9
CONNEL	3	2	1	0	876	0	219	120	22	179	-
CORNISH	3	2	8	0	3443	0	625	895	44	326	1
COTSWOLD	4	3	33	0	10 722	0	4330	38 535	223	728	29
COVENTRY	7	5	76	4	16 247	14 121	8272	84 500	297	1790	27
CRANFIELD	1	1	11	3	1299	1299	777	2150	39	164	2
DARTMOOR	2	1	4	0	-	0	-	0	53	139	6
DEESIDE	3	3	15	3	6380	6259	6478	-	81	931	5
DERBY & LANCS	4	4	27	0	10 669	0	3368	5000	237	1486	27
DEVON & SOMERSET*	3	3	28	1	9641	576	3634	9768	192	903	14
DORSET	3	3	15	1	4500	645	820	N/K	116	1628	10
DUKERIES	1	1	4	0	2647	0	301	510	39	247	3
DUMFRIES & DISTRICT*	2	0	4	0	418	0	45	-	18	40	1
EAST SUSSEX	3	3	10	0	6868	64	1061	N/K	145	1034	16
ENSTONE EAGLES	2	1	10	2	2317	1503	2095	34 000	50	725	6
ESSEX	4	2	25	1	5348	1152	1215	24 000	148	1489	9
ESSEX & SUFFOLK	2	2	16	2	2658	2629	1484	9300	94	499	10
GLYNDWR SOARING	3	3	9	-	2993	0	698	-	60	300	0
HEREFORDSHIRE	1	1	6	1	825	825	774	N/K	44	152	2
HIGHLAND	1	2	4	0	3061	30	471	N/K	38	239	5
IMPERIAL COLLEGE	0	3	2	0	290	80	320	7750	50	50	9
KENT*	3	3	30	2	9419	4091	N/K	N/K	201	1784	-
LAKES	2	2	3	1	1438	1348	421	200	33	151	4
LASHAM	13	0	130	5	42 285	15 475	17 100	366 684	768	3735	120
LONDON	8	5	89	4	27 000	7500	N/K	196 565	340	4810	15
MARCHINGTON	2	0	8	1	1476	1450	675	N/K	88	406	3
MENDIP	2	2	12	0	3694	25	974	2800	86	435	11
MIDLAND	3	4	28	0	12 151	-	5439	25 406	223	795	23
NENE VALLEY	2	2	5	0	2236	27	450	1200	31	248	3
NEWARK & NOTTS	3	2	13	0	3445	18	630	2597	62	270	7
NEWCASTLE	3	1	3	0	-	-	-	500	26	16	1
NORFOLK	4	2	30	2	4365	3913	2758	-	171	837	17
NORTH DEVON	1	0	6	1	550	550	280	750	12	53	0
NORTH WALES	3	2	2	0	3873	0	462	50	50	143	-
NORTHUMBRIA*	3	2	13	1	3372	918	739	500	72	225	5
OXFORD	3	3	12	0	4069	0	1375	12 000	93	577	8
OXFORDSHIRE	3	0	4	0	-	-	1408	-	60	26	3
PETERBOROUGH & SPALDING	3	1	13	2	2598	2368	1365	6500	67	220	3
RAE BEDFORD	1	0	7	0	50	0	N/K	N/K	11	0	0
RAE FARNBOROUGH	2	3	8	0	2932	37	936	7120	58	60	5
RATTLEDEN	2	2	12	0	4668	210	795	8062	63	282	5
RSRE	0	1	0	0	300	-	38	-	10	22	0



SACKVILLE	2	0	4	1	800	350	1000	N/K	18	4	2
SCOTTISH GLIDING UNION	4	4	37	3	8008	5014	5528	N/K	272	1081	23
SHALBOURNE	3	1	15	0	4500	0	1130	4500	86	600	12
SHENINGTON	2	0	2	0	718	129	145	460	20	120	2
SHROPSHIRE	0	0	13	1	630	630	1143	16 100	37	10	1
SOUTH WALES	3	2	20	2	4342	1530	1818	17000	105	1312	10
SOUTHDOWN	3	3	30	3	4800	3600	2600	20000	229	700	25
STAFFORDSHIRE	2	2	4	0	2518	0	431	300	74	222	5
STRATFORD ON AVON	5	2	14		5594	0	668	3193	121	917	7
STRATHCLYDE	3	1	5	1	262	118	110		28	81	0
STRUBBY	2	3	6	0	2652	0	441	580	36	128	2
SURREY & HANTS	0	13			See Lasham Return				293		13
SURREY HILLS	4	1	5	0	2256	0	244		40	775	3
THRUXTON	2	2	6	1	847	847	341		39	342	4
TRENT VALLEY	3	2	20	1	4697	843	1606	6200	81	285	6
ULSTER	1	1	7	1	1258	1252	739	170	39	91	0
UPWARD BOUND	2	0	2	0	1456	0	249	0	26	167	1
VALE OF NEATH	2	1	5	1	1137	97	460	N/K	35	37	2
VALE OF THE WHITE HORSE	2	1	11	0	2785	41	507	19500	45	274	6
VECTIS	2	1	3	1	1036	1036	427	150	32	140	2
WELLAND	2	2	12	0	3124	12	904	10038	50	145	3
WEST WALES	2	1	1	0	576	0	79	0	20	61	0
WOLDS	5	3	31	1	11744	1163	2612	N/K	260	2456	44
YORK	5	3	19	1	8130	1861	1793	5000	141	1050	13
YORKSHIRE*	4	5	35	3	6260	4478	3942	12500	254	1192	7
<b>CIVILIAN CLUB TOTAL</b>	<b>232</b>	<b>185</b>	<b>1410</b>	<b>83</b>	<b>373490</b>	<b>130395</b>	<b>142412</b>	<b>1241108</b>	<b>9045</b>	<b>49794</b>	<b>806</b>
<b>ARMY GLIDING ASSOCIATION</b>											
KESTREL*	2	4	2	1	4597	74	1028	18327	124	642	4
WYVERN	2	4	7	0	6769	0	1726	5888	109	420	11
<b>ROYAL NAVAL GSA</b>											
CULDROSE*	3	2	2	3	2018	1500	471	500	50	209	4
HERON*	3	2	8	1	1800	1303	937	10200	50	60	9
PORTSMOUTH*	7	6	6	3	4500	3000	1050	400	240	200	22
<b>RAF GSA</b>											
ANGLIA	2	3	1	0	3886	196	1080	17243	56		
BANNERDOWN	3	4	6	1	3625	274	1106	19205	100	140	
BICESTER	7	6	21	4	15474	6439	8636	234384	220	720	
CHILTERN	2	3	7	0	5416	148	2017	13763	77	450	
CLEVELANDS	3	4	13	2	4891	1583	1941	29184	107	150	
CRANWELL	2	3	8	1	3959	564	1477	22482	100	300	
FENLAND	2	4	4	0	4934	132	1487	14985	60	40	
FOUR COUNTIES	3	3	5	0	5827	149	1771	24692	63	80	
FULMAR	2	3	1	1	2373	115	386		23	94	
HUMBER	2	3	3	0	2525	63	631	2315	52	200	
LOMOND	1	0	0	0					20	30	
WREKIN	2	3	4	1	6270	737	1573	16873	90	206	
<b>SERVICE CLUB TOTAL</b>	<b>48</b>	<b>57</b>	<b>98</b>	<b>18</b>	<b>78864</b>	<b>16277</b>	<b>27317</b>	<b>430441</b>	<b>1541</b>	<b>3941</b>	<b>50</b>
<b>CIVILIAN CLUB TOTAL</b>	<b>232</b>	<b>185</b>	<b>1410</b>	<b>83</b>	<b>373409</b>	<b>130395</b>	<b>142412</b>	<b>1241108</b>	<b>9045</b>	<b>49794</b>	<b>806</b>
<b>GRAND TOTAL</b>	<b>280</b>	<b>242</b>	<b>1508</b>	<b>101</b>	<b>452273</b>	<b>146672</b>	<b>169729</b>	<b>1671549</b>	<b>10586</b>	<b>53735</b>	<b>856</b>

\* No statistics received. Last year's figures used.



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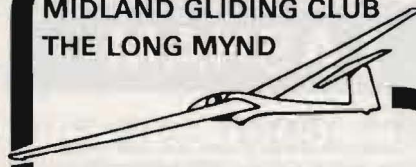
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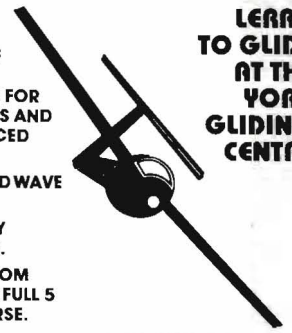
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