UK AIRPROX BOARD

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Selected extracts from UKAB Reports for use by General Aviation pilots:

Book Number 15

Airprox in UK Airspace Involving General Aviation Pilots

FOREWORD

The purpose of this publication is to identify for the GA community some of the flight safety lessons arising from Airprox events which occurred in UK airspace.

Geoffrey Boot, the Member of the UK Airprox Board nominated by UK AOPA - of which he is Vice Chairman - undertook to collate this GA Book. From his extensive GA background, his goal was to select from the main Reports those Airprox which identify lessons of value to a GA audience. Geoffrey has then added his personal commentary which you will find at the head of each of the main sections. GA covers a very wide area, from business jets down to microlights and unpowered flight. The themes that Geoffrey has chosen are applicable to all parts of GA and he has on purpose selected Airprox involving as much of the GA range as possible. As Geoffrey says in his Introduction overleaf, he has elected to use those Airprox from year 2007 in which at least one aircraft was GA and where the Airprox Board assigned a degree of Risk of either A or B. The whole set of such events is plotted on the map on page 3. The particular Airprox in this Book and the information on pages 4-5 have been taken from two main UKAB Reports, Numbers 18 and 19 in the series *Analysis of Airprox in UK Airspace* which together cover the period January~December 2007.

Please keep in mind as you read through the Airprox in this Book that the UK Airprox Board has no intention of allocating blame: the purpose of the Airprox process is to find out what happened and then to disseminate the details so that people can benefit from the unfortunate experiences of others. In this respect, I have no hesitation in paying tribute to those who reported their experiences honestly and openly so that fellow aviators might benefit.

This Book and other UK Airprox Board publications can be found through the 'Publications' page of our website at www.airproxboard.org.uk Please pay us a visit! Another valuable source of 'UK Airprox' information is the CDs that we publish from time to time. These contain not only the most-recent UK Airprox Board publications but also an archive of earlier Books and other safety information. UKAB's CDs are widely distributed to flying clubs; air traffic control units; military units and many other organisations and individuals. We usually have a stock in the office: if you would like one, please make your request to info@airproxboard.org.uk.

In closing, whatever your experience level; whatever you fly, I hope that you will find much of value to safe operations in the pages of this Book.

Peter Hunt

Peter Hunt
Director, UK Airprox Board

INTRODUCTION

I have now been a member of the Airprox Board for nearly two years and sit as a General Aviation (GA) specialist. I come from a purely GA background and have participated in the full range of GA activity from my early days as a Private Pilot through Instructor, CFI, PPL Examiner, participation in Flight Testing, Aerobatics and Air Racing.

I have to admit to an element of early scepticism over the benefits of detailed analysis of what were then Airmisses and are now Airprox but having been a member of the CAA's General Aviation Safety Review Working Group (GASRWG) it is interesting to see how the accidents we review often encapsulate certain characteristics that occur in Airprox.

In this, my first 'GA Book', I have concentrated on three recurrent themes, all of which fall within the High Risk Category of Airprox, i.e. :

A **Risk of collision:** an actual risk of collision existed; and

B **Safety not assured:** the safety of the aircraft was compromised.

There are of course a number of other Airprox which are rated at a Lower Risk Category which could have been included and the statistics on pages 4-5 give an idea of trends and number of incidents.

The three themes that I have chosen are:

Section 1 Flying Close to or Over Active Glider or Para Drop Sites;

Section 2 What in Essence Boils Down to Poor Airmanship; and

Section 3 Failure to Adhere to Prescribed Procedures, Pass or Respond to Information.

Finally, I have added a Section 4 which I have entitled "A Life Saver?" One incident, the 'theme' being that the pilots made some very wise decisions in an effort to minimise the risk of collision in a 'see and avoid' environment: these decisions probably saved their lives.

Sadly, all of the sections lumped together really revolve around poor airmanship and, whilst on occasions bad luck or fate does play a part, looking at the accident statistics we review at GASRWG it is plain to see that poor airmanship and handling skills are a predominant cause of actual accidents so the two (GASRWG and Airprox) link together quite succinctly.

I am a great believer in education and dissemination of information to prevent incidents and accidents, rather than draconian regulation. This 'GA Book' is such a tool. Please read and inwardly digest: there are lessons to be learnt.

Geoffrey Boot

Geographical Location of GA Risk Bearing Airprox ~ 2007

This map shows the location of those ‘year 2007’ Airprox which were assessed by the UK Airprox Board as Risk Bearing i.e. falling into Risk Category A or B and which involved at least one ‘GA’ aircraft.

GA Risk Results

Figure 6 shows the Risk distribution for those Airprox in which at least one aircraft was categorised as GA. More often than not flying outside controlled airspace; in aircraft from the size of microlights through to sophisticated aeroplanes and helicopters; piloted by student pilots through to the very experienced professional, this range of activities and experience levels makes it unsurprising that the largest proportion of Airprox in UK airspace involve GA pilots. As Figure 6 illustrates, over the last three years the 'All Airprox' trend is essentially downwards, albeit the 'GA Totals' for 2006 and 2007 are identical at 103 Airprox in each of the two years. It is noteworthy that the ratio between Risk Bearing and total number of Airprox involving at least one GA aircraft is approximately 4:10. In year 2007 that ratio fell to its lowest level in a decade which is to be welcomed.

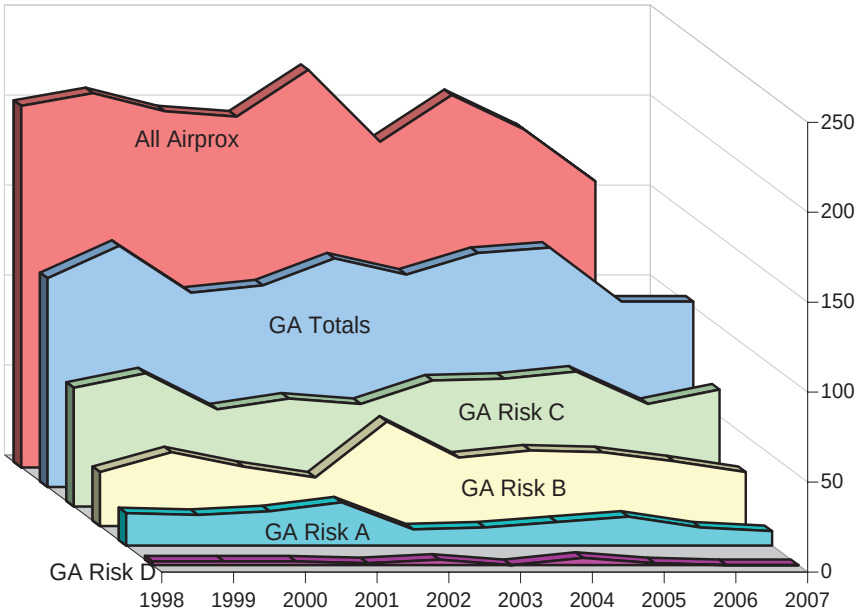


Figure 6: GA Risk distribution 1998 - 2007

Figure 6 is based on the data in Table 5 below. Further visual inspection of the Figure shows that the steady downward trend in Risk Category A and B events over the last two/three years is continuing, this being balanced - in year 2007 compared with 2006 - by a commensurate rise in the number of Risk Category C ('no risk of collision') Airprox. Being involved in an Airprox is one thing - being involved when safety was compromised quite another. It is to be hoped that the GA community will continue to heed the lessons identified from Airprox investigations, particularly those lessons such as maintaining a good lookout; keeping well clear of notified and active gliding sites unless operating therefrom; joining the circuit correctly and both carrying and operating a transponder with Mode C switched 'on' during flight.

Table 5: GA Risk data 1998 - 2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GA Risk A	18	17	19	24	9	10	13	16	10	8
GA Risk B	30	41	33	27	58	38	42	41	36	30
GA Risk C	66	74	54	60	57	70	71	75	57	65
GA Risk D	2	2	2	1	3	0	4	1	0	0
GA Totals	116	134	108	112	127	118	130	133	103	103
All Airprox	201	208	198	195	221	181	207	188	159	154

GA Airprox Rates

The chart at Figure 7 and Table 6 give more information regarding GA Airprox, this time from the perspective of rates rather than absolute numbers. The current 'best estimate' of GA hours flown in 2007 is 1,377,000 hours. Using this and the numbers of Airprox in Table 5, rates have been calculated for risk bearing (i.e. Risk A plus Risk B) and for all GA Airprox. These rates are in Table 6 from which Figure 7 is plotted. Trend lines have been added from which it can be seen that the 10-year trend in rate per 100k hours flown is sloping gently downwards - by visual inspection, more so since year 2002 - for the two groups of events.

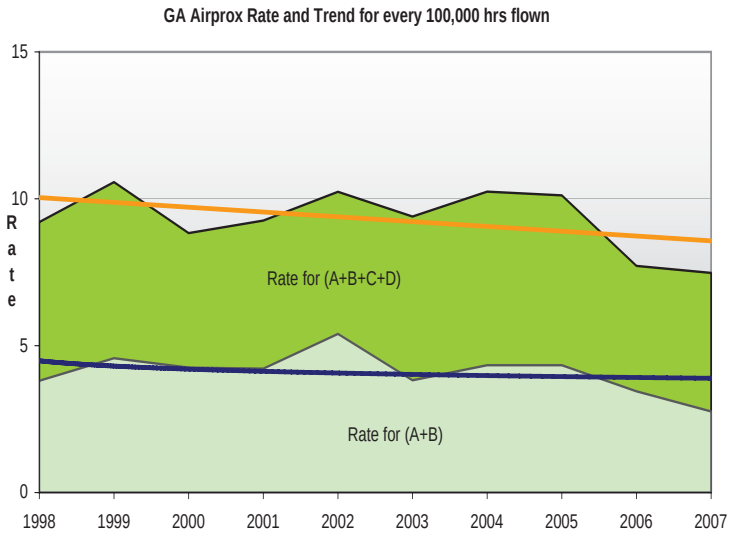


Figure 7: GA Risk rates 1998~2007

Table 6: GA Airprox Rates per 100,000 flying hours

GA Rates	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Rate for (A+B)	3.81	4.57	4.25	4.22	5.40	3.82	4.33	4.34	3.45	2.76
Rate for (A+B+C+D)	9.21	10.57	8.83	9.26	10.24	9.40	10.24	10.12	7.72	7.48
Hours flown in K	1,260	1,268	1,223	1,210	1,240	1,256	1,269	1,315	1,335	1,377

GA Causal Factors

Table 7 below gives the most common causal factors assigned to Airprox involving GA pilots. A total of 40 different factors were assigned to the 103 'GA Airprox' - one Airprox event can have more than one cause. The 'top ten' factors are listed in Table 7. By far the largest numbers involve sighting issues as would be expected when so much GA flying is in the 'see and avoid' environment of Class G airspace. 'Did not see the conflicting traffic' and 'Late sighting of conflicting traffic' were assigned a total of 50 times in 2007, again serving to emphasise the importance of good lookout. These data also serve to remind all who fly in Class G airspace of the importance of full use of an aircraft's transponder further to improve safety.

Table 7: Most common causal factors in Airprox during 2007 having a GA aircraft involvement

Ser.	Cause	Totals:
1	DID NOT SEE CONFLICTING TRAFFIC	28
2	LATE SIGHTING OF CONFLICTING TRAFFIC	22
3	DID NOT SEPARATE/POOR JUDGEMENT	12
4	PENETRATION OF CAS/SRZ/ATZ WITHOUT CLEARANCE	11
5	DID NOT PASS OR LATE PASSING OF TRAFFIC INFO	10
6	DID NOT ADHERE TO PRESCRIBED PROCEDURES	10
7	INADEQUATE AVOIDING ACTION / FLEW TOO CLOSE	7
8	FLYING CLOSE TO/OVER GLIDER OR PARADROP SITE	6
9	CONFLICT IN OTHER TYPE OF AIRSPACE	6
10	POOR AIRMANSHIP	5

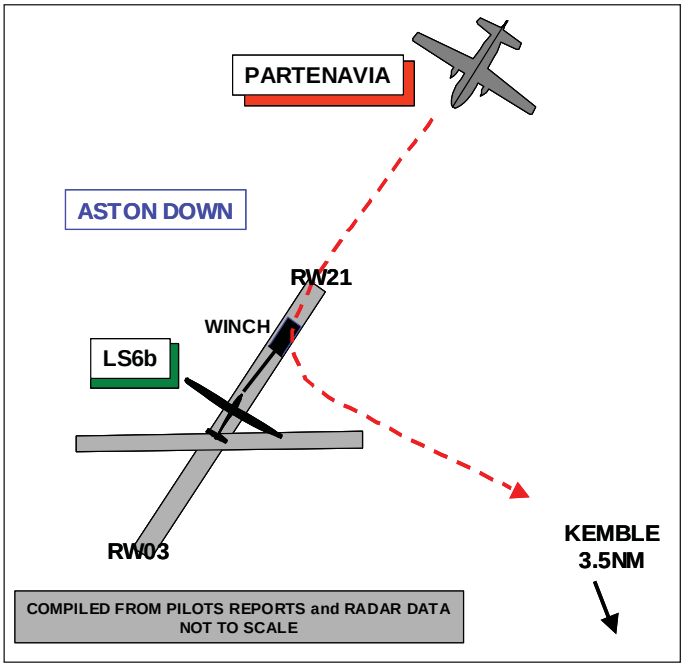
Section 1 Flying Close to or Over Active Glider or Para Drop Sites

Whilst this group does not form the highest number of incidents they are on the increase and there is a widely held belief that many potential conflicts are simply not reported. Luck intercedes on many occasions but there is fear that if the trend continues there will be fatal accidents. Most sites do not have formal zones around them but they are clearly marked on aviation charts and proper pre-flight planning and course following should avoid conflict. However, over-reliance on GPS and Moving Map where such sites are not always featured may be a factor in present trends.

Over-flying an active site, particularly one where cable launching is taking place is an extremely dangerous activity. Firstly the cable will not be visible and secondly there is a likelihood of gliders or para gliders close to the field which are difficult to see, particularly from certain angles. There is also a growing trend for some sophisticated GA aircraft to be equipped with the GA equivalent of TCAS but this relies on other aircraft having a transponder, which is highly unlikely with gliders, so less than useless as the pilot's attention will be in the cockpit rather than scanning for conflicting aircraft.

AIRPROX REPORT No 052/07

Date/Time:	5 May 1225 (Saturday)	
Position:	5142N 00212W (Aston Down Airfield - elev 600 ft)	
Airspace:	Lon FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	LS6 Glider	Partenavia Twin
Operator:	Civ Club	Civ Pte
Alt/FL:	1000ft agl↑ (QFE NR mb)	1000ft (N/K)
Weather Visibility:	VMC CAVOK 6-10nm	VMC NR 10km
Reported Separation:	Not Seen V/200m H	300ft
	(See UKAB Note (2))	
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE LS6 GLIDER PILOT reports that he was launching by winch at 70kt to 1500ft agl in a white single seat glider from the S end of RW03 at Aston Down Airfield. The launch crew reported the sky clear above and behind and he saw nothing airborne ahead. The glider was approaching 1000ft agl in the normal winch launching attitude (nose up 45°) when observers on the ground noticed an oncoming twin-engined ac one mile away on the reciprocal course of 210° lined up on the RW, estimated (by the observers) to be at approximately 4-500ft agl. As the oncoming ac reached the threshold of RW21 it banked hard to the L above the winch and left the airfield in the direction of Kemble at the same height.

The CFI telephoned Kemble Ops and it was confirmed that an ac matching the description was just landing at Kemble.

He saw and heard nothing of the other ac because of the very nose-up attitude and high noise level during winch launching but from what was reported to him, had he launched a few seconds later or the intruding ac been a few sec earlier, there could well have been a collision.

Since he did not see the other ac much of the content of his report relating to the other ac was based on the comprehensive evidence of ground witnesses. Based on the information passed to him, he assessed the risk as being very high.

THE CHIEF FLYING INSTRUCTOR reports that on the current CAA Aeronautical chart 1:500 000 scale, Aston Down is clearly marked as a Gliding site, elev 600ft, with a cable launch capability to 3600ft amsl and it is also denoted as an area of Intense Gliding Activity. Pilots planning to fly through this area on a Bank Holiday Saturday in clear, warm weather at low level should expect to encounter significant glider activity.

Several times every year, pilots of ac inbound to Kemble appear to misidentify Aston Down for Kemble and enter a circuit or even line up on one of the two RWs, ignoring the different RW direction; the wind; the winch; the gliders - both in circuit and on the airfield - and a double-deck control bus parked at the launch point on the runway. It is often the case that these same pilots are in communication with Kemble throughout and only realise that they are mistaken when Kemble reports no sight of them on approach.

Efforts need to be made to bring to the attention of the GA community the great danger inherent in overlying a winch launch site below the advertised cable launch height.

UKAB Note (1): The UKAB does not normally accept reports based on witness observations or from ground staff (other than Air Traffic Controllers). In this case however, due to the seriousness of the incident and the fact that all of the witnesses were closely involved with the gliding operation, one being the Chief Flying Instructor, a composite ground witness/pilot report was submitted and accepted.

UKAB Note (2): The separation was estimated by the CGI as being 600ft V/ 200ft H

THE PARTENAVIA PILOT submitted a comprehensive, candid report describing the event. He reports that he was flying a VFR return journey from Gloucestershire to Kemble with one passenger. His ac is capable of cruising at 180kt so this was a 10min trip and consequently one of high workload with takeoff, cruise, radio changes and set up for landing all occurring in very quick succession. After takeoff, he set course for Kemble by programming his GPS and engaging the autopilot, heading, he thought, 170°. He called Kemble at 10nm and was told to position for 08R so he planned to fly over the airfield at 1000ft and join the circuit at midfield downwind.

At 8nm he thought he had the airfield in sight but although he was expecting it to be straight ahead, the airfield was actually to his right. Although he questioned this, he could see a large asphalt RW which appeared to be of the correct orientation so he considered it must be Kemble. Contributory factors that led to him making this decision were:

1. He had noted that the autopilot did not always track a course with 100% accuracy – being slightly left of track would not be a complete surprise.
2. He was not familiar with the area and had assumed that both South Cerney and Aston Down would be smaller landing strips and most probably grass.

He was so intent on avoiding both Aston Down and South Cerney and, believing them to be small fields, he turned towards the large asphalt RW that he had convinced himself was Kemble, disengaging the autopilot and flying the ac manually. From this point he set himself up to join from the dead side by overflying the RW and positioning downwind. At about one mile from the RW, he called Kemble radio and told them he was about to overfly the airfield to position downwind.

At that point he noted a glider about 300ft above and climbing. He also noted a winch wire (trailing from below the glider) and realised that he was approaching the wrong field so he executed a steep left turn to avoid going underneath the glider. He then called Kemble Radio and told them he had approached the wrong airfield and about one minute later they advised him that Aston Gliding had called them and so he asked them to apologise on his behalf.

After positioning to the S of Kemble to re-orientate himself, he joined the Kemble circuit and landed without further incident. He then got a message to call the CFI at Aston, which he did, agreeing that the CFI would file an Airprox.

He was very disappointed with himself for allowing this potentially fatal situation to occur. He generally prides himself on his airmanship and takes a keen interest in aviation safety. His ac is based elsewhere in England and he is very aware of the glider sites in his home area, ensuring that he gives them a wide berth. His home base has a sample of winch wire on display; a warning of what it might do to a light ac and furthermore he had read a magazine that month which had an article highlighting the dangers of parachute and gliding sites.

Despite self-briefing on the need to avoid both Aston Down and South Cerney, he allowed himself to get convinced he was at the right airfield despite it being to his right and not straight on, simply because he saw what he wanted to see. With hindsight he should have cross-referred his position with other sources available – such as the GPS.

UKAB Note (3): The Kemble entry in the UK/AIP states at 2.20 warnings:

Be aware of proximity of Aston Down gliding centre 4nm NW, winch launching to 3000ft agl.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, the glider CFI and a radar video recording.

There was no doubt that this had been a very serious incident that warranted a full investigation. The Board was informed by the specialist gliding Member - who was familiar with the incident - that there were several very experienced gliding instructors on the ground, all of whom witnessed the occurrence and corroborated the CFI's report which stated that the Partenavia had come very close to the winch cable. It was also pointed out that the winch driver at the time of the incident had been the CFI and that he had seen the Partenavia which necessarily meant that it had been forward of him - i.e. between the winch and the cable - as there is no visibility rearwards due to the structure of the winch cab. The specialist gliding Member was of the opinion that the Partenavia had actually been making an approach to RW21 at Aston Down, overshooting over/round the winch.

The symbol on the CAA ½ million chart (and to a lesser extent the ¼ million since the symbol is similar but twice the size) for a gliding airfield (with no other collocated activity which also required promulgation) although clear is not prominent and one GA Member considered that this might be a reason for the high number of overflights by GA ac of Aston Down. In addition, although Aston Down is annotated on both maps as a 'Glider Launch Site', it is also annotated on the ¼ million as a 'Disused or Abandoned Aerodrome' which could be confusing since it is far from disused or abandoned and very active, primarily with gliders, motor gliders and occasionally tugs. That said, it is not obvious from the charts that although the **main** runways at Aston Down and Kemble are not in the same direction, Aston appears to have 3 runways all the same length, one in roughly the same direction as 08/26, the main runway at Kemble. None of these factors however nor his unfamiliarity with the area nor his (self-imposed) high workload were considered by the Board to excuse the Partenavia pilot's poor navigation and resulting misidentification of his destination airfield. The comment in his report stating the he "saw what he wanted to see" was considered as a most important Human Factor that all aviators would do well to note. Bearing this in mind it

is most important to check all available information before changing one's plan rather than acting on a single source.

Another Member pointed out that there are now a number of large airliners being dismantled on Kemble, easily visible from all directions, which provide a good and unique 'marker' for the airfield, although the Partenavia pilot, who normally operated in and from another part of the country, would not necessarily have known this.

There was much discussion regarding the degree of risk. As there was no externally verifiable information such as transponder Mode C recordings, Members decided that as the Partenavia pilot had seen the glider, albeit very late, his avoiding action had been enough to remove any actual risk that the 2 ac would collide. The proximity of the Partenavia to the winch cable meant that the safety of both ac had however been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Partenavia pilot entered a promulgated and active glider site and flew into conflict with the glider on a winch launch.

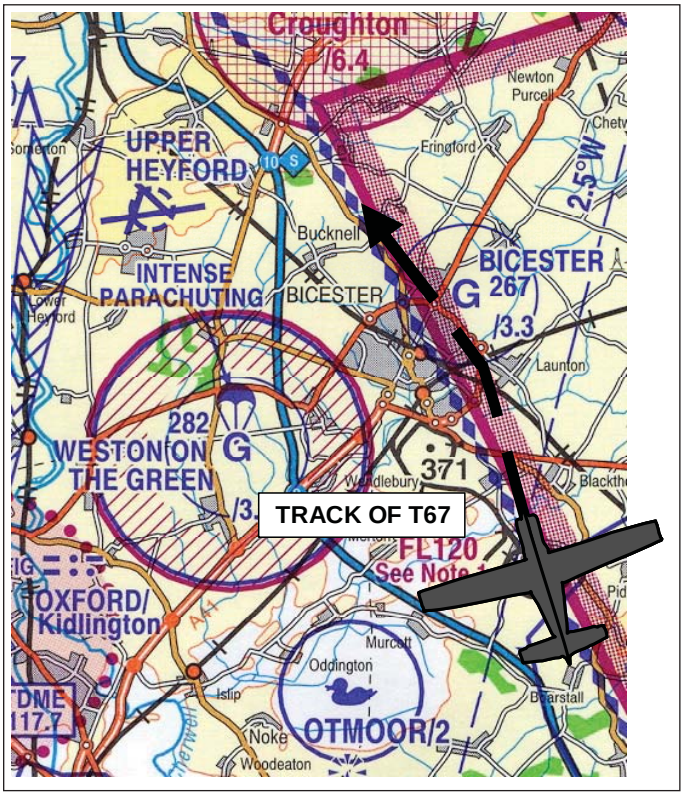
Degree of Risk: B.

Post Meeting Note: The Military Low Flying Advisor to the Board pointed out that for military ac Glider sites attract a mandatory avoidance of 2nm (normally), up to 2000ft agl. The size and number of such avoidances is currently under review.

AIRPROX REPORT No 081/07

Date/Time: 6 Jun 1631
Position: 5155 N 001 08 W (Bicester Airfield – elev 267ft)

Airspace:	Lon FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Ask 13 Glider	Slingsby T67M
Operator:	Civ Club	Civ Pte
Alt/FL:	1200ft (QFE)	~2000ft (N/K)
Weather Visibility:	VMC CLBC >10km	VMC HZBC HAZE
Reported Separation:	50ft V/10m H	NR
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ASK 13 GLIDER PILOT reports that during a normal local training flight he was teaching thermalling technique while soaring with another glider. He was climbing through 1200ft at 45kt in a thermal with the other glider 100ft below him on the opposite side of the thermal circle so he was maintaining a good lookout with respect to it. He then noticed a landing light about 200m away on his right side, at the same level and approaching rapidly. He took control from his student, dived the glider and rolled his wings level to get out of the way and the ac passed just to their side, 50ft above them. He noticed that it was yellow with a blue spinner and was a Slingsby T67, possibly with a blue underside. The T67 maintained straight and level flight, heading approximately 270° at about 1200ft AGL. The ac then flew directly overhead Bicester airfield where winch launching up to a height of approx 1400ft AGL. He assessed the risk as being very high.

THE SLINGSBY T67M PILOT reports that at that time the incident was reported to have taken place he was flying from Redhill to Wellesbourne at 100kt and squawking 7000 with Mode C. His track was over Bicester town, avoiding the Weston on the Green and Bicester gliding sites. He has no recollection of seeing any gliders at any time during the flight.

He added an addendum to his original report the following day:

He was notified of the incident 3 weeks after it had taken place and it took him some time to recollect and reconstruct the possible sequence of events.

The flight, planned on the previous day, was a private one from Redhill to attend an aerobatic instructor seminar at Wellesbourne Mountford. The route was Redhill – Bagshot – Woodley and then from a point S of Wescott direct to Wellesbourne. This point, which was programmed into his GPS, was N 51 46.500 W 000 58.000, on the W side of Thame gliding site. The track from there to Wellesbourne was marked on his map and the proximity of various gliding sites (5) was noted but, in retrospect, not noted sufficiently. Although he had frequently flown the route Redhill-WOD-WCO and then further N, he had not flown before in the area N of Oxford or Wellesbourne.

He cannot remember the weather exactly but it is his impression that it was hazy with a cloud base of around 2000': he was VFR/VMC throughout.

He dislikes flying over towns, both for safety reasons and to avoid annoyance and he recalled that he approached Bicester, debating whether to pass left (SW) or right (NE) of it. He thinks he must have looked at the map and subconsciously registered the more 'dangerous' left side (D129, parachutes etc) and did not register the danger on the right side (the Bicester gliding site). He thought that it might have been partly obscured by his black conte pencil track mark which, along with the town, AIAA and airspace markings, might have rendered the Bicester site difficult to see. He must have flown close to, or over the site, and it was presumably hereabouts that the Airprox took place. He still had no recollection of seeing any gliders, or indeed the glider site itself.

With hindsight, he thought that he had displayed poor airmanship but took the following lessons from the incident:

> The route should have been planned to avoid that area, or at least 'dangerous places' that might be difficult to see should have been noted more carefully.
>
> He tends not to use Flight Information Services routinely because he feels that they can lead to a false sense of security that does not actually exist. However, here it would have been sensible to ascertain the status of D129 from Brize which, if it were inactive, would have allowed the 'safer' SW route to be taken round Bicester.
>
> He noted that as the Airprox Board has said many times in the past – gliding sites should be treated with the utmost caution and given as wide a berth as possible.

Two observations have occurred to him as a result of the episode:

> Might gliding sites be better represented by a symbol of a glider, rather than a G? There are already symbols representing various hazards: parachutes, hang gliders, masts and ducks.
>
> Might it be possible for GPS database providers to represent glider sites on their maps?

He tendered his apologies to the Board for taking up their time with an incident that could and should have been avoided. He also tendered his sincere apologies to the glider pilot, extending his thanks for his/her good airmanship which avoided an accident while this example of bad airmanship blundered through their airspace (sic).

UKAB Note (1): The recording of the Clee Hill Radar at 1528 shows a contact, presumed to be the Firefly, SSE of Bicester squawking 7000 with Mode C indicating 1700ft alt, tracking about 340°. At 1529:31 a primary contact appears in its 12 o'clock at ½nm but disappears on the next sweep. The Firefly turns about 20° to the left and tracks ½nm to the W of Bicester Airfield datum. No other contacts are seen until after the Firefly passes to the W of the airfield and then not in close proximity to the Firefly. The incident is therefore not seen on recorded radar.

UKAB Note (2): Bicester is promulgated in the UK AIP ENR 5-5-1-1 as a Glider Launching Site (by winch/ground tow (W) and tug aircraft/motor glider (T)) up to 3000ft agl.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac and a radar video recording.

The Board commended the T67 pilot for his comprehensive, open and honest report which stated that he had unwittingly flown very close to the Bicester gliding site. Members noted his analysis of why the incident had happened and in many respects were sympathetic to his explanation, agreeing that his report (above) had identified the key issues in this Airprox. The root cause of the incident had been inadequate planning, Members trying to determine why this had occurred with such an experienced pilot.

The Oxford area is very congested and is not easy to transit due to the proliferation of hazardous and prohibited areas. Great care must be taken therefore and even then mistakes are sometimes made. A Member with an in-depth knowledge of the area in which the incident occurred noted that, given the complexity of the area and with no prior knowledge of the relative danger presented by the various hazards, the T67 pilot's selected track was reasonable (other than in its proximity to the glider site). Although it probably had no bearing on the incident, Members considered however that it is unwise not to use a FIS routinely.

[UKAB Note (3): It was pointed out that the black and white photocopy of the CAA VFR ¼ million chart reproduced in the diagram above is not fully representative and that the actual chart should be used to judge any charting issues in this Airprox.]

The Board noted that on a similar but more serious incident (Airprox 052/07) there had also been criticism of the depiction of glider sites on CAA VFR charts. The Board examined the relative hazard of the activity at various areas depicted on the ¼ and ½ million CAA VFR charts. Members considered that the relative prominence of the areas in the vicinity of the incident (on the ¼ million chart) appeared to be almost the reverse of the degree of hazard that the activity therein presented to aviators. The Board observed that gliding - particularly winch, and to a lesser extent aerotow launch - sites present a very significant hazard to all ac that are operating below the maximum launch altitude, much more so than say areas of bird concentration. That being the case, Members unanimously considered that the relative conspicuity of the depiction of glider launch sites on VFR charts should reflect these different degrees of hazard. The Board noted that different map/chart producers depict the activities presenting a hazard to ac, as listed in the UK AIP, in different ways. Since there are many such producers marketing electronic and/or paper charts, it would not be

practicable to locate them all so that the UKAB could offer comment on all their charts. Members were informed, and agreed, that glider launch sites stand out much more clearly on the UK Military Low Flying Charts where they attract a **mandatory** avoidance, normally of 2nm.

There was discussion regarding the use of paper or electronic mapping, both having their merits; there is no substitute for meticulous flight planning and route study.

In the event however it had been an error of route planning that had led to a degradation of the normally acceptable safety standards.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause:	The T67 pilot flew through a notified and active glider launch site and into conflict with a glider which he did not see.
Degree of Risk:	B.
Recommendation:	The CAA should review the depiction of glider launch sites on VFR charts with a view to making them more conspicuous.

Note - The CAA responded to this Safety Recommendation as follows: *The CAA's Directorate of Airspace Policy has reviewed the symbology on CAA VFR charts for the depiction of glider sites and agrees that at the location in question, around the Bicester area, the glider symbol is hard to detect in the busy airspace. In an effort to improve the depiction, not only at this location but nationally, a decision has been taken to increase the line weight on all gliding circles - both at primary locations and also where gliding is a secondary activity. As this is such a minor change - and is being carried out to enhance aviation safety - there is not considered to be a requirement for further consultation. Consequently, Ordnance Survey will make these amendments to the specification and have confirmed that they will be included for the first chart of the 2008 flying season - the 1:250,000 Sheet 8 England South.*

Section 2 What in Essence Boils Down to Poor Airmanship

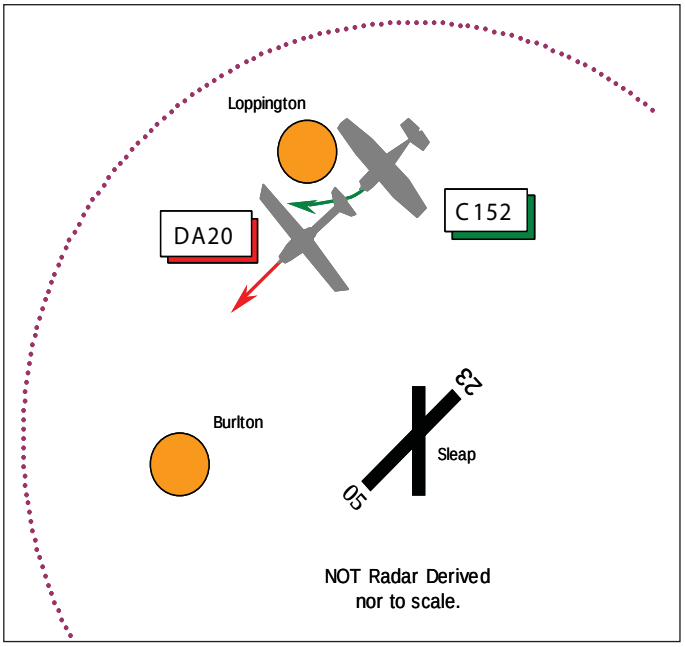
As discussed in the Introduction, poor airmanship and handling skills account for a large majority of actual accidents and grouped together form the largest cause of incidents/Airprox. Poor airmanship covers a multitude of sins but looking at incidents it is plain to see that improper planning and inadequate look-out, resulting in late sighting or non sighting of conflicting traffic, plays a large part in these airmisses. As aircraft become more complex pilots tend to spend more time with their eyes in the cockpit rather than looking around. When flying VFR it means just that, unless you are under ATC control, and even then in VFR conditions as commander of the aircraft you are responsible for keeping a good look-out

When instructing I try to instil the importance of this life-saving philosophy. I frequently fly with people later in their piloting career, when they should know better, who regard look-out as of secondary importance and pay the visual equivalent of lip service to it. The following reports make for interesting reading.

AIRPROX REPORT No 173/07

Date/Time: 16 Dec 1205 (Sunday)
Position: 5250N 00246W (DOWNWIND Leg to RW05 at Sleap A/D - elev 275ft)

Airspace:	ATZ	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	C152	DA20
Operator:	Civ Club	Civ Trg
Alt/FL:	1000ft QFE (1028mb)	1100ft↓ QFE (1028mb)
Weather Haze	VMC In Haze	VMC In
Visibility:	6-7km	8km
Reported Separation:	20ft V/100ft H	NR
Recorded Separation:	Not recorded	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE C152 PILOT reports that his ac has a red/white colour scheme and the HISLs were on whilst flying in the LH circuit for RW05 at Sleap. Flying in VMC some 1000ft clear below cloud with an in flight visibility of 6-7km in haze, he was in communication with Sleap RADIO A/G Station on 122·45MHz. Whilst on the LH DOWNWIND leg heading 230° (M) level at the circuit height of 1000ft QFE (1028mb) at 90kt, another pilot was heard on RT reporting DOWNWIND. A DA20 was then seen passing some 20ft above his C152 about 100ft away on the same heading. He altered course to give clearance on the DA20 and radioed its pilot to warn of the proximity of his own aeroplane. The DA20 pilot replied that his C152 had not been seen beforehand. He assessed the risk as *"high"*.

THE DA20 PILOT, a flying instructor with a student, reports flying inbound to Sleap from Enstone and in communication with Sleap RADIO A/G Station on 122·45MHz.

Flying in VMC some 1500ft clear below cloud with an in-flight visibility of 8km in Haze there was no cloud at their height as they descended through 1100ft QFE (1028mb) heading 230° at 105kt on the DOWNWIND leg to RW05. The C152 flown by the reporting pilot was not seen and they were not aware of their aeroplanes proximity to it until afterwards. Neither the minimum separation nor the risk was assessed.

Unfamiliarity with local procedures and a misunderstanding of them was cited as a contributory factor. Another student had previously been sent to Sleap and a briefing had been received at this time on how to carry out a 'centre-line' join. On the day of the Airprox the Instructor called up again and was asked to confirm whether familiar with the local procedures and said that they had been briefed on them. The line entry in the flight guide saying centre-line joins were only used on weekdays had been missed. (Also when the briefing on that centre-line join was given it was understood [erroneously] as: "join overhead at 2000ft QFE; lose 500ft on CROSSWIND and 500ft on DOWNWIND".)

UKAB Note (1): During a subsequent telephone call with UKAB Secretariat staff the DA20 instructor reaffirmed that no RT calls from the C152 pilot had been heard and neither the instructor nor the student were aware of the presence of the C152, either in the cct or DOWNWIND before it's pilots RT warning transmission.

UKAB Note (2): On this Sunday a standard overhead join from 2000ft QFE should have been flown.

UKAB Note (3): This Airprox is not shown on recorded radar data.

UKAB Note (4): The UK AIP at AD 2-EGCV-1-3 AD 2.17 promulgates the Sleap ATZ as a circle radius 2nm centred on the longest notified runway (05/23) extending from the sfc-2000ft above the aerodrome elevation of 275ft amsl.

UKAB Note (5): Section AD 2.3 Operational Hours states: Winter Fri-Wed 0930-1700; Remarks *"This aerodrome is strictly PPR by telephone (briefing must be obtained)"*.

Section AD 2.18 ATS Communication Facilities states that an A/G Service C/S Sleap RADIO is available as A/D hours above on 122·45MHz. Remarks states: ATZ hours are coincident with the A/G hours.

Section AD 2.22 Flight procedures states a) Circuits variable…Note: A full briefing must be obtained by telephone prior to departure.

UKAB Note (6): The 2007 Pooleys Flight Guide states that the aerodrome is operated in conjunction with RAF Shawbury during weekdays. PPR and briefing essential for centreline joining procedures. Airfield situated within Shawbury MATZ.

Following Procedures apply during ***weekdays*** only:

- Pilots must contact Shawbury Approach 120·775MHz for MATZ clearance.
- No deadside. Join overhead centre line at 2000ft QFE
- Civil Fixed/Rotary Traffic – all circuits to east of aerodrome
- Beware of intensive military helicopter activity.

Standard overhead joins at 2000ft QFE at all other times.

Circuit height 1000ft QFE.

Circuits should be contained within the ATZ.

UKAB Note (7): During their assessment of Airprox 136/07, Members expressed concern regarding anomalies in aerodrome procedures at Sleap published in the AIP, Pooleys Flight Guide and Operation Brief as to when standard O/H joins are permitted. The Board therefore charged the Director with writing to the Aerodrome Operator requesting them to review the relevant documentation with the aim of ensuring commonality amongst the various documents. To date no reply has been received on this topic.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac.

The frank account from the Diamond DA20 instructor pilot was commendable and it was evident that although an aerodrome briefing had been obtained on a previous occasion, as is required, the DA42 instructor had not used the correct cct procedures for use on a Sunday when no military helicopters were operating there. Notwithstanding concerns raised during the investigation of a previous Airprox over commonality amongst the various documents, the published entry in the commercial flight guide that the instructor referred to was correct and seemed plain enough. It was also clear that a standard overhead join from 2000ft QFE should have been flown, but this particular line in the entry had been missed entirely. Members were in little doubt that flying the centre-line join incorrectly, by descending on the DOWNWIND leg, left little opportunity for either the DA20 instructor or the student to spot the circuiting C152 beneath them as they were both completely unaware of it beforehand. This incorrect cct join was fundamental to the cause of this Airprox, insofar as this was contrary to established procedures and did not allow the DA20 pilots to integrate into the traffic pattern correctly. Some Members were surprised that RT calls had not advertised the presence of the other ac, but as Sleap provides only an A/G Service no transcript of what was actually said on the RT was available. Although there was no reason to doubt that appropriate cct calls were made at the time, why this had not alerted the DA20 instructor to the other ac was not clear, nor conversely warned the C152 pilot before he heard the DA20's DOWNWIND call. The unanimous conclusion of Members was that this Airprox had resulted because the DA20 instructor did not integrate into the circuit correctly and descended into conflict with the C152 which was not seen.

Turning to the inherent Risk, it was evident from the C152 pilot's report that whilst he had turned to increase the separation and thus remain clear, he was only aware of the DA20 after it had overtaken his slower ac from astern as it flew into his field of view ahead, after presumably being masked above him by his aeroplane's mainplane. Therefore with none of the pilots involved aware of each other's ac as the DA20 descended from above and overhauled the C152, any separation that did exist was purely fortuitous. In the absence of any recorded radar data, the Board could only rely on the C152 pilot's report which stated that he saw the DA20 a mere 20ft above his aeroplane and about 100ft away. The Members agreed, again unanimously, that at these distances an actual risk of collision had existed in the circumstances conscientiously reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

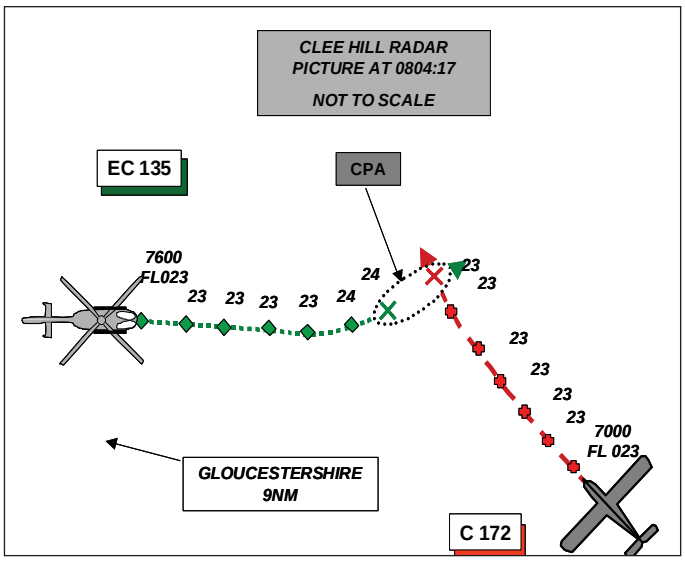
Cause: The DA20 instructor did not integrate into the circuit correctly and descended into conflict with the C152 which was not seen.

Degree of Risk: A.

AIRPROX REPORT No 142/07

Date/Time: 21 Sep 0804
Position: 5153N 00155W (9nm E Gloucestershire Airport)

Airspace:	Lon FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	EC135	C172
Operator:	Civ Trg	Civ Pte
Alt/FL:	2300ft (QNH 1014mb)	2300ft (QNH NR)
Weather Visibility:	IMC KLWD 0-1000m	IMC KLWD IMC
Reported Separation:	0 V/500m H	Not Seen
Recorded Separation:	100ft/ 0.3nm	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC135 PILOT reports flying a training flight with a trainee pilot in the RHS on a local flight from Gloucestershire, in receipt of an APP service from them and squawking 7000 with Mode C. His trainee was the HP and they were flying level at altitude 2300ft and had been heading 080° at 100kt but had just commenced the base turn pilot for NDB/DME approach to RW27. Part way through the turn he saw what he thought to be a Cessna 172 about 500m ahead of his ac level on a NW track. The Cessna was flying in and out of cloud, as were they, the cloud structure being about 6/8 with a base of 2000ft with the tops at about 4000ft. He took control from the trainee and stopped the left turn in order to pass safely behind the Cessna. He assessed the risk as being very high.

THE C172 PILOT reports flying a private VFR flight routeing, White Waltham, CPT direct to Berrow (near Ledbury) at 115kt. The weather enroute was forecast to be VFR in the Thames Valley and Severn Valley with cloud on the Cotswold Ridge to the E of Cheltenham. After continuing for 6nm on a heading of 270° beyond CPT he requested a VFR transit through Brize Zone at 2000ft but due to the heavy traffic level he was given a routeing, off his planned route which went through the Gloucestershire overhead, flying instead but one mile to the E of Brize Norton followed by 'own navigation'. This took him overhead Little Rissington and Bourton on the Water and 3nm beyond Bourton he set the GPS direct track to Berrow however, mindful of the instrument approach to Gloucestershire he intended to route to Winchcombe before turning on track to Berrow. There was a small band (5nm wide) of cloud over the Cotswold ridge which he was flying through at 2300ft heading 284° when he heard the other ac inform Gloster APP of an Airprox. Within a few seconds of this he returned to VMC again and he noticed that he was just to the S of Winchcombe and he did not see any other ac. After leaving the Brize Zone frequency he had been listening out on Gloster APP and did not hear any other aircraft on the frequency. On hearing that an Airprox had been filed he called Gloster APP and gave his approximate position and details and later on landing at Berrow he telephoned them.

He offered the following comment; henceforth he will:

1. Attempt to use a radar service when available even for brief periods IMC.
2. Establish 2-way communication with ATC when in the vicinity of an instrument approach
3. As operating from Berrow 9nm NW of Gloucestershire discuss with them their preferred routings for his regular flights in their vicinity.

He also thought that the CAA 1:500000 maps should show the Gloucestershire instrument approach, as extending the full 10nm and not 6nm as shown on the map, which he thought was misleading. He further suggested that with the increase in commercial aviation over the last 5 years has made Gloucestershire a popular destination for instrument training and consequently their instrument approach has gone from occasional to frequent use. Ac leaving the Brize Zone heading to the W are only 10nm from the Gloucestershire instrument approach and since frequently there is cloud on the Cotswold Ridge, an early handover to Gloster [Radar] would be extremely helpful when such conditions prevail.

UKAB Note (1): The recording of the Clee Hill Radar shows the incident clearly. The C172 approaches the incident area tracking 320°, indicating FL023, with the EC135 in its 11 o'clock tracking generally Eastwards and also indicating FL023 but it climbs to FL024 (2430ft amsl) two sweeps before the CPA.

UKAB Note (2): The Gloucestershire METAR for 0750 was:

EGBJ 210750Z 21012KT 9999 FEW013 SCT020 BKN035 16/12 Q1014=

ATSI reports that Gloster ATC was operating a combined TWR/APP service, without the use of radar. The EC135 was carrying out an IFR approach while the C172 pilot was only listening out on the frequency; consequently, ATC was not aware of the confliction between the subject ac until the EC135 pilot reported it to them. (The C172 contacted the frequency after hearing the report). No ATC causal factors were revealed.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, a radar video recording, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

Members noted that this incident had occurred in Class G airspace where the pilots shared a responsibility to see and avoid other ac and in this case both pilots were poorly placed to do this since they chose to operate IMC, in cloud, without a radar service. Fortunately, a large enough gap in the clouds appeared just in time for the EC135 instructor to see the C172, 500m (10 sec) ahead and take effective avoiding action. The Board unanimously agreed that flying in IMC through Class G Airspace without a radar service is unwise and has an inherent risk attached since the 'see and avoid' principle is dispensed with without any back-up method whatsoever of detecting other ac. The Board noted that the C172 pilot acknowledged this in his report. They also noted that, since the EC135 was known traffic to Gloster APP and was in receipt of a procedural service, they might have been able to give the C172 pilot a warning of its presence and approximate area of operation had he called them; in the event, since he was only listening out, he received no such warning.

It is acknowledged that Gloster APP do not always provide a radar service to either locally based ac or to transit traffic and they have no obligation to do so. That being the case, Members suggested that pilots operating in that area should fly at an altitude that allowed the local LARS service providers namely Brize Norton, Bristol or Filton to provide such a service if they are forced to fly in IMC.

Since both pilots deliberately placed themselves in a situation where they were not able to detect the presence of any other ac, the Board agreed that safety had not been assured; the EC135 pilot's avoidance manoeuvre however had ensured that there was no risk of collision.

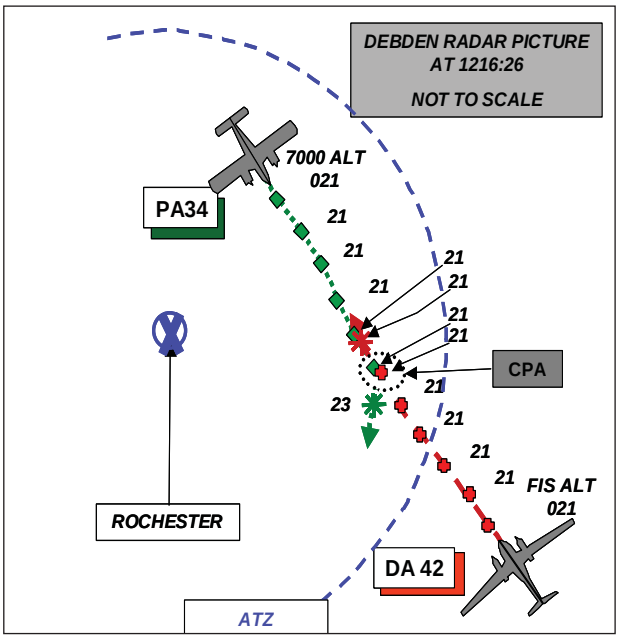
PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G Airspace resolved by the EC135 instructor.

Degree of Risk: B.

AIRPROX REPORT No 158/07

Date/Time:	4 Nov 1216 (Sunday)	
Position:	5121N 00034E (Rochester - elev 426ft)	
Airspace:	Rochester ATZ	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	PA34	DA42
Operator:	Civ Pte	Civ Pte
Alt/FL:	2000ft (QNH 1029mb)	2300ft (QNH NR)
Weather Visibility:	VMC CAVOK >10km	VMC CAVOK 10km
Reported Separation:	Nil V/<50m H	100ft V/150m H
Recorded Separation:	0 V/<100m H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PA34 PILOT reports flying a red and white ac with strobes and landing lights selected on squawking 7000 with Mode C but with no TCAS fitted, on a private VFR flight from Elstree to Lydd, routeing via Rochester.

He established radio contact with Rochester prior to entering their ATZ, heading 150° at 145kt, and was given a FIS. They specifically requested information on other traffic and were told about another ac in the ATZ, [seen on the radar recording but not shown on the diagram above] which was not the one involved in the Airprox. They called passing about 1nm E abeam when, moments later they saw what appeared to be a white Diamond DA42 very close (estimated to be 100m away) at their level and coming straight towards them from their 11 o'clock position, out of a blind spot behind the engine nacelle. He immediately commenced a right descending turn. The DA42 pilot did not appear to have seen them and he assessed the risk as being very high. Rochester Information advised him that the DA42 was not in contact with them.

THE DA42 PILOT reports flying a white and red ac on a local private flight from Stapleford, squawking as directed by London Info who were providing him with a FIS. He was in the Chatham area just before the Thames in good visibility, straight and level, heading 310-320° at 135kt and in that position he would normally have been flying at around 2300ft on the London QNH. He looked down to make a note on his log sheet and when he looked back up he saw a PA34 300m away in his 11 o'clock which had already started turning to the right of his track; he then also initiated a similar right turn and assessed the risk as being Medium.

UKAB Note (1): Rochester has an ATZ of 2nm radius up to 2000ft aal (2426ft amsl) active from 0700-1700 (Winter).

UKAB Note (2): An analysis of the recording of the Debden radar shows both ac throughout the event. The PA34 is squawking 7000 with Mode C and the DA42 is squawking a London FIS squawk also with Mode C. The PA34 approaches the incident position on a track of 140° indicating 2100ft on the London QNH of 1030mb while the DA42 also indicates 2100ft and approaches the incident position on a track of 320°, almost directly in the PA34's 12 o'clock. The ac pass head to head within 100m of one another crossing 1.5nm ESE of Rochester at 2100ft at 1216:19. On the sweep after the CPA the PA34 can be seen to have turned sharply to the R and climbed to 2300ft but the DA42 did not appear to alter course or alt.

THE ROCHESTER FISO reports that the PA34 pilot had just reported passing overhead the airfield at 2000ft QNH and routeing towards the SE. Twenty sec later he noticed that the ac was carrying out a steep dive so he asked the pilot if he had a problem to which he responded that he was taking avoiding action against a DA42 which was on a reciprocal heading, at the same alt (1574ft QFE) and inside the ATZ. He informed the pilot that the unknown DA42 was not on frequency. At the time the ATZ was very busy with inbound and departing traffic. The PA34 pilot passed his details which were recorded.

The Rochester weather at the time was recorded as:

041150z 01013kt 9999 sct030 Q1029

ATSI reports that there were no ATC aspects to this incident.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar video recordings, reports from the FISO involved and a report from the ATC authority.

A GA Member noted that this incident had taken place in a busy area of GA operations where the base of CAS is 2500ft thus 'letterboxing' traffic.

Members noted that the PA34 pilot had correctly called Rochester when transiting their ATZ and was given the information necessary to fly safely through the area. The DA42 pilot, on the other hand, was not aware of his position (as witnessed by the radar recording) or that he had entered the ATZ. Notwithstanding this Members unanimously agreed that even when planning to fly close to an ATZ it is wise to call them and advise one's intentions so that information can be passed to other pilots in the area. This is particularly important near aerodromes that are manned by a FISO, since his information source is limited to pilots' radio reports. In this case the FISO was not aware of the presence of the DA42 so he was unable to inform the PA34 pilot about it so that he could see it earlier and thus avoid it.

The radar recording verified that the incident took place within the Rochester ATZ which is Class G airspace where 'see and avoid' pertains. One Member noted that sometimes pilots assume that when within an ATZ they are in a known and notified traffic situation and allow their lookout to be less vigilant however, as this incident amply demonstrates one should always be cognisant of unexpected traffic. Although both pilots saw the opposing traffic, both had done so very late indeed (about 100m). At a closing speed of about 300kt (150m/sec) this gave both pilots under a second to effect meaningful avoidance. Members were unable to resolve the apparent anomaly of the PA34 pilot and the FISO noting that the ac descended while the radar recording apparently showed a climb. This was however not considered to be important as it was agreed that, since both pilots saw the opposing ac in their 11 o'clock and turned right, they were not going to collide even if the avoidance was only partially effective or even ineffective. The lateness of the sightings however meant that safety had not been assured.

PART C: ASSESSMENT OF CAUSE AND RISK

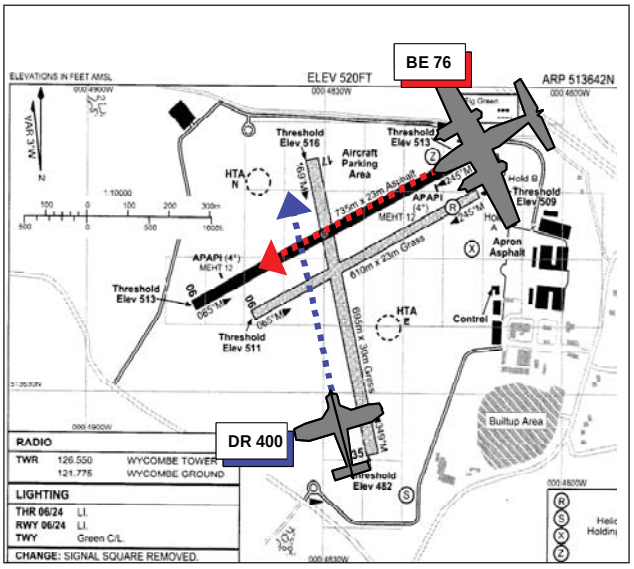
Cause: Late sightings by both pilots.

Degree of Risk: B.

AIRPROX REPORT No 157/07

Date/Time: 3 Nov 1038 (Saturday)
Position: 5137N 00049W (Wycombe Air Park – elev 520ft)

Airspace:	ATZ	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	BE76	Robin DR400
Operator:	Civ Pte	Civ Pte
Alt/FL:	0ft (QNH 1032mb)	↑50ft (QFE 1013mb)
Weather Visibility:	VMC CAVOK >10km	VMC CAVOK >10km
Reported Separation:	30ft V/0m H	50ft V/Nil H
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BE76 PILOT reports flying a blue and white ac with all lights switched on on a private IFR flight to Deauville. He was squawking 5532 with Mode C and S and was in contact with Wycombe Tower who had cleared him for take off on RW24. The wind was Northerly and the active RW for the separation of ac and gliders was RW35. He had been given notice of a glider high in the 1 o'clock of his take off track and had it in sight. The take-off roll was normal and the rotate speed of 71kt IAS was reached after about 250m [150m before the RW intersection]. After a final check of the glider and his instruments he was about to initiate rotate when a blue and white glider tug [without a glider] entered his peripheral vision 100 to 200m away and slightly to port [on RW35]. It was rotating so he deferred his rotation and as their tracks intersected the Robin crossed above him by about 30ft. He rotated at 85kts and continued to take off normally.

Other than the above he was not able to take any avoidance and he assessed the risk as being very high.

THE ROBIN DR400 PILOT reports flying a blue and white ac with a white strobe selected on on a private VFR flight to Bembridge with a passenger. SSR was fitted but at the time was switched off, and he was in communication with Wycombe TWR. They had been cleared by ATC on the TWR frequency to cross the active RW (35) to the glider side, which operates non-radio. He continued to listen out on the TWR frequency and so he did not hear the ADC asking the glider launch point on 129.975 [the gliding common ground frequency] if it was okay for an ac to take off on RW24 nor did he hear the other ac's clearance to use RW24 [on the TWR frequency]. From where he did his power checks it is not possible to see ac at the threshold of RW24 due to the rise in the ground. Having first visually determined that there were no ac on the approach to the glider side he started his takeoff run. The ac taking off on RW24 was sighted to his right at about 65kt, too late to stop before reaching the intersection with RW24 and he determined that it was safer to continue with the take off crossing about 50ft above the BE76.

He assessed the risk as being high.

ATSI reports at the time of the Airprox, RW35 was the promulgated RW in use. The Wycombe MATS Part 2, Section 3, Chapter 2, states the allocation of ATZ airspace:

> 'The ATZ is divided into two basic sections to separate glider operations from powered (fixed wing and rotary) operations. A Safety Buffer Zone has been established to provide separation between the Gliding Section and the Power Section airspace. The boundaries extend to the boundaries of the ATZ and are defined on the manoeuvring area when RW17/35 is in use:- The Power Section boundary is defined as the western edge of RW17/35. The Gliding Section Boundary is defined as a line positioned parallel to and 30m west of the Power Section Boundary. In order to preserve the value of the Buffer Zone System for safety purposes both the Power and Gliding Sections must promulgate the same RW direction for use, although opposite direction circuits will be flown. Unless specifically authorised by ATC and Gliding Co-ordinator, no power section traffic is to enter the Gliding Section airspace at or below 1400' QFE (1900'QNH)'. Additionally, under the title 'Gliding Co-ordinator': 'The Gliding Co-ordinator will be available (on radio) during periods of gliding operations to communicate with ATC on the common Gliding Frequency [ground] 129.975 MHz. At periods of low gliding activity, contact may be made through a tug pilot if the Gliding Co-ordinator is absent'.

However, there are Special Procedures, that were applicable on 3 November 2007, for Different or Dual RW Operation stated in the Wycombe MATS Part 2. A request for the use of the non-promulgated RW must be made with ATC, giving two hours notice on a Saturday. The MATS Part 2 states:

> 'Use of RW06/24 when RW35/17 is in use is solely subject to the approval of the ATCO on duty. Ability to grant the request will depend upon the traffic situation and the co-operation of the Glider Co-ordinator. During periods of intense gliding, fixed wing or helicopter activity, or at other times at the discretion of the ATCO, permission may be denied'.

A take off clearance is not to be issued for departure from RW24, until agreement has been reached with the Gliding Co-ordinator.

On this occasion, the Wycombe TWR and GND positions were combined. The DR400 contacted the frequency at 1027, requesting to taxi to the launch point. The pilot used the callsign 'Tug' and the last two letters of the ac registration. He was cleared to taxi to hold short of RW35 before, subsequently, being cleared to cross. Just after the DR400 had reported clear of RW35 at 1030, the BE76 made its initial call on the frequency. ATC were aware of its request for RW24 and it was cleared to taxi for that RW, although it was informed that the RW in use was 35. There was a slight delay to its departure whilst waiting for its CAS joining instructions from LTCC. The clearance was received and passed to the pilot at 1036, who was requested to report ready for departure. In accordance with the procedures for using RW24 when 35 is promulgated, the controller contacted the Glider Launch Point at 1036:48, using the Glider frequency. *"I've got a Duchess very shortly wanting to depart from RW Two Four I'll give you a call when he's lining up"*. The Launch Point replied *"Thank you we've only got one glider airborne and er you'll see him if you look out towards the end of Two Four"*. Shortly afterwards, the controller transmitted *"The Duchess is lining up can I I see your glider can we let him go"*. The response was *"Affirmative".*

Having previously been cleared to line up RW24, the BE76 pilot was instructed at 1038, *"there's one glider just er as you probably lift off it'll be high and to your right so just caution if he turns downwind for Three Five with that in sight you're clear take off surface wind Three Five Zero at Five"*.

Unbeknownst to the controller, as no further comments were received from the Glider Point, the DR400 took off, without any contact on the Launch Point frequency, from the Glider area (35 Grass). Although it would have been possible to see the DR400 rolling from the VCR, the controller had no reason to believe that any traffic would depart from the gliding section. Having received approval clearance for the RW24 departure from the Glider Launch Point, he had, consequently turned his attention to other traffic. No comments were made on the frequency about the close proximity of the subject ac until after the incident had occurred.

The controller contacted the Glider Point on their frequency *"We weren't aware of that glider tug that got airborne that was quite close to the Duchess"*. The response was *"he's not a glider tug erm and er I'm sorry"*. From following communications it would appear that there was nobody at the Launch Point, the pilot of a tug ac was making the transmissions, on the ground at the glider site. He commented that the subject DR400 was used as a standby tug, but was not on any tug related flight when it took off. He added that *"I assumed he'd been in touch with you he probably*

didn't realise you were having anything on there 'cos he wasn't perhaps on the frequency".

As a result of this Airprox, it is Wycombe's intention to reduce the use of the non-promulgated RW. Additionally, the following procedures, stated in MATS Part 2, have been introduced under the title 'Use of Gliding Side by Powered Aircraft (other than Glider Tugs)':

> 'RW06/24 in use – use of the gliding side by powered ac (other than glider tugs) is solely at the discretion of the duty ATCO in conjunction with the Gliding Co-ordinator. Approval will only be given if the ac has a legitimate reason, eg, wind, etc.
>
> RW17/35 in use - 'All powered ac (other than glider tugs) **MUST** operate from the main RW and **NOT** from the gliding side'.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, a report from the air traffic controllers involved and reports from the appropriate ATC authorities.

Members were unanimous in agreeing that this was a most serious incident which had the potential to have been an accident. Fortunately, both pilots had seen the opposing ac in their peripheral vision and, somewhat surprisingly to some, they had both opted to continue their take-offs. Although the broad outline of events was evident from the pilots' reports, the precise relative positions as the ac approached the RW intersection was not clear. There was therefore no agreement as to whether the decisions of the pilots to continue having seen the other ac was justified but the Board accepted that the pilots themselves had been in the best position to judge.

Members firstly considered the role of the BE76 pilot and the ATCO. Although some controller Members considered that the ATCO should not have cleared the BE76 for take-off until he had positively checked his visual arc, which includes the RW35 (the duty RW) threshold, for conflictions this was not considered by the majority of controllers to be significant. The ATSI Advisor could not answer detailed questions about the view of the RW35 threshold and the glider launch point from the tower except that the RW35 (grass) threshold was visible from the VCR. Members therefore agreed that the ATCO had not contributed to this incident. Although there was no reason in his report for the BE76 pilot's decision to depart from RW24 (tarmac) (rather than 06) with a slight tailwind component, Members agreed that it had probably been a matter of convenience with both a shorter taxi track and it allowed a more expeditious departure routeing to the S. In any case, it had been agreed and approved by the ATCO as required and the procedures in place should have coped with this eventuality. As discussed above, the Board was unable to decide whether abandoning the take-off would have prevented the incident since it had insufficient information on which to base a decision. That being the case, Members agreed that the BE76 pilot had also not contributed to the cause of the incident.

Members agreed unanimously that the DR400 pilot had incorrectly adopted gliding procedures when, in fact, he was not flying on any gliding associated duties. From the moment he adopted the callsign 'Tug XX' confusion had been caused not only to the ATCO as to his intentions but also to anyone else listening on the frequency. Further, since apparently the pilot did not call Gliding Control (located in another tug ac on the ground at the time) on 129.975, assuming they did not see the DR400, they too would have been unaware of its presence or intentions. The information that Control passed to the ATCO when requested if he could clear the BE76 for take-off, was therefore to the best of their knowledge correct. The Board was not able to determine why the DR400 pilot had not heard the BE76 making the Taxi, Clearance, Line Up or Takeoff calls (a total of 27 transmissions from the BE76 pilot or Tower, 5 of which referred to RW24 and one the hard RW). Even after the DR400 had crossed RW35 grass to the gliding side the Gliding Member was surprised that the pilot had not informed Gliding Control of his presence and intentions as this too could have broken the chain of events by allowing them in turn to tell the ATCO that an ac was about to get airborne from the gliding area and he would have held the BE76 for a short time.

Since both ac had continued their take-off rolls towards one another, it was only by good fortune that the DR400 had rotated slightly before the BE76 and had therefore overflown it by about 40ft. Members unanimously agreed therefore that since apparently neither pilot was in a position to take any meaningful avoiding action, there had been a real risk of the ac colliding.

Members welcomed the swift follow-up action taken by Wycombe, but they urged them to double-check the new reworded regulations in the light of this report, to satisfy themselves that a similar incident cannot happen again.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The DR400 pilot took off from the wrong part of the aerodrome, without ATC clearance, and flew into conflict with the BE76.

Degree of Risk: A.

Section 3 Not Adhering to Prescribed Procedures; Passing or Responding to Information

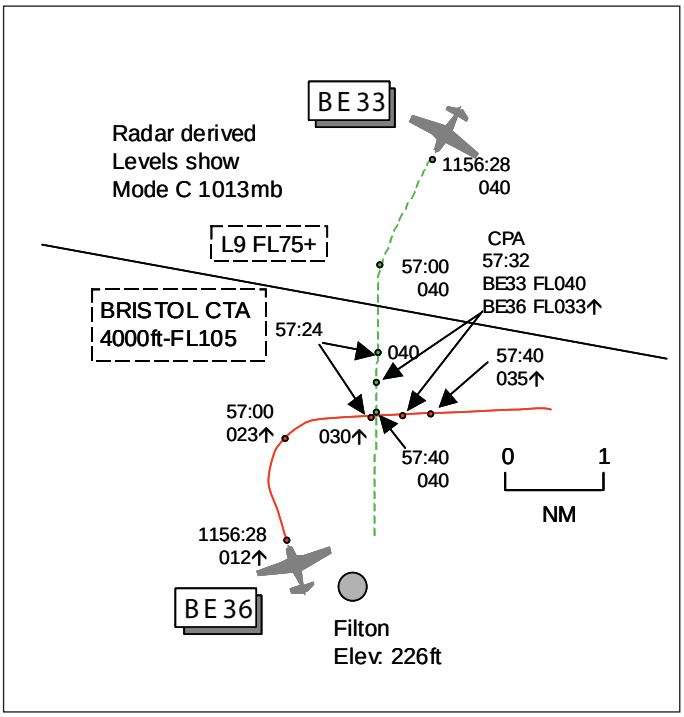
It is again possible to put this in the 'poor airmanship' category. Prescribed procedures are laid down for everyone's safety and good airmanship dictates proper flight planning and ensuring that the reference material used is up to date. Sometimes information is difficult to come by. Official publications like the AIPs are not designed to be portable and pilots sometimes get incorrect information from ATC. On other occasions ATC don't continue to try to pass relevant information when the pilots do not respond.

All this only works if pilots adhere to the prescribed procedures and/or obey instructions from ATC. It is clear to see from the following Airprox the folly of ignoring this advice.

AIRPROX REPORT No 094/07

Date/Time: 12 Jul 1158
Position: 5133N 00235W (2nm N Filton)
Airspace: Bristol CTA/LFIR (*Class:* D/G)
Reporter: Bristol International RAD1

	First Ac	*Second Ac*
Type:	BE33	BE36
Operator:	Civ Pte	Civ Pte
Alt/FL:	4000ft (QNH)	↑4000ft (QNH)
Weather Visibility:	IMC NR	IMC NR
Reported Separation:	Not seen	Not seen
Recorded Separation:	700ft V/0·4nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BRISTOL INTERNATIONAL RAD1 reports acting as an OJTI to a trainee who was working a BE33 transiting the base of CAS at altitude 4000ft. Filton had coordinated a departure routeing towards CPT VOR at altitude 3000ft which was observed departing RW27. The SSR labels merged and on separation the Filton ac was seen to be at 3700ft. No avoiding action or TI was passed as the targets had already passed each other and separation was increasing.

THE FILTON ADC reports the BE36 flight was given departure clearance 'R turn own navigation climb altitude 3000ft squawk 4260'. This clearance was readback and, although distorted, was believed to be correct at the time. Take-off clearance was given and once airborne was transferred to Radar.

THE FILTON APR reports that S'bound traffic, the BE33, transiting the Filton area at 4000ft had previously been transferred to Bristol International when N of Filton for CAS crossing clearance, anticipating clearance at that level. The ADC requested clearance for the BE36. The data display (fps) indicated a requested altitude of 3000ft which was correct according to the pilot's booking out form faxed to ATC. In view of both the requested altitude and the known traffic at 4000ft, he

passed the ADC a departure clearance of 'R turn out climb to altitude 3000ft' plus the required SSR code. As he was aware that Bristol Radar would observe the departure in close proximity to the CAS joining traffic, the BE33, he informed Bristol Radar of the departing ac's SSR code and that the ac would be climbing not above 3000ft in Class G airspace. The BE36 departed and was identified, validated and verified and a RIS was agreed. The pilot of a N'bound VFR helicopter under a FIS at low level then advised that he required to climb IFR to 3000ft owing to weather conditions. Because of its low level, he had no radar contact and therefore passed TI in respect of the BE36 'at altitude 3000ft'. This prompted the BE36 pilot to state that he was maintaining 4000ft. He queried this briefly and the pilot confirmed that he had read back 4000ft to the ADC, had written down that altitude and had reported climbing to that altitude when transferred to Radar. Soon after its departure, the labels of the 2 subject ac had garbled and he had not detected the climb above 3000ft nor the pilot report climbing to 4000ft. By the time the error became evident the ac were <3nm apart but on tracks diverging by about 90° so there was no practical point in passing TI. Immediately afterwards the BE36 was handed over to Lyneham Zone for service and crossing of the Lyneham CTA.

The Filton METAR shows EGTG 1150Z 26013KT 4000 VCSH OVC004 18/16 Q1014=

THE BE33 PILOT reports flying enroute to Exeter heading 190° at 150kt squawking with Mode C. He was informed by Bristol Radar of an incident when near to Filton – he asked if it was close but was not told. When N of Filton in VMC he was at the same level as a C130 which appeared to perform a procedural turn towards his ac. Filton alerted him to this and he flew through the C130's slipstream. Nothing else was seen so he believed he was in IMC at the time of the Airprox.

THE BE36 PILOT reports outbound from Filton IFR and in receipt of a Radar service from Filton on 122·725MHz squawking 4261 with Mode S. He departed Filton RW27 with a R turn own navigation (heading 090°) climbing to 4000ft at 150kt. He was unaware of an Airprox until being informed on his return to Filton the next day. Owing to IMC the reporting ac was not seen which he understood was working Bristol International Radar.

ATSI reports that the BE33 flight contacted the Filton APR at 1139:10, and reported 'outbound from Birmingham to Exeter, 5nm SW of Worcester at 2000ft 1014, requesting a FIS and transit through Bristol'. This transmission was acknowledged and a squawk of 4270 allocated as well as confirming that a FIS would be provided. Discussions with the pilot continued as to whether he was VFR or IFR and the pilot advised that he was VFR at the moment but likely to change to IFR. He was then asked what level he was requesting to transit Bristol airspace. At 1142:15, the pilot requested climb to 4000ft and was advised that there was no reported traffic to affect this. At 1147:10, the pilot of the BE36 requested start from the Filton ADC, which was approved. The Filton APR advised the pilot of the BE33 that Bristol had his request to transit CAS but for the time being remain outside of CAS and expect to transit at 4000ft. This was acknowledged and then, at 1150:20, the Filton APR instructed the pilot of the BE33 to change squawk to 4633, which was acknowledged. At 1151:00, the Filton APR telephoned Bristol Radar and asked whether they wanted the BE33 placed on a heading to route to the E of Filton. There appeared to be some confusion with Bristol as to why this offer was being made but the conversation ended with the Bristol Radar ATSA saying "*East of Filton fine*". The Filton APR then instructed the pilot of the BE33, still under a FIS, to *"…turn left two zero degrees report heading*". The pilot advised that he was turning left onto 190° and the Filton APR instructed him to change frequency to Bristol Radar. At this time the BE33 was 15nm N of Filton, S'bound, with its Mode C indicating FL042 (QNH 1014 = 4230 feet). When the pilot of the BE33 contacted Bristol Radar, he was placed under a RIS and shortly afterwards requested an IFR transit of Bristol's CAS at 4000ft, which was approved.

Meanwhile, the Filton ADC informed the Filton APR that the BE36 was ready for departure. The APR passed a clearance of 'right turn out onto his own navigation, climb to altitude 3000ft squawk 4260 and he is released'. This was correctly read back by the ADC. At 1154:40, the ADC transmitted *"BE36 c/s after departure right turn own navigation stop climb altitude three thousand feet squawk four two six zero"*. The pilot read back *"After departure cleared right turn on track climb to four thousand feet squawk four two six zero"*, to which the ADC replied *"BE36 c/s read back correct you're cleared for take off surface wind two eight zero one zero"*.

At 1156:30, the ADC instructed the BE36 pilot to contact Filton Radar, which he did. The Filton APR informed the pilot that he was identified and enquired as to what radar service he was requesting. The BE36 pilot responded with *"Radar Information we're just passing two thousand two hundred feet for four thousand"*, to which the Filton APR replied *"BE36 c/s roger Radar Information Service"*. Analysis of the Clee Hill radar shows as this exchange was taking place (1157:00), the BE33, now working Bristol Radar, was 3·3nm N of Filton S'bound, whilst the BE36 was 2nm SW of the BE33 and in a R turn on track. At 1157:24, the radar shows the BE36 crossing from R to L in front of the BE33 at a range of 0·6nm with the BE33 maintaining FL40 and the BE36 passing FL30. At 1157:40 the BE33 crossed through the track of the E'bound BE36, which was now passing FL35, at a range of 0·5nm. At the time, the Bristol Radar controller made no comment nor did the BE33 pilot.

[UKAB Note (1): The CPA occurs at 1137:32 with the BE36 climbing through FL033 passing 0·4nm SE of the BE33 at FL040.]

At 1157:50, the pilot of a helicopter operating in the locality asked the Filton APR if they could climb IMC to 3000ft due to the poor weather low level. The Filton APR replied *"helicopter c/s negative radar contact and I do have IFR traffic just departed Filton immediately north abeam Filton tracking east at altitude three thousand feet*", however the radar recording clearly shows the Mode C of the BE36 indicating FL40. Shortly after this exchange, at 1158:25, the pilot of the BE36 reported level at 4000ft. A few minutes later the Bristol Radar controller informed the S'bound BE33 pilot that as he passed over Filton there was traffic which *"...was supposed to have climbed to three thousand feet he actually level busted and he was below you…"*. The pilot advised that he did not see anything at all.

Although the clearance passed by the APR to the ADC was correctly read back by the ADC, the ADC did not detect the wrong read back by the pilot. This was compounded when the pilot called on the APR's frequency and stated that he was climbing to 4000 feet. Additionally, the APR did not detect from his radar that the BE36 had climbed above the cleared level. The incident only became apparent to the controllers when the BE36 pilot heard the inaccurate TI passed by the APR to the helicopter pilot.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

The ATSI Advisor informed Members that although the ADC reported that the BE36 pilot's release clearance read back had been distorted, this was not apparent from an RT playback, RT transcript or the Unit's own report. This was the first opportunity to break the chain of events, but the incorrect read back went undetected and this was part of the cause of this Airprox. Once airborne, the BE36 flight had called on the radar frequency but the APR did not detect the pilot's erroneous assigned altitude report, another missed opportunity in the chain, and this was a second part of the cause. After the APR had identified the BE36, validated and verified the ac's SSR code and Mode C readout, the controller did not detect that the flight had climbed above 3000ft – the BE36 flight's assigned altitude - during routine scans of the radar display. This was a third part of the cause of the incident, the erroneous altitude only becoming apparent when the BE36 pilot queried the inaccurate TI being passed to a helicopter flight about his ac being at 3000ft. Members agreed that because of these 3 causal elements, Filton ATC had allowed the BE36 pilot to climb into conflict with the BE33.

Apart from the Filton ATC involvement, the potential conflict went unnoticed by the Bristol RAD1 controller owing to the SSR labels garbling, the BE36's climb above 3000ft only being detected after the subject ac had passed. Both pilots flying in IMC did not notice the situation and no TI had been passed by either ATSU to the two pilots involved here. These factors left the Board in no doubt that the passage of the subject ac had been down to luck, without any of the available safety nets working. It was fortunate that the BE36 had crossed through the BE33's 12 o'clock at a range of 0·6nm still 1000ft below, but climbing, with the CPA occurring shortly after this when the BE36 was climbing through FL33, 700ft below and 0·5nm to the SE of the BE33. Although

the actual flight paths flown reflected by the radar recording revealed that the ac were not going to collide, with their passage going unnoticed by all parties involved, the Board concluded that safety had not been assured during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

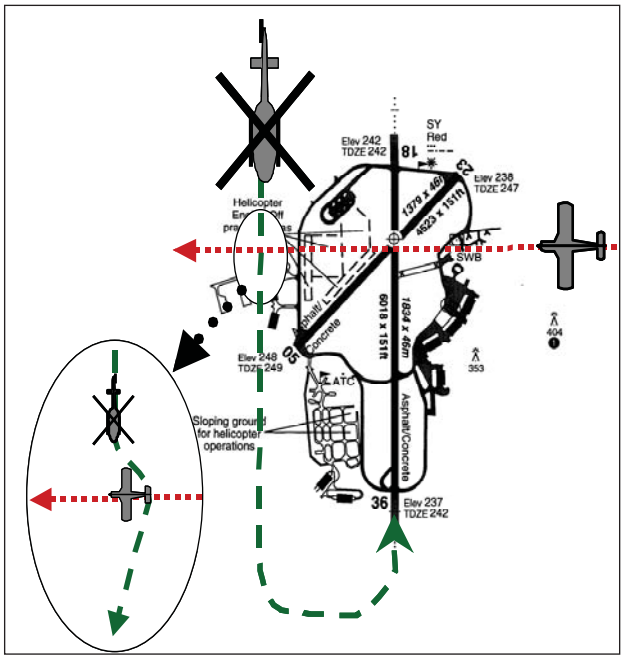
Cause: Following an undetected read back error, an undetected assigned altitude report and an undetected Mode C readout, Filton ATC allowed the BE36 pilot to climb into conflict with the BE33.

Degree of Risk: B.

AIRPROX REPORT No 125/07

Date/Time: 30 Aug 1400
Position: 5248 N 00240W (Downwind RW26 LH Shawbury - elev 249 ft)

Airspace:	Shawbury ATZ	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Griffin HT1	PA28
Operator:	HQ AIR (Trg)	Civ Pte
Alt/FL:	950ft (QFE 1015mb)	1100ft (QFE 1015mb)
Weather Visibility:	VMC SHRA >10km	VMC CLBC 8km
Reported Separation:	0ft V/50m H	100ft V/200m H
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GRIFFIN HT1 PILOT reports flying a black and yellow ac with all lights switched on, on a training flight from Shawbury. They were heading 180° at 90kt and, while established on the downwind leg of a standard LH circuit, in communication with Shawbury TWR on UHF, but were maintaining 950ft QFE due to the proximity of small amount of cloud when the student who was the handling pilot (HP), saw a small fixed wing ac about 75m ahead of them, crossing from L to R; the HP rolled left and descended immediately to avoid the ac. After returning to the normal downwind position the HP contacted Shawbury TWR to inform them that the ac believed to be a MATZ crosser was at approx 950ft on the QFE; an earlier RT call stated that the ac was at 1300ft QFE. The HP reported the incident on the RT and spoke to the Shawbury SUP on the ground after landing and established that the ac had been handed over to Shawbury TWR and had descended below 1300ft QFE but the information was not passed or heard on UHF. He assessed the risk as being Medium.

THE PA28 PILOT reports flying a private flight from Tatenhill to Sleap with all lights switched on. He initially made contact with Shawbury Radar on 120.775 overhead Stafford and was given a FIS, a squawk 0241 and clearance for a MATZ penetration at 2100ft QFE, heading 275° at 100kt. At the MATZ boundary he was unable to maintain VMC so he commenced a descent to 1600ft and informed Radar, who confirmed that he was still clear through the MATZ. A second descent

to 1100ft QFE was required later and was also approved by Radar. At this point they had drifted slightly S of their planned track and so they were asked to call TWR on 122.1. Contact was made with TWR and later they informed them that they were passing overhead the airfield but no TI was received regarding any circuit traffic. They then saw a helicopter converging with them but it did not appear to be on TWR frequency. He did not take any avoiding action as a R turn would have resulted in a collision and if he had turned L they would have lost visual contact. Further, the circuit below prevented any descent and the cloud above prevented a climb. Shortly after, TWR told them to freecall to Sleap but no reference to the incident was made by either Radar or TWR.

UKAB Note (1): The Shawbury METAR for 1350 was:

EGOS 301350Z 31014KT 9000 -DZ FEW012 OVC016 15/14 Q1024 WHT TEMPO 6000 -DZ SCT014 GRN=

MIL ACC reports that a Griffin helicopter was conducting military training within the boundaries of RAF Shawbury airfield and was operating on a quiet frequency, 262.875MHz, which was one of three being used by the Shawbury ADC [ACC Note (1): The RT transcripts show that the Griffin switched to 378.450 MHz at 1353:57]. The Griffin was operating VFR, was squawking 0221 with Mode C switched off. Meanwhile a PA28 was conducting a private flight from Tatenhill to Sleap in VMC, Squawking 0241 with Mode C.

The ADC was controlling 5 ac and was using and/or monitoring:

378.450 MHz (Stud 3)
262.875 MHz (Stud 2)
122.100 MHz (ADC VHF)

The Hi-brite radar display on the ADC position was serviceable. The reported Airprox occurred at 1400Z and the weather was changeable before and after the incident with local Met reports giving:

1350Z: 9km, Drizzle, FEW 1200ft, OVC 1600ft
1405Z: 6km, Drizzle, SCT 1300ft, BKN 2000ft
1431Z: 5km, Drizzle, FEW 1200ft, BKN 1800ft

Approval for the PA28 to transit the Shawbury MATZ and ATZ was been given by ZONE, initially at 2100ft QFE, 1015mb but a descent was requested to 1600ft QFE to remain VMC and this was approved, as was a further descent to 1300ft QFE; when a descent to 1100ft QFE was requested, ZONE transferred the PA28 to the ADC.

Analysis of the Clee Hill radar assisted the investigation only in that it confirmed that the PA28 was at 1100ft at 1357:04 3nm to the E of the airfield. While the track of PA28 was clearly visible until about 3nm E of Shawbury, the radar recording does not show any other ac that could have been the Griffin. The PA28 disappeared from radar shortly after 1357:04.

The RT and landline transcripts however, painted an accurate picture of how the situation developed. Shawbury TWR had an experienced Controller as U/T in the ADC position, being monitored by an experienced Screen Controller with an Asst close-by. There were 248 separate transmissions surrounding this Airprox however, to keep the report as succinct as possible, the investigation has focused only on those necessary to portray accurately the sequence of events relating to the Airprox. ZONE approved the PA28's '*MATZ penetration at 2100ft QFE 1015*' at 1350:00, which the pilot read back correctly. At 1350:44 the PA28 pilot asked ZONE for clearance to transit at 1600ft to remain VMC and ZONE replied '*PA28 C/S if that's the highest you can go then that's approved'* and at 1350:55 the PA28 pilot responded *'Roger, PA28 C/S staying at 1600'*. At 1352:04, ZONE asked for permission from the ADC for an ATZ-crosser, *'East to West, through the overhead 1600 feet QFE'*, which was granted and the ADC immediately transmitted on 378.45 *'Shawbury all stations, ATZ crosser, east to west, through the overhead 1600 feet QFE'*. Between 1352:25 and 1353:31 the U/T and Screen ADC discussed various training points. At 1353:15 the PA28 reported to ZONE *'descending to 1300 feet to remain* VMC' and 20sec later ZONE said to the

ADC: *'The ATZ crosser now requires 1300 feet. Do you want to speak to him or you happy for me to take him?'* and the ADC replied *'1300 feet QFE is approved report clear'*. The ADC then dealt with another couple of routine calls, including one from the Griffin, before transmitting on 378.450 MHz, at 1354:01, *'Shawbury all stations ATZ crosser previously reported east to west through the overhead at 1600 feet now transiting east to west through the overhead 1300 QFE'*. At 1354:45, ZONE called the ADC and said *'now descending to 1100 feet. Shall I send him across 122.1 ……. or are you still happy?'* Following advice from the Screen Controller, the ADC agreed to take the PA28 on the frequency. Thereafter the U/T queried whether or not specific TI regarding the PA28 should be passed to circuit traffic but the Screen advised that this was not required. At 1356:00 the PA28 called the ADC on 122.0 MHz and the ADC replied *'PA28 C/S, Shawbury Tower roger, transit through the overhead 1100 feet QFE 1015 approved, report 2 miles to the west'* and the PA28 repeated the instructions and, after a couple of other routine transmissions, the ADC informed the PA28 that the read-back was correct. There then followed about 4min of routine CCT R/T and discussion between the Screen and the U/T and at 1359:19 the PA28 pilot informed the ADC that he is *'overhead the airfield at 1200* feet'. The U/T ADC stated *'1200 feet?'* to the Screen, then transmitted *'PA28 C/S roger'*. At 1400:21 the Griffin pilot called the ADC, however, he was busy and the pilot called again 11sec later and at 1400:52 the Screen Controller acknowledged his call and there follows an exchange:

From	To	Transmission
Griffin C/S	ADC (Screen)	*Griffin C/S believe the MATZ crosser who just came through I was at er……about 950 feet on the QFE and he was about 100 yards in-front of me at the same height.*
ADC (Screen)	Griffin C/S	*Yeah we watched you. We did actually broadcast he was coming through. He descended from 1600 to 1300 and then we think he went to 1100.*
Griffin C/S	ADC (Screen)	*Yeah copied, I heard 13 but didn't hear any lower.*
ADC (Screen)	Griffin C/S	*Er….roger I was watching him in fact and I thought he was going to be quite close to you. He may have been lower than he er actually told us he was going to be.*
Griffin C/S	ADC (Screen)	Yeah, just below a thousand I think on ten fifteen.

The ADC Screen submitted an open and honest report, accurately describing a complex and busy aerodrome situation; he stated that they were keeping a good lookout for the PA28, which is confirmed by the recordings of discussions between the Screen and the U/T. In the time that the Screen & U/T had spent looking for the PA28 the Griffin had lifted, joined the visual cct and was turning downwind (all without calling ADC); however, having called that he was established in 'Area Left', this was permitted by current SOP's.

It is considered that there was one Mil ATC-related contributory factor to this Airprox: although the PA28's first level (1600ft) was transmitted on all the relevant frequencies, as was the second (1300ft), the third level (1100ft) was not transmitted on the Griffin's frequency (378.45 MHz) which meant that Griffin pilot's situational awareness was incomplete. When the Griffin lifted for a visual circuit the pilot thought that the MATZ-crosser was at 1300ft QFE and stated that, due to the proximity of small amounts of cloud, a visual cct height of 950ft QFE was chosen therefore he thought that there would be adequate separation. However, the combination of the PA28 pilot apparently descending below his cleared height and the omission to transmit the third cleared height resulted in both ac being at a similar altitude.

HQ AIR (TRG) comments that the lack of accurate TI to both the Griffin and the PA28 pilots reduced their ability to build good SA; the Griffin pilot thought the MATZ crosser was at 1300ft and the PA28 pilot was not aware of any circuit traffic. However, it seems that the PA28 was below its cleared height of 1100ft QFE as it passed in front of the Griffin that was at 950ft QFE. The actual risk of a collision was reduced by the pilot of the Griffin who saw the PA28 and was able to fly an avoiding manoeuvre.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Notwithstanding the deteriorating weather, Members were surprised that ATC allowed the circumstances leading up to this Airprox to develop to an extent that the ac came into conflict.

The PA28 pilot did not have the benefit of a UHF radio which would have revealed the presence of circuit and other local traffic and ATC did not pass him any information; he therefore believed that there was no traffic when in fact there were 5 ac in the circuit operating on 2 different UHF frequencies. A Military Controller Member informed the Board that it was usual for MATZ crossers to be passed information on circuit activity regardless of the frequency on which they were operating and further, with a 1000ft circuit height, a MATZ (ATZ) crosser would normally be allocated 1500ft (QFE) or above thus ensuring that separation existed with circuit traffic (or traffic that may climb into the circuit). This may explain why he considered, with hindsight incorrectly, that continuing to the airfield overhead in a decreasing cloudbase did not present any problems, provided that he kept ATC fully appraised of his route and height, as he did. Another ATC Member suggested that, due to the cloudbase (which the controller(s) should have been aware of) and the circuit traffic, it would have been wiser to route the PA28 to the N or S of the ATZ thus keeping it clear of the airfield area; an experienced GA pilot Member added that he considers it unwise to plan to overfly Military training airfields as they are generally very busy.

The Griffin crew, although aware of the PA28's presence, were not aware of the final descent that brought it into conflict at 950ft aal (QFE). Members could not explain why the PA28 was at that height (950ft) as the transcript clearly showed that, despite requesting clearance to descend to 1100ft (QFE) the pilot called overhead at '1200ft' very close to the incident time. Whether this was due to an incorrect altimeter (QFE) setting or simply his not being at the height stated, could not be determined; however, a Member noted that such inaccuracies are not uncommon and that tolerances for an Instrument Rating are ±100ft (en route); planning to allow a MATZ crosser at 100ft above the normal downwind height was considered by specialist controller Members to be most unwise.

While accepting the circuit is essentially a visual environment where pilots see and take suitable spacing on other ac, the purpose of ATC in that scenario is to give pilots enough information to build a picture of the known situation so that they can effect separation and sequence correctly. In this incident the PA28 pilot was given no information and, notwithstanding that the PA28 was not at his stated height, the Griffin pilot was not passed the final change approved to the former's height. The Board unanimously thought that the Screen controller had been unwise in telling the U/T controller that updated TI to circuit traffic regarding the ATZ crosser was not required.

While accepting that operations at Shawbury present a special case and the silent ops may be necessary to achieve the training requirements, some Members questioned the appropriateness of the SOP that apparently allowed the Griffin to operate on a quiet frequency and climb up to circuit height without informing ATC.

In assessing the risk Members noted that the griffin pilot had seen the PA28 75m away which gave about 1.5sec for him to react and for the ac to change flightpath by a distance sufficient to avoid a collision; the PA28 pilot, due to the circumstances, had not been able to take any avoidance. Notwithstanding that the avoidance taken by the Griffin pilot had most likely been effective, the Board unanimously considered that safety had not been assured.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A lack of TI and positive control by the Shawbury ADC resulted in a conflict in the visual circuit, which was resolved by the Griffin pilot.

Degree of Risk: B.

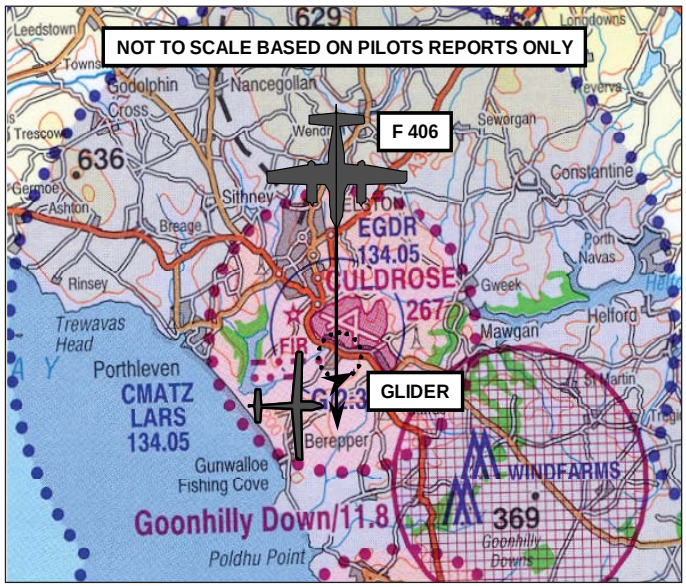
AIRPROX REPORT No 147/07

Date/Time: 29 Sep 1225 (Saturday)
Position: 5005N 00515W (Culdrose Airfield - elev 267ft)

Airspace:	ATZ	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Capstan Glider	F406
Operator:	Civ Club	Civ Comm
Alt/FL:	1000ft (QFE NR)	1750-2050ft (RPS NR)
Weather Visibility:	VMC CLBC 5nm	VMC NR >20km
Reported Separation:	100ft V/300ft H	Not Seen

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CAPSTAN GLIDER PILOT reports that at the time of the incident they were launching gliders at frequent intervals using a cable and auto-tow method, the launches reaching between 1000 and 1300ft but they could potentially have been a little higher depending on the wind strength and direction. He was P1 in a short training flight and was circling in thermal at 40kt and at about 1000ft, over the airfield, about 300ft S of the main RW (12) from which they were launching when he saw a twin-engine ac when it was abeam him to the N about 100ft above and displaced by 300ft horizontally. The ac was on a constant heading and by then was no longer posing a significant threat; he was not able to read the registration. Neither ac took any avoiding action and he assessed the risk as being Medium.

He does not recall hearing any radio contact on 130.1 prior to the incident but he heard Glider Control trying, initially unsuccessfully, to contact the twin pilot but the eventual response was unintelligible to him.

THE GLIDING CLUB DUTY INSTRUCTOR reports that on the day of the incident the activity level was very high. The launch point being used was from the 1000ft marker on RW12, and ac were being launched by motor tow.

At about 1235 when 3 gliders were airborne and a 4th was preparing to launch, a twin-engine ac flew over the centre of the airfield from N to S at height he estimated as 1000ft. He called the ac on the gliding frequency of 130.1 but got no response. After a few minutes the ac returned to the area and started to orbit over the airfield in a clockwise direction, apparently close to the airfield boundary but a few hundred feet higher than on its first pass.

He called the ac again and this time got a response and, although it was unclear, he understood that the ac was a C406 engaged in survey work. He asked whether they were aware that they had just flown through the Culdrose ATZ, active with gliders that were cable launching to their height. The initial response was 'standby' but after 30sec he received a further call, which was again unclear, but he understood that the ac was clearing the area; this was confirmed by the ac departing.

The glider pilot involved reported to him that the C406 had initially flown over the airfield and had been within a few hundred feet vertically and horizontally of his ac, so he advised him to submit an Airprox.

By flying across an active gliding site well below potential cable launch height and unannounced, the twin pilot seriously compromised it's own and other's safety for at least two reasons. Firstly, there was a potential risk of collision with gliders that had just launched or were in circuit. Secondly, when glider launching was taking place the cable with glider attached, would have been towed diagonally across the ac's track at a height where there would have been a significant risk of collision, had the incursion coincided with a launch.

THE F406 PILOT reports flying a survey flight with strobe lights switched on, initially in receipt of a RIS from St Mawgan and squawking 1745 with mode C and S. Before leaving their base the Survey Operator called Culdrose ATC for latest weather and advised them of survey location but was told that they would be closing at 1200.

After contacting St Mawgan on Box 1 he asked if Culdrose was open but he was advised that they had closed on Friday at 5pm. He then informed St Mawgan that they would be operating in the vicinity of Culdrose at 1800ft QNH conducting an aerial survey. They tried calling Culdrose ATC on Box 2 as they approached the MATZ but received no reply so he informed St Mawgan that they would remain on their frequency and continue the RIS. St Mawgan informed them of the frequency for Predannack Gliding Site and he called them on Box 2 for TI whilst operating in their vicinity.

They were operating between 1795-2004ft QNH depending on the terrain elevation. While flying a survey line to the NW of Culdrose and when they were passing about ¾nm SE of the main RW he noticed a glider sitting on the RW so he asked St Mawgan if gliding was taking place at Culdrose but they were unsure. St Mawgan then they gave him an unpublished frequency (130.10 [Gliding Common]) to call Culdrose. He then called them on Box 2 and that was when they advised him of the Airprox. Neither he nor any other crew member on board saw any gliders close to them other than the one on the RW.

They then left the survey site due to gliding taking place and returned to their base.

If he had known glider activity was taking place they would not have attempted survey until the weather had improved and they could have flown higher.

CULDROSE SATCO comments that he was not contacted for comment until after the RT tapes had been reused and he was not able to determine who had taken the telephone call from the F406 Survey Operator. Standard practise at the unit however, when responding to such telephone calls, is to inform pilots that there is both gliding and SAR activity at weekends even though the airfield may technically be closed and to reinforce that the ATZ is H24. The SAR helicopter is flown every day of the year during the daily SAR test that lasts 90mins in addition to any real SAR activity that can be called at anytime of the day or night. Since the Culdrose ATZ is H24, if a pilot does not get a response after 3 calls then he should remain clear of the ATZ iaw national procedures.

The Culdrose Gliding Club always operates on the UK Gliding Common frequency of 130.1 but this is not currently published. He has forwarded an amendment to the Culdrose entry to the UK AIP to reflect this.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both ac and from the Culdrose SATCO.

A Royal Navy ATC Member advised the Board that it was likely that an ATC or Ops Assistant had taken the telephone call from the F406 crewman as it was outside normal operating hours. Although the information given may have been technically correct it was not as informative as it might have been and might have led the F406 pilot erroneously to believe that he was verbally

cleared into the ATZ or that it was not active. Although the prime purpose of the ATZ is to protect military ac operating from/to Culdrose rather than gliders, it is nonetheless active H24 and normal entry procedures apply (Rules of the Air, Rule 45).

Although some Members were sympathetic with the F406 pilot in that he had genuinely attempted to correctly gain access to the ATZ so that he could complete his survey task, he had nonetheless not complied with the procedures in the ANO (Rules of the Air) despite that he may have thought that he had done his best in the circumstances when ATC was not open. Notwithstanding that the pilot had been trying to be helpful by conducting the task at the weekend when the airfield was closed, SATCO (in a telephone call to the Secretariat) opined that it may have been better from his perspective to accomplish the task during normal operating hours in receipt of an ATC service.

Since the F406 pilot had not seen the glider and the glider pilot had not seen the F406 until it was too late for him to take any action to increase the limited separation, the Board determined that safety had not been assured in this incident.

It was noted that although the Gliding Common frequency of 130.1MHz is one of several, it is the frequency most commonly used by gliding club airfield base stations, but this is not widely published or known; Members welcomed the initiative of SATCO Culdrose to publish this frequency and encouraged other units where it may apply to follow suit.

PART C: ASSESSMENT OF CAUSE AND RISK

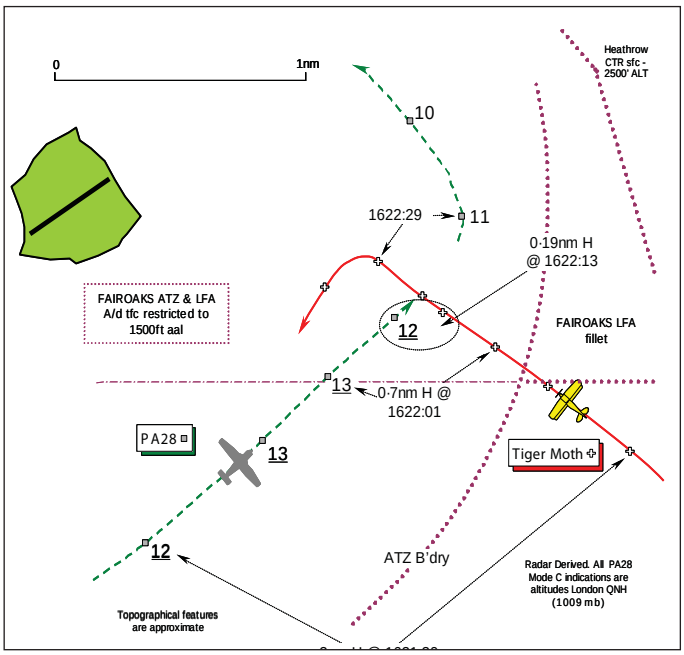
Cause: The F406 pilot entered the Culdrose ATZ without permission and flew into conflict with a glider which he did not see.

Degree of Risk: B.

AIRPROX REPORT No 104/07

Date/Time: 22 Jul 1622 (Sunday)
Position: 5120N 00031W (1·4nm ESE of Fairoaks Aerodrome RW24 Cct - elev 80ft)

Airspace:	Fairoaks ATZ	(*Class:* A)
	Reporting Ac	*Reported Ac*
Type:	PA28	Tiger Moth
Operator:	Civ Trg	Civ Pte
Alt/FL:	1100ft QNH (1012mb)	1500ft QNH
Weather Visibility:	VMC COCISOS 10km+	VMC NR 10km+
Reported Separation:	100ft V/Nil H	60ft V/Nil H
Recorded Separation:	Not recorded	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PA28 PILOT, a flying instructor, reports that he was flying in the LH cct pattern to RW24 at Fairoaks Aerodrome and was in receipt of a FIS from Fairoaks INFORMATION on 123·425MHz. A squawk of A7000 was selected with Mode C on.

Flying level at 1100ft QNH (1012mb), heading 060° on the DOWNWIND leg, approaching a position abeam the RW24 threshold at 90kt, a single-engine yellow bi-plane – the Tiger Moth - was spotted in his 2 o'clock [he later opined it was <100yd away] as it approached his ac on a collision source at the same altitude. It was apparent that the bi-plane pilot had become visual with his PA28 first and taken avoiding action by climbing above his monoplane. He elected to descend below the Tiger Moth which passed 100ft directly above his PA28 with a *"very high"* risk of a collision.

The bi-plane pilot was not in radio contact with the Fairoaks FISO or Farnborough Radar as it turned and headed off WSW towards Farnborough Aerodrome.

THE de HAVILLAND DH 82a TIGER MOTH PILOT provided a very frank account reporting that his vintage aeroplane is coloured yellow and RT is not fitted. Whilst in transit under VFR from Redhill to a farm strip in a level cruise at about 1500ft amsl, he thought just to the S of Fairoaks heading 280°(M) at 75kt, the PA28 was spotted 100yd away in his 11 o'clock and at his altitude. To avoid the PA28 he initiated an immediate climb. The other ac passed 60-70ft below his Tiger Moth with a "high" risk of a collision.

Adding that he had flown too close to Fairoaks he freely admitted that he had infringed their ATZ. Cockpit distraction, whilst flying toward the Sun and maybe over-familiarity with the route were cited as significant factors. Candidly, he observed that this Airprox was a salutary "wake-up" call for him.

UKAB Note (1): In his original written submission, the Tiger Moth pilot reported descending immediately to avoid the PA28. However, after further discussion by UKAB staff with the pilots involved, the Tiger Moth pilot concluded that he might well have actually climbed to avoid the other ac and opined that he remembers seeing the PA28 below him after the Airprox as it drew aft in his 4 o'clock. Confirmation by the PA28 pilot that he instinctively descended below the Tiger Moth to avoid it coupled with the data from the radar recording also suggests this is what actually occurred.

THE LTCC SVFR controller at the time of the incident reports he was alerted to the ac by Fairoaks who called asking if he had any details on a yellow biplane which had just had a 'near miss' with one of their ac. He said he had no details but saw a primary-only contact SW of their aerodrome. This ac started to track NW and cut the corner of the Heathrow CTR, following the Zone boundary albeit just the wrong side of it. The ac then disappeared from radar once outside the Zone so he could not track it any further.

UKAB Note (1): The UK AIP at AD 2 EGTF-1-3 para AD2-17, notifies the Fairoaks ATZ as a radius of 2nm centred on RW06/24, extending from the surface to 2000ft above the aerodrome elevation of 80ft amsl. An aerodrome FIS is provided on Sundays, in Summer, between 0800 – 1700.

Furthermore, it is specified within AD 2.22 – Flight Procedures that the ATZ lays partly within the [Class A] London CTR and a Local Flying Area (LFA) exists of 2nm radius with fillets to the east concomitant with the ATZ. That part of the ATZ above 1500ft aal is ceded to London Heathrow.

Within the LFA flights may take place without compliance with IFR requirements subject to the following conditions:

i Aircraft to remain below cloud and in sight of the ground;
ii Maximum altitudes: 1500ft QNH;
iii Minimum flight visibility: 3 km.

However, it is further specified at AD 2.20 - Local Traffic Regulations - para 1c that the aerodrome/ ATZ is not available to ac unable to communicate by radio.

UKAB Note (2): The "Rules of the Air regulations 2007" at Rule 45 require that within an ATZ:

> (2) An aircraft shall not fly, take off or land within the aerodrome traffic zone of an aerodrome unless the commander of the aircraft has complied with paragraphs..(4)..as appropriate.

(4) If the aerodrome has a flight information service unit the commander shall obtain information from the flight information service unit to enable the flight to be conducted safely within the zone.

(6) The commander of an aircraft flying within the aerodrome traffic zone of an aerodrome shall—

(a) cause a continuous watch to be maintained on the appropriate radio frequency notified for communications at the aerodrome; or

(b) if this is not possible, cause a watch to be kept for such instructions as may be issued by visual means;

UKAB Note (3): The UK AIP at ENR 1.4 - 2.7.2.3 stipulates that pilots should be aware that in order to comply with the provisions of Rule [45] they must adopt the following procedures:

*(a) **Before** taking off or landing at an aerodrome within an ATZ or transitting through the associated airspace, obtain the permission of the air traffic control unit, or where there is no air traffic control unit, obtain information from the flight information service unit…to enable the flight to be conducted with safety.*

(c) Non-radio aircraft operating within a notified ATZ must comply with any conditions prescribed by the air traffic control unit, flight information unit or air/ground radio station prior to the commencement of the flight with any instructions issued by visual means.

Furthermore at 2.7.2.4,

Failure to establish two-way radio communications with the air traffic control unit, flight information unit or air/ground radio station during their notified hours of operation must not be taken as an indication that the ATZ is inactive. In that event, except where the aircraft is in a state of emergency or is being operated in accordance with radio failure procedures, pilots should remain clear of the ATZ.

UKAB Note (4): The Heathrow Radar recording does not illustrate this Airprox clearly as the PA28 is not shown at the critical point. However, the PA28 is shown squawking A7000 on the DOWNWIND leg for RW24 passing abeam the UPWIND threshold at 1621:30, within the Fairoak's ATZ at an altitude of 1200ft London QNH (1009mb) unverified Mode C. At this point the primary contact associated with the Tiger Moth biplane is shown approaching the ATZ/LFA boundary from the SE at a range of 2nm from the PA28. The biplane crosses the ATZ/LFA boundary on a steady NW'ly track and closes on a steady relative bearing to a range of 0·7nm at 1622:01, when it is shown still in the PA28 pilot's R 1 o'clock as the latter indicates 1300ft London QNH. The last return evident from the PA28 before the Airprox was at 1622:13, when the ac's Mode C indicates 1200ft London QNH (1009mb) – about 1290ft (1012mb). At this point the Tiger Moth is still in the PA28 pilot's R 1 o'clock at range of about 0·19nm – just under 400yd. The Tiger Moth pilot broadly maintains his course until after the Airprox whence at 1622:29, the biplane turns sharply L SW'ly. It is at this point that the PA28 is shown again at 1100ft London QNH unverified Mode C as the aeroplane commenced a L turn onto BASELEG for RW24 and descended. Thus with only the biplane evident throughout the encounter it is not feasible to ascertain the minimum separation independently.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings and a report from an air traffic controller.

From the reporting pilot's perspective it was evident that he was legitimately operating in the cct at Fairoaks where the associated ATZ is designed to afford a measure of protection to ac in the critical stages of landing and take-off. Members also recognised that whilst instructing in the cct, an instructor's workload is significant. Clearly therefore, the focus of the PA28 instructor pilot's attention

would have been on how his student was flying the ac DOWNWIND; his position in the traffic sequence preparatory to turning onto BASE LEG and thence to FINALS, perhaps concentrating somewhat on the runway to his L. It was not surprising, therefore, that the PA28 pilot had spotted the Tiger Moth approaching from his starboard side at a relatively late stage. Moreover, the PA28 pilot would naturally have expected any other pilots flying in the ATZ to announce their arrival on RT in accordance with normal practise at Fairoaks, where non-radio ac are not accepted. Nevertheless, this was a reminder to all pilots that ac are still operated without radios or can experience radio failure at awkward moments. Here was a salutary lesson and highly experienced pilot Members pointed out that maintaining an all-round scan – even into areas were ac might least be expected - was one of the principle tenets of sound airmanship. Nonetheless, the PA28 pilot's candid account had revealed that when he did spot the biplane he took robust action to avoid it, albeit that the latter's pilot was apparently already climbing above his ac, he said.

Whether it was still wise to operate without a radio – and here the Board was reminded that many pilots flying ac without generators use handheld devices - was debateable. A GA pilot Member opined that a high level of traffic can be encountered in this vicinity – outwith the ATZ beneath the London TMA - so arguably this is not a good place to be without a radio.

Whilst in transit under VFR it was plain that the Tiger Moth pilot was, therefore, entirely responsible for sighting and avoiding other ac in this 'see and avoid' environment. The Tiger Moth pilot's frank and honest account had revealed that whilst he had inadvertently strayed into the Fairoaks ATZ/LFA whilst in transit from Redhill, it was clear that he should not have done so. A navigational error seemed unlikely if he had flown this route before, with many prominent landmarks to help pilots pinpoint their location, or perhaps he had just flown closer to Fairoaks than he had realised. Whatever the reason the Tiger Moth pilot's honest account, coupled with the recorded radar data had revealed he had definitely infringed the Fairoaks ATZ. However, having entered this airspace unannounced, without authorisation, he should still have seen the PA28 a lot earlier than he did. As it was, the Tiger Moth pilot had reported that he had not spotted the PA28 to port until it had closed to a range of 100yd thereby flying into conflict at close quarters. Following this comprehensive debate, the Board concluded unanimously that this Airprox had resulted because the Tiger Moth pilot entered the Fairoaks ATZ in contravention of Rule 45 of the Rules of the Air Regulations 2007 and flew into conflict with the PA28.

Turning to risk, the highly experienced GA pilot Member – who was familiar with biplanes – explained the inherent limitations when endeavouring to conduct an 'all-round' lookout scan. Clearing the large blind-spots caused by the upper mainplane, fuel tank and the struts was essential and to do so meant moving the biplane around. This coupled with the limited forward visibility required a strict lookout regime and a routine decidedly different to that of a more conventional monoplane. Thus this Airprox was a salutary reminder of what can occur as a result of these difficulties and often those not regularly used to the 'eccentricities' of biplanes can unknowingly get out of practise quite quickly. The PA28 closing from the port side at the same relative altitude should have been apparent beforehand - for it was plainly there to be seen as was the biplane. But apparently both ac were on a steady relative bearing to one another so the lack of relative movement had also masked their presence from each other's pilot until the last moments. Fortuitously, the PA28 pilot elected to descend clear below the Tiger Moth which, he recognised, had already started to climb. It was not clear from the recorded radar data if this descent made any appreciable difference to the separation at these close quarters, as the PA28's Mode C indications were lost for a short while, but this loss of contact itself might be indicative of the robust nature of the PA28 pilot's avoiding action. Both pilots agreed that there was no horizontal separation at all when the two tracks crossed and the vertical separation – reported to be between 60-100ft – clearly did little to assure safety at this height. However, this all happened at relatively low speed – the PA28 flying at 90kt and the biplane crossing at about 75kt. So whilst the sighting of each other's ac was at a very late stage, both pilots had time to accomplish sufficient avoiding action to avert an actual collision. Consequently, the Board agreed unanimously that the safety of the ac involved had indeed been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tiger Moth pilot entered the Fairoaks ATZ in contravention of Rule 45 of the Rules of the Air Regulations 2007 and flew into conflict with the PA28.

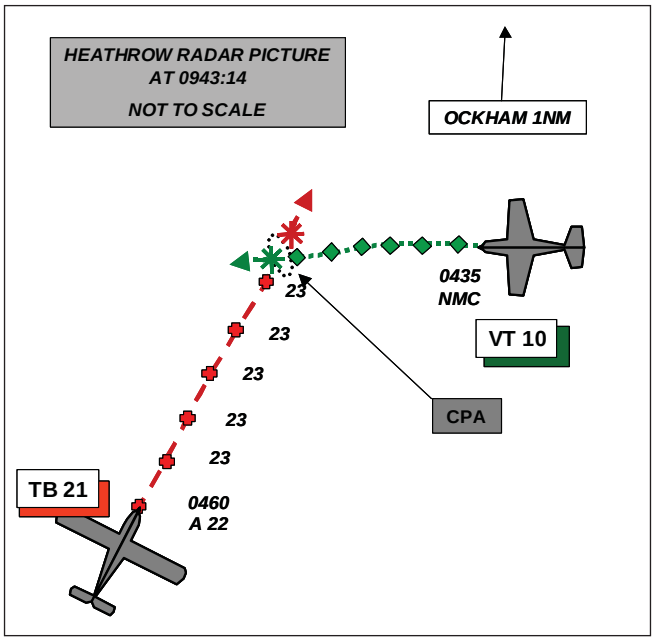
Degree of Risk: B.

Section 4 A Life Saver?

It seems that we are frequently analysing things that go wrong as a result of poor airmanship, planning, etc. Some Airprox come through the system which demonstrate that doing most of the things right can actually make a difference. The following report is a good example of this. No-one can guarantee that you're going to see every aircraft in a VFR environment so both pilots made some very wise decisions in an effort to minimise the risk of collision in what in essence was a 'see and avoid' environment. Whilst it could be said that this didn't prove successful, it probably saved their lives. The ultimate benchmark perhaps!

AIRPROX REPORT No 120/07

Date/Time:	5 Aug 0943 (Sunday)	
Position:	5117N 00027W (2nm S Ockham OCK)	
Airspace:	LON FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Victa Airtourer	TB21
Operator:	Civ Club	Civ Pte
Alt/FL:	2400ft (QNH 1011mb)	2300ft (QNH NR)
Weather Visibility:	VMC CAVOK >10km	VMC CAVOK >10km
Reported Separation:	<50ft V/0 H	NR
Recorded Separation:	(estimated 0 H)	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE VICTA AIRTOURER (VT10) PILOT reports flying a red and white ac with the red beacon switched on, on a private flight from Rochester to Compton Abbas. SSR was fitted but with no Mode C. After leaving Rochester to the W he contacted Biggin Hill for a FIS and he passed Biggin Hill to the S along the M25 at 105kt and then to the N of the London Gatwick TMA at 2400ft. He continued on a heading of 270° and once S abeam Kenley he contacted Farnborough Radar who told him to squawk 0435. He was identified and given FIS, passed his route and was 'cleared' direct to OCK, remaining at 2400ft on the London QNH of 1011mb.

En-route to OCK he was advised by Farnborough Radar of a Helicopter travelling in the opposite direction which he saw slightly to his right and beneath him by about 1000ft. He then passed about 1.5nm to 2nm to the S of OCK still at 2400ft.

When he was S of OCK he looked down at his map momentarily to check his next track which was 255° and took him direct to Compton Abbas. After a few sec he looked back to his front and saw an ac immediately in front of him 200ft away and about 50ft higher and heading straight towards him. Within a second the ac passed above him and continued on its track. There was no time to react and take any avoidance.

The other ac was a low wing; single engine ac with a retractable undercarriage, he thought possibly a Piper Arrow or a TB10; it was white underneath and had a registration mark on one wing but it passed too quickly to read it.

Once S abeam Farnborough he called Radar to clarify his clearance into the Odiham MATZ and was again given the same transponder code and told was on receipt of a FIS as though he had made an initial call. He thought this was strange since he had already been given this service a few minutes earlier so he thought that there had been a change of controllers between his calls.

He assessed the risk as being high.

THE TB21 PILOT reports that he was contacted by West Drayton ATC who advised that an Airprox had been reported. He was flying a private flight from Jersey via OCK and Eastwards to Biggin Hill in a grey, red and white ac with strobes and nav lights switched on. He was squawking as directed with Mode C and was cruising at 2300ft on the London QNH [1011] and at 130kt, in receipt of a RIS from Farnborough RADAR. He recalled that the weather was good with very clear visibility and the traffic was heavy. Rather than flying directly over the beacon he normally routes slightly off the beacon for good practice as many others route directly over the beacon just below the CAS; on that flight he routed 1nm SW of the beacon.

He does not recall seeing any other ac in close proximity and was not given any avoiding action or TI by ATC at that location.

UKAB Note (1): The recording of the Heathrow Radar showed the incident. The Airtourer, squawking 0460, routes 1nm to the S of OCK tracking 260° but shows NMC, while the TB21 tracks about 030° towards the beacon. The CPA occurred between sweeps as the ac cross but the minimum horizontal separation is projected as being zero; the TB21 indicates an alt of 2200ft. As the diagram shows the ac approach on a line of constant bearing with the Airtourer slightly slower than the TB21 and maintaining a position in its 1 o'clock.

ATSI reports that the pilot of the Airtourer called Farnborough Radar at 0936:10, and reported routeing via OCK and SAM at 2400ft, present position 11nm E of OCK and requesting a FIS. The controller confirmed that a FIS would be provided and allocated a squawk of 0435. At 0937:10, the TB21 pilot called and was asked to standby. Shortly afterwards the controller requested the pilot to pass his details and he stated that he was abeam MID at 2500ft and "*….request Flight Information Service er Radar Information Service*".

The controller advised that it would be a FIS and allocated a squawk of 0460. At 0938:25, the controller advised the Airtourer pilot that he was identified 8nm E of OCK and reiterated that he was in receipt of a FIS. At 0940:10 the TB21 pilot was informed that he was identified 3nm N of Dunsfold, in receipt of a FIS, and passed TI on two nearby contacts. Shortly afterwards a change of controller took place and the position was manned by a mentor and a trainee.

The new controller advised the TB21 pilot that on his initial call he was actually within the London TMA (just E of MID at 2500ft) and to check his routeing, which the pilot acknowledged. There were no further transmissions from either of the subject pilots until shortly after 0944:30, when the controller informed the TB21 pilot that he was about to enter the Heathrow CTR and to turn right at least 20º.

UKAB Note (2): An analysis of the radar recording which was similar to that at UKAB Note (1) was provided.

It is evident from the RTF that the controller was busy at the time and, in accordance with the terms of a FIS, as specified in MATS Part 1 Section 1, Chapter 1, page 2, para 6.2: '*…..controllers will, subject to workload, provide pilots with information concerning collision hazards to aircraft operating in Class C, D, E, F and G airspace where self evident information from any source indicates that a risk of collision may exist. It is accepted that this information may be incomplete and the controller cannot assume responsibility for its issuance at all times or for its accuracy*'.

The pilot of the TB21 made no mention of routeing towards OCK and it might reasonably have been assumed that once clear of the Gatwick CTR a track of approximately 070º would have been followed to take the ac direct to its destination of Biggin Hill, thus remaining well S of OCK.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, a radar video recording, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

This very serious incident took place in a very busy portion of the London FIR where many GA aircraft route, in both directions, around the London CTR and below the TMA, where the 'see and avoid' principle applies. The congestion is exacerbated near navigation beacons. Both pilots had, in the view of the Board, wisely opted for an ATC Information Service and both had again wisely avoided the overhead of the beacon, thus minimising the collision risk; in this case unfortunately neither proved to be successful. Fortunately however, they had opted to fly at differing altitudes, albeit by only 100ft or so, as this had almost certainly been the only factor that had prevented the ac from colliding.

Although Farnborough Radar can be very busy indeed, specialist GA Members strongly urged that pilots make use of it where possible but also emphasised that it is only an aid to good lookout and, like any other such unit, they can become loaded to the extent that controllers do not see or warn pilots of every confliction.

As witnessed in this incident navigating in that complex area can also be difficult, time consuming and can reduce the time available for look out; specialists again wished to remind pilots that good practise is to interrupt tasks such as map reading, frequency and squawk changes and intersperse short spells of lookout.

Since the Airtourer pilot did not see opposing ac in time to react and the TB21 pilot did not see the Airtourer at all, Members agreed unanimously that there had been an actual risk that the ac would have collided.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the TB21 pilot and effectively, a non-sighting by the Victa Airtourer pilot.

Degree of Risk: A.

List of Abbreviations

aal	Above aerodrome level
ac	Aircraft
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ACN	Airspace Co-ordination Notice
A/D	Aerodrome
ADC	Aerodrome Control(ler)
ADF	Automatic Direction Finding Equipment
ADR	Advisory Route
AEF	Air Experience Flight
AEW	Airborne Early Warning
AFIS(O)	Aerodrome Flight Information Service (Officer)
agl	Above Ground Level
AIAA	Area of Intense Aerial Activity
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Services
alt	Altitude
amsl	Above mean sea level
AOB	Angle of Bank
A/P	Autopilot
APP	Approach Control(ler)
APR	Approach Radar Control(ler)
ARP	Aerodrome Reference Point
ASR	Airfield Surveillance Radar
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
ATCO	Air Traffic Control Officer
ATCRU	Air Traffic Control Radar Unit
ATIS	Automatic Terminal Information Service
ATM	Aerodrome Traffic Monitor
ATS (U)	Air Traffic Service (Unit)
ATSA	Air Traffic Service Assistant
ATSOCAS	ATSs Outside Controlled Airspace
ATSI	Air Traffic Services Investigations
ATZ	Aerodrome Traffic Zone
AWACS	Airborne Warning and Control System
AWR	Air Weapons Range
BGA	British Gliding Association
BHAB	British Helicopter Advisory Board
BHPA	British Hang Gliding and Paragliding Association
BINA ERS	British Isles/N Atlantic En Route Supplement
BMAA	British Microlight Aircraft Association
c	circa
CAA	Civil Aviation Authority
CANP	Civil Air Notification Procedure
CAS	Controlled Airspace
CAT	Clear Air Turbulence
CAVOK	Visibility, cloud and present weather better than prescribed values or conditions
cct	Circuit
CFI	Chief Flying Instructor
CinC Fleet	Commander in Chief Fleet, Royal Navy
CLAC	Clear Above Cloud
CLAH	Clear Above Haze
CLBC	Clear Below Cloud
CLBL	Clear Between Layers
CLOC	Clear of Cloud
CMATZ	Combined MATZ
CPA	Closest Point of Approach
C/S	Callsign
CTA	Control Area
CTR/CTZ	Control Zone
CWS	Collision Warning System
DA	Decision Altitude
DAAvn	Director Army Aviation
DAP	Downlinked Ac Parameters [Mode S]
DAP	Directorate of Airspace Policy CAA
D & D	Distress & Diversion Cell
DF	Direction Finding (Finder)
DH	Decision Height
DME	Distance Measuring Equipment
DUA	Dedicated User Area
E	East
EAT	Expected Approach Time
elev	Elevation
ERS	En Route Supplement
est	estimated
FAT	Final Approach Track
FIR	Flight Information Region
FIS	Flight Information Service
FISO	Flight Information Service Officer
FMS	Flight Management System
FO	First Officer
fpm	Feet Per Minute
fps	Flight Progress Strip
GAT	General Air Traffic
GCA	Ground Controlled Approach
GCI	Ground Controlled Interception
GMC	Ground Movement Controller
GP	Glide Path
GS	Groundspeed
H	Horizontal
HISL	High Intensity Strobe Light
HLS	Helicopter Landing Site
HMR	Helicopter Main Route
HPZ	Helicopter Protected Zone
HQ Air	HQ Air Command
HUD	Head Up Display
IAS	Indicated Air Speed
iaw	In accordance with
ICF	Initial Contact Frequency
IFF	Identification Friend or Foe
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
JOI	Joint Operating Instruction
JSP	Joint Services Publication
KHz	Kilohertz
kt	Knots
km	Kilometres
L	Left
LACC	London Area Control Centre (Swanwick)
LARS	Lower Airspace Radar Service
LATCC(Mil)	London Air Traffic Control Centre (Military)
LFA	Low Flying Area

LFC	Low Flying Chart
LH	Left Hand
LLZ	Localizer
LJAO	London Joint Area Organisation (Swanwick (Mil))
LoA	Letter of Agreement
LTMA	London TMA
MACC	Manchester Area Control Centre
MATS	Manual of Air Traffic Services
MATZ	Military Aerodrome Traffic Zone
mb	Millibars
MHz	Megahertz
MoD	Ministry of Defence
MRSA	Mandatory Radar Service Area
MSD	Minimum Separation Distance
N	North
NATS	National Air Traffic Services
NDB	Non-Directional Beacon
nm	Nautical Miles
NMC	No Mode C
NK	Not Known
NR	Not Recorded
NVG	Night Vision Goggles
OAC	Oceanic Area Control
OACC	Oceanic Area Control Centre
OAT	Operational Air Traffic
O/H	Overhead
OJTI	On-the-Job Training Instructor
OLDI	On-Line Data Interchange
PAR	Precision Approach Radar
PFL	Practice Forced Landing
PF	Pilot Flying
PI	Practice Interception
PINS	Pipeline Inspection Notification System
PNF	Pilot Non-flying
QDM	Magnetic heading (zero wind)
QFE	Atmospheric pressure at aerodrome/airport elevation (or at runway threshold)
QFI	Qualified Flying Instructor
QHI	Qualified Helicopter Instructor
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
R	Right
RA	Resolution Advisory (TCAS)
RAS	Radar Advisory Service
RAT	Restricted Area (Temporary)
RCO	Range Control Officer
RH	Right Hand
RIS	Radar Information Service
ROC	Rate of Climb
ROD	Rate of Descent
RPS	Regional Pressure Setting
RT	Radio Telephony
RTB	Return to base
RVSM	Reduced Vertical Separation Minimum
RW	Runway
RVR	Runway Visual Range
S	South
SA	Situational Awareness
SAP	Simulated Attack Profile
SAS	Standard Altimeter Setting
SC	Sector Controller
ScATCC(Mil)	Scottish Air Traffic Control Centre (Military)
ScOACC	Scottish and Oceanic Area Control Centre
SFL	Selected Flight Level [Mode S DAP]
SID	Standard Instrument Departure
SMF	Separation Monitoring Function
SOP	Standard Operating Procedures
SRA	Surveillance Radar Approach
SRE	Surveillance Radar Element of precision approach radar system
SSR	Secondary Surveillance Radar
STAR	Standard Instrument Arrival Route
STCA	Short Term Conflict Alert
SVFR	Special VFR
TA	Traffic Advisory (TCAS)
TAS	True Air Speed
TBC	Tactical Booking Cell
TC	Terminal Control
TCAS	Traffic Alert & Collision Avoidance System
TRA	Temporary Restricted Area
TFR	Terrain Following Radar
TI	Traffic Information
TMA	Terminal Control Area
TRUCE	Training in Unusual Circumstances and Emergencies
UAR	Upper Air Route
UHF	Ultra High Frequency
UIR	Upper Flight Information Region
UKDLFS	United Kingdom Day Low Flying System
UKNLFS	United Kingdom Night Low Flying System
UNL	Unlimited
USAF(E)	United States Air Force (Europe)
UT	Under Training
UTA	Upper Control Area
UTC	Co-ordinated Universal Time
V	Vertical
VCR	Visual Control Room
VDF	Very High Frequency Direction Finder
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Omni Range
VRP	Visual Reporting Point
W	West