

## INDEX AND ASSESSMENT SUMMARY

Meeting Date: 17 Mar 2010

Totals: 21

Risk A: 3

Risk B: 2

Risk C: 16

Risk D: 0

<u>No</u>	<u>Reporting</u>	<u>Reported</u>	<u>Airsp ace</u>	<u>Cause</u>	<u>Risk</u>
2009-093	C152 (CIV)	PA28 (CIV)	G	Conflict in Class G Airspace resolved by the C152 pilot.	C
2009-095	C560 XLS (CIV)	SOCATA TB10 (CIV)	A/G	Sighting Report (TCAS)	C
2009-097	BE400A (CIV)	C152 (CIV)	G	Whilst completing an ILS approach in Class G airspace, the BE400A flew into conflict with the C152, whose pilot did not see it until late.  Contributory Factor: The C152 flew through the Biggin Hill Final Approach Track without its pilot communicating with an ATSU.	C
2009-098	SW4 (CIV)	A320-214 (CAT)	D	A controller-perceived conflict.	C
2009-099	EMB135 (CIV)	TB200 (CIV)	G	A sighting report (TCAS).	C
2009-101	Sea King Mk3 (MIL)	Europa (CIV)	G	Effectively a non-sighting by the Europa pilot and a late sighting by the Sea King pilots.	C
2009-102	R44 (CIV)	Untraced Light Ac (N/K)	G	Probable non-sighting by the untraced light aircraft pilot and a late sighting by the R44 pilot.	B
2009-103	F406 (CIV)	Hawk T Mk1 (MIL)	G	A non-sighting by the Hawk crew and a late sighting by the F406 pilot.	A
2009-104	ASK21 (CIV)	C560XL (CIV)	G	A mistaken impression of the vertical separation from the C560XL, by the ASK21 pilot, overhead a promulgated and active glider site.	C

2009-105	Vigilant T1 (MIL)	Grob Tutor (MIL)	G	The Tutor pilot (Tutor 1) flew his aircraft into conflict with the Vigilant, which he did not see, as he left the circuit.  Contributory Factor: A second Tutor (Tutor 2) flew an orbit downwind in the circuit ahead of Tutor 1.	C
2009-106	B737-800 (CAT)	Balloon (CIV)	A/G	A sighting report.	C
2009-107	A319 (CAT)	SK76 (CIV)	D	A perceived conflict in Class D airspace.  Contributory Factor: Late Traffic Information to the A319 crew.	C
2009-108	Vigilant M/Glider (MIL)	C182 (CIV)	G	A non-sighting by the C182 pilot and a late sighting by the Vigilant instructor.	B
2009-112	EC225 (CAT)	AS332L2 (CAT)	D	While following departure instructions, the aircraft flew into conflict.	C
2009-117	BE200 (MIL)	PA28 (CIV)	G	A conflict in the Waddington circuit resolved by the pilots of both aircraft.  Contributory Factor: The lack of Traffic Information from the ADC to aircraft in the circuit operating on different RT frequencies.  Recommendation: The MoD is recommended to direct that, whenever it is possible to do so, aircraft in the visual circuit operate on the same frequency.	C
2009-118	B737-800 (CAT)	H269 (CIV)	D	The H269 pilot climbed above his assigned altitude and into conflict with the B737.	C

2009-119	DG500 Glider (CIV)	Hawk T Mk1 pr (MIL)	G	<p>A non-sighting by the lead Hawk pilot.</p> <p>Recommendations:</p> <p>(i) That the MoD and BGA jointly consider the promulgation of more information about gliding operations from sites that conduct ridge or mountain wave soaring, for the information of military crews.</p> <p>(ii) That the MoD and the BGA should consider formulating notifying arrangements with the aim of forewarning military crews when gliding clubs are conducting ridge or mountain wave soaring.</p>	A
2009-122	Tornado GR4 (MIL)	Untraced Light Ac (N/K)	G	A conflict in the FIR/DLFS resolved by the Tornado crew.	C
2009-123	Robin DR300 - Glider Combination (CIV)	Spitfire (CIV)	G	The Spitfire pilot flew close enough to the DR300 – glider combination to cause their pilots concern.	C
2009-125	AW139 (CIV)	F406 (CIV)	G	Late sightings by the pilots of both aircraft.	C
2009-128	EV97 Eurostar (CIV)	R22 (CIV)	G	A non-sighting by the R22 pilot and, effectively, a non-sighting by the EV97 pilot.	A

-end-

## AIRPROX REPORT No 2009-093

Date/Time: 24 August 1043

Position: 5158N 00056E (9½nm  
S of Wattisham - elev:  
283ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: C152 PA28

Operator: Civ Pte Civ Club

Alt/FL: 3600ft 3400ft  
QNH (1005mb) QNH (1005mb)

Weather: VMC CLBC VMC CAVOK

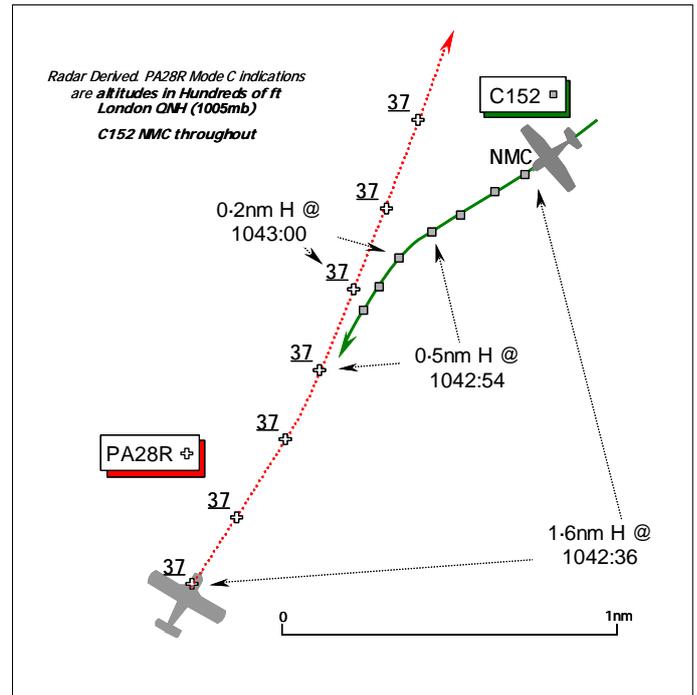
Visibility: >10km 30-40km

Reported Separation:

200ft V/300m H 300-500ft V/0.25m H

Recorded Separation:

<0.2nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE C152 PILOT** reports he was flying VFR in VMC, some 3000ft below and 20km clear of cloud whilst flying within his local area of Colchester, Harwich, and Ipswich. He had originally requested a Traffic Service (TS) with Wattisham APPROACH (APP), but as their radar was unserviceable he was operating under a Basic Service (BS) with APP on 125.8MHz, whilst on the return leg of his flight back to Earls Colne aerodrome. About 1nm S of Raydon disused airfield, heading 230° at 90kt routeing to the N of Colchester, he heard on the RT the pilot of another ac report overhead Abberton Reservoir at an altitude of 3400ft, routeing via the overhead of Crowfield with the intention of landing at Horham. He anticipated there might be a potential conflict and so he recalled APP to report his position, altitude, estimate for the North of Colchester of 1045 and to advise the controller that he would keep looking for the other ac. He then climbed to an altitude of 3600ft (1005mb) to establish a little more potential height separation. Some 3-4min later at a position given as 315 CLN VOR 9.5DME [the Airprox actually occurred about 4½nm N of the position given – some 9½nm S of Wattisham] he spotted a white Piper Arrow in his 11 o'clock - about 300m away, about 200ft below his ac. To avoid the other ac [whose registration was given] he initiated an urgent climbing L turn to the South. After the Piper Arrow had passed he resumed his own navigation for Earls Colne. Assessing the Risk as "medium", he reported the Airprox by telephone to Wattisham APP after landing. His ac is coloured white and the red tail-mounted anti-collision beacon was on. SSR was selected on with Mode C [although not evident on the radar recording].

**THE PIPER PA28R ARROW PILOT** reports that he had departed Lydd bound for Earls Colne for a 'touch and go', before returning to Lydd. He was maintaining a level cruise at 3400ft Wattisham QNH in CAVOK heading 025° at 125kt, whilst in receipt of a BASIC Service from APP on 125.8MHz.

A small single engine aeroplane – possibly a C152 – was spotted <½nm away. From what he remembers the other ac passed him on his right hand side about ¼nm away some 3-500ft above his PA28R, having turned left and climbed. As far as he was concerned it was a fairly late sighting, but he assessed that there was "no" risk of a collision and he did not need to take any avoiding action. It was a normal event in Class G airspace whilst VFR. The event was so unremarkable he took little note of the details - a white plane was seen fairly late on that flight, so he's assuming that was the C152, but in his view it was not an Airprox. He added that it was a good job that he hadn't changed course, because if he had it would have been to the R - as per the Rules of the Air – but into conflict.

**ATSI** reports that Wattisham APP was providing both flights with a BS. Traffic levels on the frequency were low at the time of the Airprox. The pilot of the C152 had requested a TS but he had been informed that this was not possible as the radar was out of service.

The C152 pilot contacted Wattisham APP at 1017, reporting *“in the local area 2 miles south of Colchester altitude 3 Thousand 5 Hundred feet”*. The pilot was instructed to squawk A4501, the Wattisham conspicuity code, and informed it would be a BS, which he acknowledged. The controller suggested that if he wanted a TS, he could try Southend. The pilot opted to remain with APP on a BS and was issued with the Wattisham QNH - 1005mb. Some 19min later, the pilot of the P28R established communication with Wattisham APP, reporting *“from Southend on a Navex to Crowfield with an unknown diversion currently overhead Abberton Reservoir 3 Thousand 4 Hundred feet on QNH 1-0-0-5 just requesting a Basic Service”*. The ATS was confirmed, the pilot instructed to squawk A4501 and requested to report turning at Crowfield. Abberton Reservoir is situated about 5nm S of Colchester.

Shortly afterwards, the pilot of the C152 called APP and commented *“... [C/S] just south of Raydon 3 Thousand 5 Hundred feet routeing to the north of Colchester we’ll look out for the traffic just overhead Abberton Reservoir same altitude”*. The pilot confirmed he was routeing back to Earls Colne, estimating Colchester at 1045. Approximately 5min later the C152 reported N of Colchester at 3500ft, requesting to change frequency to Earls Colne, which was approved.

The next call from the P28R pilot occurred about 1min later, when he reported approaching overhead Crowfield, turning direct to Earls Colne. He subsequently, left the frequency at 1058. Neither pilot made any comment, on the frequency, about the close proximity of any other traffic.

A BS is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights, which relies on the pilot avoiding other traffic unaided by controllers. It is essential that a pilot receiving this service remains alert to the fact that, unlike a TS and a Deconfliction Service, the provider of a BS is not required to monitor the flight. Pilots should not expect any form of traffic information from a controller, as there is no such obligation placed on the controller under a BS outside an ATZ, and the pilot remains responsible for collision avoidance at all times’.

UKAB Note (1): The Debden Radar recording shows the C152 approaching on a steady SW’ly, squawking the assigned Wattisham conspicuity squawk – A4501 - but with No Mode C displayed at all throughout the encounter. The PA28R is shown squawking the same code maintaining a level cruise at an altitude of 3700ft London QNH (1005mb) on a NNE’ly course at a radar calculated ground speed (RGS) of broadly 150kt during the period of the encounter. The 2 ac closed to a range of 0.5nm at 1042:54 - the C152 at a RGS of broadly 60kt – whilst converging on a position 9½nm S of Wattisham. The reported avoiding action L turn effected by the C152 pilot is shown from this point onwards but with no indicated Mode C the climb is not illustrated. The two ac pass starboard to starboard, in between sweeps, just after 1043:00 when they are shown 0.2nm apart.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

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

It was immediately evident to the Board that both these flights were under a BS from the same ATSU and the ATSI report had made it plain that there was no requirement for ATC to provide TI to the 2 pilots. Thus in the ‘see & avoid’ environment of Class G airspace, the pilots were responsible for separation from each other’s ac. Fortunately, these two flights were operating on the same RT frequency and this enabled the C152 pilot to hear the PA28R pilot’s routeing and transit altitude, thereby highlighting to him the potential for a conflict along his own route. Although there was no compunction to do so, the C152 pilot had wisely climbed to 3600ft – some 200ft above the PA28R’s

altitude of 3400ft - to provide a degree of vertical separation. However, with no indicated Mode C, the radar recording does not show the climb or the minimum vertical separation. Pilot Members agreed that this was a sensible precaution but it was unfortunate that the C152 pilot had not broadcast his intentions on the frequency for the benefit of the PA28R pilot, who potentially might have performed the same manoeuvre thereby negating the reporting pilot's astute actions. Pilot Members also recognised that under the Rules of the Air the PA28R pilot was responsible for giving way to traffic on his R – as was the C152 in this instance. Nevertheless, the 'Rules' can only work if traffic is sighted in sufficient time to take effective action. Here, the PA28R pilot reports that the C152 was spotted less than ½nm away and the other ac passed him on his right hand side having turned left and climbed. So for his part the PA28R pilot assessed that there was no Risk and that he did not need to take any avoiding action, albeit that it was a fairly late sighting. The GA pilot Member did not consider visual sighting at this range unreasonable and the radar recording reflects that the C152 pilot was initiating his avoiding action climbing L turn at this point. The Members concluded unanimously that this Airprox had resulted from a conflict in Class G airspace resolved by the C152 pilot. Whereas the recorded radar data showed that the PA28R had passed less than 0.2nm away to starboard and was apparently not less than 200ft below the C152 according to the latter pilot's report, it was apparent that both pilots had sighted each other's ac by that stage. Therefore, in the Board's view, the C152 pilot's action had been effective and removed any Risk of a collision.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Conflict in Class G airspace resolved by the C152 pilot.

Degree of Risk: C.

## AIRPROX REPORT No 2009 095

Date/Time: 27 August 1404

Position: 5125N 00010E (8nm  
NE Biggin Hill)

Airspace: London CTA/FIR (Class: A/G)

Reporting Ac Reported Ac

Type: C560 XLS Socata TB10

Operator: Civ Comm Civ Pte

Alt/FL: 3000ft 2300ft  
(QNH 1013mb) (QNH 1013mb)

Weather IMC (CLBC) VMC

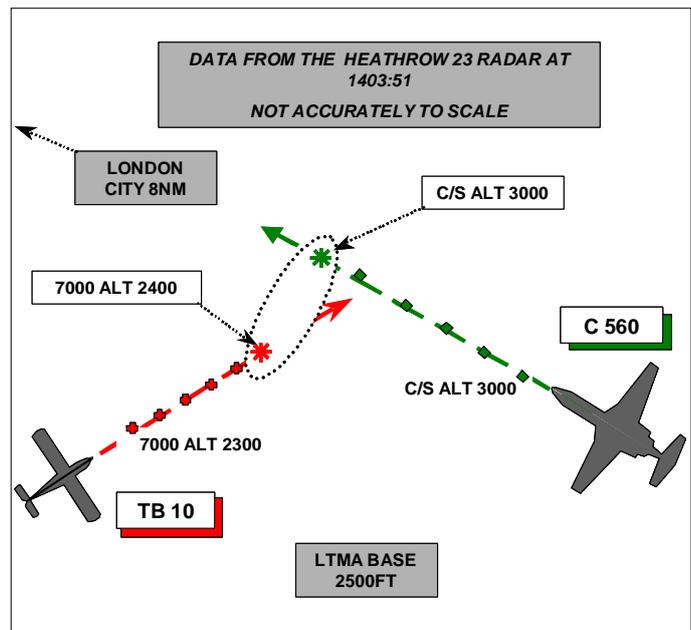
Visibility: >10km >10km

Reported Separation:

NR NR

Recorded Separation:

600ft V/0.5nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE C560 PILOT** provided a brief report stating that while flying an IFR executive flight inbound Biggin Hill squawking as directed with Mode C. Having broken cloud but still technically IMC, at about 8DME at 3000ft QNH in the final descent and in receipt of a RCS from Thames Radar he received a TCAS RA Climb, which he followed, on traffic about 500ft below him. He did not see [see ATSI report/transcript] the other ac or assess the risk but reported the incident to Thames Radar.

**THE SOCATA TB10 PILOT** reports flying a VFR private flight from Redhill to Southend with one pilot and one passenger (non-pilot) on board in a blue and white ac with strobes selected on. He was squawking 7000 with Mode C and S and was in contact with Biggin Hill APP. He departed RW18 to the E from Redhill at 1354 and his initial alt was below 1500ft in order to remain below Gatwick airspace. Once clear of Gatwick he climbed to 2300ft QNH (to remain below the London TMA). The route was S and E of Biggin Hill to remain outside their ATZ. The track was then to the N (E of Swanley) to the Thames and then after making one orbit (E of the Dartford crossing and S of the Thames) was direct to Southend.

Shortly after having cleared the Redhill ATZ he changed frequency to Biggin APR but by the time he managed to contact them he had passed their ATZ so no flight service was given. Shortly after that frequency was changed again to Southend APR.

He saw only one ac in the Biggin area and that was a light single piston ac.

**ATSI** reports that at 1358:35, Thames Radar instructed the C560 to leave DET on a radar heading of 295°. The flight was descending to 4000ft and being vectored from DET for an ILS approach to RW21 at Biggin Hill. Thames Radar issued further descent to 3000ft on the Biggin QNH 1013mb at 1401:29 since by then the ac was in an area of the LTMA where the base of CAS is 2500ft amsl.

MATS Part 1, Section 1 Chapter 6 Page 4 Paragraph 9, 'Use of Levels by Controllers' states, in part:

*'Except when ac are leaving controlled airspace by descent, controllers should not normally allocate a level to an ac which provides less than 500 feet vertical separation above the base of a control area or airway. This will provide some vertical separation from ac operating beneath the base of controlled airspace'*

After a heading change to 305° and a speed reduction to 180kts, at 1403:19 the C560 was alerted to observed unknown traffic (the subject TB10) “...there is traffic er below you believed to be outside controlled airspace in er eleven o'clock range two miles heading north eastbound indicating two thousand three hundred feet unverified”, the pilot responding immediately “Yeah we have him in sight (callsign)”. Within 15sec the pilot announced, “ (callsign) we have a TCAS er conflict”, the controller responding with “Roger advise me when back under my control”. At 1404:07, the C560 pilot reported, “ (callsign) we're now descending altitude 3000ft it was a TCAS climb”, which was acknowledged by the controller.

An examination of the radar recording shows that when first alerted to the traffic the C560 was indicating level at 3000ft, with the unknown ac converging in its eleven o'clock from a range of 2.7nm at 2300ft Mode C and squawking 7000. The unknown's Mode C briefly indicates 2400ft when it reached the C560's 09:30 position. At the time of the next sweep, the C560 pilot had announced the “TCAS conflict” and the unknown was passing 0.5nm to the S, once more indicating 2300ft. Thereafter the tracks diverge while the C560 is responding to the TCAS climb, reaching 3400ft before returning to its cleared alt of 3000ft.

The RTF recording reveals that the TB10 established communications with Biggin Hill APR at 1359:38, the pilot reporting en-route from Redhill to Southend at 2400ft on the QNH 1013mb and requested to route overhead. The controller instructed the flight to report overhead ‘not below 2000ft’ under a BS. Ultimately the ac did not pass overhead, but routed to the S and E of Biggin Hill. At 1401:55, the flight was advised to QSY to Southend.

UKAB Note (1): An analysis of the Heathrow 23cm and Debden Radars confirmed the analysis in the ATSI report above and indicated a CPA of 600ft V and 0.5nm H.

## **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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

Although both ac were operating legitimately the C560 in Class A CAS and the TB10 in the Class G below the CTA, Members considered the latter's routing through the Biggin Hill FAT ill-advised, particularly as he was based close to Biggin Hill and would most likely have been familiar with its procedures and traffic intensity.

It was unclear to Members whether the C560 had seen the TB10 visually (as he reported on the RT but contrary to the written report he provided) or whether he had only seen it only as a TCAS contact; Members agreed that the latter had been the most likely. That being the case, although neither pilot had seen the other ac, probably due to the cloud structure, the radar data showed that the ac were separated by 600ft, were legitimately in their respective classes of airspace and TCAS had functioned as expected in the circumstances. There had, therefore, been no risk of collision.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Sighting report (TCAS).

Degree of Risk: C.

## AIRPROX REPORT No 2009-097

Date/Time: 31 Aug 1457

Position: 5124N 00005E (5nm NNE  
Biggin Hill - elev 599ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: BE400A C152

Operator: Civ Comm Civ Trg

Alt/FL: 1800ft↓ 2000ft  
(QNH) (QNH 1010mb)

Weather: VMC NR VMC CLOC

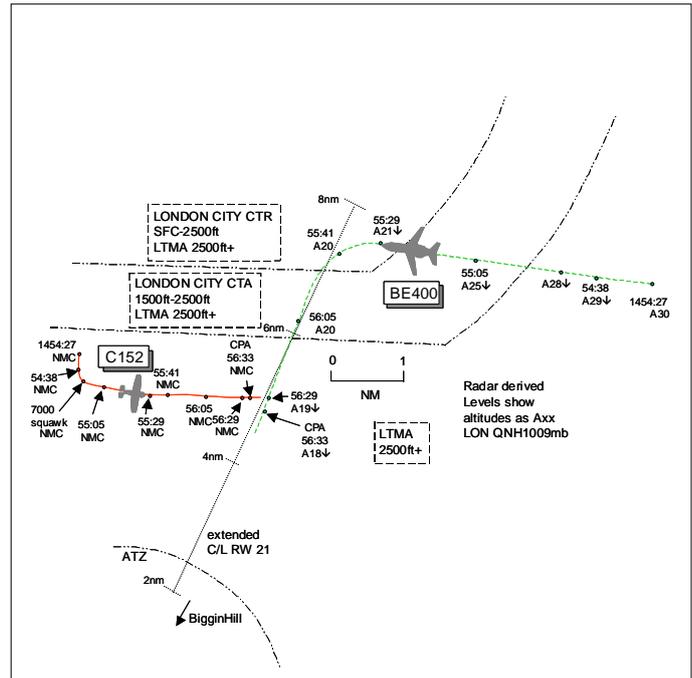
Visibility: >10km 30km

Reported Separation:

Nil V/200m H Nil V/75m H

Recorded Separation:

200ft V/0-3nm H



**BOTH PILOTS FILED**

### PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE BE400A PILOT** reports inbound to Biggin Hill IFR and in receipt of a RCS from Thames on 132.7MHz squawking with Modes S and C. The visibility was >10km in VMC and the ac was coloured white with dark red, black and silver stripes; no lighting was mentioned but TCAS was fitted. Whilst under radar control they were cleared for an ILS to RW21 at Biggin under a speed restriction of 180kt. Shortly before GP intercept at 2000ft, Thames advised them of C152 traffic 1nm crossing R to L (heading E). They saw nothing on TCAS and after a few seconds acquired the ac visually. Since the TI was so detailed they assumed the C152 was under Thames control but this was not the case. The C152 made an evasive manoeuvre (L towards the N), he thought, where the lateral distance was estimated to be 200m with nil vertical separation. As they were at GP intercept they continued the approach, descending through 1800ft away from the much slower C152, assessing the risk as high.

After speaking to the Biggin Hill ADC he found out that the C152 was not in RT contact with any controller. Also the LOC/GP intercept and first portion of the ILS approach is conducted in uncontrolled Class G airspace before entering the 2-5nm radius ATZ; normally no warning is given by Thames Radar on leaving CAS. Apparently Thames Radar had not spotted the conflict and the Biggin ADC had relayed the traffic conflict via telephone after visually acquiring the C152 through binoculars. As the TMA starts at 2400ft [actually 2500ft], he wondered why the ILS is not intercepted from 2400ft so as to provide a truly controlled area. He felt that this incident illustrates the false sense of security when operating under a perceived RCS with Thames Radar. The gap between leaving TMA and reaching the ATZ boundary is of such magnitude that the event is very likely to occur in the near future.

**THE C152 PILOT** reports flying a local dual training sortie from Biggin VFR and listening out with Biggin Approach on 129.4MHZ squawking 7000 with NMC. The visibility was 30km in VMC and the ac was coloured white with red/grey stripes; the anti-collision, nav and landing lights were all switched on. They had previously been under a RCS squawking 7050 from Thames Radar on 132.7MHz in the City CTR/CTA heading 170° at 90kt at 2000ft before leaving CAS to the N of BIG VOR. When 5nm N of BIG VOR, he turned towards Swanley [E'ly track] remaining 5nm distant from BIG and Thames told him to 'squawk 7000 and freecall Biggin Approach on 129.4'. He changed his squawk and selected frequency 129.4MHZ; however, his call to Biggin was delayed as his trial lesson student

informed him that she felt nauseous. He became distracted as he opened the student's window and then found a sick bag. Shortly afterwards he saw a white coloured twin engine 'bizjet' with low, swept wings very late through the windscreen at the same height about 75m away as it descended on long final for RW21; previously it was obscured by his ac's L wing. Immediately he closed the throttle, more out of surprise than as avoiding action because by the time he had seen the ac it was too late. He realised that during the time from when he turned L until reaching the extended C/L (about 1min 40sec) he should have called on the frequency before crossing through the C/L. He continued to monitor 129.4MHz and waited to hear if anything was mentioned on the frequency; however, he decided not to discuss it over the radio but to talk to Tower after landing. After completing his GH part of the exercise near Brands Hatch, he routed towards Sevenoaks and then heard Biggin Approach asking another pilot to identify his ac. He told Approach that it would not be necessary and he identified himself to the controller. After this he joined the cct and landed before telephoning the Tower. He assessed the risk as high.

He listed lessons that he had learnt from the incident: -

1. Even outside CAS, always obtain some sort of service when crossing an extended C/L – he already knew this but it had been reinforced by this encounter.
2. Do not get distracted by student.
3. When Biggin Hill are operating on 2 frequencies (Approach and Tower not bandboxed), ILS traffic is handed direct to Tower from Thames Radar so he would not hear any calls from the flight on the Approach frequency.

**THE BIGGIN HILL APP** reports he received a 10nm check from Thames Radar on the BE400, which was being vectored by them for an ILS approach to RW21. As he looked up the approach he saw what seemed to be a C152 crossing the FAT from W to E and this was confirmed by checking the ATM, which showed a radar return at about 4nm N of Biggin tracking E. He telephoned Thames Radar and passed them TI giving type, direction of flight and approximate altitude; neither the BE400 nor the C152 were on his frequency at the time. The BE400 was transferred by Thames Radar to the Biggin Tower frequency 134.8MHz (as per MATS Pt2) at a range of about 2-3nm. The C152 pilot eventually called inbound VFR from the Sevenoaks area some 15min later. On landing the pilot of the BE400 advised that he would be filing an Airprox and these intentions were passed on to Thames Radar.

The Biggin METAR shows EGKB 311450 20016KT CAVOK 24/06 Q1010=

**THE THAMES RADAR CONTROLLER** reports mentoring a trainee and he assessed the workload as medium to high owing to a RW change occurring at London/City. He had just intervened on behalf of his trainee as the complexity of the situation was rising. The C152 was on a local trip from Biggin and had been transiting the London/City CTR on a VFR clearance; its pilot had reported that after overflying the O2 arena he would be routing direct to Biggin. On leaving the City CTA the C152 was seen tracking direct to Biggin, positioned 4nm W of the RW21 FAT and not in conflict with the BE400, which was on R base [actually L base] for the ILS RW21. He told the C152 flight to squawk 7000 and freecall Biggin Approach on 129.4MHz. As the BE400 was establishing on final approach a 7000 squawk pointed out to him in the vicinity of it. He immediately passed TI to the BE400 crew and realised that the 7000 squawk was probably the C152 which had not routed direct to Biggin but had turned E instead without informing him or Biggin Approach. After receiving TI the BE400 crew reported they were visual with the unknown traffic and he transferred the flight to Biggin Tower. On landing the BE400 crew declared they would be filing an Airprox.

**ATSI** reports that following departure from Biggin Hill on a local flight VFR, the C152 flight established communications with Thames Radar at 1437:45. The pilot reported passing Swanley enroute to the QE2 Bridge and requested to route along the Thames (W'bound) to the O2 Arena and then to turn S. This route would take the ac within the London City CTA and CTR, Class D airspace. The Thames Radar controller (TMSR) instructed the flight to squawk 7050 and issued the London QNH 1009mb. No level of service was agreed and the ac was not transponding Mode C level reporting. At 1439:40, the C152 was cleared to enter London City's airspace, on the requested route, VFR not above 2000ft. Two minutes later as the ac entered the London City CTA, the flight was placed under a RCS.

At 1449:00, the BE400 flight made its first call to Thames Radar, reporting descending to 4000ft on the radar heading of 320°. The LTC MATS Part 2, Thames Radar, Page THS-33, Paragraph 7.7 Biggin Hill Airport Inbound Procedures, Via Airways states *'The flight will be transferred from TC to Thames in accordance with the Silent Handover Procedure and will then be provided with a radar control service whilst inside CAS and a Deconfliction or Traffic Service as appropriate when outside CAS. The flight should be kept inside CAS for as long as practicable, and should not be descended below CAS into conflict with any observed radar contacts unless the pilot reports he has the traffic in sight and can maintain visual separation from it'*.

The TMSR informed the BE400 crew that vectors would be provided to an ILS approach at Biggin Hill, and placed it on a new heading of 295°. Biggin Hill Airport is situated in Class G airspace, below the LTMA, Class A airspace. It has no ATS Surveillance capability. At this point, the radar recording shows the BE400 is about 28 miles ESE of the Airport. At 1450:00, the C152 reported turning S from the O2 Arena, in accordance with its clearance to leave London City's CAS to the S.

The BE400 flight was subsequently cleared to 3000ft on the Biggin QNH 1010mb, followed later by a heading change onto 270° for base-leg RW21. The ac would shortly enter London City's Class D airspace and at 1454:18, it was cleared to 2000ft, with a speed reduction to 180kt or less.

At 1454:27, the TMSR transmitted to the C152 flight *"(C152 c/s) you've left the zone now squawk seven thousand free call Biggin one two nine decimal four"* (Biggin Approach). At this point, the C152 appears to be on a direct track to Biggin Hill. Meanwhile the TMSR telephoned the Biggin Approach controller with a 10 mile range check on the BE400, as required by local procedures. The Thames Radar MATS Part 2 also states at THS-34 VFR Flights *"It is not necessary to prenote VFR traffic to Biggin Hill Approach Control. Traffic will be transferred to Biggin Hill Approach at least 10nm away from Biggin Hill if outside regulated airspace, or as soon as possible if leaving regulated airspace. VFR traffic from the north-west must be coordinated with Biggin Approach whilst any ac is making an instrument approach to Biggin."* Clearly, the C152 was transferred promptly by the TMSR; however, it was not coordinated with Biggin Approach (Note: While there was no requirement for the C152 to be co-ordinated, it would, nevertheless, seem prudent to have done so).

In his written report, the Biggin Approach Controller states that after receiving the 10 mile check from Thames Radar, he looked up the approach and *"I saw, what seemed to be, a C152 crossing the final approach from west to east. This was confirmed by checking the ATM which showed a return at about 4nm north of EGKB tracking east. I immediately telephoned Thames Radar and passed traffic information....."*. During the call, timed at 1455:40, the Approach Controller asked if the traffic 4nm N of Biggin was 'working' them, adding that it looked like a Cessna 152. The recipient (not the TMSR) replied that the traffic was not known, but would pass the information to the radar controller. Meanwhile the BE400 had been issued a closing heading for the ILS LOC, with instructions to descend on the GP, when established on the LOC.

At 1456:04, following the information from Biggin Hill, the TMSR issued TI to the BE400 *"(BE400 c/s) there's traffic right one o'clock two miles crossing right to left is believed to be a Cessna one five two"*. The radar recording shows the subject C152, with no Mode C, tracking E'bound in the BE400's 1:30 position at 1.7nm. The BE400 is now on the final approach C/L at 2000ft Mode C and will shortly leave CAS of the London City CTA. Initially, the BE400 pilot did not respond but then replied *"Yeah we copy we have traffic in sight (BE400 c/s)"*. By 1456:29, the BE400 is about 1nm outside CAS descending through altitude 1900ft QNH with the C152 is now in its 0230 position range 0.4nm still showing NMC. The next sweep at 1456:33, the CPA, shows the BE400 indicating 1800ft Mode C and the C152 is in its 4 o'clock at 0.3nm. The latter subsequently passes astern of the BE400 by 0.5nm. No further mention was made about encounter by either the BE400 pilot or the TMSR. At 1457, the BE400 was transferred to Biggin Tower, 134.8MHz. It was not until 1508:40, when the C152 called in the vicinity of Sevenoaks. The pilot had overheard enquiries by Approach Control about traffic crossing through the final approach track and said *".....I didn't see er the Citation until a bit late on"*.

While it is recognised the TMSR was prioritising his tasks by first issuing TI to the BE400 on the 'unknown' traffic, he did not notify a change of service to the pilot when leaving CAS. Achieving this is particularly important in these circumstances where the pilot may not be aware that the ac will enter Class G airspace at 6nm from touchdown during the ILS approach.

Since this incident, LTC has issued 1 Temporary Operating Instruction (TOI) and 3 Supplementary Instructions (SI) to both re-enforce current procedures and address some of the issues raised during the investigation. They are: -

TOI 126/09, outlines an LTC initiative that the Biggin Hill approach plates are amended to make the classification of airspace in the vicinity more apparent to pilots. This is currently being processed. The TOI also emphasises that Thames Radar shall ensure all IFR inbound flights are notified when they are leaving CAS, the radar service is changed upon leaving and the radar service is terminated upon transfer to Biggin Tower.

SI 002/10, announces the installation of 2 direct telephone lines between LTC Thames and Biggin Hill, one of which is a priority line for calls of an urgent operational nature.

SI 007/10, introduces a new procedure for TC Thames and TC SVFR and states *'In the event of an ac leaving the London City Control Zone to the south, the pilot should be requested to remain west of the Biggin Hill runway 21 final approach track if traffic is being vectored by TC Thames for a runway 21 instrument approach. The pilot should be given the reason for the request.'*

SI 12/10 (Effective from 01/02/2010) is an amendment to THS-34 VFR Flights (above), in particular, the final paragraph, which now states *'VFR traffic in communication with TC Thames/TC SVFR approaching from a direction ranging between north-west through to north-east of Biggin Hill must be coordinated with Biggin Hill Approach whilst any ac is making an instrument approach to runway 21.'*

## **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.

A controller Member familiar with TMSR informed the Board that there were important background issues associated with this incident. The airspace and integration of traffic patterns are complicated by the requirement to separate Biggin Hill inbound IFR traffic from Heathrow and London City traffic while remaining in CAS until it becomes necessary to begin an approach. Therefore the profile followed by the BE400 was quite normal. However, irrespective of whether the Biggin ILS was intercepted at 2500ft or 2000ft, flights would always leave CAS as they crossed the London City CTA boundary into Class G airspace at 6nm from touchdown. The protocol of changing ATS from RCS to an ATSOCAS was good in principle, however, in reality once an ac was established on the ILS the service was terminated and the flight transferred to Biggin Tower. Thereafter the onus was placed firmly on pilots, even though flying IFR on an instrument approach, to maintain their own separation from other traffic through 'see and avoid'. This can lead to a situation where the IFR traffic on the ILS is obliged to 'give way' to traffic crossing from R to L, under the Rules of the Air Regulation. Members considered that the lack of a formal declaration that the radar service had been terminated could have led the BE400 pilot to consider that he was still under a RCS.

The controller Member also opined that 'best practice' at the time of the incident, now mandated in SI 007/10, would have been for the TMSR to remind the C152 pilot to remain clear of the FAT but on this occasion the trainee/mentor team did not do so. TMSR could have passed generic TI to the C152 pilot about the BE400 but TMSR believed the C152 pilot had reported his routing from the O2 arena direct to BIG, a track that is W of the FAT; however, the RT transcript reveals the C152 pilot reporting routing S'bound from the O2 before the flight was transferred to Biggin Hill Approach as it exited the London City CTA. The C152 pilot had then become distracted by his student and had

turned E'bound, flying through the FAT without communicating with an ATSU, which Members agreed had been a contributory factor to the incident. The C152 pilot's track and altitude had resulted in the ac crossing the FAT at the same level as traffic intercepting the ILS GP. Pilots planning to cross a published approach track, as depicted by an arrow 'feather' on 1:500 000 and 1:250 000 topographical charts, should chose a range/height combination which does not coincide with the instrument approach profile.

Another controller Member noted that the subject ac were both on the TMSR frequency at the same time so that the C152 pilot could have improved his SA about the inbound BE400 inbound from the exchange of transmissions between the controller and the BE400 pilot. Members commended the good 'controllership' exhibited by Biggin Approach when he contacted TMSR after he saw the C152 in potential conflict. Some Members thought that, notwithstanding his misunderstanding of the C152 pilot's intentions, the TMSR controller should have seen that the C152 had turned E'ly when he vectored the BE400 towards the ILS LOC. One Member believed that the cause of the Airprox was that the TMSR controller had vectored the BE400 into conflict with the C152. However, this was not the majority view. Eventually the BE400 crew were given TI on the C152 whilst they were still within CAS, which led them to see it. However, without TMSR informing the BE400 pilot when the ATS changed or was terminated, Members understood the BE400 crew's uncertainty over their responsibilities regarding other traffic; the BE400 crew were required to 'give way' and elected to descend on the ILS GP to increase separation. For his part, even though the C152 pilot did not call Biggin Approach for a service and so was unaware of the BE400's presence, he had a responsibility for maintaining separation from all traffic through 'see and avoid'. The BE400 should have been within the C152 pilot's field of view for some time but he only saw it late as it passed in front. Although recognising that the BE400 may have been obscured to the C152 pilot by his ac's L wing, Members agreed this impediment to maintaining a good lookout should have been mitigated by others means, primarily by moving the ac (lifting the wing) or moving his head. Taking all of these factors into account, the Members agreed that the cause of this Airprox had been that, whilst completing an ILS approach, the BE400 flew into conflict with the C152, whose pilot did not see it until late.

The C152 pilot had right of way but he only saw the BE400 as it crossed ahead, he thought by 75m. The BE400 crew were given the 'heads-up' on the Cessna at 2nm range and quickly saw it and watched it, as they commenced descent, pass 200m away to their R. The recorded radar shows the BE400 commencing descent with the C152 in its 0230 position, separation 0.4nm. The CPA, 0.3nm, occurs after the ac have passed with 200ft vertical separation. This visual sighting and action taken was enough to persuade the Board that any risk of collision had been quickly and effectively removed.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

- Cause: Whilst completing an ILS approach in Class G airspace, the BE400 flew into conflict with the C152, whose pilot did not see it until late.
- Degree of Risk: C.
- Contributory Factors: The C152 flew through the Biggin Hill FAT without its pilot communicating with an ATSU.



The ac has a white & blue livery; the HISLs and landing light were on.

**THE AIRBUS 320-214 PILOT** reports he was outbound from Belfast/Aldergrove under IFR and in communication with TOWER on 118.30MHz. Heading 250° at 210kt, during their initial climb from RW25 in VMC, they were instructed by TOWER to turn onto a heading of 185° for traffic avoidance. About 3-4nm SW of the airport during the turn he noticed a TCAS contact - about 600ft below his ac at the closest point - that drew around into their 9 o'clock position as the turn was completed. Neither a TA nor RA was enunciated by TCAS and the remainder of the flight was completed normally.

On arrival at their destination they were called on their SAT phone by the company dispatcher; a phonepatch was provided through to the Belfast/Aldergrove ATC Supervisor who informed them of the reason for the traffic avoidance. He assessed the Risk as "low".

**ATSI** reports that the 0740 Belfast/Aldergrove weather was: Surface wind 190/08; Visibility >10km; Cloud: FEW006 BKN008; QNH 1003mb.

The SW4 was inbound to Belfast/Aldergrove from the IOM. The SW4 crew contacted Belfast APPROACH at 0720 climbing to FL80, inbound to RINGA [28nm SE of the airport]. The flight was instructed to maintain FL80 on reaching and to head 315°; 3min later the heading was changed to 325°. The pilot was advised he was No2 in traffic for RW25 and although the pilot was asked to report ready for descent, no such call was received by the controller. Consequently, at 0725:08, when the flight reached 20nm from touchdown, the controller decided to issue a descent clearance to 4000ft QNH (1003mb). Further descent to 2400ft was issued and the pilot was advised he was now 14nm from touchdown. The SW4 was passing 5700ft at the time. Subsequently, the SW4 was turned onto a closing heading for the ILS, but it flew through the LLZ and was given a L turn to join from the R. Descent to 1700ft was then passed, with further descent on the ILS. The SW4 was seen to go through the LLZ again but self corrected. Shortly afterwards, the controller asked "*confirm established Sir you are 5 miles from touchdown*". The pilot replied "*er we will establish in a sec*". The controller continued "*you're inside 3 miles from touchdown Sir are you happy to continue the approach or do you wish to reposition*". The pilot responded "*We'd like to continue er we are go around er er*". After the pilot confirmed he was going around the controller instructed the pilot "*Roger Sir turn right heading 3-6-0 degrees climb to altitude 3 Thousand*". The following transmissions were then made:

SW4        "*Say again [C/S]*".  
ATC        "*There's one just airborne ahead of you off [RW] 2-5 Sir turn right now heading 3-6-0 degrees*".  
ATC        "*[C/S] turn right Sir heading 3-6-0 degrees*".  
SW4        "*Right 3-6-0 [C/S]*".  
ATC        "*[C/S] avoiding action continue the right turn heading 3-0-5 degrees*".  
ATC        "*[C/S] confirm climb to altitude 3 Thousand feet QNH 1-0-0-3*".  
SW4        "*3 Thousand feet 1-0-0-3 [C/S]*".

The radar controller reported that he gave an avoiding action turn because the SW4 had appeared to start turning L. He added that "*the pilot eventually started to turn R but by this stage I had lost his primary return as he was close to the EGAA overhead*".

The departing traffic mentioned above, was the subject A320. At 0728, the flight was cleared for take off from RW25, with a left turn direct MONTY [30nm S of WALLASEY]. The A320 pilot reported rolling at 0729:50. At the time, the inbound SW4 was over 4nm from touchdown. Some 20sec later the Approach Radar Controller (APR) informed the Aerodrome Controller (ADC), via intercom, that the SW4 was "*still not established*". When the A320 was airborne, the APR instructed the ADC, by telephone, to issue avoiding action instructions to the flight because the SW4 had not commenced its R turn, as instructed. The following transmissions took place between the ADC and the A320 crew:

ATC        "*[C/S] turn left now heading 1-8-5 degrees*".

A320        "*[C/S] 1-8-0 on the heading*".  
 ATC         "*[C/S] sorry turn left heading 1-8-5 degrees*".  
 A320        "*One Eight Five degrees [C/S]*".  
 ATC         "*[C/S] avoiding action now turn left heading 1-8-5 degrees traffic east of you by 2 miles at 2 Thousand 1 Hundred feet*".  
 A320        "*[C/S] we're leaving er 2 Thousand 5 Hundred*".  
 ATC         "*Thank you*".  
 ATC         "*[C/S] that traffic is passing clear behind you now*".

The A320 was transferred to the radar frequency when it was clear of the SW4. ATC reported the minimum separation was 2nm/200ft.

The Missed Approach procedure for an ILS approach to Belfast's RW25 is:

"Climb straight ahead to **2500** (2232) then climbing turn right and proceed to **VOR BEL** to join the 059° hold at 3000 or as directed".

UKAB Note (1): This Airprox occurred outwith recorded radar coverage.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

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

The absence of recorded radar data hampered assessment of this Airprox somewhat, as the actual geometry of the incident was not entirely clear. It was emphasised that the diagram within this report was only an approximation based on the various reports provided and information from the RT transcript. What was readily apparent was that the SW4 crew had experienced some difficulty establishing their ac on the LLZ, and ended up too high and too close on final approach resulting in the go-around. A CAT pilot Member opined that the APR had evidently detected this at an early stage in the procedure and had done his best to highlight this to the crew before they got into further difficulty. A military controller Member opined that he would have expected the controller to instruct the SW4's crew to break-off the approach earlier if he was concerned about the safety of the approach. The Board agreed that, whilst during the early stages the responsibility for deciding to go-around was more appropriately that of the SW4 crew, it was evident that the APR was paying close attention to the flight and he was correct to ask if the crew wanted to re-position when they were just inside 3nm from touchdown. Members agreed that the SW4 Captain had 'pressed on', perhaps unwisely, when all was apparently not well, but hopeful of correcting the situation. Clearly the A320 had to vacate the RW for the arriving SW4 and some Members were concerned that there was insufficient spacing between the A320 on the runway and the approaching SW4. However, the Board was advised that this was not the case since the SW4 was at 4nm range when the A320 began its take off roll and once the SW4 crew had initiated their missed approach the APR had taken steps to ensure the 2 ac did not conflict. It was stressed that a standard MAP will not routinely provide standard separation between arriving and departing traffic; a controller must intervene and take action to restore the situation, which was exactly what the APR accomplished by turning the SW4 R onto N immediately the crew informed him they were going around. The complicating factor here was the apparent L turn by the SW4 - towards the departing A320 - before the turboprop twin was seen to start turning to the R. This prompted the controller to reiterate the R turn as avoiding action whilst co-ordinating with the ADC a complementary avoiding action L turn for the departing A320 away from the RW centreline, where plainly a modification to the A320 crew's departure instructions of a left turn direct MONTY were necessary. All this just before the inevitable loss of radar contact on the SW4 as it flew into the radar overhead. The NATS Ltd Advisor stressed that the slow reaction of the SW4 crew to the APR's instructions had caused him great concern, and undoubtedly the ADC would also have been alarmed if he had detected the SW4's 'snaked' approach on the Aerodrome Traffic Monitor - clearly a difficult moment for both controllers at the time. A controller Member stressed that

a missed approach could be initiated at any stage throughout the procedure and controllers must be prepared to react accordingly. A CAT pilot Member commended ATC for their prompt action, which provided the maximum separation between the 2 ac.

The A320 crew had little effect on the outcome of this Airprox apart from prompt compliance with the avoiding action turn relayed to them by the ADC. Minimum vertical separation was reported to be 600ft from the A320 pilot's TCAS display, which was somewhat more than suggested by the APR's report. Furthermore, safety margins were not eroded to the point that TCAS warnings were generated. Mindful that when assessing Airprox the Board could only consider what actually happened and not what might have occurred if circumstances had been slightly different, Members could not conceive that a hazardous conflict had actually developed between these 2 ac to the point that a collision might have ensued. In the Board's view, the A320's higher speed of 210kt – some 50kt faster than the SW4 at 160kt – as it accelerated away, coupled with the SW4's eventual turn away to the N had prevented the situation from deteriorating further. Whilst one area controller Member reiterated that any uncertainty over the SW4 crews' actions would have been of understandable concern to both controllers, the overwhelming majority of the Members were content that the prompt action taken by the APR had effectively prevented any close quarters situation from developing. This ensured that no less than 2nm horizontal separation (as reported by the APR) was maintained as the controller succeeded in turning the SW4 clear of the departing A320. The Board concluded that this was effectively a controller perceived conflict in which the actions taken had effectively forestalled any Risk of a collision.

#### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Controller perceived conflict.

Degree of Risk: C.

## AIRPROX REPORT No 2009 099

Date/Time: 31 Aug 1455

Position: 5155N 00118W (4.5nm  
Finals RW 19 Oxford elev  
246ft)

Airspace: Oxford AIAA (Class: G)

Reporting Ac Reported Ac

Type: EMB135 TB200

Operator: Civ Comm Civ Club

Alt/FL: 1800ft 3500ft  
(QNH 1007) (N/K)

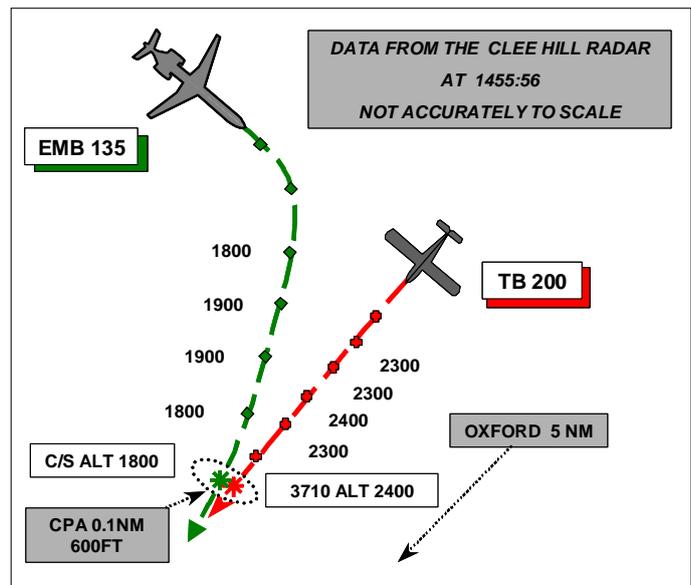
Weather: VMC CLOC VMC  
Visibility: >10km >5km

Reported Separation:

150ft V/200m H NS

Recorded Separation:

600ft V/ 0.1nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE EMB135 PILOT** reports flying an IFR flight inbound Oxford in receipt of a procedural service from TWR, following a handover from Northolt, and squawking as directed with Mode C. They were heading 190° at 180kt on an ILS for RW19 having been informed that there was 'No circuit traffic' (or words to that effect) and no other ILS traffic. While descending through 1800ft a TB10 ac [he thought – the TB200 is similar] suddenly appeared directly in front of them, flying from left to right, about 150ft above. He immediately commenced a dive to below the glidepath in response to a TCAS RA. He assessed the risk as being medium.

**THE TB200 PILOT** reports flying a private pleasure flight to the S of Banbury in receipt of a TS from Brize Radar, squawking as directed with Mode C. He decided to route just N of Upper Heyford toward Blenheim Palace, heading 220° at 110kt. Due to the proximity of the Oxford ATZ he decided to contact Oxford APP but when trying to inform Brize Radar of the frequency change no response was received; a further three attempts were also unsuccessful. Only on the fourth attempt was communication established and the Brize Controller informed them of the reported Airprox. He did not see the other ac at any time. It was subsequently agreed that they would remain on the Brize frequency until landing at Enstone.

**ATSI** reports that after leaving controlled airspace by descent, the EMB135 first called Oxford APP at 1450, the pilot reporting descending to 3500ft to the 'Oscar Foxtrot' and in receipt of Information Kilo with the QNH 1009mb (Note: the NDB is 'OX'). The controller, who was operating as ADC/APC, cleared the ac to the Oscar Xray descending to 3500ft on the Oxford QNH 1007mb and then updated the reported cloud as Few at 3200ft Broken at 3700ft.

Oxford Airport is situated in Class G airspace and is not equipped with any ATS Surveillance equipment. The pilot requested a procedural ILS (to RW19) and, at 1451:48, reported outbound in the procedure. The controller then cleared the ac for an ILS approach and to report established on the localiser. The outbound track for the RW19 ILS/DME/NDB(L) is 354° from the beacon descending from 3500ft to 1800ft before turning right to establish on the localiser for RW19; descent from 1800ft, on a 3° glidepath, commences at 4.7DME.

At 1455:01, the EMB135 pilot reported established on the localiser and was instructed to descend on the procedure and report at 4nm DME. Ten seconds later, the ac was cleared to land RW19 and the wind passed as 170/16. The EMB135 pilot reported 3nm on final and then at 1457 stated '*Tower be advised (callsign) we've just had a hard RA off a PA28 wandering over the top of the airfield*'. The controller acknowledged, advising that he had no knowledge of this traffic. Meanwhile, Brize Norton called to pass details of another inbound ac and the telephone recording shows that the subject TB200 was on the Brize Norton frequency and TI regarding the EMB135 was being passed; however, communications with the TB200 appeared difficult.

An examination of the radar recording shows, the EMB135 in a right turn inbound towards the ILS localiser at an alt (London QNH 1009) of 1800ft Mode C at 1454:39. At that time the TB200 is in its 12 o'clock, tracking SW at 2300ft Mode C and is displaying a Brize Norton squawk. As the EMB135 approaches the localiser, the range between the two ac reduces. By 1455:16 the EMB135 has passed through the centreline, its Mode C is indicating 1900ft with the TB200, still at 2300ft, in its 11 o'clock, range 0.7nm. At 1455:48, as the EMB135 continues the right turn to close the centreline from the left, the TB200 is now in its 10 o'clock at 0.1nm and 600ft above (the EMB135 at 1800ft Mode C and the TB200 at 2400ft Mode C). By the next sweep, the two ac have passed, although the EMB135 is now indicating at 1700ft Mode C. Thereafter tracks diverge and the EMB135 completed a successful approach and landing.

The Oxford Aerodrome Manager provided a report stating that SATCO had consulted the Senior Instructor at Enstone and it was agreed that he would re-emphasise best practice for ac operating in the vicinity of Oxford and its final approaches.

**DAATM** reports that the TB200 pilot called Brize Norton LARS at 1447:14, passing his routeing and requesting a TS; he was assigned a squawk, identified and provided with a TS shortly after.

The controller's report acknowledged that he saw the conflict late, and therefore the subsequent warning was also late. As he received no acknowledgment from the TB200 pilot, he asked the pilot twice if the TI was copied; however, he received no reply so he continued trying to re-establish radio contact.

Although the transcript of the LARS position does not show land line calls, the controller's report states that he passed Oxford the TB200's position but they replied by saying that the EMB135 had received a TCAS RA against it.

At 1455:57 the TB200 pilot asked LARS '*are you calling?*', 15sec later they replied requesting a radio check and a further 45sec later the pilot transmitted '*Brize Radar C/S we are just north of the Oxford ATZ so I think it's probably best that we let them know where we are so we'll go over to them now on 125.325 thanks for your help*'. LARS replied '*Roger that's copied they do have inbound traffic which is just north of your position by half a mile indicating 1500 feet below and I did try to call that to you but you weren't listening*'. [UKAB Note (1). At 1455:56 the TB200 was 600ft above the EMB135 and 500ft above on the previous radar sweep as shown on the diagram above.] At 1457:24 the pilot conducted a radio check with LARS, suggesting that their last transmission had not been received; LARS then transmitted 2 radio checks to the TB200 until 1457:36 when the pilot again transmitted their position and intention to call Oxford. However, LARS replied immediately that he should remain clear of Oxford ac and informed him that Oxford traffic had already received a TCAS RA against him. The pilot replied '*apologies, for some reason we seem to be transmitting alright but I'm not sure if you were receiving so apologies for that*'. LARS reiterated that Oxford traffic had been called to him but he responded that due to radio problems the TI was not received. The TB200 then flew an orbit over Blenheim Palace, remaining with LARS who advised the pilot that Oxford was busy, before returning to Enstone. LARS then asked the TB200 pilot to squawk 7000 and freecall Enstone and after more radio problems he transferred at 1510:11.

UKAB Note (2): The Brize Norton Controller and Supervisor provided reports but since they are substantially the same as the DAATM report, for brevity, they have not been included.

UKAB Note (3): An analysis of the Radar recording was conducted by both the UKAB and DAATM but have not been included as they show the same detail as that reported by ATSI above.

## **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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

This was one of several occurrences discussed at the Mar 2010 Board meeting (2009 095, 097 and 104) involving commercial ac flying instrument approaches through, and to airfields located in, Class G airspace.

Although not applicable to all of the above incidents, Members agreed that it is prudent for all pilots to be aware of how busy these approach paths can be, the height of the glideslope at various ranges from the airfield and, if possible, to avoid these areas; if it is not possible to avoid them laterally then cross the approach expeditiously at an alt well above or below that where instrument traffic operates. Members also agreed that it is most unwise to follow the ground track of an instrument approach track, even well above the glide path, as most ac using that approach are TCAS equipped and, as in this case, RAs will result.

A GA Member familiar with the area observed that Blenheim Palace is located within the Oxford ATZ and even if flying outside the ATZ (above it), it would have been prudent for the TB200 pilot to call them and convey his intentions or request an ATZ penetration. Although legal, flying just above an ATZ, not in contact with the parent ATC, is almost always inadvisable.

Notwithstanding the inadvisability of the track selected by the TB200 pilot, he had the same right to operate there (in Class G airspace) as the EMB135 and, notwithstanding that the EMB135 was IFR and the TB200 VFR, the 'see and avoid principle' applied. A specialist Member opined that it is imperative that crews flying such IFR approaches understand that they do not have any priority or protection and maintain a continuous and conscientious lookout. The EMB135 was following the instrument approach procedure and turning onto the FAT at about 5nm; the radar showed that it was never less than 500ft below the TB200 and the EMB135 pilot initially saw it on TCAS. Had both ac remained level separated by 500ft, specialist Members thought it unlikely that an RA would have been generated; however, the temporary descent of 100ft shown on the TB200's Mode C readout, indicated a short downward flight vector which would have triggered the RA. The EMB135 pilot had reacted accordingly by descending. Members agreed that the TB200 was far enough above the EMB135 to make it almost impossible for its pilot to see because of his airframe/wing.

The Board considered the role of the LARS in this occurrence and was concerned that pilots might, mistakenly, get the impression that it is not worth requesting a LARS as in this case it did not seem to have been any benefit to the TB200 pilot. However, ATC and pilot Members agreed that the service being provided by Brize had been less than optimum, even allowing for the apparent radio problems.

Notwithstanding the issues discussed above, the Board agreed that the (vertical) separation between the ac had been such that there had been no risk of collision. Further, this separation although quite adequate to satisfy the requirements of the 'see and avoid principle', was not enough to prevent the EMB135's TCAS generating an RA.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Sighting Report (TCAS).

Degree of Risk: C.

## AIRPROX REPORT No 2009-101

Date/Time: 5 Sep 1314 (Saturday)

Position: 5525N 00137W (1½nm  
WSW of Boulmer HLS  
elev: 75ft)

Airspace: Scottish FIR (Class: G)

Reporting Ac Reported Ac

Type: Sea King Mk3 Europa

Operator: HQ Air (Ops) Civ Pte

Alt/FL: 1750ft↑ 1700ft  
QFE (1011mb) Tyne RPS

Weather: VMC CLBC VMC CLBC

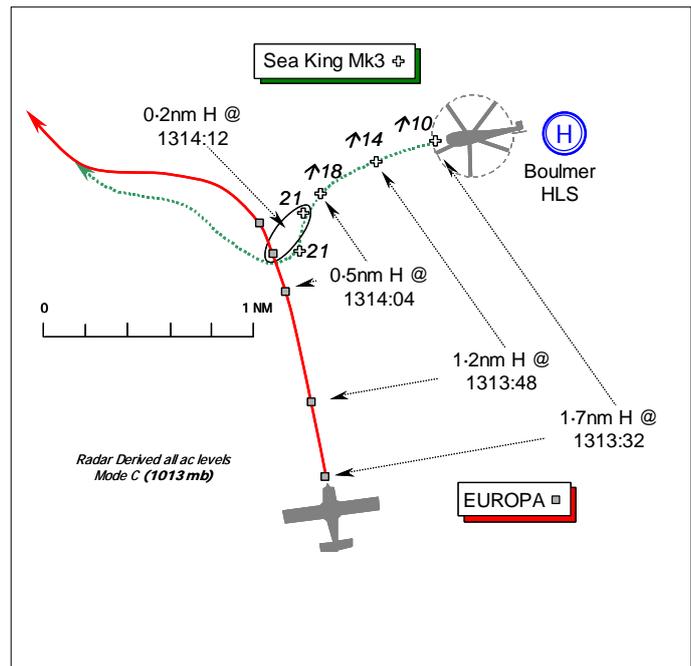
Visibility: >10km NR

Reported Separation:

Nil V/200m H 50ft V

Recorded Separation:

0.2nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE WESTLAND SEA KING Mk3 HELICOPTER PILOT** reports that he was the PF from the RHS whilst executing the initial climb-out from Boulmer HLS under VFR, in VMC. The ac was crewed with two pilots only. He levelled his helicopter about 150ft below cloud and commenced a L turn from their westerly heading to remain in the Boulmer overhead whilst a BS was being established with Newcastle ATC on 123.375MHz; a squawk of A7000 was selected with Mode C on. His co-pilot, seated in the LHS, then saw another ac – a low wing single engine tricycle undercarriage monoplane coloured white with blue lettering [the Europa whose registration was given] - about 500m away to port at the same height 'on a collision trajectory'. The co-pilot called for a "break left" because if he had rolled out of the L turn into a break R it would have placed his helicopter directly in the path of the other ac which seemed to be in level flight or turning to port. The L turn was tightened to avoid the Europa which was heading N and he placed his helicopter to fly astern of the aeroplane, before reversing into a R turn to maintain visual contact with it. If he had not taken avoiding action he firmly believes a collision would have occurred; the minimum horizontal separation was estimated to be 200m at the same height and the Risk "very high". He tried to raise the Europa pilot on 123.1MHz [VHF SAR Channel], 121.5MHz and the Newcastle RADAR frequency [124.375MHz]. Although Newcastle RADAR had radar contact on the Europa, they were not in RT communication with it's pilot and all attempts to contact him were unsuccessful. The Europa departed to the N and, after he had informed London and Newcastle of his intention to file an Airprox, the Sea King pilot resumed his training sortie.

The Airprox occurred overhead the main railway line [W of Boulmer]. The helicopter is coloured yellow; the upper & lower white HISLs, navigation lights and 2 forward facing main spot lights were all on.

**THE EUROPA PILOT** reports that he had departed from a farm strip at Ewesley bound for another farm strip some 8.7nm NW of Boulmer HLS. Flying under VFR in VMC, some 500ft clear below cloud, he was not in communication with an ATSU but monitoring the 'Safety Com' frequency of 135.475MHz [See UKAB Note (1)]. A squawk of A7000 was selected; neither Mode S nor Mode C are fitted.

Whilst in transit at 1700ft TYNE RPS, heading 350° at 100kt, approaching a position, he thought on the 005° radial of the NEWCASTLE VOR at 30nm [the Airprox occurred at about 23nm DME from

NEW], a yellow helicopter was seen. It was a *'late contact'* and no avoiding action was taken. Estimating the minimum vertical separation to be 50ft he assessed the Risk as *'high'*.

**HQ AIR (Ops)** comments that it is difficult to see how much more conspicuous it is possible to make a SAR helicopter, yet the Europa pilot flying in the vicinity of an active and well established HLS managed not to see it until very late. This incident highlights the importance of maintaining a good lookout when flying in Class G airspace.

UKAB Note (1): SAFETY COM - a common frequency (135-475MHz) made available for use at aerodromes where no other frequency is allocated, to enable pilots to broadcast their intentions to other aircraft that may be operating on, or in the vicinity of, the aerodrome (CAP 413 Chap1 Pg4).

UKAB Note (2): The HLS at Boulmer is shown on CAA VFR charts – located at 55°25-23'N 001° 35-92'W – an ATZ is not established.

UKAB Note (3): This Airprox is replicated on the Great Dun Fell radar recording, albeit that some of the radar returns from the small Europa are SSR only without the supporting primary contact. Moreover, with no Mode C fitted to the Europa it is not feasible to verify the vertical separation. Nevertheless, the Sea King is shown climbing into radar coverage through 1000ft Mode C (1013mb) from the vicinity of Boulmer HLS on a WSW'ly course at 1313:32, with the Europa closing from its 10 o'clock at a range of 1-7nm. The range decreases to 0-5nm as the helicopter climbs steadily, passing 1800ft Mode C at 1314:04 when the Sea King pilot's reported L turn then becomes more evident with the Europa starting to cross ahead from L – R. At the next update, the helicopter indicates 2100ft Mode C and the radius of turn has tightened, consistent with the reported "break left"; on the sweep timed at 1314:12, the minimum horizontal separation is 0-2nm as the Europa starts to draw R of the helicopter's nose. This horizontal distance is maintained as the Europa clears NW of the Sea King, which has levelled at 2100ft Mode C, before it reverses into a R turn, as reported, onto a NW'ly course astern of the Europa.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac, radar video recordings and a report from the appropriate ac operating authorities.

In the absence of any form of ATS being provided to either flight at the moment the Airprox occurred it was clear to the Board that the crux of this encounter in Class G airspace was that of lookout. It was unfortunate that the two Sea King pilots had not seen the Europa earlier, which should have been visible in their L turn and above them as the helicopter climbed. However, the small size of the other ac, on a relatively constant bearing with little crossing motion to draw attention to it until the last moment, might have made it difficult to detect. The Board concluded that a late sighting by the Sea King pilots was part of the Cause. Nonetheless, the bright yellow Sea King helicopter should have been visible to the Europa pilot who had a responsibility under the Rules of the Air to give-way to ac approaching from his R. However, the Board was keenly aware that the 'Rules' can only work if the other ac is seen in sufficient time to take appropriate action. Here, Members considered that the helicopter might not have been in the Europa pilot's field-of-view, to starboard cross-cockpit and climbing-up from under the nose, until the last moment when it was co-altitude about ½nm away. The Europa pilot had himself reported that this was a *'late contact'* and that no avoiding action was taken, which convinced the Board that he was unable to affect the outcome in the short time available. Members agreed unanimously that this was, effectively, a non-sighting by the Europa pilot and the other part of the Cause of this Airprox.

In the Board's view, the Europa pilot gained no benefit from listening out on the Safety Com frequency whilst in transit. Indeed, this frequency was of more specific use when joining the cct at uncontrolled aerodromes and it might have been more helpful if the Europa pilot had called Boulmer on the promulgated VHF frequency as he was passing so close. However, the Sea King pilot had reported that he was in the process of establishing an ATS with Newcastle when the close quarter's

situation developed. It was unfortunate that the Europa pilot was not working Newcastle ATC at the time – the nearest appropriate ATSU – as he might have been forewarned about the Sea King’s departure from Boulmer by hearing the helicopter pilot’s transmissions. Thus, on balance, the Members saw obtaining an ATS from Newcastle as being more beneficial to the Europa pilot whilst in transit through this vicinity.

The Sea King pilot reports that if he had not taken avoiding action a collision would have occurred; he estimated that the minimum horizontal separation was 200m at the same height and the Risk “*very high*”. However, the Board could only base their assessment of the Risk on what actually happened, not what might have occurred if the circumstances had been slightly different. With the Europa pilot unaware of the proximity of the helicopter until a late stage, one controller Member considered that the safety of the ac involved could have been compromised. Nonetheless, pilot Members recognised that the helicopter pilots had seen the Europa about 500m away to port. The Board agreed this had enabled the Sea King PF to take effective avoiding action by tightening the helicopter’s L turn away from the Europa. The Sea King pilot’s prompt action, coupled with the minimum horizontal separation recorded by the radar of 0.2nm, led the Board to conclude that any Risk of a collision had been effectively removed.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Effectively, a non-sighting by the Europa pilot and a late sighting by the Sea King pilots.

Degree of Risk: C.

## AIRPROX REPORT No 2009-102

Date/Time: 13 Sep 0947 (Sunday)

Position: 5146N 00036W (3nm NW BNN)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: R44 Untraced  
Light Ac

Operator: Civ Pte N/K

Alt/FL: 1500ft NK  
(QNH) (N/K)

Weather: VMC CLBC NK

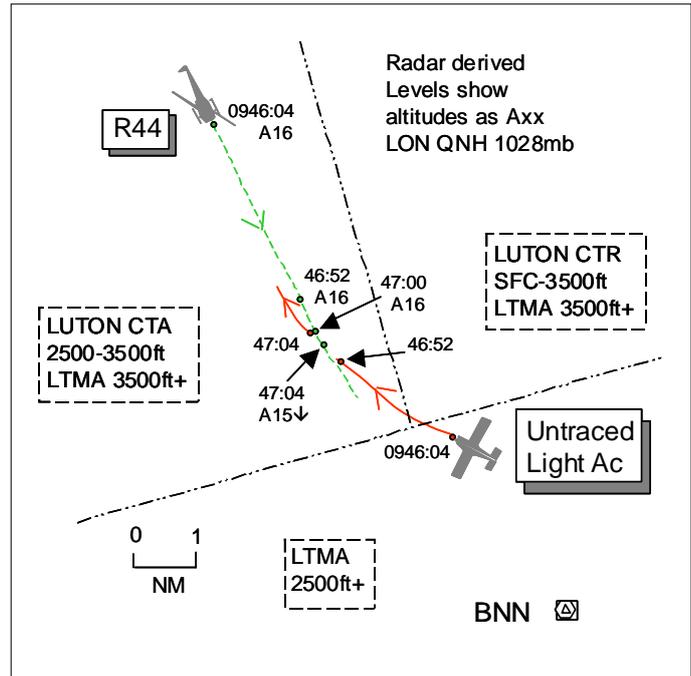
Visibility: >30km

Reported Separation:

50-100ft V & H

Recorded Separation:

NR



### PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE R44 PILOT** reports flying enroute to a private site near Elstree, VFR and in receipt of a BS from Farnborough, squawking an assigned code with Modes S and C. The visibility was >30km flying 500ft below cloud in VMC and the helicopter was coloured black with anti-collision light switched on. Cruising at 1500ft and 110kt about 2nm before BNN he suddenly saw a white-coloured low-wing single-engine ac with a large canopy and thin rear fuselage appear in his 1230 position; it was flying directly towards him, possibly in a climb, range 200ft at the same level. He immediately undertook a severe autorotation to port to avoid, the other ac passing above and to the R of his helicopter by 50-100ft. He assessed the risk as high.

**RAC MIL** reports that despite extensive tracing action the identity of the reported ac remains unknown. The unknown ac first appears on radar as an intermittent primary only return about 9nm SE of the Airprox position and routes W and then NNW'y eventually fading completely 4min post Airprox. Procedural tracing action through adjacent airfields and light ac airstrips also did not reveal any possible clues to the other ac's identity, which therefore remains untraced.

**THE FARNBOROUGH N LARS CONTROLLER** reports the R44 pilot called at 0930 reporting routing from near Tatenhill to a private site near Elstree at 1700ft; the pilot was instructed to squawk 4655 and was given the QNH and a BS, which was what he requested. At 0947 the R44 pilot reported on RT that would like to file an Airprox as he had had to 'autorotate' to avoid a light ac flying very close to him. At the time the R44 was in Class G airspace between Halton ATZ and BNN. The other ac was not seen on radar and had not called Farnborough N.

**ATSI** reports that at 0930, the R44 was placed under a BS by Farnborough LARS North controller, at the pilot's request. The pilot had reported passing DTY at 1700ft en-route to a site near Elstree and was assigned the squawk 4655 and issued the QNH 1008mb. At 0936, the pilot reported climbing to 1900ft as the RT transmissions from Farnborough were 'breaking up'. The R44 pilot did not call again until 0947, when he reported "(R44 c/s) should report a near miss er I think we've just had a little light aircraft low wing just come straight er at us I've had to just er do an emergency autorotation to get out of the way". The controller acknowledged the message and invited the pilot to telephone after landing with the details. The pilot then added that he was 2nm N of BNN and about to turn towards Elstree.

In his written report, the controller stated that the other traffic was not seen on the radar and the Unit confirms it was not possible to correlate this unknown traffic with an ac working LARS N.

MATS Part 1, Section 1 defines a BS as “...an ATS provided for the purposes of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot’s responsibility.”

UKAB Note (1): Recorded radar does not capture the CPA. Analysis of the Heathrow 23 and 10cm, Debden and Stansted radars at 0946:04 shows the R44 9.75nm NW of BNN VOR tracking 155° indicating altitude 1600ft London QNH 1028mb with a primary only return, the untraced light ac, in its 1130 position range 6.6nm tracking 300°. Thereafter both ac continue on almost steady opposite and converging tracks. The untraced light ac disappears after the radar sweep at 0946:52 when it is in the R44’s 12 o’clock range 1.1nm. The untraced light ac reappears at 0947:04 after the ac have passed; it is tracking 320° and 0.25nm in the R44’s 6 o’clock with the R44 indicating altitude 1500ft QNH and descending, which accords with the pilot’s reported avoiding action descent.

## **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.

As this incident occurred in Class G airspace, both pilots were responsible for maintaining separation from other ac through ‘see and avoid’. The R44 pilot was supplementing his SA under a BS service from Farnborough. Whilst there was no obligation for Farnborough to pass specific TI, unless the controller had identified a definite risk of collision, in this incident the untraced ac was not showing on the Farnborough radar display, so the controller was not aware of the impending confliction. The radar recording shows both ac on steady conflicting tracks prior to Airprox. The untraced ac should have been in the R44 pilot’s field of view for some time, although it was on a line of constant bearing; in this situation a target appears in a fixed position to the sighting pilot with no relative movement in his field of view to attract his attention. The R44 pilot saw other ac very late and this was part of the cause of the Airprox. When the R44 pilot saw the other ac it was at the same level but climbing, so the R44 may have been obscured below the ac’s nose. Also, the R44 nose-on aspect makes the helicopter particularly difficult to see. Without a report from the other ac’s pilot, Members could not be aware of his viewpoint. However, from the information available it was thought that the R44 had probably passed unsighted to the light ac’s pilot, which was a part cause of the Airprox.

Looking at risk, following the late sighting the R44 pilot took abrupt avoiding action, estimating the light ac passed about 50-100ft vertically clear above; no avoiding action was seen to be taken by the untraced ac. Although this had been undoubtedly a very close call, the Board believed that the autorotation action taken had been enough to remove the actual collision risk but safety had not been assured during the encounter.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Probable non-sighting by the untraced light ac pilot and a late sighting by the R44 pilot.

Degree of Risk: B.



of the Hawk's Mode C indications are not displayed on the recording. Therefore NATS Ltd helpfully provided the 'raw' Clee Hill SSR source data to assist in this analysis. In broad terms the SSR interrogators had sensed the Hawk's Mode C but when the radar system's software compared the various returns, it 'deemed' them to be anomalous and erroneous data [invalid] and thus did not display this 'low confidence' information. NATS single source radar parameters are optimised for civil traffic and are set to different threshold values which are radar head specific due to the different range and rotation rates of the different radar heads. Nevertheless, the source Mode C data does give a level indication for the Hawk. Whilst these Mode C indications were not considered sufficiently accurate to be displayed within the parameters set, the levels from the Hawks 'raw' SSR data are consistent with those 'good' returns that have been displayed; hence they have been included on the diagram, albeit boxed to indicate the reduced level of confidence.

The F406 is shown squawking A1177, maintaining a WSW course level at FL40-41 unverified Mode C (1013mb). The subject Hawk singleton is shown squawking A7001 climbing through FL22 unverified Mode C (1013mb) in the F406's 2 o'clock at a range of 4.2nm drawing ahead on a course that will cross obliquely from R – L. The jet then commences a wide L turn and, after levelling momentarily for two sweeps, continues to climb. The Hawk's L turn would place the jet potentially directly ahead of the F406 at a range of about 2nm. Climbing through FL31 – 900ft below the F406 at range of 2.7nm - the Hawk's L turn subsequently tightens directly towards the twin as it draws into the latter's 12 o'clock at a range of 1.3nm having climbed through the level of the F406; the Hawk still with a good indication of FL43 and situated some 300ft above the twin. Subsequent SSR data from the Hawk is less robust; the next sweep at 0835:33 shows the 2 ac 0.3nm apart just before they cross in azimuth with vertical separation potentially reducing to 200ft and then 100ft on the next sweep. The Hawk then pulls astern of the F406 whilst turning about, apparently levelling at FL40/41 before steadying on a westerly course and overtaking on the F406's starboard side in excess of 1.6nm away. The vertical separation shown is consistent with that reported by the F406 pilot.

**HQ AIR (TRG)** comments that although the supporting radar evidence cannot conclusively confirm the miss distances it does indicate that the 2 ac did get close supporting the F406 pilot's general assessment which on balance is most probably fairly accurate. The Hawk crew would have been working hard as a singleton aggressor against 2 other Hawk ac but it is disappointing that the crew did not see the F406 either before or after the Airprox.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac, radar video recordings and reports from the appropriate ATC and ac operating authorities.

It was clear that the F406 pilot was in receipt of a BS from London INFORMATION and the FISO was unaware of the presence of the subject Hawk. This Airprox occurred at the extremity of coverage from the nearest suitable LARS Unit so there was little likelihood of a radar service in this area at these levels to supplement the pilot's lookout. Therefore, in the 'see & avoid' environment of Class G airspace, without the benefit of radar assistance, the pilots in both aircraft were responsible for detecting other ac in the vicinity and affording appropriate separation.

Pilot Members recognised that, while the F406 was being operated quite legitimately 'single pilot', it might have been difficult for him to detect the small training ac. The radar recording suggested that the Hawk might not have been in the F406 pilot's field-of-view - cross-cockpit beneath the windshield, climbing from under the nose - until the last moment when the Hawk was shown just above the F406. Indeed this was broadly in accord with the reporting pilot's account who states that the Hawk was first spotted at right 1 o'clock about ½nm away, slightly high. Thus the Board agreed that, although he was not best placed to see it, part of the Cause was the F406 pilot's late sighting of the Hawk.

The Board was surprised that the Hawk crew had not detected the F406 within their lookout scan regimen. The F406 should have been visible to them through their canopy as the Hawk climbed up in the L turn towards the twin that the radar recording shows flying on a steady course in a level cruise

above them. The nature of the Hawk crew's task – as the 'Bounce' to 2 other similar jets operating at low-level – might have focused their attention at the critical moment. However, the F406 – some 1500ft above cloud it is reported - should have been plainly visible to them on the inside of their L turn. It was indeed fortunate that the Hawk had climbed to 4300ft, some 300ft above the F406, although from this position the F406 might well have been masked underneath the jet's nose. It was apparent that the Hawk crew had not seen the F406 at all during this manoeuvre and the Board concluded that the other part of the Cause was a non-sighting by the Hawk crew.

Once the Hawk had climbed above the F406, the radar recording suggests that the jet had over flown the F406 by 100-200ft on a reciprocal heading, before turning L again and clearing ahead. Controller Members agreed that the Mode C levels from the Hawks 'raw' SSR data were consistent with the displayed returns and those 'invalid' returns which had been included on the diagram were not only closely consistent but also in general accord with the F406 pilot's account. In the Board's view, the Hawk crew would not have flown so close to the twin if they had been aware of its proximity. Furthermore, the F406 pilot had reported that he was unable to effect avoiding action in the short time available. Therefore, any vertical separation that existed between these ac was purely fortuitous. Recognising that the F406 pilot had assessed the Risk as "*medium*" and reported that the jet had passed 100-200m to starboard, one Member considered this was sufficient to prevent an actual collision. However, the majority of the Members agreed with the fast-jet pilot Member's opinion that, as the Hawk crew were unaware of the proximity of the F406 a few hundred feet below them, and given the high closing speed, an actual risk of collision had existed in these circumstances.

The Board noted that although the F406 was fitted with a Mode S transponder, the ac was not equipped with any form of ACAS. Although the fitting of such equipment is not mandated for ac such as the F406 here, such a device could have made a difference by alerting the pilot to the presence of the Hawk. The Board has for many years advocated the fitment of such collision warning systems, therefore, Members were reassured to learn that the replacement Hawk T Mk2 training ac has a TCAS II system fitted, which will reduce the potential for Airprox of this nature.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A non-sighting by the Hawk crew and a late sighting by the F406 pilot.

Degree of Risk: A.

## **AIRPROX REPORT No 2009 104**

Date/Time: 13 Sep 1526 (Sunday)

Position: 5114N 00056W  
(Odiham - elev 405ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: ASK21 C560XL

Operator: Civ Club Civ Pte

Alt/FL: 1300ft NR  
(QFE) (N/K)

Weather: VMC NR

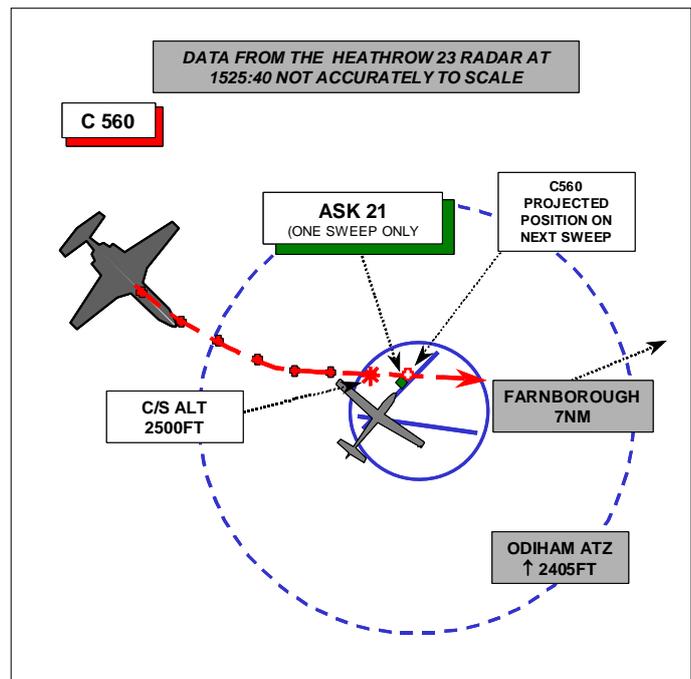
Visibility: >10nm NR

Reported Separation:

200ft V/0m H NR

Recorded Separation:

NR (see UKAB Note: (4))



### **PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

**THE ASK21 PILOT** reports that he was on his third winch launch of the day but since the lift was marginal, he was flying circuits to maintain currency. The RAF Gliding School was operating Grob 109s on the main RW adjacent to their North Easterly launch run, so pre-launch lookout for other ac in the vicinity were necessarily thorough.

The winch launch was normal until he reached 1300ft at about 70kt, when he was suddenly aware of a business jet with a white underside, straight wings, no tip tanks and with its undercarriage retracted directly in front and 200-300ft above him, passing from his left to right at about 200 to 300kts, and in the airspace where he expected his launch to take him in the next few seconds. Before he had time to take any avoiding action, the ac had passed, heading in the direction of Farnborough.

He released from the winch at 1500ft but found very little lift so he landed after 8min.

On returning to his launch point, he was informed that the person manning the log in the launch point caravan and a pilot from the RAF Gliding School (also operating Odiham Radio), who was watching from a point about 250m to their NW, had telephoned Farnborough ATC to report the incident. The winch driver also expressed concern at the sudden appearance of the other ac and its closeness to the glider. The ground observers agreed that the other ac had been flying at an estimated height of 1500ft and, given their relative positions on the ground, its ground track had been accurately triangulated.

He assessed the risk as being High.

**THE C560XL PILOT** reports flying a private flight inbound Farnborough under IFR, in a white and brown ac, squawking as directed with Modes C and S; at the time of the Airprox he was in receipt of a TS and radar vectors from Farnborough. He saw no other ac and knew nothing about the incident but suspects that the other ac was not squawking as he saw nothing on TCAS.

UKAB Note (1): The UKAIP (ENR 2-2-2-4) promulgates the Odiham ATZ as a circle of 2nm centred on the centre of the longest notified RW (09/27) up to 2000ft aal (2405ft amsl) and is active H24. It also states that Farnborough may carry out the task of ATZ clearance. At ENR 5-5-1-4 it is also

promulgated as a glider launch site (winch/ground tow and tug aircraft/motor glider) up to 2500ft agl [2905ft amsl], Hours HJ.

UKAB Note (2): There is a LoA between Farnborough and Odiham (see ATSI comments below) regarding operations when Odiham ATC is closed.

UKAB Note (3): The Farnborough METAR for 1520 was:

EGLF 131520Z 03010KT 350V070 9999 FEW034 BKN040 17/09 Q1027

UKAB Note (4): An analysis of the Heathrow 23cm radar shows the C560 tracking SE towards Odiham. At 1525:30 when it was about 2nm NW of Odiham and level at 2500ft (London QNH 1027mb) it commenced a slow turn left onto E tracking ½nm N of the ARP at Odiham [i.e. over the N side of the airfield which is approximately 1.2NM in diameter] at 1525:46, while remaining at 2500ft. As it approached a position ½nm N of Odiham ARP, a primary-only contact appears for one sweep only in its 1 o'clock at 0.1nm but its track cannot be determined; that being the case the CPA cannot be measured, but it was less than 0.1nm H. If the Glider was, as reported, at 1300ft agl, which equates to 1700ft amsl, then the vertical separation would have been about 800ft with the C550 about 100ft above the top of the Odiham ATZ but below the top of the promulgated winch launch height.

**ATSI** reports that, while in descent to leave controlled airspace S of CPT, the C560 made its first call to Farnborough Radar at 1521:30. The controller responded “... *Information is Quebec QNH is one zero two seven vectoring for the visual approach to runway zero six what type of service outside Controlled airspace*”. The pilot replied “ *Er we’ve got Quebec one zero two six request traffic information service*”. This was acknowledged, but the controller did not challenge the incorrect readback of the QNH. The flight was then cleared to 3000ft.

The ac had earlier been instructed to track towards ODIMI, a reporting point co-located with RAF Odiham (Note: This is a published alternative to standard IFR arrival routes when Farnborough Radar is available – see UK AIP AD 2-EGLF-1-9, Paragraph 2 d, Note 1). At 1522:30, the controller informed the flight it was now leaving CAS and was under a TS.

A Traffic Service is defined in MATS Part 1, Section 1, Chapter 11, pages 5-7, as:

“...a surveillance based ATS, where in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information to assist the pilot in avoiding other traffic. Controllers may provide headings and/or levels for the purposes of positioning and/or sequencing; however, the controller is not required to achieve deconfliction minima, and the avoidance of other traffic is ultimately the pilot’s responsibility”.

The guidance adds under the sub paragraph entitled Traffic Information:

“The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot. However, high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information”.

Odiham is located 7nm WSW of Farnborough and both airfields lie outside CAS. Odiham has an ATZ as defined at UKAB Note (1) and the final approach centreline for RW06 at Farnborough passes about 1nm to the SE of Odiham. Farnborough MATS Part 2, APR Chapter 5, RAF Odiham, Paragraph 22. states:

“Gliding operations may take place at Odiham at any time. The approved maximum launch height from winch or auto-tow is 2500ft AGL at Odiham (i.e. 2905ft Farnborough QNH). There is no agreed limit for aero-tows. Approach Radar Controllers must bear this in mind when vectoring ac on to final approach to Runway 06 and for departing ac on Runway 24.”

It was subsequently reported that the controller had not been aware of the maximum launch height as described in this paragraph.

The unit has reminded controllers of the requirement to understand and comply with MATS Part 2 procedures.

On the day of the incident, Odiham ATC was closed; however, gliding was taking place and responsibility for the ATZ and glider/model flying on the airfield was delegated to the Duty Instructor from one of the two resident gliding clubs. Farnborough was notified and the controller was aware of the activity. Although not required to do so, it may have been prudent for the controller to issue a general warning of this activity to the pilot of the C560 pilot.

A Letter of Agreement (LoA) is in place between Farnborough ATC and the gliding/model clubs. A copy of this LoA is in the Farnborough MATS Part 2, Annex E.3 and Paragraph 2.1, defines procedures and responsibilities “...that will permit the safe flight of both the Gliders and IFR inbound traffic to RW 06 at Farnborough Airport when RAF Odiham ATC is closed”. Paragraph 7 details the Farnborough ATC Responsibilities and Procedures and sub-paragraph 7.3.1 states “All Farnborough inbound traffic for RW 06 will be vectored clear of the Odiham ATZ when the Duty Instructor (DI) (gliding club A/gliding club B) has notified the Farnborough Approach Controller (telephone number) that ‘Gliding has commenced’”.

(Note: Subsequent sub-paragraphs describe the procedures for IFR traffic requiring an ILS approach to RW06. These include providing the DI with a 20min notice of an ac requiring an ILS, so that arrangements can be made to ensure gliders are on the ground or below a specific level within the ATZ. Once in place, IFR traffic may then be vectored through the Odiham ATZ for an ILS approach.)

On this occasion the controller decided to vector the C560 clear above Odiham’s ATZ and then release it for further decent on the visual approach once it was beyond the lateral boundary of the ATZ. At 1524, the C560 was cleared to 2500ft. Once the pilot’s readback was complete, the controller added “(callsign) thank you just above the Odiham ATZ then you’ll be able to descend at about four and a quarter miles is that sufficient, the pilot replying “affirm”. The radar recording used by ATSI was the Heathrow 23cm. At this time it indicates the C560 was about 6.5nm from ODIMI, with no ac operating within the Odiham ATZ showing on the radar recording.

The C560 was subsequently instructed to turn left onto a radar heading 105° and then at 1525:12, further left on to 090°. After correctly reading back the instruction, the pilot immediately reported “visual”. The controller then cleared the ac for a visual approach “...and to descend in accordance with noise abatement but if you can leave your descent till er four point er two miles”. Once the pilot’s readback was completed, the ac was transferred to Farnborough Tower, after which, the controller later reported, he handed over the position to an incoming controller. Immediately after the pilot had readback the frequency change, a pop-up primary contact appears in the C560’s 1 o’clock position at 0.2nm, on the radar recording. This occurred when the C560 was 0.4nm NW of Odiham. By the next sweep, the contact has disappeared. It reappears in the subsequent sweep at a similar distance, but now astern of the C560. Thereafter, the contact is intermittent, but appears to be tracking slowly NE. The C560 maintained 2500ft Mode C until beyond Odiham’s ATZ boundary, whereupon it descended in accordance with the visual approach.

Over the next few minutes, representatives of both Odiham gliding clubs telephoned Farnborough APR to enquire of the identity of the jet ac that had recently passed ‘overhead’. The initial response confirmed that the ac was almost certainly inbound to Farnborough and receiving a service from them. Later the controller involved telephoned back one of the gliding clubs and explained that the traffic had passed overhead, but above the ATZ and was instructed not to leave 2500ft until it was 4.2nm from Farnborough, by which time it would also be outside the lateral boundary ATZ. Neither club representative made any reference to an incident taking place or reported.

Farnborough ATS have followed up an action in their Unit report that asked for a review of the procedures relating to the Odiham glider activity and visual approaches to RW06 at Farnborough. This resulted in a revised LoA and SI (Supplementary Instruction) aimed at clarifying for the glider operation that "clear of Odiham ATZ" can mean vertically or laterally. Before being signed-off by all parties, the new document was then subjected to an independent hazard analysis. Initial results have challenged the wisdom of vectoring clear in the vertical plane. Consequently, the likely outcome will be that vectoring clear of the Odiham ATZ is only conducted in the lateral plane. Procedures are currently being formulated by Farnborough ATS to resolve the practical challenges of vectoring clear of the ATZ boundary, while at the same time placing ac in a position from which they can achieve a safe visual approach and landing on RW06 at Farnborough.

## **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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

Controller Members stressed that it is essential for controllers to be aware of local procedures as promulgated in their MATS Part 2. Notwithstanding that, the LoA between Farnborough and RAF Odiham regarding out-of-hours glider operations was inadequate in that it did not address the gliding activity that occurred above the ATZ. However, the Board noted the remedial action being taken by both units and welcomed the external audit of the draft replacement LoA. The Gliding Member also pointed out that when gliders are launching to the NE, ac approaching Farnborough could mitigate the risk significantly by routing/being directed to the S of Odiham, the opposite applying when the gliders are launching to the SW.

A controller Member asked if the Odiham ATZ was marked on the Farnborough radar overlay; neither the NATS nor ATSI Advisors knew but agreed to report back.

Post Meeting Note: ATSI inform that the Odiham ATZ is marked on the Farnborough radar display system.

The NATS Advisor stated that he had been informed that the maximum launch altitude of gliders with existing winch equipment at Odiham was 1500ft agl and that the NATS unit was in contact with the gliding operator to confirm this. The Gliding Member cautioned that equipment can change and techniques exist to launch above 1500ft agl; however both agreed that the AIP entry should be reviewed.

Despite the apparent confusion regarding the ATZ and the promulgated 'Glider Launch Site', all Members agreed that flying over such a site below the published maximum launch altitude is at best unwise and potentially dangerous. The Board therefore welcomed the proposal for Farnborough traffic to avoid Odiham laterally when gliding is taking place.

Notwithstanding the inadvisability of flying over Odiham at just above ATZ height, in this Airprox the best information available indicated that the C560 was at an alt of 2500ft (radar) and the glider was at 1300ft agl/1705ft amsl (pilot's report); that being the case the ac had been separated vertically by about 800ft, even though the lateral separation had been minimal. Consequently Members agreed that there had been no risk of collision. In coming to this conclusion the Members fully understood how difficult it would have been for the glider pilot to assess the separation when the C560 appeared suddenly, but for a short time, in his full view, apparently crossing through his projected flightpath while he was in a high nose-up attitude with no other visual references to assist his estimation.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A mistaken impression of vertical separation from the C560XL by the ASK21 pilot, overhead a promulgated and active glider site.

Degree of Risk: C.

## **AIRPROX REPORT No 2009-105**

Date/Time: 19 Sep 0949 (Saturday)

Position: 5240N 00219W  
(Cosford CCT - elev  
272ft)

Airspace: Cosford ATZ (Class: G)

Reporting Ac Reported Ac

Type: Vigilant T1 Grob Tutor

Operator: HQ AIR (TRG) HQ AIR (TRG)

Alt/FL: 800ft 800ft  
(QFE) (QFE)

Weather: VMC CLOC VMC CAVOK

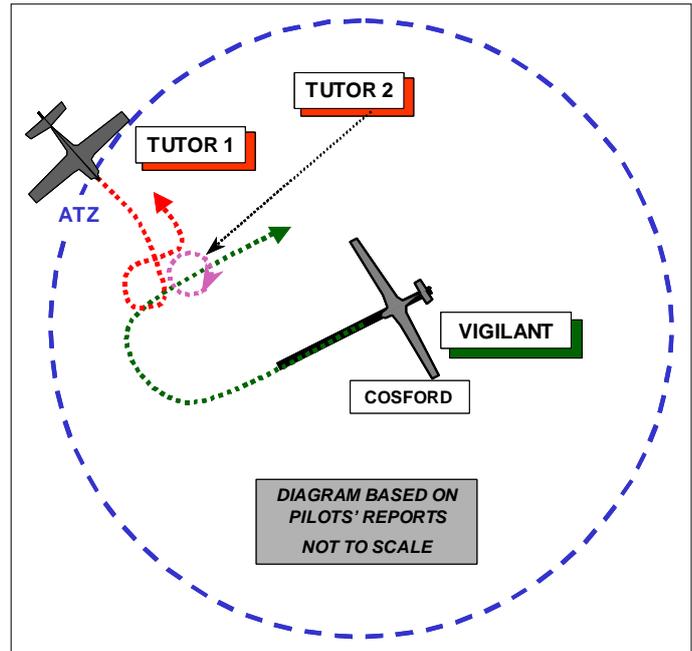
Visibility: 15km >10km

Reported Separation:

0ft V/200m H Not seen

Recorded Separation:

NR



### **PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

**THE VIGILANT T1 PILOT** reports that his sortie profile was an assessment and pre-solo check of a Gliding Scholarship student, which consisted of a sequence of standard take-offs, conventional ccts and full-stop landings. As they turned upwind and while a minor teaching point was being made, ATC asked for confirmation of their position and this was passed as 'Turning upwind'. As the turn was completed ATC was heard advising a Tutor on frequency that a Vigilant, presumably them, was 'early downwind' and shortly afterwards they asked for further confirmation of their position; he responded 'early downwind'. As they approached the normal downwind point heading 060° at 60kt he was looking out for other ac and suddenly became aware of a landing lamp pointing towards them. He was about to take control and carry out any necessary avoiding action, when he saw that the oncoming ac was a Tutor about 200m away and it was in a hard right turn away from them. At about the same time he heard the pilot (callsign C/S) advising ATC that he was unsighted to other ac in the cct and was turning away. The student was startled enough to ask what the oncoming ac was. He assessed the risk as being Medium and reported the incident on landing.

**THE GROB TUTOR PILOT** reports that, since no RT report of an Airprox was made (despite both ac being on the same frequency) and since he did not see the reporting ac, his report is based solely on the reported Airprox position and time.

He was conducting a cadet air experience flight in a white ac with strobes, nav lights and the landing light switched on, squawking 7000 with modes C and S, and was in communication with Cosford TWR.

Due to his assigned operating area and the short sortie length, he elected to rejoin the Cosford cct via the downwind position and this was approved by TWR. Despite the visibility being reported as greater than 10km, it was a tricky day for visually acquiring other ac, particularly looking into sun, as the sky was uniformly white and the horizon was poorly defined.

He positioned his ac to join at about the normal start of the Tutor downwind leg aiming to make a 90° LH joining turn onto downwind at 800ft QFE and between 80 and 100kt. ATC had advised him of one other Tutor joining and two Vigilants in the cct. He was visual with a Tutor (Tutor 2) on an extended downwind leg and made some heading adjustments to fit behind him with normal cct spacing. Based

on the reported positions of the Vigilants in the cct, he thought that one was in front of the Tutor ahead of him and the other had reported '*Turning upwind*'. Whilst his attention was focused on the Tutor in front of him, he checked to the right for the upwind Vigilant but, although he did not see it, he was content that, given their reported positions, he could follow the preceding Tutor into the cct.

As the Tutor (Tutor 2) ahead established on the downwind leg, he was aware that it was quite close to a Vigilant ahead of it and it appeared to be turning to the right, back towards him, when its pilot then transmitted that he would fly an orbit downwind to achieve spacing. As he was now unsure of the exact position of following traffic, and with the preceding Tutor orbiting in front of him, he decided to leave the cct and informed Cosford Tower of his intention. He made the turn to depart to the right to aid his lookout in the turn, as turning to the left would have limited his lookout given the lack of experience of the cadet in the LH seat. The reporting ac was not seen during this turn or during his departure from the cct so he could not assess the risk. He then rejoined the cct uneventfully and was informed of the incident by telephone after landing.

**DAATM** reports that RAF Cosford was operating from RW24 RH cct in weather colour code Blue. The cct was active with 4 Vigilant Gliders and 4 Tutors were departing and rejoining the cct to land. The local gliding club was also operating on the S side of the airfield with winch and aero-tow launches. The Vigilant concerned was flying training ccts while the reported Tutor was rejoining the cct downwind.

The Vigilant pilot called TWR at 0945:43 reporting ready for departure; he was given a line-up clearance, which he acknowledged. Four seconds later the pilot of the Tutor involved (Tutor 1) called TWR requesting a visual recovery from the N and TWR replied '*C/S roger re-join with Charlie, downwind join approved, with 2 Vigilants in the circuit*'; the pilot acknowledged. A number of non-related ATC/ac transmissions occurred before the Vigilant was cleared for take off at 0946:28. At 0946:37 another Tutor (Tutor 2) pilot called TWR reporting '*turning 4½ nm West for rejoin with Charlie*', he was given joining instructions and the cct state passed as two Vigilants in and a Tutor joining [UKAB Note (1): Tutor 1 behind him]; he acknowledged saying '*Clear to join extended downwind*'. Multiple, non-related transmissions were made until 0949:22 when Tutor 2 pilot reported '*C/S orbiting at the beginning of the downwind leg – Vigilant ahead of me*'. It would seem that Tutor 1 pilot was visual with Tutor 2 but not with either of the Vigilants in the cct and he positioned his ac behind Tutor 2 at normal spacing and was content that he could continue to follow Tutor 2 in the cct without conflicting with either of the Vigilants. Tutor 1 pilot also stated in his report that as he saw Tutor 2 establish position in the downwind leg, that he was aware that Tutor 2 was close to one of the Vigilants and that he saw Tutor 2 turning to the right back towards him and transmitting the reason for his orbit. Since Tutor 1 pilot was unsure of the position of traffic behind he decided to leave the cct and transmitted at 0949:30 '*C/S departing the circuit to the North*' which TWR acknowledged. TWR then asked Tutor 2 if he was orbiting downwind but the response was unclear on the tape transcript.

In the Vigilant instructor's report he refers to ATC requesting and confirming his cct position to update Tutor 1 pilot however, the tape transcript reveals that the references occurred after the Airprox and during the Tutor's subsequent approach and therefore, have no bearing on the Airprox.

Cosford TWR passed accurate TI regarding the visual cct state in good time to Tutor 1 pilot and he joined the cct without being visual with all cct traffic. On becoming unhappy with the situation he initiated a right, (long-way round) turn to leave the cct and flew into conflict with the Vigilant.

This incident was discussed in detail at a Station Flight Safety Meeting and the Flying Order Book procedures have been revised to reduce the possibility of a recurrence of such a situation.

UKAB Note (2): Both Tutor ac show on the recording of the Clee Hill radar throughout. Neither the Vigilant involved nor the one ahead of Tutor 2 in the cct however, show at any time so the CPA cannot be determined.

**HQ AIR (TRG)** comments that both Tutor pilots had been given timely TI about cct traffic but they had not visually identify all the gliders before attempting to join. Consequently, the pilot of Tutor 2 realised on joining downwind that his spacing was too close to the glider ahead and decided to fly an announced RH orbit to increase his spacing. This orbit caused problems for the pilot of Tutor 1 being

behind the orbiting Tutor 2 and unsure of the position of the other glider he decided to depart the circuit and rejoin. By flying a RH turn to depart Tutor 1 was turned in conflict with the glider behind him that he had not seen causing the Vigilant crew concern.

## **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 recordings, reports from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

While noting the reduced visibility, specialist Members observed that it is still the responsibility of pilots to integrate safely into the circuit pattern being flown by other ac. It appeared to Members that, while Tutor 2 was not involved in the Airprox per se, neither Tutor ac had integrated safely into the circuit, Tutor 2 getting too close to the slightly slower Vigilant ahead (also not involved), and Tutor 1 joining without seeing the Vigilant behind him. While understanding the necessity for short efficient flights to maximise the number of cadets flown Members considered that this imperative might in this instance have taken priority over normal safety procedures. Specialists also observed that, should pilots find themselves, for whatever reason, inadequately spaced in a busy circuit, then the best way to resolve the situation is to depart the circuit by turning away and climbing immediately in order to ensure clearance from other ac, then rejoin with proper separation allowing for any ac speed differences; an RT call should be made simultaneously to inform both ac and the TWR of the pilot's action and further intentions. Further, if joining and **all** other circuit traffic cannot be sighted immediately, an RT call asking for more information will often assist the sighting of the ac. Finally, even Members familiar with Tutor operations with the handling pilot in the RH seat, considered that it would have been safer for Tutor (1) to have turned left away from the circuit pattern rather than right and potentially back into conflict.

There was discussion about the TI passed by Cosford TWR, which appeared to some Members not to have been fully accurate because it counted an ac 'on for take off' as being in the circuit. However, a majority agreed with the DAATM report that this was in accordance with military procedures and therefore correct. All Members agreed that better phraseology could have made this clearer. It was pointed out by the DAATM Advisor that at Military airfields, unlike their civilian counterparts, controllers do not 'control' the traffic sequence, but pass information to allow pilots to sequence themselves safely. A GA Member noted that the phraseology '*turning upwind*' is non-standard and, although moderately clear, it did not give the other pilots in the circuit an accurate picture of the reporting Vigilant's position.

Notwithstanding the incorrect decisions (in the Board's view) made by the two Tutor pilots involved and that the Tutor (1) pilot did not see the Vigilant, the Vigilant pilot saw the Tutor throughout and the separation was such that he considered that no further avoidance was required; that being the case, the Board determined that there had been no risk of collision.

The Board again noted the effectiveness of the landing light in assisting the visual acquisition of other ac in conditions of reduced visibility.

Although the HQ Air (Trg) Member was not able to attend due to illness, he passed a telephone report to the Secretariat who briefed the Board on a range of follow up measures taken at RAF Cosford; the Board welcomed these measures.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The Tutor pilot (Tutor 1) flew his aircraft into conflict with the Vigilant, which he did not see, as he left the circuit.

Degree of Risk: C.

Contributory Factors: A second Tutor (Tutor 2) flew an orbit downwind in the circuit ahead of Tutor 1.

## AIRPROX REPORT No 2009-106

Date/Time: 18 Sep 1752

Position: 5151N 00054W (2nm E WCO)

Airspace: DAV CTA/LFIR (Class: A/G)

Reporting Ac Reported Ac

Type: B737-800 Balloon

Operator: CAT Civ Comm

Alt/FL: FL60 5000ft  
(QNH 1016mb)

Weather: VMC CLOC VMC CAVOK

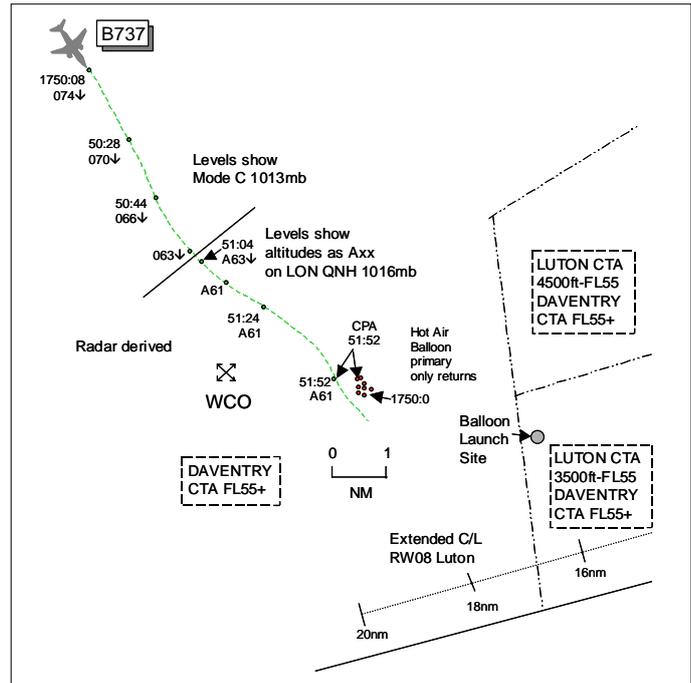
Visibility: 10km 20km

Reported Separation:

3-400ft V/0.5nm H 500-1000ft V/  
1000ft H

Recorded Separation:

0.4nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE B737 PILOT** reports inbound to Luton IFR level at FL60 on radar heading approaching WCO for an ILS to RW08. He noticed a black 'spot' on the windscreen and, as they were in level flight at 250kt, this spot rapidly grew and quickly became recognisable as a hot air balloon. It was in their 12 o'clock about 3nm away and slightly lower than their assigned altitude. He quickly scanned the NAV display for a TCAS return but saw none. He decided to take evasive action and turned the ac R using HDG SEL. He felt the ac was slow to react, considering the proximity of the balloon, so he considered disconnecting the A/P but then saw that they were moving away from the balloon at a rate sufficient to avoid and he wanted to concentrate his attention outside the ac to ensure separation. The FO immediately advised ATC that they were turning R to avoid a hot air balloon and they replied 'OK' and that they had no returns on their radar display indicating conflicting traffic. As they were in a high workload portion of the flight with monitoring their descent for RW08, energy management etc as they were always high for RW08 approach, this distraction happened very fast: high rate of closure and need for immediate action. They were in daylight VMC but very close to dusk and a darkening sky. The balloon passed off their L wing by about 0.5nm and slightly lower than their assigned altitude, 300-400ft lower. The balloon was thought to be dark blue in colour with large white lettering visible. He assessed the risk as significant.

**THE BALLOON PILOT** reports flying a blue balloon with large logo from Aylesbury and in communication with his support vehicle. The visibility was 20km in CAVOK VMC and he was tracking 280° at 5kt and 5000ft QNH 1016mb near to WCO in free airspace when he was overflowed by an airliner with adequate separation (500-1000ft V/1000ft H). He did not consider this as a near miss.

**THE LUTON INTERMEDIATE DIRECTOR (INT)** reports the B737 was inbound and he was about to vector the flight for the ILS RW08. Just after coming on frequency the pilot reported taking avoiding action on a hot air balloon – position given as 4nm S of WCO at 5000ft – which placed it outside CAS. The pilot was advised that there was nothing displayed on radar and to report when able to turn back E'bound towards the ILS.

**ATSI** comments that at 1750:07, the B737 flight established communications with Luton Approach, reporting descending to FL60, heading 155°, copied Information 'Whiskey' and the QNH 1016mb. The Luton INT acknowledged the message and advised that the ac was 22nm from touchdown and

No 2 for an ILS approach to RW08 (at Luton). The radar recording shows the B737 was about 6nm NW of WCO at this time. The base of Class A CAS of the Daventry CTA in the vicinity of WCO is FL55.

The guidance in MATS Part 1, Section 1, Chapter 6, Page 4, Use of Levels by Controllers states: *Except when aircraft are leaving controlled airspace by descent, controllers should not normally allocate a level to an aircraft which provides less than 500 feet vertical separation above the base of a control area or airway. This will provide some vertical separation from aircraft operating beneath the base of controlled airspace. Similarly, controllers should exercise caution when operating close to the upper vertical limit of a control zone or area where it is not contiguous with further controlled airspace.*

At 1750:44, the B737 flight was instructed to turn L onto 130°. Less than a minute later, at 1751:25, the B737 pilot transmitted, "(B737 c/s) be advised er there's a balloon at approximately 5000ft er four miles to the south of Westcott we are taking avoiding action turning right heading one eight five degrees", the Luton INT responding, "(B737 c/s) roger that's understood nothing showing on the radar report when you can turn back to the east". Within 5sec the B737 pilot transmitted "Clear of conflict and we are returning to heading one two five degrees". The B737 is FL61 Mode C, throughout the manoeuvre. Luton INT acknowledged the pilot's transmission and then placed the ac onto a heading of 110° to establish on the ILS LOC for RW08. The B737 pilot made no further mention about the encounter and the ac subsequently established on the ILS and landed without further incident.

The recording of Debden radar, the source used by Luton INT, does not show any primary radar returns that could be correlated to the hot air balloon. Even if a radar return had been detected, the controller need not have taken it into account, as there was no information to indicate that an unauthorised penetration of the airspace had taken place (MATS Part 1, Section 1, Chapter 5 Pages 12/13 Unknown Aircraft, refers).

UKAB Note (1): The Heathrow 23cm radar at 1750:08 shows the B737 6nm NNW of WCO tracking 150° descending through FL074 with a primary only return, believed to be the Hot Air Balloon, just L of its 12 o'clock range 7.5nm. The Hot Air Balloon return exhibits severe track jitter for the duration of the recording, although a WNW'ly track is discernible. By 1751:04, the B737 rolls out of the turn onto heading 130° issued by the Luton INT, the Hot air Balloon moves to just R of the B737's 12 o'clock range 3.7nm, the B737 is descending through altitude 6300ft QNH 1016mb. Shortly after this the B737 levels at altitude 6100ft (FL60) and then commences a R turn in accordance with the pilot's reported avoiding action. The CPA is timed at 1751:52 as the B737 turns through 150° and passes 0.4nm W of the Hot Air Balloon before the B737 then commences a L turn towards the RW08 FAT.

## **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.

ATCO Members agreed that the positioning of the B737 onto base leg for RW08 at Luton descending to FL60 to remain 500ft above the base level of CAS was quite normal. The Hot Air Balloon pilot had reported flying at 5000ft in Class G airspace near to WCO, 500ft below the CAS base level. There was no doubt that the Balloon sighted was correctly traced since the distinctive colour, logo and signage were all unmistakable. Without the benefit of a transponder, it was not possible to measure the vertical separation during the encounter. The RT transcript shows the B737 crew reporting on frequency their visual sighting of the Balloon, at approximately 5000ft altitude; in their written report the B737 crew estimated that the Balloon had passed 300-400ft below. Both flights were quite entitled to fly in that area legitimately with separation margins reduced to about 500ft with 'deemed' separation existing (the Balloon up to the CTA base level with the B737 500ft above). This led Members to opine that on this occasion there was almost certainly a mistaken impression of loss of vertical separation by the B737 crew. The large dark coloured Balloon envelope - approximately 30m

in height – was seen at about 3nm distance against a darkening sky and had, for whatever reason, appeared in conflict. The B737 crew was concerned by its presence and had turned their ac away and informed ATC. Taking all of these elements into account the Board concluded that this incident had been a sighting report where no risk of collision existed.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A sighting report.

Degree of Risk: C.

## AIRPROX REPORT No 2009-107

Date/Time: 18 Sep 1639

Position: 5153N 00015W (Vicinity of the LUTON (LUT) NDB)

Airspace: Luton CTR (Class: D)

Reporting Ac Reported Ac

Type: A319 SK76

Operator: CAT Civ Pte

Alt/FL: 2000ft 2400ft  
QNH (1016mb) QNH (1016mb)

Weather: VMC CAVOK VMC

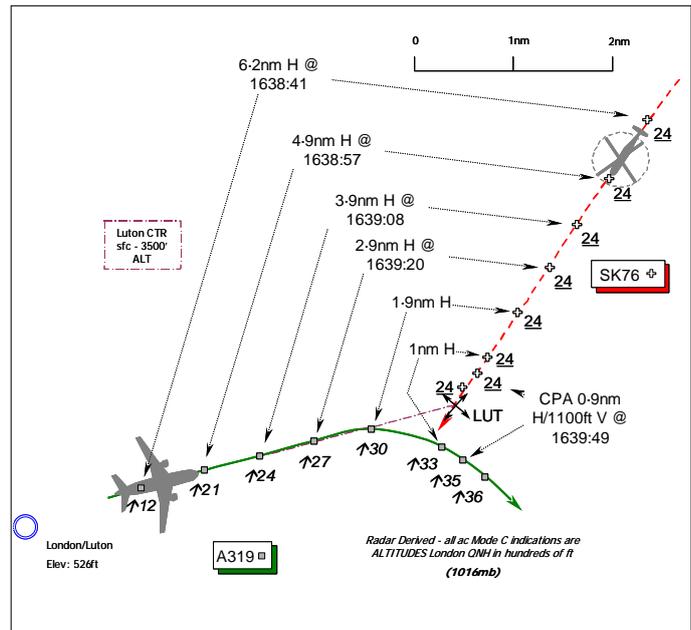
Visibility: 10km+ 30km+

Reported Separation:

600ft V/2½-3nm H 900ft V/2-0nm H

Recorded Separation:

0-9nm/1100ft



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE A319 PILOT** reports he was departing Luton under IFR in CAVOK conditions and was in communication with Luton TOWER on 132.55MHz. A squawk of A1157 was selected with Mode C; Mode S and TCAS are fitted.

Shortly after takeoff heading 080° at 190kt on a DVR 7C SID, Luton TOWER advised them of helicopter traffic in their 11 o'clock at 2000ft, he thought [actually at 2400ft QNH (1016mb)]. Almost immediately the traffic appeared as a TCAS contact at a range of 4nm in the correct position; as they accelerated and climbed, it became clear to both pilots that, as it was still about 1000ft above them, the contact would pass very close with little separation. About 3nm E of the airport before reaching the LUT NDB, climbing through 2000ft QNH (1016mb), with both pilots expecting a TCAS RA if they continued on the same heading, the A/P was disconnected and a R turn away from the contact was initiated off the SID. At this point the Captain visually acquired the dark coloured helicopter and TCAS gave a TA during the turn. Minimum horizontal separation was estimated to be 2½-3nm as the helicopter passed about 600ft below his ac during the turn with a "medium" Risk of collision. Separation would have been less if they had continued on the SID.

**THE SK76 HELICOPTER PILOT** reports the ac was crewed with two pilots whilst in transit under VFR through the Luton CTR and in receipt of a RCS from Luton APPROACH (APR) [situated at Swanwick within LTC] on 129.55MHz. Mode S and TCAS I is fitted (with no RA capability) and the assigned squawk was selected with Mode C on. The ac lighting was 'on' including upper, lower and 'tip' HISLs and the 'search' light.

In a level cruise at 2000ft Luton QNH (1016mb), he thought [actually at 2400ft QNH (1016mb)], heading 217° at 150kt, VMC in a clear sky, Luton had informed them of the departing A319. No TA was enunciated but they had acquired and maintained visual contact with it from when it was in their 2 o'clock at 5nm and 1000ft below to when it passed through their 12 o'clock at a minimum range of 2nm some 900ft above them [from their TCAS]. At no time was it apparent that they might need to take avoiding action and they did not do so. From his perspective there was no risk whatsoever.

**THE LUTON AERODROME CONTROLLER (ADC)** reports that, having been alerted by the APR to the position and routing of the VFR SK76, traffic information on it was passed to the A319 shortly

after it took off; the A319 crew acknowledged. The SK76 was tracking SW'ly and traffic information was updated when the helicopter had closed to 2nm 11 o'clock and now below the A319. The latter's crew commented that they had turned early to avoid the helicopter and estimated the separation to be 2nm/600-700ft.

The 1620 Luton METAR was reported as: 09008kt 050v110 CAVOK 19/11 Q1016.

**THE LTC LUTON APPROACH RADAR CONTROLLER (APR)** reports that when the SK76 crew called for, and was issued with, a Zone transit clearance the helicopter was NE of Luton. He advised Luton TOWER about the SK76 so that traffic information could be passed to departing traffic and he advised the helicopter crew about traffic departing from RW08. Another controller, accompanied by a trainee, then took over the position and passed updated traffic information on the A319, whereupon the SK76 crew reported visual.

**ATSI** reports that at 1634, the SK76 crew established communication with Luton APR. The pilot requested Zone entry to the Luton CTR [sfc to 3500ft amsl]. The controller passed the QNH of 1016mb, saying she would call back shortly for the details. The pilot was then instructed to squawk 'ident' and report his level. The pilot responded *"Ident climbing altitude 2 Thousand 4 Hundred in fact achieving 2 Thousand 4 Hundred 1-0-1-6"*. The pilot requested to route from a position to the NE of Luton to the SW, through the CTR via the LUT NDB, which is situated approximately 5nm E of the airport. The SK76 crew was cleared at 1635:40, *"...to transit the Luton Control Zone VFR initially..not above 2 thousand 4 hundred feet"*. The clearance was read back correctly by the SK76 pilot, who was advised by the APR just before 1636:00, that *"...we might need you to route a little more to the south and the east of the Lima Uniform Tango is that..okay"*. The pilot agreed.

Meanwhile, the A319 was taxiing for departure from RW08 at Luton. The flight was departing on a DVR7C SID, the initial routing is:

**'Climb straight ahead to LUT NDB. At LUT NDB turn right to intercept BPK VOR R337 to BPK VOR. Crossing BPK D5 at 3000 or above (4.4%). Crossing BPK D3 at 4000 (5.1%).'**

The ADC, obtaining a departure release from the LTC N Co-ordinator at 1636, instructed the A319 crew to line up RW08. Shortly afterwards at 1637:10, a departure release was obtained from the Luton Approach Radar (APR) Controller. During this telephone co-ordination between the two controllers, the APR passed traffic information to the ADC about the SK76, which was at Baldock [6nm NNE of the LUT], VFR, at 2400ft and would be continuing on its current track. The A319 was cleared for take off at 1637:35. The radar photograph shows the SK76 was outside CAS 10nm NE of Luton Airport at the time, some 2nm from the boundary of the Class D airspace of the Luton CTR. The ADC considered it was not necessary to issue traffic information about the helicopter to the A319 crew at the time. Traffic information was, subsequently, passed to both flights. At 1638:20, the APR advised the SK76 crew *"Radar Control Service in the Luton Zone look out for an Airbus A 3-1-9 about to depart runway 0-8 climbing to altitude 4 thousand feet"*. At 1638:40, when the subject flights were approximately 6nm apart, the ADC informed the A319 crew *"traffic you may see in your 11 o'clock helicopter altitude 2 thousand 4 hundred feet"*. The two controllers commented that the helicopter had progressed quicker than they had expected. The pilots of both ac said they were looking for the traffic. The SK76 pilot reported visual with the A319 at 1638:59 [at a range of just under 4.9nm]. By now the APR position had been handed over and the oncoming controller, aware of the situation, replied *"he's Two Thousand 2 Hundred and climbing now"*. Shortly after this, the ADC, who had not been advised that the SK76 was visual with the A319, informed the latter's crew just before 1639:40, *"..that traffic is now below you in your 11 o'clock 2 miles contact London 1-1-8 decimal 8-2-5 bye bye"*. Before leaving the frequency, the A319 pilot commented *"we did get a TCAS RA [sic] off that but I think that would have been very close on the separation we we've turned early to avoid it"*. The ADC had not realised that the A319 had turned early.

The radar recordings of the event show that when the A319 climbed through the level of the SK76, at 1639:08, the two ac were 3.9nm apart, on conflicting tracks. As the A319 continued to climb the horizontal distance between the ac reduced. At 1639:20, they were 2.9nm apart and the A319 was

300ft above the SK76. Ten seconds later the separation was 1.9nm/600ft. Shortly after this the A319 is seen to commence a R turn. By the time they were 1nm apart the ac were separated vertically by 900ft. The CPA was 0.9nm/1100ft, by which time the A319 was south of the SK76 and tracking away from it.

This Airprox occurred within Class D CAS. The MATS Part 1, Section 1, Chapter 2, Page 1, states the minimum services to be provided by ATC for aircraft in Class D airspace:

*'(a) Separate IFR flights from other IFR flights; (b) Pass traffic information to IFR flights on VFR flights and give traffic avoidance if requested; (c) Pass traffic information to VFR flights on IFR flights and other VFR flights.'*

Additionally, Section 3, Chapter 4, Page 1 provides advice and guidance to controllers on the safe integration of VFR flights with the IFR traffic flow within Class D CTA/CTR/TMA. These include:

*'Separation standards are not prescribed for application by ATC between VFR flights or between VFR and IFR flights in Class D airspace. However, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic. This objective is met by passing sufficient traffic information and instructions to assist pilots to 'see and avoid' each other. Instructions issued to VFR flights in Class D airspace are mandatory. Routing instructions may be issued which will reduce or eliminate points of conflict with other flights.'*

On this occasion, traffic information was issued to both flights.

The ADC believed that if the pilot of the A319 had not been content with the separation, he would have requested avoiding action. As he had made no comment until after the event, the controller assumed there was not a problem. However, with hindsight, in view of the higher speed than expected of the SK76 [UKAB Note: the radar recording shows a radar ground speed of about 160kt before the CPA], it would have been prudent to pass traffic information to the A319 prior to its departure. The oncoming controller, who was operating the APR position with a high-hours trainee, considered that after the SK76 crew had reported visual with the A319, its crew would take any action necessary to remain clear of the airliner.

## **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 a report from the appropriate ATC authority.

The Flight Ops Advisor to the Board who operates regularly from Luton noted that, in his experience, it was unusual for a helicopter transiting the CTR VFR to cross through the RW departure track. A CAT pilot Member also commented that it would have been unusual for the crew to see a helicopter in such proximity. He understood entirely the A319 pilot's concern when the presence of the SK76 was detected on TCAS as proximate traffic shortly after being passed TI by the ADC. Furthermore, the Member stressed that the A319 crew would have been coping with a high workload during the take-off and departure phase and the added pressure of the proximate traffic on TCAS would have been a significant distraction for them. The A319 Captain had articulated both pilots' concerns that a TCAS RA had been expected if they continued on the same heading toward the LUT NDB – and the helicopter. Consequently, the A/P was disconnected and a R turn away from the contact was initiated off the SID, but it was also clear from his report that he was manoeuvring based on proximate traffic and it was only after the turn was initiated that he saw the helicopter and a TA was generated. Pilot Members opined that in this situation shortly after take off, it was not unreasonable for the crew to take the action they did to attempt to increase the lateral separation if they were sufficiently concerned. Although the A319 pilot commented later on RT *"we did get a TCAS RA off that.."*, it was clear from his report that only a TA was enunciated and no RA ensued.

Although it was evident that the SK76's crossing of the CTR was in accordance with National ATC procedures for dealing with VFR flights crossing Class D CAS, controller Members expressed concern that the A319 crew had to take such unilateral action themselves to increase the separation against the SK76. A CAT pilot Member opined that a commonly held misconception amongst commercial pilots was that IFR flights were afforded standard separation over all other traffic. However, the ATSI report had made plain that no minimum separation standards are stipulated between IFR and VFR flights. Therefore, in Class D CAS separation is not normally engineered by ATC between IFR and VFR flights; rather sufficient traffic information must be passed together with instructions to assist VFR pilots to see and avoid the IFR flights. The ATSI report made it clear that the ADC had not considered it necessary to issue TI to the A319 crew before take-off and the Board discussed the provision of TI to the A319 crew at length. Controller and pilot Members agreed with the ATSI view that it would have been prudent if the ADC had issued TI about the SK76 before the A319 crew was given take-off clearance. Earlier information would have given the A319 crew more time to assimilate the information, better SA and the option of delaying their take-off until the SK76 was clear of the climb-out if they so wished. As it was, TI was issued about a minute after take-off when the crew were cleaning-up the ac after take-off and establishing themselves on their outbound course. A CAT pilot member opined that it was the combination of relatively late TI about unexpected and potentially conflicting traffic during the high workload stage of flight that led the A319 crew to react as they did, taking the initiative to increase separation. As it was, the radar recording had shown that the A319's RoC was such that it had indeed climbed through the SK76's altitude at a range of 3-9nm and was 600ft above the latter when the range had closed to 1-9nm. A controller Member explained that the A319 crew could have requested avoidance advice from ATC; however, in this instance there would likely have been a delay because the flight was still under the control of TOWER and was not yet in receipt of a radar service. In the Board's view late traffic information to the A319 crew was a Contributory Factor.

The VFR SK76 crew, despite being in receipt of a RCS in Class D airspace, was responsible for affording the separation they deemed appropriate against the IFR A319. It was evident that the SK76 crew had been given TI by the APR in good time as they entered the CTR and had promptly acquired the A319 visually at 1638:59, which the radar recording showed was at a range of just under 4-9nm. A controller Member suggested that when the off-going APR advised the SK76 pilot just before 1636:00, that *"...we might need you to route a little more to the south and the east of the Lima Uniform Tango.."* after issuing the Zone entry clearance, the controller was indicating that he might subsequently need to take more positive steps by modifying the SK76's clearance. An area controller Member suggested that it seemed the rapid transit of the CTR had taken the ADC somewhat unaware, although the Members agreed the groundspeed of the SK76 flying downwind was not unduly excessive. Nevertheless, instructing the SK76 crew to route clear behind the departing airliner would have taken care of the situation. A controller Member familiar with operations at Luton pointed out that it might have been preferable to instruct the SK76 crew to follow a course along the A1(M) - taking the helicopter E of the LUT NDB - until the A319 was seen to be above it. However, when the SK76 crew reported that they were visual with the departing A319 a controller Member suggested it would have reassured the oncoming APR who, subsequently, had not elected to place any further restriction on the VFR flight or modify the CTR crossing clearance. From the ATC perspective, with the clarity of hindsight, Members agreed that it was unwise to route the SK76 across the climb-out at this altitude and there were better alternatives available to ensure the helicopter's safe transit of the CTR in opposition to departing IFR traffic.

Having discussed the incident at length, the Board was divided over identifying a specific Cause. The Board could not assess the occurrence on the basis of what might have happened if the A319 had maintained its course to the LUT NDB; it was necessary to assess what had actually happened. In the event the A319 crew had reacted to a combination of TI and their TCAS indications; they then saw the helicopter and received a TA warning, making it possible to identify the cause as a Sighting Report or a Sighting Report (TCAS). However, in Class D airspace the onus was on the VFR helicopter to see and avoid the IFR airliner by an appropriate but unspecified margin. The SK76 crew received timely TI on the A319 and saw it in good time. They saw no requirement to deviate from their clearance or take avoiding action, even before the A319 turned away and from their perspective

there was no Risk. On balance, and supported by the radar recording showing that the A319 climbed through the SK76's altitude at a range of 3-9nm, the Board determined by a narrow majority that the Cause was a perceived conflict in Class D airspace and, unanimously, that there had been no risk of collision.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A perceived conflict in Class D airspace.

Degree of Risk: C.

Contributory Factor: Late traffic information to the A319 crew.

## AIRPROX REPORT No 2009-108

Date/Time: 20 Sep 1636 (Sunday)

Position: 5222N 00218W (2nm W Kidderminster)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: Vigilant C182  
M/Glider

Operator: HQ AIR (TRG) Civ Pte

Alt/FL: 2600ft NR  
(QFE 1014mb) (N/K)

Weather: VMC CLBC VMC NR

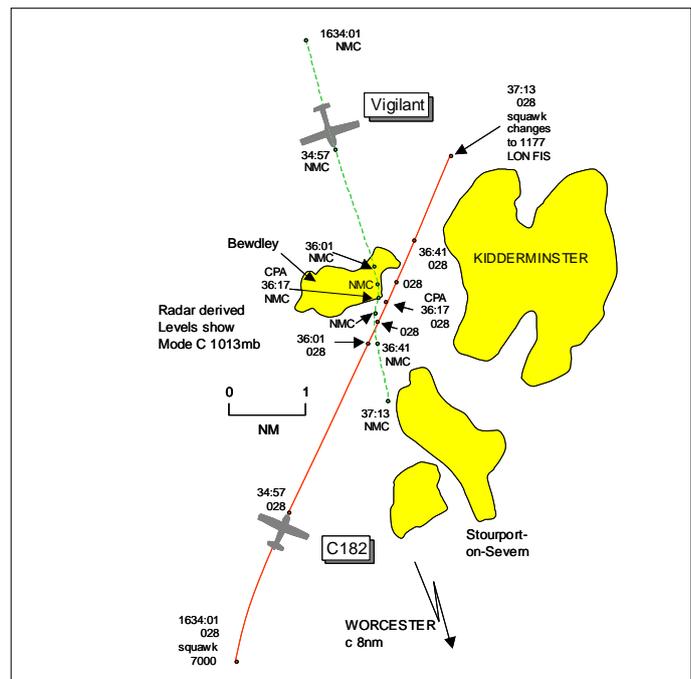
Visibility: >30km NR

Reported Separation:

Nil V/50m H Not seen

Recorded Separation:

0.1nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE VIGILANT PILOT** reports flying a dual navigational training sortie from Ternhill VFR, listening out with Ternhill Radio on 122.1MHz and squawking 7000 with NMC. The visibility was >30km flying 1500ft below cloud in VMC and the ac was coloured white/red with nav, landing and strobe lights all switched on. The incident occurred on the first leg towards Worcester, overhead Bewdley, whilst approaching a waypoint of Stourport-on-Severn; the trainee instructor was completing the navigational tasks as he maintained the lookout. Heading 170° at 90kt and 2600ft Ternhill QFE 1014mb, he first sighted another ac 300-400m ahead and 30° to the R, crossing obliquely from R to L on a steady relative bearing at the same level. He immediately took control and initiated a R turn to avoid, with approximately 30° AoB, passing port to port with no more than 50m separation before passing behind. The other ac, a high-wing single-engine Cessna type coloured white/red with retractable gear continued without deviating from track, estimated between 360° and 020°. He thought that this had been a late sighting owing to instructional requirements of the task at that particular moment and possibly that the Cessna was obscured by the arch of the canopy frame for some time prior to being seen. He assessed the risk as very high.

**THE C182 PILOT** reports being unaware of being involved in an Airprox until being contacted by RAC Mil. The flight was under VFR from a private strip near Ledbury to another private strip near Barnard Castle and in receipt of a BS from London Information on 124.75MHz squawking with Modes S and C. The Wx was VMC and the ac was coloured cream/red with strobe lights switched on. He did not see the reporting ac so was unable to provide any further information to the investigation.

**DAATM** reports that as the Vigilant pilot was monitoring the Ternhill frequency on a Sunday, with ATC closed, the RT would have been operated by the Glider Ops personnel, unrecorded.

**ATSI** comments that although the C182 pilot's report was received over 1 month post Airprox, the RT recordings were available from NATS. The C182 pilot called on the London FIS frequency at 1634 but was told to standby, No 2. A change of FISO took place and at 1636:38 the C182 flight was called and its pilot reported abeam Kidderminster at 3000ft 1021mb, heading 021° routing from a private site near Ledbury to a private site near Barnard Castle via Buxton, squawking 7000

requesting a BS. The London FIS conspicuity squawk of 1177 was issued (1637:01) and the flight was placed under a BS. No further calls were exchanged until the flight left the frequency at 1652.

**HQ AIR (TRG)** comments that the instructor involved has been very open in his reporting of this Airprox and has discussed the lessons he learnt with the rest of his unit and with the ACO Flight Safety staff. In future a Basic Service will be sought for all Navigation sorties conducted from this unit. In addition, the topic of effective lookout will again be broadcast to all ACO gliding units.

UKAB Note (1): Met Office archive data shows the Cotswold RPS 1600-1700 as 1020mb and the Barnsley RPS 1600-1700 as 1019mb; the dividing line runs W to E approximately 10nm S of Stourport-on-Severn. The actual QNH for the Worcester area was calculated to be 1023mb)

UKAB Note (2): The Clee Hill recorded radar clearly shows the Airprox occurring very close to Bewdley, as reported by the Vigilant pilot. At 1634:01 the Vigilant is seen squawking 7000 3-4nm N of Bewdley tracking 165° GS 90kt with another 7000 squawk, the C182, in its 1 o'clock range 8-25nm tracking 025° GS 140kt indicating unverified FL028 (3100ft QNH 1023mb). The ac continue on steady converging tracks (line of constant bearing), the ac closing to 1nm at 1636:01. The next sweep at 1636:09 shows the separation reducing to 0.5nm. Eight sec later (1636:17) the CPA occurs after the C182 has crossed ahead of the Vigilant, which has by now executed a R turn, with separation reduced to 0.1nm. Thereafter the Vigilant commences a L turn towards Stourport-on-Severn whilst the C182 continues on a steady NNE'ly track passing NW abeam Kidderminster before displaying the London FIS squawk at 1637:13. The vertical separation is not recorded. Although the Vigilant pilot reported seeing the C182 at the same level, he had also reported cruising at 2600ft Ternhill QFE (Ternhill elev 272ft), which equates to 2872ft QNH, and the C182 pilot reported on RT at 3000ft 1021mb (3060ft QNH 1023mb) which should have resulted in 188ft of vertical separation.

## **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 and operating authorities.

It was clear that with both flights operating in Class G airspace, the pilots were responsible for their separation from other ac through see and avoid. The Vigilant pilot was instructing another pilot on a Navex and his lookout for other ac may have been degraded by the training task of looking for geographical features/turning points etc. Members noted and acknowledged the instructor's comment that the conflicting ac may have been obscured by cockpit canopy frame. Even so, any known deficiencies that degrade lookout should be taken into account and mitigated by other means – changing the ac's flightpath slightly, leaning forward and/or moving one's head.

The C182 flight attempted to establish a BS with London Info 2min before the Airprox but had been told to standby; by the time London Info asked the C182 pilot to pass flight details, it was 20sec after CPA. That said, even if a service had been established earlier, the FISO was not aware of Vigilant flight as its pilot was not working an ATSU; if, however, the Vigilant pilot had called London Info, this would have broadcast his flight details to other pilots on frequency.

The radar recording shows both ac on steady conflicting tracks prior to the Airprox. Both ac would have been within the other pilot's field of view for some time, although on a line of constant bearing with no relative movement in either pilot's field of view to attract his attention. Members agreed that the cause of this Airprox was a non-sighting by the C182 pilot and a late sighting by the Vigilant instructor.

Turning to the risk, the Vigilant instructor saw the C182 in his 1 o'clock, range 300-400m at the same level, took control and executed a R turn to avoid, estimating separation at 50m. Notwithstanding that the C182 pilot had right of way under the Rules of the Air, his non-sighting meant he was unable to mitigate the risk. Nevertheless, Board Members agreed that the Vigilant instructor's prompt and

robust avoiding action had been enough to remove the actual collision risk, but that safety had not been assured during this encounter.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A non-sighting by C182 pilot and a late sighting by the Vigilant instructor.

Degree of Risk: B.

## AIRPROX REPORT No 2009-112

Date/Time: 25 Sep 0703

Position: 5712N 00212W (2nm E of Aberdeen Airport. elev: 215ft.)

Airspace: Aberdeen ATZ/CTR (Class: D)

Reporting Ac      Reported Ac  
Type: EC225              AS332L2

Operator: CAT              CAT

Alt/FL: 1400ft↑              NR  
            QNH (1018mb)

Weather: VMC CAVOK      VMC

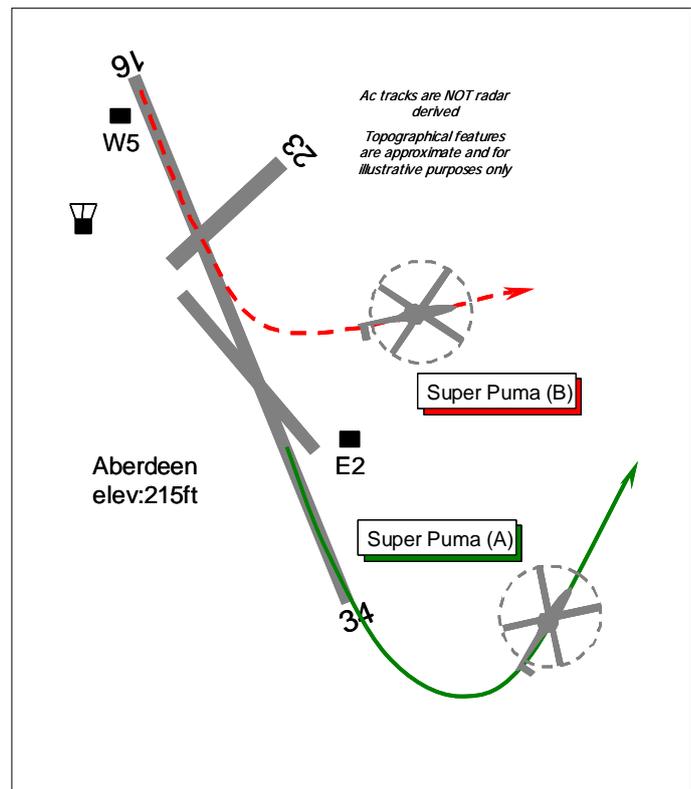
Visibility: >10km              10+km

Reported Separation:

300ft V/500m H      500ft V

Recorded Separation:

500ft V (Aberdeen recording)



### PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE EUROCOPTER EC225 LP SUPER PUMA (A) HELICOPTER PILOT** reports he was departing from Aberdeen bound for Sumburgh under IFR in CAVOK conditions. They were cleared to take-off from RW16 from abeam E2 by Aberdeen TOWER, with a left turn onto a heading of 030° climbing to 3000ft QNH (1018mb). Whilst in the climb at 100kt, ATC informed them of other traffic, but did not specify a direction and on looking out to their right they could see no other ac. The controller then said the ac was at 10 o'clock. On looking L they saw a red, white and blue Super Puma, at 10 o'clock 100ft above his helicopter about 800m away, on a track that was crossing their path from L-R. He instructed his co-pilot to stop the climb and informed ATC. At an altitude of 1400ft QNH (1018mb) minimum separation was about 300ft vertically and 500m horizontally. He believed that the other helicopter pilot had been cleared to turn behind them onto an easterly heading but had in fact turned in front of them. He assessed the Risk as "medium" and added that if they had not stopped the climb it would have been a very close encounter. His helicopter has a red livery. A squawk of A7067 was selected with Mode C; TCAS is not fitted.

**THE EUROCOPTER AS332L2 SUPER PUMA (B) HELICOPTER PILOT** reports he was departing from Aberdeen for an oil rig and was in receipt of an Aerodrome Control Service from Aberdeen TOWER on 118.1MHz. ATC instructed them to line up at W5 as No2 to another helicopter [the company was specified] on RW16 –Super Puma (A). TOWER asked if they could lift into the hover and be ready to depart on a radar heading of 080° keeping the Super Puma (A) ahead in sight. He checked the clearance and asked his 1st Officer if they were cleared to depart and turn inside Super Puma (A) ahead to which his colleague said yes. After they departed heading 080° at 70kt, he expected Super Puma (A) to turn onto a southerly heading but it continued to turn L. To avoid (A) he reduced his airspeed to 70kt and increased the rate of climb as Super Puma (A) passed clear below, the other helicopter's pilot having stopped his climb until clear. Super Puma (A) was in sight at all times and he maintained at least 500ft separation vertically.

He added that as the ac commander he was happy with the reduced separation in the CTR and felt that at no time was there any risk of a collision. In future if he has any doubts he will check his clearance with ATC. His helicopter has a red, white and blue livery.

UKAB Note (1): The 0650 Aberdeen weather was: 150/06; CAVOK; +13/+10; Q1018.

UKAB Note (2): The UK AIP at AD2-EGPD AD2.17, promulgates the Aberdeen ATZ as a circle radius 2nm centred on RW16/34, extending from the surface to 2000ft above the aerodrome elevation of 215ft amsl and active H24.

**THE ABERDEEN AERODROME CONTROLLER (ADC)** provided a comprehensive account the essential elements of which are contained in the ATSI report and thus omitted here to avoid duplication.

**ATSI** reports that Aberdeen Airport is situated within Class D airspace (CTR). Both helicopters were operating IFR.

The crew of Super Puma (B) reported holding at W5 - a holding point to the W of the threshold of RW16 - on the Tower frequency at 0658. The crew was instructed to hold, due to departing and landing traffic. Shortly afterwards Super Puma (A) reported holding at E2. This is also a holding point for RW16, which is situated on the eastern side approximately 2/3rds of the way down the runway. The crew of Super Puma (A) was instructed to hold.

The ADC requested departure releases from the Approach Radar Initial Director (INT) for the two helicopters, with Super Puma (A) departing ahead. Super Puma (A) was issued a L turn heading 030° and Super Puma (B) a L turn heading 080°. The headings were read back correctly.

At 0701:16, Super Puma (A) was instructed to line up and wait RW16. After receiving the pilot's response, Super Puma (B) was instructed to *"line up and wait 1-6 lift into the hover when you can please wind 1-9-0 at 7 knots"*. The controller was preparing the helicopter for imminent take off, due to landing traffic. Thereafter the following transmissions took place between the subject helicopters and ATC:

ADC *"[C/S (A)] after departure left turn heading 0-3-0 degrees"*.

Super Puma (A) *"After departure left turn heading 0-3-0 [C/S (A)]"*.

ADC *"[C/S (A)]..wind is..1-4-0 less than 5 [RW] 1-6 clear take off if you can expedite your take off please traffic behind you"*.

Super Puma (A) *"..clear take off [RW] 1-6 expedite [C/S (A)]...wilco"*.

At this point the arriving ac reported turning final and was instructed to continue its approach, with a helicopter to depart.

ADC *"[C/S (B)] continue in the hover but after departure left turn heading 0-8-0 degrees"*.

Super Puma (B) *"..hold in the hover after departure..left turn heading 0-8-0 degrees [C/S (B)]"*.

ADC *"[C/S (B)] departing [Operator of C/S (A)] will be turning left onto a northeasterly track with the traffic in sight [RW] 1-6 clear take off wind 1-9-0 6 knots"*.

Super Puma (B) *"Clear take off [RW] 1-6 with the [Operator of C/S (A)] in sight C/S (B)"*.

Super Puma (B) was cleared for takeoff approximately 30sec after Super Puma (A). The departure points were about 1000/1200m apart.

The ADC reported that Super Puma (B) turned hard L on reaching the RW16/23 intersection. Consequently, at 0703:28, [UKAB Note: the ADC reports 'concerned that the crew of (A) may not be aware of (B) inside them'] he asked the crew of Super Puma (A) *"can you see this Mark 2 that's just turned left"*. Initially, the pilot said he could not see the traffic. However, after traffic information was issued *"11 o'clock left to right"*, he reported visual, adding he would stop the climb. The pilot of Super Puma (B) asked if he should have turned outside or inside the traffic. He apologised that he did not understand it should have been outside.

The radar recordings are reported to show that when Super Puma (A) reported visual contact with Super Puma (B), it was 0.6nm S of it and 100ft below. When Super Puma (A) passed directly behind

and below Super Puma (B) vertical separation was 500ft. [UKAB Note: The Aberdeen recording was not available to ATSI or the UKAB at the time of writing.]

Within Class D airspace, IFR aircraft are provided with standard vertical or horizontal separation of 1000ft or 3nm respectively. However, in accordance with MATS Part 1, Section 1, Chapter 3, Page 1:

- “In the vicinity of aerodromes, the standard separation minima may be reduced if;*
- a) adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller;*
  - or*
  - b) each aircraft is continuously visible to the pilots of other aircraft concerned and the pilots report that they can maintain their own separation;*
  - or*
  - c) when one aircraft is following another, the pilot of the succeeding aircraft reports that he has the other aircraft in sight and can maintain own separation”.*

On this occasion, both helicopters were visible to the ADC and the crew of the following Super Puma (B) reported visual with the preceding Super Puma (A).

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac, together with reports from the air traffic controller involved and the appropriate ATC authority.

This Airprox stemmed from a conflict that developed between 2 helicopters whose crews were following ATC clearances that included departure profiles that crossed one another. Super Puma (A) was issued take-off clearance first with a L turn through 130° onto a heading of 030°, whereas the succeeding helicopter - Super Puma (B) – taking off from a position to the N of the first ac, was required to turn L through only 80° and fly an outbound departure heading of 080°. Members suggested that the ADC was probably under some pressure to get both helicopters airborne and away from the airport because of the landing traffic, as he had requested that the pilot of Super Puma (A) expedite his take-off. An element of confusion was also apparent as the pilot of Super Puma (B) reported that he thought that (A) would be departing to the S, despite being told by the ADC that it would be turning left on to a northeasterly track. Therefore, in the mistaken belief that (A) was clearing to the S, the pilot of Super Puma (B) turned at the RW intersection onto his assigned outbound heading. Members recognised that he complied with the instructions issued, but it brought him into conflict with Super Puma (A) departing on a heading of 030°. The pilot of Super Puma (A) was clearly not aware of the conflict until the ADC drew his attention to the presence of Super Puma (B) out to port, whereupon he saw it slightly above his altitude. Consequently, he reduced his ROC to ensure separation beneath it. In the other cockpit, (B) had sight of (A) throughout and was content to climb above it. The combined result of the increased ROC of (B) and the reduced ROC of (A) was that Super Puma (A) passed clear below (B).

Clearly these two IFR flights had to be separated by ATC and the ATSI report indicated how this was accomplished in the busy environment of the Aberdeen Class D CTR. It was clear that the crew of Super Puma (B) had confirmed that they were visual with Super Puma (A) before they received their take-off clearance from the ADC but the Board noted that they had not reported that they could maintain their own separation against the one ahead. Whilst technically this should have been stipulated, the NATS Ltd Advisor pointed out that this was not always practicable, which led some Members to suggest that the Airprox had resulted from a lack of positive control by the ADC. The controller had indeed expected Super Puma (B) to turn outside Super Puma (A) and the Board was briefed that it was the controller's normal practice to stipulate this on the RT. In this case, however, it was unfortunate that he omitted to do so. Notwithstanding this, the ATSI Advisor explained that, because both helicopters were continuously visible to the ADC as they departed, the ADC had complied with his responsibilities in respect of the requirements for reduced separation in the vicinity

of the aerodrome. Taking all these factors into consideration, the Board concluded that the Cause of this Airprox was that while following departure instructions, the aircraft flew into conflict.

Whereas the pilot of Super Puma (A) had opined that if he had not stopped the climb it would have been a very close encounter, the Board assesses Risk on the basis of what actually occurred, not what might have happened in different circumstances. Here, the pilot of Super Puma (B) was visual with Super Puma (A) throughout, maintained a good ROC to ensure vertical separation above it and was therefore always in a position to afford greater separation if required. Although the reporting pilot was unaware of the presence of Super Puma (B) crossing ahead until alerted to it by the ADC, he saw it in time to take effective action and stopped his climb. In the Board's view, all these actions ensured there was no Risk of a collision.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: While following departure instructions, the aircraft flew into conflict.

Degree of Risk: C.

## AIRPROX REPORT No 2009 117

Date/Time: 23 Sep 1605

Position: 5308N 00031W  
(Waddington CCT - elev  
218ft)

Airspace: Waddington ATZ (Class: G)

Reporting Ac      Reported Ac

Type: BE200              PA28

Operator: HQ AIR (TRG)      Civ Pte

Alt/FL: 1000ft              600ft  
(QFE 1016mb)              (N/K)

Weather: VMC CLBC              VMC

Visibility: >10km              10km

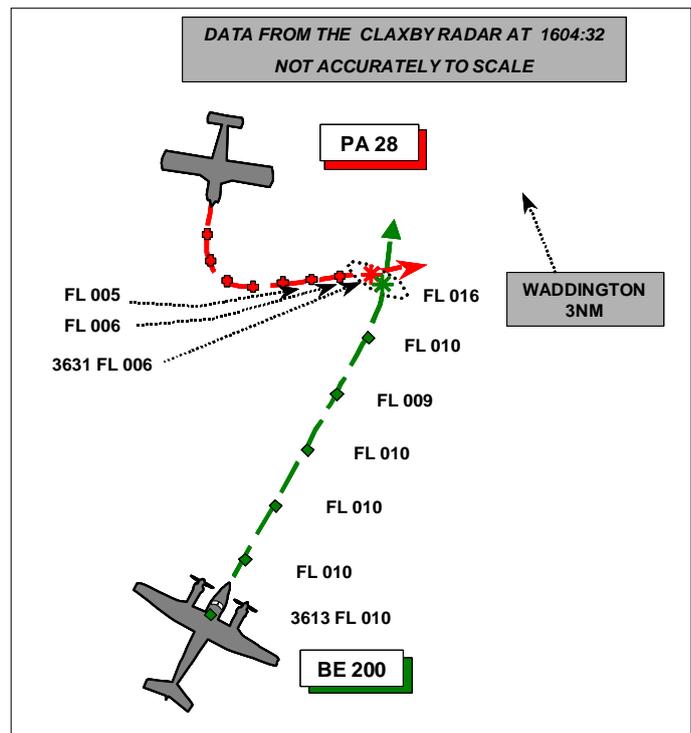
Reported Separation:

150ft V/10m H      400ft V/200m H

Recorded Separation:

400ft V/0.4nmH

(min H after RA 1000ft V/<0.1nm H)



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE B200 PILOT** reports flying a training flight from RAF Cranwell, in the Waddington visual cct, with a student who was an experienced ex-FJ Navigator, as PF in the LH seat; the instructor who was also the ac commander and PNF was in the RH seat. They were squawking as directed with modes C and S, had all lights switched on and were in contact with TWR on a UHF frequency.

They were passed TI on a civilian light single-engined piston ac positioning for left base that would be ahead of them in the pattern. They offered to switch to a VHF tower frequency so that the other pilot would have improved SA but they were directed to remain on the UHF frequency in use as the other ac was intending to land. They continued their cct and were given clearance to roll after the other ac had vacated the RW.

During climb-out from the roll they carried out a practice engine failure after take off (EFATO), continuing straight ahead to about 4.5nm DME to complete checks before turning left to rejoin the cct downwind. They made RT calls 'C/S, extending upwind, simulated asymmetric' and later 'C/S, re-joining downwind'. They were in a high workload situation and neither pilot recalls being passed any further information on a departing ac by TWR and no RT communication was heard from the other ac on the UHF frequency.

A further Cranwell based ac, (a Dominie departing the cct from end of downwind leg) was about 3nm ahead of them.

As they approached the downwind position, at 1000ft QFE, tracking 020° at 183kt, with one engine at flight idle, a TCAS TA warning was received displaying a contact in their 10 o'clock at about 1nm, 300ft below them and climbing. The crew looked into the 10 o'clock to try to acquire the ac visually but nothing was seen; after a further 5-8sec a TCAS RA "CLIMB CLIMB" was received. Both engines were brought up to max performance and simultaneously the ac was pitched into a max performance climb.

Once fully established in the climb, the left-seat pilot looked into the 10 o'clock to see a white coloured light ac pass about 150ft directly below. They assessed the risk as being high and reported the incident immediately to TWR.

**THE PA28 PILOT** reports flying a local private flight in a blue and white flying club ac, squawking as directed with Mode C, and, at the time in communication with TWR. He was cleared to take-off on RW20 with the King Air in sight. Although he was not made aware of the King Air's intentions he saw that it had just overshot from its approach and was maintaining RW heading. As he climbed out on RW heading he was aware that the King Air was still maintaining RW heading and had extended upwind, so at that stage he assumed that it was returning back to RAF Cranwell, which is due South of RAF Waddington, as the ac was not flying a normal cct pattern. He therefore elected to begin a left turn onto his departure heading away from the cct as he felt there was sufficient separation between the King Air and himself; however, during the turn he was 'blind' to the King Air. As he rolled out of the turn heading 090° at 85kt and reacquired the King Air he noticed that it was in the final part of a left turn to roll out long downwind; its higher speed and increased turn radius now put them in potential conflict so he reduced his rate of climb in order to provide a comfortable degree of separation between the ac. He lost sight of the King Air again in his 4.30 position as it passed above and slightly behind the roof structure of his ac, but picked it up again in his 7.30 position, estimating it to be 300-400ft vertically above his alt. At no time during this period did he believe there was any significant risk of collision.

He has since been informed that the King Air was conducting an engine failure after T/O drill following his overshoot, hence the reason for the upwind extension.

UKAB Note (1): The recording of the Clee Hill radar shows the incident clearly. The BE200 can be seen extending upwind in the Waddington cct and levelling indicating FL010 (Mode C) and commencing a turn onto downwind at 3.7nm DME, 30sec after the PA28 got airborne (it first shows on the recording indicating FL-001). The PA28 commences a LH turn at 1603:00 while climbing through FL002 just as the BE200 rolls out downwind at FL010 in its 11o'clock at 2.3nm. The PA28 continues the left turn rolling out on about 090°, closing with the BE200 until it (the BE200) commences a climb at 1604:25 passing 1000ft almost directly above the PA28. The ac then diverge. Although not shown on the diagram, the CPA was within the Waddington ATZ.

UKAB Note (2): There were 2 single-engined light ac involved; one was landing ahead of the BE200 then taxiing in to park and the other was about to line up and take off. There was also a Dominie on an instrument approach to join the visual cct.

**DAATM** reports that the BE200 was operating in the RAF Waddington visual cct on TWR (UHF) conducting a training sortie including EFATO drills, while a PA28 was departing Waddington on TWR (VHF) to conduct a local flight. The Waddington ADC was transmitting on VHF and UHF simultaneously to control both cct and ground traffic.

The PA28 was given clearance to line-up on RW20 at 1601:20; immediately after the pilot acknowledged the line-up clearance, the APP controller notified the ADC that radar traffic (a Dominie not involved in the Airprox) was *'8 miles...to roll and join'*, followed by details of the Dominie's further intentions and departure instructions. At 1601:59 the ADC asked the PA28 pilot, *'C/S are you visual with the King Air [C/S] deadside?'* to which he replied *'Affirmative'*, and was cleared for take off and passed the surface wind. At 1602:13 TWR made an all stations broadcast warning that the Dominie was at 7 miles to roll and join the cct. At this time the BE200 was upwind and responded [on UHF] *'C/S extending upwind for spacing on the...radar [traffic]'*; they were also extending upwind to carry out a practice EFATO which requires them to complete the checks before turning left to rejoin the downwind leg of the cct. In his report the BE200 pilot stated that he also made RT calls for *'simulated asymmetric'* [on UHF] but the tape recording does not capture the transmission [it may have been blanked by VHF calls from an ac that had just landed]. The ADC was engaged with ground calls before instructing the PA28 to continue with Zone [VHF] at 1603:36; the pilot read back the frequency. The PA28 was not passed information with regard to the BE200's intention to extend upwind while conducting the EFATO.

At 1603:40 the ADC passed to the PAR controller a clearance for the Dominie to roll, with cct state as one in. At 1603:44 the BE200 reported “CWL72 rejoining downwind”, the ADC acknowledged and then broadcast ‘Dominie 4 miles to roll’.

The ADC was engaged in ground calls until at 1604:20 the BE200 pilot transmitted “C/S TCAS climb” which the ADC acknowledged; the BE200 continued, “Twr C/S we’ve just had a.....TCAS climb in the circuit we weren’t aware of another aircraft in the circuit apart from us.” The ADC dealt with a ground call before responding ‘BE200 C/S affirm on VHF frequency, I’m also transmitting on both’ but the BE200 pilot replied ‘We didn’t get it’; the pilot continued on to say, ‘And he cut straight across us on the down wind leg’.

The Waddington Supervisor commented that the RT recording showed that all transmissions made by the ADC throughout the time of the incident were broadcast on both UHF and VHF frequencies.

The PA28 and the BE200 flew into conflict in the visual cct on the downwind leg to RW20 while the ac were operating on different frequencies. However all transmissions made by the ADC were on both frequencies simultaneously but it appears that the BE200 crew did not hear all the [VHF] transmissions made by the ADC. The PA28 was not passed the intention of the BE200 to extend upwind which would have enhanced the pilot’s SA.

UKAB Note (3): Four short transmissions were made on VHF/UHF [although this cannot be determined from the transcript, SATCO reported that all transmissions were made on both frequencies] to/from the PA28 starting at 1601:22 and ending at 1602:06 clearing the PA28 to line up, asking if the pilot was visual with the BE200, and then clearing the ac to take off with it in sight. No TI was passed to the BE200 crew regarding the PA28 taking off or informing the PA28 pilot that the BE200 had extended upwind.

UKAB Note (4): The transcript provided did not show which transmissions were made or received on UHF and which were on VHF. Separate transcripts of the UHF TWR and VHF TWR frequencies were requested but, since the recording contained both frequencies, they could not be provided.

UKAB Note (5): A further transcript was requested and it shows that at 1558:08 [before the initial transcript commenced] the BE200 pilot transmitted:

*‘Confirm he is in VHF? Would you like me to chop to VHF’*

to which TWR responded:

*‘C/S he’s on VHF, he’s landing on this approach’* [this refers to another light ac landing ahead]

And the BE200 pilot responded:

*‘Roger C/S unintelligible’* [the BE 200 did not change to a VHF frequency].

**HQ AIR (TRG)** comments that the simultaneous ATC transmissions on VHF/UHF do not seem to have worked as the PA28 pilot was unaware of what the King Air was intending to do and the King Air pilots were not aware that the PA28 was in the circuit area. It also appears that specific TI was not given to either crew, which might have led to inaccurate SA. However, the fundamental rule of see and avoid still applies in the visual circuit and it was incumbent upon both crews to maintain a good look out to maintain accurate SA.

## **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 recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board was hampered in its deliberations by the absence of separate transcripts of the UHF and VHF frequencies. Although there was no reason to doubt the Supervisor's report that the ADC's transmissions were made simultaneously on UHF and VHF, it was difficult to verify whether some critical calls were not transmitted, not heard or not assimilated; e.g. the PA28's line up/take off clearance was not heard on UHF by the BE200 crew (although they might have been transmitting their intention to conduct a practise EFATO, but this call is not captured on the RT recording nor apparently heard by the ADC). Nevertheless, Members agreed unanimously that the nub of the problem was the separate use of UHF and VHF frequencies simultaneously by the BE200 and the PA28. The Board noted that the BE200 pilot, apparently in anticipation of confusion, had volunteered to change to the VHF frequency but the ADC had, in their view unwisely, declined this offer. Members agreed that the pilots of both ac had conducted their respective actions in the circuit as correctly as the information available to them permitted; both, however, had incomplete information regarding the other's intentions. Only the ADC had full SA, and he apparently did not realise how little traffic information was being received or assimilated by the pilots.

The Board noted that the PA28 pilot had seen the BE200 extend upwind and, in the absence of TI, concluded incorrectly that it was departing the circuit. However, by keeping it in sight as much as possible, it soon became apparent to him that the BE200 was not only rejoining the circuit but was flying into conflict with his ac. Now correctly deducing the BE200 crew's intentions, he reacted appropriately by reducing his rate of climb to pass well below the BE200 (even before it commenced its RA climb). Although the BE200 crew could not see the PA28 climbing from below, probably due to its being obscured by the airframe, it was displayed on their TCAS initially as a TA; when it changed to an RA the crew reacted accordingly and commenced an RA climb. The combined actions of the PA28 pilot and BE200 crew ensured that there was no risk of collision, the BE200 crossing 1000ft above the PA28.

The Board agreed that, while it was not possible to determine who said what, and whether or not it was actually transmitted or received, best practice is to control all ac in the visual circuit using a single frequency where, as in this case, it is possible. The Board noted that this was not the first incident they had assessed where UHF/VHF confusion had been an avoidable factor, although not necessarily the direct cause of an incident. The DAATM Advisor said that some RAF bases had standardised, on their own initiative, on a single frequency (generally VHF as not all users are UHF equipped) but this is not mandated by DAATM. The Board was therefore minded to recommend that MoD considers regulating such procedures.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

<u>Cause:</u>	A conflict in the Waddington circuit resolved by the pilots of both aircraft.
<u>Degree of Risk:</u>	C.
<u>Contributory Factors:</u>	Lack of Traffic Information from the ADC to aircraft in the circuit operating on different RT frequencies.
<u>Recommendation:</u>	MoD is recommended to direct that, whenever it is possible to do so, aircraft in the visual circuit operate on the same frequency.

## AIRPROX REPORT No 2009-118

Date/Time: 25 Sep 1057

Position: 5315N 00246W (6nm SSE  
Liverpool - elev 80ft)

Airspace: MAN CTA/LIV CTR (Class: D)

Reporting Ac      Reported Ac

Type: B737-800      H269

Operator: CAT      Civ Club

Alt/FL: 2500ft      1500-2000ft  
(QNH 1027mb)      (QNH)

Weather: VMC CLBC      VMC CLBC

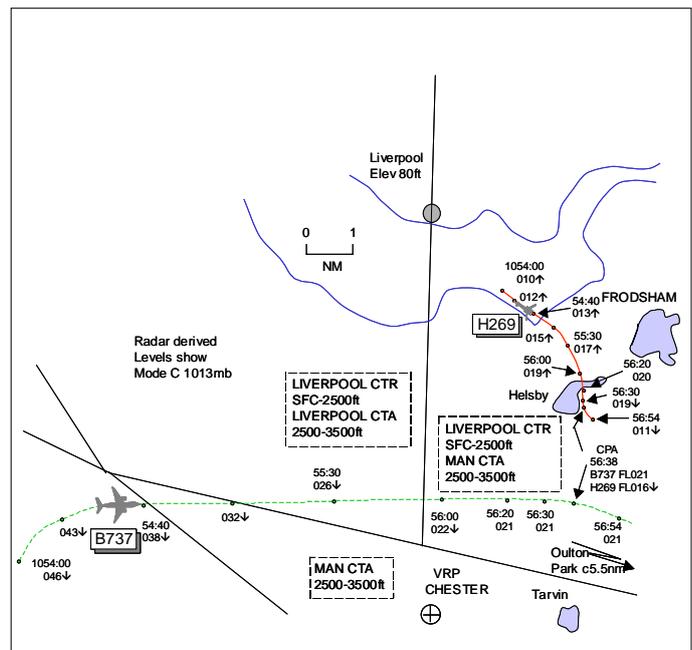
Visibility: 10km      >10km

Reported Separation:

Nil V/2nm H      NR V/5-6nm H

Recorded Separation:

500ft V/2nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE B737 PILOT** reports inbound to Liverpool IFR and in receipt of a RCS from Liverpool on 119-85MHz squawking 5043 with Modes S and C. Heading 080° downwind at 220kt and 2500ft they noticed on the NAV display proximate traffic 11 o'clock range 5nm within 1000ft but climbing towards them. ATC were in conversation with other traffic and by the time they were able to alert ATC to the situation the proximate traffic was 10 o'clock range 2nm at the same level  $\pm$ 100ft. ATC immediately issued an avoiding action instruction to turn onto heading 110°, which they followed; no TCAS 'traffic' warning was received. He assessed the risk as high as he believed the other ac's pilot was unaware of his 'level bust'.

**THE H269 PILOT** reports flying solo outbound from Liverpool, VFR and in communication with Liverpool Approach on 119-85MHz, squawking 0260 with Mode C. The visibility was >10km in VMC and the helicopter was coloured white with strobe lights switched on. Prior to departure whilst hover taxiing, GMC had issued a clearance from RW27 to exit the Zone via Chester and the QNH. However, Tower changed the Zone exit to Oulton Park once airborne which changed the track to 090° downwind and then 150° when positioned mid-river. After changing to Approach, the Zone exit was changed again to Tarvin, a track change to 180°, when crossing the S bank N of the M56 and Helsby. The helicopter was prone to the elevator rising causing a climb – slight friction could be applied but only in the cruise, not in the hover or during take-off. His workload had involved the Zone exit changing twice and an unfamiliar position of taking-off W'ly but then changing E'ly whilst in the cct before turning S'ly to Tarvin. During this period climbing at 55kt the helicopter climbed above 1500ft (2000ft for 1 min) but it was rectified very quickly. When Approach called to inform him of the B737 pilot's report of his helicopter's height, he was able to report that he was now at 1500ft. The B737 was in clear view some 5-6nm away whilst he was still some 5nm and 5min from Zone exit at Tarvin.

**THE LIVERPOOL RADAR CONTROLLER** reports that at 1056 the B737 crew reported a TCAS alert, he thought, 3nm N of their position, LH downwind for RW27. The H269 was observed on radar indicating 2400ft tracking S towards Tarvin on the S Zone boundary. The H269 was operating on a VFR clearance not above 1500ft whilst the B737 was level at 2500ft on an E'ly track. The B737 was given an avoiding action turn onto 120° away from the helicopter. The H269 flight was given an immediate descent instruction to 1500ft. When the helicopter pilot was asked to confirm his level, he

stated 1500ft. When clear of the helicopter the B737 was vectored towards L base for a visual approach.

**ATSI** reports that the H269 helicopter was operating on a local VFR flight from Liverpool. At 1049:55, the ADC instructed it to line up and wait RW27. Shortly afterwards, a revised departure clearance was issued (the pilot reported his initial clearance, passed by GMC, had been to the S, via Chester) *“after departure it’ll be Frodsham Whitegate VFR not above Fifteen Hundred feet”* i.e. to the SE corner of the Liverpool CTR. The pilot read back the clearance *“Roger Whitegate not above Fifteen Hundred feet”*. The H269 was then cleared for take off from RW27, with a L turn out. Approximately 3min later (1054:40), the helicopter was transferred to Liverpool Radar.

Meanwhile, the B737 flight had contacted Liverpool Radar at 1050:30 and was being vectored downwind LH to RW27, on heading 090°. At 1054:37, the B737 crew was instructed to descend to 2500ft on QNH 1027mb. The radar recording shows that, at the time, it was 9nm SW of the H269, which was now at FL013, equivalent to an altitude of 1700ft QNH 1027mb. Shortly afterwards, the B737 flight was issued with TI about a PA28, which was routeing from the airport to Whitegate at 1500ft or below [3.5nm NW of the H269].

At 1055:30, the H269 pilot made his initial call to Liverpool Radar. The controller instructed the helicopter to *“turn towards Tarvin report leaving at Tarvin now”*. Tarvin is situated near the Liverpool CTR boundary, SSE of the airport. The radar recording, timed at 1055:30, shows the H269, squawking 0260, the Liverpool conspicuity code, passing FL017 (2100ft QNH), unverified, 5-8nm NE of the B737, which is passing FL026 (3000ft QNH). Shortly afterwards, the B737 was instructed to turn L heading 080°. The pilot commented (1056:00) *“Have have traffic on our TCAS at about two miles about Two Hundred below is that the Cherokee”*. The controller replied *“Er it’s an aircraft climbing for avoiding action turn right heading One One Zero degrees B737 c/s it’s a helicopter at two thousand four hundred feet should be below Fifteen Hundred feet now”*. The pilot acknowledged the turn and reported the traffic was showing 100ft below. The controller tried to establish the altitude of the H269 but after only receiving a position report he decided to instruct the helicopter (1056:30) to *“descend now there’s traffic three miles south of you turning away from you a Seven Three Seven descend to Fifteen Hundred feet now H269 c/s”*. The pilot reported *“at Fifteen Hundred now”*.

The radar timed at 1056:20 shows the H269 at FL020 (2400ft QNH) and the B737 2-7nm SW of it, at FL021 (2500ft QNH). Thereafter, the helicopter descended and reached FL011 (1500ft QNH) at 1056:54. The B737, which maintained FL021 (2500ft QNH) throughout, passed ahead of it at a range 2nm at the CPA, the H269 500ft below, descending through FL016 (2000ft QNH). The H269 was above its cleared altitude for approximately 2.5min.

The Airprox occurred within Class D airspace. The minimum service to be provided by ATC to IFR/VFR traffic is basically to provide TI to both ac. On this occasion, ATC had placed the subject flights on clearances, which were intended to provide vertical separation of 1000ft, until they were clear of each other.

## **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.

Members could add little to this incident. The radar controller had elected to separate the subject ac by restricting the H269 to not above 1500ft whilst descending the B737 to 2500ft. In doing so, this removed the need to pass TI to either flight, the minimum requirement for Class D airspace. However, the H269 pilot did not comply with his clearance and climbed above his assigned altitude, which had caused the Airprox.

The Board discussed why the controller had not noticed the H269's 'level bust' earlier as the helicopter's Mode C had indicated above 1500ft for over 1min before its pilot checked-in on the radar frequency. Under SOPs, an ac's squawk code is validated and Mode C is verified on initial contact. However, the H269 had been allocated a Liverpool conspicuity code, which is deemed unvalidated and unverified, and, unfortunately, its Mode C indications appeared to have gone unnoticed by the controller.

Members commended the actions taken by the B737 crew on seeing the potential confliction on TCAS and pointing it out to ATC. This had led to the radar controller issuing an avoiding action R turn to the B737 flight and descent instructions to the H269 pilot, who saw the airliner as it crossed ahead from R to L as he commenced his descent. These elements when combined were enough to allow the Board to conclude that any risk of collision had been quickly and effectively removed

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The H269 pilot climbed above his assigned altitude and into conflict with the B737.

Degree of Risk: C.

## AIRPROX REPORT No 2009-119

Date/Time: 25 Sep 1113

Position: 5443N 00233W (~2nm  
NE of Skelling Farm  
Glider Site elev: 610ft  
amsl)

Airspace: London FIR/LFA17 (Class: G)

Reporting Ac      Reported Ac

Type: DG500 Glider      Hawk T Mk1 pr

Operator: Civ Club      HQ Air (Ops)

Alt/FL: 1800ft      250-500ft  
QNH      agl

Weather: VMC CLBC      VMC CLBC

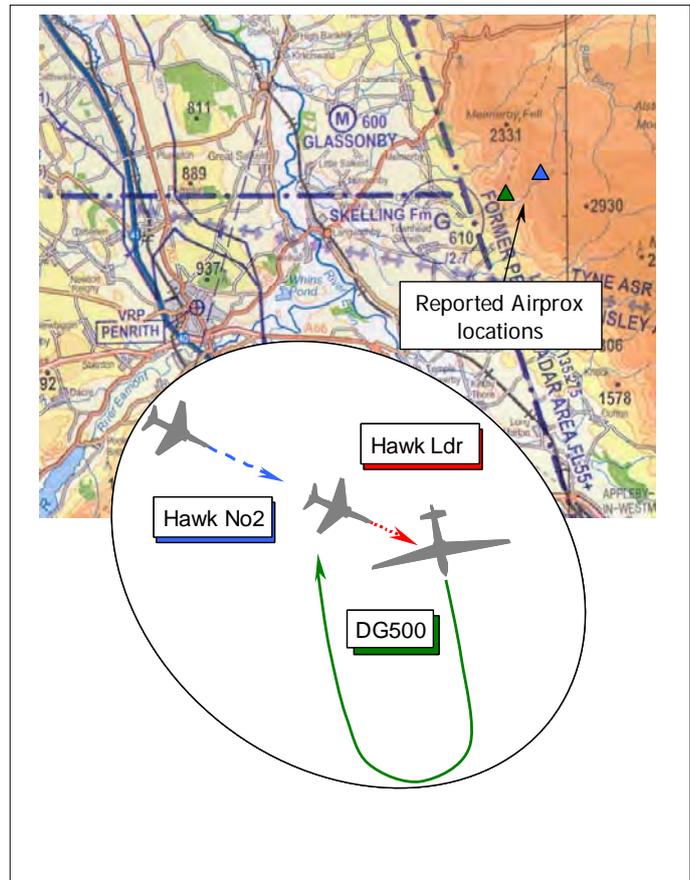
Visibility: 20km      10km+

Reported Separation:

150-200ft V      500ft V/O-1nm H

Recorded Separation:

Not recorded



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE DG500 GLIDER PILOT** reports that he had winch launched from the glider site at Skelling Farm with a passenger, to ridge soar the Cross Fell hills. He was in communication with the glider site on 129.975MHz and had been established on one of the foothills for just a few minutes, flying about 1300ft clear below cloud with an in-flight visibility of about 20km. Heading in a southerly direction (170°) approaching a position 54°42'33"N 002°32'26"W [1½nm ENE of Skelling Farm] at 55kt and climbing slowly through about 1800ft QNH (some 1200ft QFE), he heard a loud noise and a small fast jet ac passed 200ft below - directly underneath his glider - flying straight and level on a similar course. Expecting a second jet, he immediately turned R, away from the hillside, through 180° onto 350° and saw the No2 of the pair coming towards him on a reciprocal course, some 200ft above his glider and slightly to starboard. It seemed that the pilot of the No2 had seen his glider, or was aware of him, as the jet rolled inverted and the No2 Hawk passed about 200ft above him. No avoiding action was taken against the first jet – a Hawk – because it was approaching his glider from behind and had flown past almost before he was aware of it. Whereas he saw the No2 Hawk and could see that it was going to fly clear by a reasonable margin, it is difficult to assess the Risk with the first Hawk as it depends whether the pilot saw his white glider [the lead Hawk pilot did not see the glider] - he stressed that he did not see the first jet until it had passed. He assessed that there was little or no Risk of collision with the second Hawk.

The incident was observed by people on the ground at Skelling, who also identified the aircraft type. Adding that there were other gliders flying on the hills at the same time, although none was in the immediate vicinity at the time of the Airprox.

He stressed that the reason that he had filed the Airprox was to highlight that in suitable soaring conditions large numbers of gliders (plus hang gliders and para-gliders) soar on these hills, anywhere from Brampton to the Warcop Danger Area, from a few hundred feet above ground level to several thousand feet.

**THE LEAD HAWK T Mk1 PILOT** reports that he was leading a section of two black Hawk ac operating VFR on a low-level evasion training sortie against another singleton Hawk in the Lake District and Appleby Valley. The ac's white HISLs, navigation lights and the nose light were all on. Operating VFR without an ATS, a squawk of A7001 was selected with Mode C but neither Mode S nor any form of TCAS is fitted.

Approaching the Airprox position given by his wingman, heading 150°(T) at 420kt, some 1500ft below and 1½nm clear of cloud, a glider was spotted by his No2, who was 2nm in trail. He opined candidly that he had already passed by the glider without spotting it, but from its reported location he must have flown close to it. He did not assess the Risk.

**THE HAWK T Mk1 WINGMAN** reports that he was flying as No2 of the Section of 2 Hawk ac cruising at 250-500ft agl. After being bounced 3nm NNE of Penrith, both he and his leader were egressing to the E some 2000ft below a solid overcast and clear of cloud on high ground to the E with an in-flight visibility of >10km. He was aware of the glider site to the E [Skelling Farm Glider Site] and elected to flow to the Northern and Eastern sides whilst continuing to route to the S. This route was due to the proximity of the bounce and was the most tactical route to follow. Using his GPS display to keep clear of the glider site, he was prevented from going any further E by the low cloud on the high ground. Approaching a position 54°43'N 002°31'W [2½nm ENE of Skelling Farm], just as he cleared a ridgeline heading 135° at 420kt – as the 2<sup>nd</sup> aircraft in a 1½nm trail – he saw a glider half a mile ahead on the nose and slightly below his flight path. To avoid the glider he pulled up as high as the cloudbase would allow and rolled to maintain visual contact with it. He reported the presence of the glider to the other members of the formation and estimated that he passed above the glider with at least 500ft clearance about 0.1nm away and that there was no risk of collision. Stressing that he was aware of their proximity to the glider site, he does not believe it was infringed. Upon returning to the Unit he reported the incident to the Duty Authorising Officer, but did not deem it necessary to file an Airprox report.

**HQ AIR (OPS)** comments that the Hawk pilots' were aware of the glider site and gave it due regard and avoidance, the wider implications of the weather conditions as suitable for hill soaring are unlikely to be obvious to non-glider pilots, and in Class G airspace all users must maintain a good lookout. The Airprox reporting system should not be used to highlight that in suitable conditions large numbers of gliders soar on these hills - a NOTAM would be more appropriate. More in depth information regarding weather conditions and implications to the airspace near to promulgated glider sites should be incorporated into the UK Military Low Flying Handbook.

UKAB Note (1): The UK AIP at ENR 5-5-1-5 promulgates Skelling Farm Glider Launching Site situated at 54° 41' 52" N 002° 35' 06"W as active from Sunrise to Sunset (HJ). Glider launching by winch may be encountered up to 2000ft above the Site elevation of 610ft amsl.

UKAB Note (2): The UK Military Low-Flying Handbook at Part 1-2-17-3, promulgates a mandatory avoidance of 2nm around Skelling Farm Glider Site below 2000ft msd (GS03) for crews of military ac.

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

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac and a report from the appropriate operating authority.

The gliding Member briefed the Board that Skelling Farm Glider Launching Site was one of the first to be used by glider pilots keen to experience mountain wave soaring. He opined that sites that are close to suitable locations for ridge or mountain wave soaring such as Skelling Farm and Sutton Bank tend to be in areas that are suitable for military training flights. Furthermore, whilst the promulgated mandatory avoidance of 2nm around Skelling Farm for observance by military crews provides a

degree of protection below 2000ft agl around the glider site itself, this is not where the majority of gliders will be operating once airborne from the site. Clearly, visiting glider pilots might fly cross-country to such localities from distant sites and there is always the potential for military fast-jet pilots to encounter gliders anywhere in the 'Open' FIR. The gliding Member stressed this was not just at low-level, but further into the middle airspace, where gliders will be found operating above sites such as Sutton Bank and Aboyne in specifically designated areas - Temporary Reserved Areas (Gliding) [TRA (G)] - that are established from FL195 and extend above FL240 in various locations.

Here, the DG500 glider pilot reports that he was not very far away from the glider site at Skelling Farm and had been established on the foothills for just a few minutes before he encountered the 2 Hawk jets. It was clear to the Board that the lead Hawk pilot had not seen the DG500 glider before he flew beneath it. For his part, the glider pilot did not see the lead Hawk approaching from astern and it was only the noise of the first ac that alerted him before it passed an estimated 200ft below him. Having anticipated the possibility of a second Hawk and turned to face the potential threat, the glider pilot was not unduly concerned by the approach of the wingman, who he could see had taken robust action to increase separation and retain visual contact on his glider. The Board commended both the glider pilot for his presence of mind in suspecting the possibility of a second jet and also the No2 Hawk pilot for his robust avoiding action. The Board therefore decided to base the assessment of Cause and Risk on the close quarters encounter between the DG500 Glider and the leading Hawk. Although both pilots had a shared responsibility to see and avoid other ac within the constraints of the Rules of the Air that stipulate 'flying machines shall give way to gliders', after some discussion the Members decided that the glider pilot could not reasonably have been expected to see the Hawk approaching at high speed from below and astern. Therefore the Board concluded that the Airprox was the result of a non-sighting by the lead Hawk pilot. Moreover, as the lead Hawk pilot was not aware of the glider, and neither pilot was able to affect the outcome, the Board also concluded that there had been a Risk of collision.

Whereas TRA (G) have the advantage of being promulgated in the AIP for the information of all airspace users, localities used for soaring at low-level above mountains or ridges are not generally well known to military crews. Members wholeheartedly endorsed the Air Command view that more information regarding popular areas for ridge and mountain wave soaring should be promulgated to military crews in the Military Low-Flying Handbook. Clearly the actual weather conditions will dictate where the gliders will operate from day to day around the various sites and the gliding Member suggested it would be helpful if a more detailed brief on such activities was available for the benefit of military crews, which he offered to progress. The Board decided, therefore, to make a Safety Recommendation that the MoD and BGA, jointly, consider the promulgation of more in-depth information about gliding operations from sites that conduct ridge or mountain wave soaring for the benefit of military crews, along the lines suggested by Air Command.

The debate then turned to the possibility of introducing notifying arrangements whereby a gliding site might notify MoD Low-flying Ops about where their gliders were likely to be operating on a daily basis, which might then be promulgated to flying units either as a 'late warning' or as a 'Y' series NOTAM [issued to military flying units only]. It was clear that much good work had already been accomplished by those concerned and, although this might not be a 'catch all' because gliders travelling cross country to such locations would remain unknown, it might permit more closely focused warnings about potential concentrations of gliders on ridges and those soaring in mountain wave. The Board agreed, therefore, to make a second Safety Recommendation that the MOD and the BGA should consider formulating co-ordinating arrangements with the aim of forewarning military crews when gliding clubs are conducting ridge or mountain wave soaring.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

**Cause:** A non-sighting by the lead Hawk pilot.

**Degree of Risk:** A.

- Safety Recommendation:
- (i) That the MoD and BGA jointly consider the promulgation of more information about gliding operations from sites that conduct ridge or mountain wave soaring, for the information of military crews.
  
  - (ii) That the MOD and the BGA should consider formulating notifying arrangements with the aim of forewarning military crews when gliding clubs are conducting ridge or mountain wave soaring.

## AIRPROX REPORT No 2009-122

Date/Time: 17 Sep 1326

Position: 5255N 00333W (2nm  
E of Bala)

Airspace: UKDLFS/LON FIR (Class: G)

Reporting Ac Reported Ac

Type: Tornado GR4 Untraced Light ac

Operator: HQ AIR (OPS)

Alt/FL: 880ft  
(RPS 1016mb)

Weather: VMC CLBC

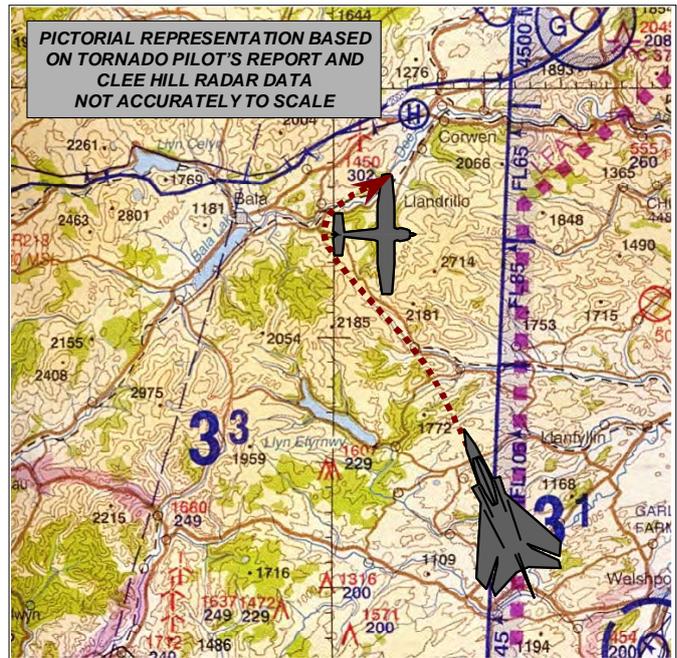
Visibility: 20km

Reported Separation:

100-200ft V/50-100m H

Recorded Separation:

NR



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE TORNADO GR4 PILOT** reports flying a grey ac with nav and strobe lights switched on, squawking 7001 with Mode C, on a low-level tactical training flight in LFA7 in good weather and visibility. Shortly after rolling out of a turn onto a heading of 333° at 430kt, with the ac in a gentle descent after clearing some high ground, the pilot saw a high wing Cessna type light ac ¼ nm away just to the right of their 12 o'clock position, and slightly above them. It was immediately apparent that the ac was not on a conflicting flightpath and therefore only a gentle bunt was performed to increase separation between them; however, the late spotting and relatively close separation was such that it caused considerable alarm to both crew members.

While he understands that light civilian ac are quite entitled to operate in Class G airspace at such levels, he would suggest that operating at around 500ft agl in an area busy with military fast-jets is ill-advised.

UKAB Note (1): An ac squawking 7001, tracking NW, believed to be the Tornado involved, shows intermittently on the recording of the Cleve Hill radar in the period leading up to the incident. However, since no other ac can be seen in the vicinity, the incident does not show on any recorded radars. There is a very intermittent slow moving primary only contact 4nm to the E of the incident position. Despite extensive procedural tracing action the light ac involved could not be identified.

**HQ AIR (OPS)** comments that this is another example to illustrate the importance of maintaining a good lookout at all times. The GR4 pilot questions the wisdom of flying a light ac at 500ft in a busy area; the GA pilot, if traced, may have questioned what the Tornado was doing up at 500ft. Both ac had a right to be where they were and open and honest reporting such as this should serve to highlight to all airspace users the importance of keeping their eyes out of the cockpit.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilot of the Tornado, radar video recordings and a report from the Tornado operating authority.

The Board observed that, without a report from the Cessna pilot it was difficult to reconstruct an accurate picture of the incident and therefore not possible to determine accurately any flight safety lessons.

While some Members agreed with the Tornado pilot that it was inadvisable for GA ac to fly in a publicised and busy low flying area at relatively low altitudes and below a ridgeline, it is legal providing that appropriate regulations/rules are complied with. Further, remaining slightly higher ensures better radio performance should any safety call be required.

Based on his reported position and track, the Tornado pilot saw the Cessna (type ac) as early as the circumstances and terrain permitted, although at  $\frac{1}{4}$ nm this was less than optimal but still within his capability to react and manoeuvre the ac. Further, although the opposing ac was not directly in his flightpath, the Tornado pilot wisely decided to increase the separation extant. That being the case, the Board agreed that there was no risk of collision.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A conflict in the FIR/LFS resolved by the Tornado crew.

Degree of Risk: C.

## AIRPROX REPORT No 2009-123

Date/Time: 1 Oct 1121

Position: 5155N 00035W (3.25nm NW  
Dunstable Downs - elev 500ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: Robin DR300 + Spitfire  
Glider Combination

Operator: Civ Club Civ Pte

Alt/FL: 3000ft NR  
(QFE 1000mb) (QNH)

Weather: VMC CLBC VMC CLBC

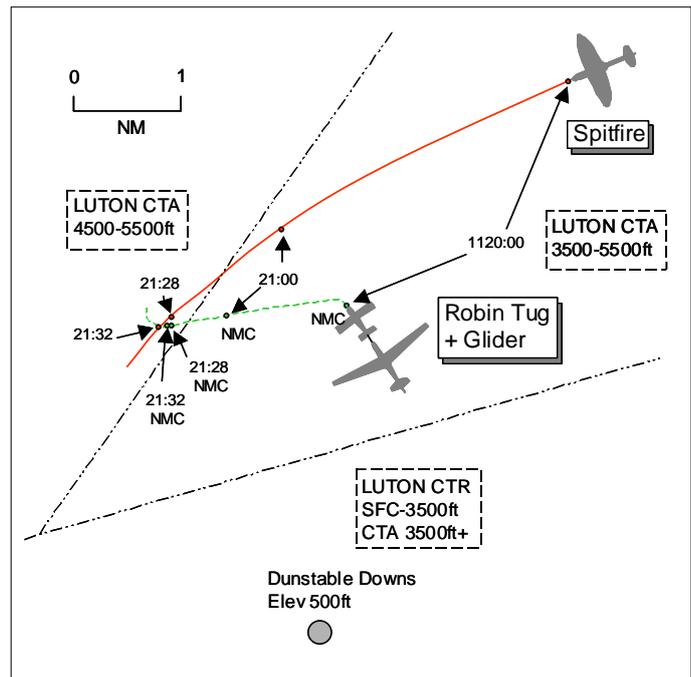
Visibility: 'Unltd' >10km

Reported Separation:

200ft V/50yd H Nil V/NR H

Recorded Separation:

<0.1nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE ROBIN DR300 PILOT** reports departing Dunstable as a tug/glider combination, VFR and in communication with Dunstable Radio on 119.9MHz, squawking 7010 with NMC. The visibility was unlimited below scattered/broken cloud in VMC and the ac was coloured grey with strobe lights switched on. He had climbed initially NW'ly into wind following a briefing from the glider pilot who wished to climb to 3000ft above Dunstable Gliding site (3500ft amsl). During this climb at 65kt he flew a series of headings (NW, W and then WSW) in an area no more than 2-3nm W of Dunstable. As they achieved 3000ft the glider released (broke L) and he, having determined the glider was off tow looked R and started a R turn in level flight. Suddenly a Spitfire emerged from his 4 o'clock, about 200ft below, before passing rapidly across his ac's nose from R to L at 60° AoB 20° nose-up whilst climbing. The incident was over very quickly, owing to the relatively higher speed of the Spitfire, with no avoiding action needed as the Spitfire pilot was doing it all. At the time his workload had been high, ensuring the glider was safely away and establishing level flight before commencing a standard engine cooling descent profile whilst looking out for other traffic, in particular gliders. The incident occurred just SE of Hockliffe town. After landing he spoke to the glider pilot who had seen the Spitfire and estimated the separation as 50yd at the CPA. He assessed the risk as high.

**THE SPITFIRE PILOT** reports flying VFR enroute from Duxford to Chichester/Goodwood via Leighton Buzzard to keep clear of Luton CAS and not in communication with any ATSU; the transponder with Mode C was switched off. The Wx was VMC flying <1000ft below cloud and the ac was painted camouflage top half and green/blue underside. Being a current glider pilot, and given the excellent soaring conditions, he was expecting a degree of glider activity along the planned route in the vicinity of Dunstable, Booker and Lasham. Approaching Dunstable heading 250° at 190kt, he 'picked-up' a Robin Tug/glider combo about 4nm away about 200ft above in a shallow climb. Although relative motion was present and therefore no collision risk existed, the dynamics of the situation were likely to change should the glider release and the tug commence a descending R turn. Also, given the likelihood that the tug could not see his ac owing to his camouflage paint scheme he opted to climb to his level and pass in front of it. He did not want to turn R, doing so would have taken him away from the 'blue street' [river] he was following and under another potentially excellent cloud where gliders were likely to be congregating. Shortly before their tracks intersected he rolled on approximately 20° of L bank in order to present a reasonable plan-form of his ac to the tug pilot as well as to

acknowledge his sighting of the tug by means of a wing-rock. He thought that shortly after passing the Robin the glider released and the tug commenced a descending turn to the R, thereby confirming his tactical analysis of the situation.

UKAB Note (1): The UK AIP at ENR 1-6-2-3 SSR Operating Procedures Para 2.2.2 Other Conspicuity Codes, not specific to particular locations or ATSUs, states that 7010 code is 'For use by aircraft operating in an aerodrome traffic pattern, when instructed to do so by an ATS unit or local operating instructions. Shall only be selected with ATC direction or in accordance with local aerodrome procedures'. The use of 7010 squawk is approved under the LoA between NATS LTC and Dunstable.

UKAB Note (2): The Heathrow 23cm recorded radar clearly shows the Airprox. At 1120:00 a 7010 squawk, believed to be the Robin Tug and Glider Combination, is seen 3nm N of Dunstable Downs turning through a NW'ly heading indicating NMC with a primary only return, believed to be the Spitfire, 3nm to its NE tracking 245°. Shortly afterwards the Robin/Glider combination steadies on a W'ly track. Just under 1min later the subject ac have closed to 1nm and the Spitfire has started a slow L turn with the Robin/Glider combination in its 11 o'clock. The CPA occurs between sweeps at 1121:28 and 1121:32 as the Spitfire passes the Robin/Glider combination on its R and then crosses ahead, on a SW'ly track, separation <0.1nm. Immediately after this, the 7010 radar return is seen to turn sharply R onto N which accords with the Robin pilot's report of him executing a R turn following the Glider pilot releasing from the aerotow.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

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

Members were disappointed that the Spitfire pilot had elected to leave his transponder switched off. Use of a conspicuity code with Mode C selected is recommended in the UK AIP in order to facilitate detection of ac by collision avoidance systems (ACAS and STCA) and ATC radar. It was clear that the Spitfire pilot had seen the DR300/Glider combination in good time and maintained visual contact with them but his chosen flightpath had caused concern to the tug and glider pilots. This was understandable, for the Spitfire appeared suddenly from their R rear quarter just below their level and then climbed to cross ahead, just as the glider released from the aerotow. Although this had been a relatively close encounter, the Spitfire pilot was always in a position to manoeuvre his ac to increase the separation if necessary, which was enough to allow the Board to conclude that there was no risk of a collision.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The Spitfire pilot flew close enough to the DR300/Glider combination to cause their pilots concern.

Degree of Risk: C.

## AIRPROX REPORT No 2009-125

Date/Time: 30 Sep 0918

Position: 5040N 00057W (NAB Tower -  
6nm E Bembridge)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: AW139 F406

Operator: Civ Comm Civ Comm

Alt/FL: 200ft 250ft  
(QNH 1021mb) (amsl)

Weather: VMC CLBC VMC CLBC

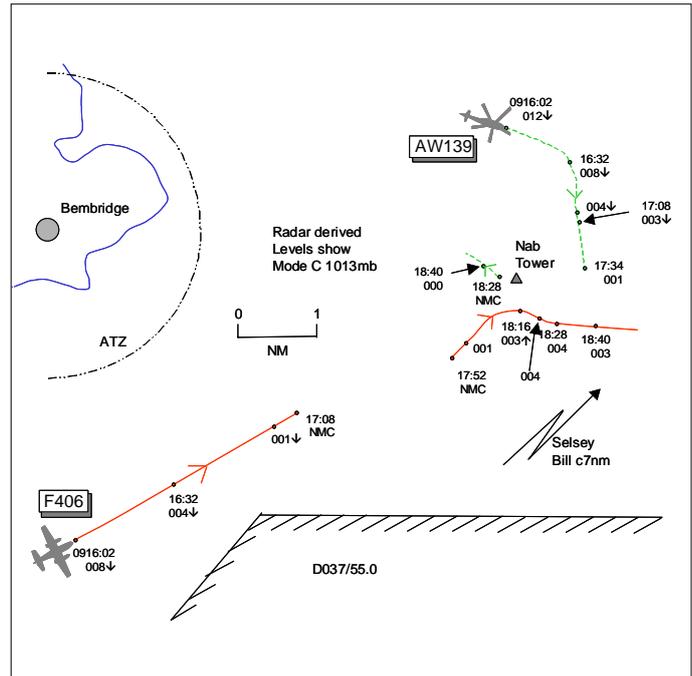
Visibility: >10km 15nm

Reported Separation:

100ft V/O-25nm H 100ft V/O-5nm H

Recorded Separation:

NR



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE AW139 PILOT** reports flying a local sortie from Lee on Solent VFR, listening out on Lee on Solent A/G frequency 118.925MHz and squawking 7000 with Modes S and C. The visibility was >10km in VMC and the helicopter was coloured white/red with HISLs, nav and sponson landing lights all switched on. At the time of the Airprox they were heading 270° at 200ft QNH 1021mb and 80kt passing S abeam Nab Tower engaged in a SAR automatic 'Transition Down' procedure. The PF noticed a TCAS 'traffic' caption on the PFD but there was no aural warning (ac systems manual shows TCAS annunciations are inhibited below 400ft). PF looked to their 11 o'clock and saw the other ac at the same height heading directly towards them range 0.4nm. The other ac, a low-wing twin-engine type coloured white/blue, possibly an F406, banked slightly L before levelling. PF took avoiding action by banking sharply to the R and descending whilst the F406 also banked R and climbed towards the E. At the CPA they passed 100ft vertically and 0.25nm horizontally and he assessed the risk as medium.

**THE F406 PILOT** reports flying a local fisheries protection sortie from Exeter VFR, in communication with Dover Coastguard on UHF and HF, squawking 7400 (fisheries protection conspicuity) with Modes S and C; TCAS is not fitted. The visibility was 15nm in VMC and the ac was coloured blue/white/orange with nav and HISLs switched on. Near to Selsey Bill flying at about 250ft amsl heading 100° and 158kt they saw a helicopter coloured red/silver in their 11 o'clock range 1nm so they turned R and climbed to avoid simultaneously as the helicopter also turned R. They watched it pass about 100ft below and 0.5nm clear on their LHS with a low risk of collision.

UKAB Note (1): Both ac are seen on Pease Pottage recorded radar approaching Nab Tower but, as they descend to low level, both ac fade at different times and the CPA is not captured. At 0916:02 the AW139 is seen 6nm ENE of Bembridge tracking 110° squawking 7000 and indicating FL012 (1440ft QNH 1021mb) descending with the F406 4nm S of Bembridge tracking 060° towards Nab Tower squawking 7400 and indicating FL008 (1040ft QNH), and also descending. Thirty seconds later the AW139 is seen to be turning R through a SSE'ly heading 1.7nm NNE of Nab Tower descending through FL008 (1040ft QNH) as the F406 descends through FL004 (640ft QNH) 6.5nm to its SW. The F406 continues its descent with Mode C showing FL001 (340ft QNH) on the radar sweep before it shows NMC at 0917:08 after which it fades from radar. At this time the AW139 is descending through FL003 (540ft QNH) and is crossing through the F406's 12 o'clock from L to R range 4.3nm on a steady S'ly track. The AW139 is last seen at 0917:34 0.9nm E of Nab Tower still

tracking S and descending through FL001 (340ft QNH). The F406 reappears on radar at 0917:52 1.25nm SW of Nab Tower tracking NE showing NMC before showing FL001 (340ft QNH) on the next sweep 6sec later. Thereafter the F406 commences a R turn and at 0918:16 is seen turning through E and passing 0.4nm S of Nab Tower, climbing through FL003 (540ft QNH). The F406 R turn is stopped on the next sweep with the ac showing FL004 (640ft QNH) before it steadies on a track of 100° at 0918:28. Simultaneously the AW139 reappears on radar 0.25nm W of Nab Tower tracking 300° and showing NMC, 0.8nm NW of the F406, with both ac diverging.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

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

Post Meeting Note: No NOTAM was issued for the F406 operation so the AW139 crew were not made aware of the F406 by the daily Pre-flight Information Bulletin during the flight planning stage.

Both crews were undoubtedly surprised to encounter each other whilst flying low-level offshore. Both flights were operating legitimately in this Class G airspace, discharging their responsibilities for maintaining separation through 'see and avoid'. Prior to the Airprox there was opportunity for both crews to see the other ac – the F406 was descending to low-level to commence operations with opportunity to see the AW139 ahead, which was also descending following a 'let-down' procedure near to Nab Tower. The AW139 crew was alerted to F406's presence by TCAS which enabled visual acquisition, albeit late, whilst the F406 pilot saw the helicopter at about the same time after rolling out on E'ly track. Members agreed that these late sightings had caused the Airprox.

With both crews taking appropriate avoiding action, the F406 pilot turning R and climbing with the AW139 crew also turning R but descending, the Board concluded that these timely and complementary actions had quickly removed any risk of collision.

## **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: Late sightings by the pilots of both ac.

Degree of Risk: C.

## **AIRPROX REPORT No 2009-128**

**Date/Time:** 4 Oct 1445 (Sunday)

**Position:** 5251N 00001E (5nm NE Spalding)

**Airspace:** London FIR (Class: G)

**Reporting Ac** **Reported Ac**

**Type:** EV97 Eurostar R22

**Operator:** Civ Pte Civ Pte

**Alt/FL:** 1000ft 1000ft  
(QNH 1011mb) (QNH)

**Weather:** VMC CLBC VMC NR

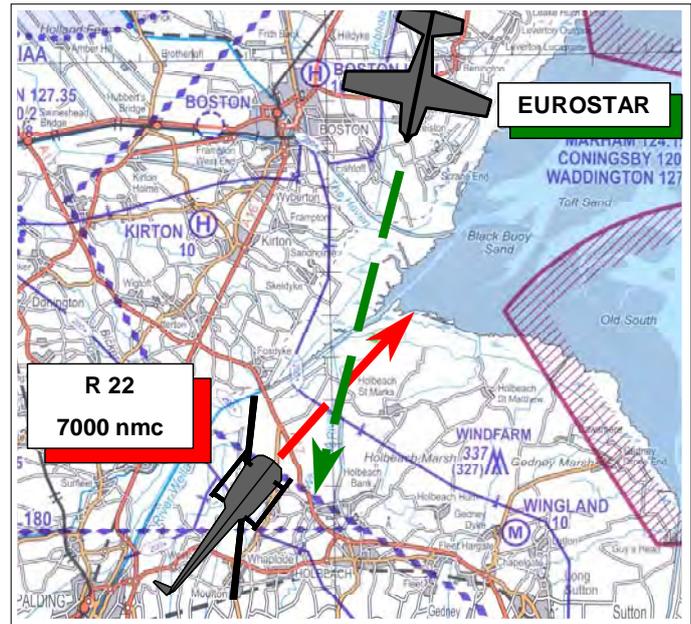
**Visibility:** >50nm 999km

**Reported Separation:**

20ft V/50m H 200ft V/0m H

**Recorded Separation:**

NR



## **PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

**THE EV97 EUROSTAR PILOT** reports flying from Skegness aerodrome to Fenland under VFR in a dark blue and silver ac with no SSR transponder, TCAS or lights fitted; he was not in receipt of an ATC service. He was flying straight, level tracking 194° at 1000ft on Fenlands QFE/QNH of 1011mb; this was lower than usual to keep out of the unfavourable winds above. He knew the cloud base to be about 4000ft as he had flown above the cloud earlier that day but the sun was still above the cloud line, in about their 2 o'clock position. He has a 'skymap' fitted to his ac and the terrain matched closely with the 'Google Earth' image of his selected route. Although he considers himself good at spotting other ac, the opposing R22 helicopter was first spotted by his passenger, who was also a pilot, but he immediately also saw it about 400m away dead ahead and it appeared as a black pea shaped object; within a very short time they had passed it. He knew it was going to be close so he instantly dived and cut the throttle, but in reflection he doubted that it had made much difference as the whole incident lasted about 2sec. The helicopter seemed to be exactly head-on to them and was black with a gold registration mark and was about 10ft above them.

He reported the incident to the UKAB on landing, assessing the risk as being very high.

**THE R22 PILOT** reports he was flying solo on a private local navigation exercise from Peterborough routing over west Pinchbeck turning NE to the Wash in a black ac with strobe lights and SSR fitted and listening out with Peterborough Conington.

He did not see any other ac and was tracking up the RHS of the inlet (presumed to be the river Welland estuary) heading 045° at 1000ft QNH. He was busy navigating as he had not been out to this area before and he is a relatively inexperienced pilot. All he noticed was a sun flash which had reflected off something below him about 200ft away. He was very concerned that it could have been another ac so he made a 90° right turn to see if he could see anything but he could not so he continued with his exercise. He was unaware it had been an ac until he received a telephone call from Radar Analysis Cell. He assessed the risk as being low.

UKAB Note (1): The recording of the Claxby Radar shows a contact squawking 7000 with no Mode C tracking about 045° about 2nm to the E of the Welland River and it passes about ½nm to the W of the

reported position of the Airprox; it is assumed that this is the R22. The Eurostar does not show at any time.

**PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac and radar recordings.

The Board noted that both pilots had been operating legitimately in Class G airspace in good visibility and had an equal and shared responsibility to see and avoid other ac. Both had apparently been following different line features correctly iaw the Rules of the Air (Rule 16 – The Right-hand traffic rule reproduced below:

- 16 (1) Subject to paragraph (2), an aircraft which is flying within the United Kingdom with the surface in sight and following a road, railway, canal or coastline, or any other line of landmarks, shall keep them on its left.

Also under the Rules of the Air (Rule 10 – Aircraft Approaching head-on) both ac were required to alter course to the right. However, both ac had a very small cross-section (head-on) and were therefore difficult to acquire visually. In the event neither pilot saw the other ac, in one case at all, and the in the other too late to take any avoiding action. That being so and accepting that there was no radar verification of the separation, the Board had very little information on which to base their deliberation regarding the degree of risk. They had, however, no reason to doubt the EV97 pilot's account and, bearing in mind the reported closeness of the ac and the lack of avoidance by both pilots, Members agreed that chance had been a significant factor in determining the separation achieved; that being the case they agreed unanimously that there had been an actual risk of collision.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A non-sighting by the R22 pilot and, effectively, a non-sighting by the EV97 pilot.

Degree of Risk: A.