

ASSESSMENT SUMMARY SHEET FOR UKAB MEETING ON 21 MAR 2012

Total	Risk A	Risk B	Risk C	Risk D	Risk E
13	2	1	10	0	0

No	Reporting	Reported	Airspace	Cause	Risk
2011147	JS32 (CAT)	C172 (Civ Pte)	Class D (Jersey CTR)	A large disparity in ground speeds caused the JS crew to fly a go-around.	C
2011150	Puma (Mil)	Grob Tutor TMk1 (Mil)	Class G (Shawbury AIAA)	The Tutor pilot flew close enough to cause the Puma crew concern.	C
2011151	Hawk (Mil)	MD902 (Civ Comm)	Class G (Leeming ATZ)	Zone released the MD902 own navigation resulting in a conflict with the Hawk on final.	C
2011152	A319 (CAT)	EC135 (Civ Trg)	Class D (Aldergrove ATZ)	In the absence of TI, the A319 crew was concerned by the proximity of the EC135.	C
2011153	EC145 (Civ Comm)	Gazelle (Civ Pte)	Class D (Lon City CTR)	The Gazelle pilot flew close enough to cause the EC145 pilot concern.	C
2011155	Grob Tutor TMk1 (Mil)	Grob Tutor TMk1 (Mil)	Class G (London FIR)	The pilot of Tutor B climbed above the height prescribed for SID-1B.	C
2011157	C177RG (Civ Pte)	T67M (Civ Pte)	Class G (London FIR)	Effectively a non-sighting by the C177 pilot and a late sighting by the T67 pilot.	A

2011159	ASK21 (Civ Club)	T67M (Civ Pte)	Class D (Luton CTR)	The T67 flew close to Dunstable glider launching site and into conflict with the ASK21 downwind in the circuit.	C
2011161	Grob Tutor TMk1 (Mil)	PA28 (Civ Pte)	Class G (London FIR)	A non-sighting by the PA28 pilot.	C
2011162	Squirrel (Mil)	PA38 (Civ Trg)	Class G (Shawbury AIAA)	A non-sighting by the PA38 crew and, following inaccurate TI, effectively a non-sighting by the Squirrel instructor.	B
2011163	Merlin (Mil)	PA34 (Civ Trg)	Class G (London FIR)	A non-sighting by the PA34 crew and, in the absence of TI, effectively a non-sighting by the Merlin crew.	A
2011164	Vigilant (Mil)	C340A (Civ Pte)	Class G (Oxford AIAA)	The C340 pilot flew close to the circuit area of an active glider site causing the Vigilant pilot on crosswind leg concern.	C
2011165	Dauphin 365N3 (Civ Comm)	C172 (Civ Club)	Class G (Blackpool ATZ)	A late sighting by the Dauphin crew.	C

AIRPROX REPORT No 2011147

Date/Time: 21 Oct 2011 1525Z

Position: 4910N 00216W (APR
RW09 Jersey - elev
277ft)

Airspace: Jersey ATZ (Class: D)

Reporting Ac Reported Ac

Type: JS32 C172

Operator: CAT Civ Pte

Alt/FL: 750ft NR
QNH (1023mb) QNH

Weather: VMC CAVOK VMC CAVOK

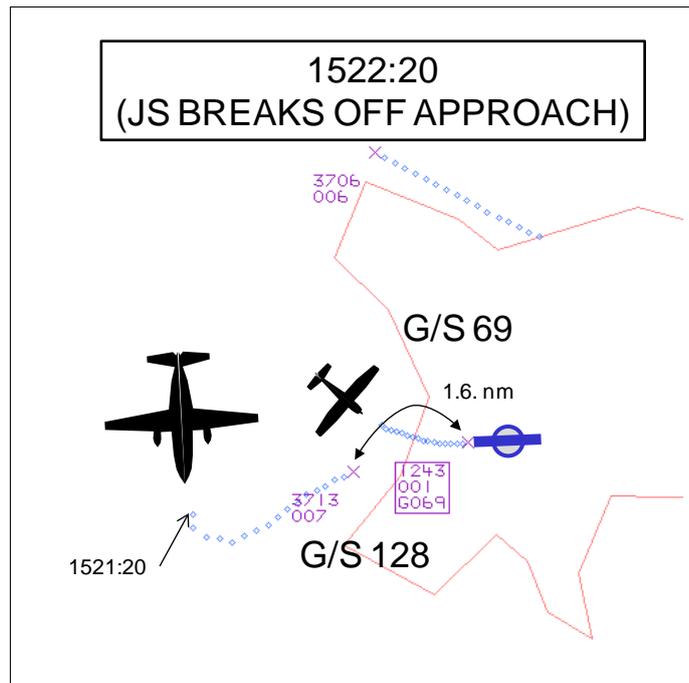
Visibility: >10km >10km

Reported Separation:

300ft V/0m H NK V/NK H

Recorded Separation:

700V / 1.6nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE JS32 PILOT reports flying a passenger flight under IFR, inbound to Jersey squawking as directed with Modes C and S under the Control of Jersey APR then TWR; TCAS was fitted. While on L base for RW09 at 210kts and 2000ft they were informed that they were number 2 to a light ac; they were passed TI on the ac but nothing was seen. The crew were then instructed to take up a heading of 180° and maintain 2000ft and APR continued to pass TI. The pilot assumed that this was so he could transfer them to TWR and separation from the light ac would then be his responsibility. They were then requested to reduce speed so they reduced to 150kt. They continued on the heading of 180° until they had flown through the LOC and they were then cleared to descend at their discretion so they descended to 1000ft. When they were 1.5 miles through the C/L they were instructed to turn back onto finals and contact TWR. As they turned back (the short way round) they configured the ac and reduced the speed to 130kt. As they came onto final at 750ft, 3-4nm out they called TWR and saw the light ac that was still on L base and at 250ft above the RW. At that point TCAS triggered a "traffic traffic" (it would have been an RA in his view if it was not for the fact they were below 1100ft Rad Alt). At that point he decided that there was risk of a collision if things progressed any further so initiated a go-around and informed TWR. He tried to manoeuvre so that he did not fly directly above the ac but due to the RT loading from TWR he did not think he was very successful and he thought that they overflew other ac with less than 500ft separation. A MOR was raised about other [ATC] aspects of this event.

He assessed the risk as being Medium.

UKAB Note (1): The UK CAA MOR database shows that the other aspects of the incident referred to above are not recorded but there is a comment that they would be investigated locally.

THE C172 PILOT reports flying a blue and white ac on a private local VFR flight from Jersey. He was squawking with Mode C and was in receipt of an 'information service' [assumed to be BS] from Jersey TWR. He was on a visual recovery from the NW corner of the island and he had been cleared to land when an ac behind them [the JS32] contacted Jersey TWR and he believes the pilot called visual with number 1 in sight; ATC replied, "continue" and a female voice then replied, "cleared land" [presumed to be the JS32 first officer]. The response from ATC was, "negative, continue". Subsequently a male voice [presumed to be the JS32 captain] advised ATC, "this isn't going to

work". He believes that the other ac was then offered an orbit by ATC but it was declined and it conducted a missed approach. The [C172] pilot saw the other ac well above and climbing on its missed approach and he does not believe there was ever any risk of collision.

The other ac was then cleared LH downwind to land and as far as the C172 pilot was concerned there was no incident.

THE JERSEY ATC UNIT report (slightly abbreviated below for brevity) stated a C172 was on left base VFR for RW09 working Jersey TWR and a JS32 was made number two behind it. The JS32 was routed on a southerly heading maintaining 2000ft and was given TI on C172. The JS32 did not report gaining visual contact with C172 and as such was routed through the centreline and eventually turned towards the field (the JS32 was approximately 0.5nm S of a 4nm final and the C172 was about 1.5nm final).

The JS32 was advised that he would shortly be number one and instructed to change to Jersey TWR. At no point did the JS32 pilot report visual with C172. Jersey TWR instructed the JS32 to continue approach, number two to the C172 on short final. At about 2.2nm final while indicating 1100ft the JS32 pilot informed TWR that they were too tight behind the C172 and TWR instructed the JS32 to go around. At the pilot's request the ac eventually went into a left hand circuit.

METARs:

EGJJ METAR 1450 METAR EGJJ 211450Z 16011KT 9999 FEW025 13/04 Q1023 NOSIG
EGJJ METAR 1520 METAR EGJJ 211520Z 15009KT 9999 FEW025 12/04 Q1023 NOSIG

RW 09 was in use.

Sequence of events.

1516:20 The JS32 checked in with Jersey APR and after reporting visual with the field, was instructed to route direct to final for RW 09 maintaining altitude 2000 feet.

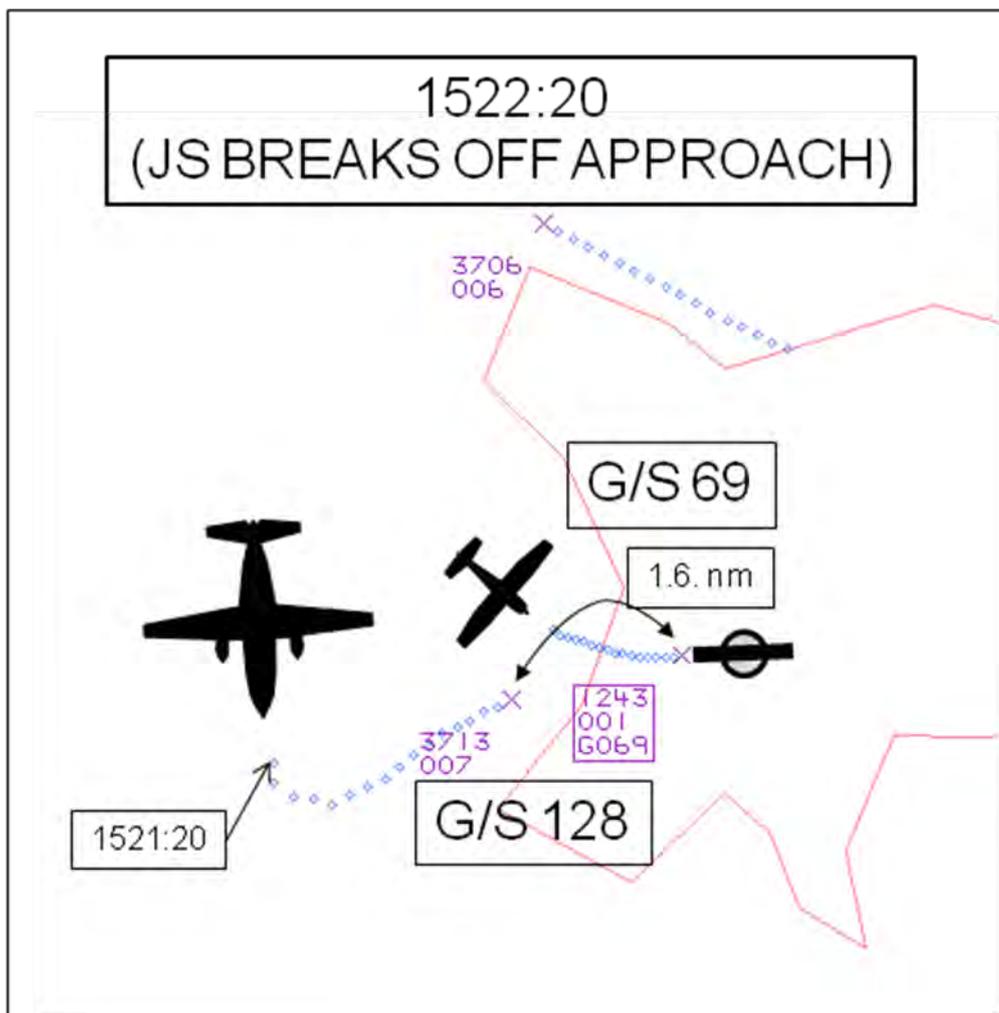
1518:54 The C172 commenced a turn at the North West corner of Jersey for left base. The JS32 (speed approximately 200kt) was approximately 4nm North West of C172 (speed approximately 90kt).

1519:10 APR instructed the JS32 to turn right heading 180 degrees and to come back on the speed. The position of C172 was also passed and acknowledged.

1520:05 Traffic information was passed to the JS32 on the position of C172: no response.

1520:30 Traffic information passed and JS32 crew questioned if they had the ac in sight: the JS32 crew responded, "we're still looking". An instruction to reduce to minimum approach speed was not read back. The JS32 was cleared to descend below 2000 feet.

1521:10 The JS32, heading 180 degrees, was instructed to turn in towards the field, position approximately 0.5nm south of a 4nm final: C172 on an approximate 1.5nm final.



1521:30 The JS32 was advised shortly number one and instructed to call the TWR. At no point did the JS32 report visual contact with C172.

1521:43 The JS32 contacted TWR and was instructed to continue approach, number two to a C172 on short final.

1522:02 The JS32 (approximate 2.2nm final indicating altitude 1100 feet) advised TWR they were too tight behind C172 (approximate 0.5nm final indicating altitude 600 feet) and at this point were instructed by the TWR controller to carry out a go around, at the pilot's request, into the left hand VFR circuit.

[UKAB Note (2): The RT transcript shows that the TWR controller transmitted at 1522:06:

"JS C/S roger make a left hand orbit or do you want to make a missed approach" and following a conversation with APR:

"JS C/S do you want to make a Left hand orbit or carry out a missed approach" and the pilot replied at 1522:30:

"Missed approach please JS C/S going in dropping into the downwind left hand circuit"

During R/T and system playback the following was noted:

1515:20 During a controller handover the incoming APR controller was informed:

"RW 09, 09, 26. With the TWR routing NorthWest corner for left base VFR (C172). Just got airborne not talking to us (the JS32 JB-JJ). Cleared in not above altitude 2000 feet towards Corbiere for a right base (JS32 49N-JJ). Not released (Trislander 1A- to JB), that's all you have".

It should be noted that the outgoing APR controller issued C172 with a clearance of not above altitude 1000ft VFR, which was not altered before the ac was transferred to the TWR frequency. This clearance was also visible to the APR controller on the electronic strip situated in the 'With TWR' bay.

1516:45 The EFS strip for C172 was 'binned' by the APR controller from the 'With TWR' bay. At that time the C172 was left hand downwind approaching the North West corner of Jersey and the JS32 was approximately 10 miles North West of the airfield.

15:18:54 At this point the TWR controller rang the APR controller to ask if the JS32 was number one or if C172 could continue to final ahead. The APR controller believed the JS32 was number one but agreed to position the JS32 behind the C172

It is concluded from the investigation that this incident is attributed to the fact that the JS32 was positioned too close behind the C172 which ultimately led to the JS32 performing a go-around. The controller admitted that his perception was that C172 would hold at the North West corner of Jersey and this was exacerbated by the electronic flight strip not being present on the approach controller data display.

When it became apparent that C172 was making an approach the subsequent instructions from the approach controller were predicated on the JS32 gaining visual contact with C172 and ultimately allowing the pilot to self-position. This is common practice with inter island flights.

The controller made a judgement that when the JS32 was instructed to continue approach number two there would be enough distance to stabilise the ac and make a visual approach but the crew of the JS32 elected to discontinue the approach and go around.

There appears to be disparity between the approach controller and the crew of the JS32 in what would constitute a stable and safe approach. Communications between controller and pilot could have been better yet there is no evidence from the investigation to support that this contributed significantly to the event.

The JS32 was on an IFR flight plan operating IFR; the C172 was on a VFR flight plan operating VFR. Traffic information was passed to the JS32, even though it was not read back. The vertical or horizontal separation criteria under UKAIP ENR 1-4-5 do not require IFR flights to be separated from VFR flights. Should the C172 have been operating on Special VFR rules then separation would have been required. No separation was lost during this incident and traffic information had been passed to the JS32 on the VFR flight – C172.

Following the process of handing over the position to the oncoming approach controller, the Electronic Flight Strip showing C172 was 'Binned' from the data display. The only remaining reference to C172 being the Radar Display. It is possible that this strip had been removed from the data display too soon. The C172 was mentioned during the approach position handover, although the ac had already been transferred to the TWR frequency.

Importantly the strip does signify the type of approach and the flight rules; without this strip being displayed it is not easy to ascertain the information.

Note: Binned is an Electronic Strip Function of removing the strip from the data display. It can be retrieved if required.

Had the approach controller intervened at an earlier point and taken positive control of the situation the JS32 would have been positioned correctly behind C172 and the eventual go-around could have been avoided.

Further training was conducted by UCEs on the process/procedure of 'binning' strips.

UKAB Note (3): Following a request from the UKAB a full transcript was provided. This confirmed the details and UKAB Note (2) 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 an investigation report by Jersey ATC.

The Board noted the comprehensive investigation by Jersey ATC, summarised above, and agreed its findings with the following additional comment.

Several Members considered that this was a straightforward go-around occurrence following a reduction of separation rather than an Airprox as, in their view, there was never any risk to either ac and a go-around should be regarded as a normal operating procedure. The Director of the UKAB, however, agreed to investigate the incident as an Airprox since the JS32 pilot, having received a TCAS TA on final and presumably lost sight of the C172 as he carried out his missed approach procedure, wished it to be treated as such.

Although the requirement and procedures for controllers to sequence VFR and IFR traffic inbound in Class D airspace is open to interpretation where the VFR ac is apparently ahead of the IFR one, controller Members agreed that good 'controllership' is to sequence the ac allowing sufficient time for the following (IFR) ac to achieve a stabilised approach. Airline pilot Members agreed, but pointed out that the pilot also has a responsibility to assist this process by applying speed control, to achieve suitable separation. Some Members thought that a RH turn on to final, the long way round, or the orbit offered by the TWR controller, would have resolved the separation problem, but others thought that this would have come too late for the crew to establish a stabilised approach. One pilot Member counselled that achieving a stabilised visual approach over the water to an elevated RW just inland can be very demanding due to the lack of visual clues, so much so that his company prohibit them. Pilot Members agreed unanimously that crews should initiate a go-around in cases where a stabilised approach cannot be achieved, for whatever reason, and this action should not be seen as any criticism of the crew.

APR initially instructed the JS32 crew to route direct to "final for RW09", an imprecise point. The Board noted that the crew was not cleared for a visual approach. Shortly afterwards the APR controller, who had intended the JS32 to be No1 to land, agreed with TWR that the JS32 would be No2 to the C172. To achieve separation between the ac, APR instructed the JS32 crew to head 180° and reduce speed, but he did not inform the crew that they were No2. For their part, the crew acknowledged the heading instruction but not the speed reduction. APR then passed accurate TI on the C172 on their LH side before a second instruction to reduce speed, which was also not acknowledged by the JS32 crew. Members agreed that the controller should have advised the crew that they were No2, but considered that the crew should have realised from the heading instruction that they were being sequenced with other traffic. In the event, it was only after they had been instructed to turn in towards the airfield and were being instructed to contact TWR at 15:21:33 that APR advised them that they would shortly be No1. Members agreed that at that stage there was little that the JS32 crew could do to increase separation, which was too tight. The JS32 crew called on the TWR frequency at 1521:42 and were cleared to continue at 1521:54 as the C172 was still on short final and the JS32 was about 2nm out. Although several other signals were available, this was the first occasion that the JS32 crew were formally told by ATC that they were No2 to the C172 and it came too late for them to implement any meaningful speed control measures (a pilot Member stated

that the last point for speed control is deemed to be 4nm). Another pilot Member opined however, that as a general rule good airmanship would have been not to 'turn in' before being visual with the ac ahead or being informed that it had landed.

Both pilot and controller Members agreed that the JS32 crew had not been given enough information to assist the controller in achieving satisfactory separation on finals and that the APR controller, having accepted the responsibility, had turned the JS32 back towards the field too early.

Members agreed unanimously that there had been no risk of collision; a majority, however, considered there had been enough deviations from normally accepted ATC and operating procedures for the incident to warrant a rating of C (an Airprox in which there was no risk of collision) rather than an E (a non-event).

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A large disparity in groundspeeds caused the JS32 crew to fly a go-around.

Degree of Risk: C.

AIRPROX REPORT No 2011150

Date/Time: 24 Oct 2011 1212Z

Position: 5235N 00233W (13nm
SSE Shawbury)

Airspace: Shawbury AIAA (Class: G)

Reporting Ac Reported Ac

Type: Puma Grob Tutor T Mk1

Operator: HQ JHC HQ Air (Trg)

Alt/FL: 4000ft 3000ft
RPS (964mb) RPS

Weather: VMC CLBC VMC CLOC

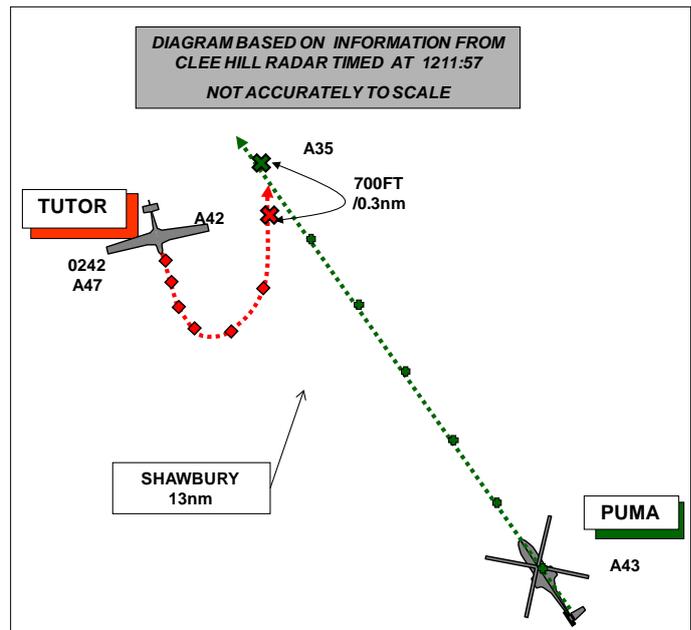
Visibility: 20km >15nm

Reported Separation:

0ft V/150m H 200ft V/800m H

Recorded Separation:

700ft V/0.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PUMA PILOT reports that they were flying an IFR transit leg from Benson, through Brize Norton's O/H and inbound for an ILS to RW18 at Shawbury. They had nav lights and white strobes switched on and were squawking 0220 with Modes C and S but TCAS was not fitted. At about 35nm from Shawbury, while heading 330° at 130kt, they called Shawbury APP [RAD] establishing two-way comms and requesting a TS. At about 15nm from Shawbury they were alerted to a contact at 5nm in their 11 o'clock (300° from them, in the vicinity of The Wrekin), which was reported to be a Tutor conducting aerobatics training, but they could not see the ac. Just inside a range of 14nm from Shawbury, they were updated on this traffic as being on the same bearing but then at 3nm. Within 10sec of this call from ATC, the ac was spotted on a reciprocal heading, judged to be about 1nm away and it appeared that it would pass down their port side. It was not known if the other ac was visual with them so to aid deconfliction the HP commenced a descent at about 600fpm. As soon as the descent was commenced the other ac was seen to start a descending LH turn; it kept the same alt as the Puma and barely moved from its position in the windscreen as it turned towards them. Still unsure as to whether the other ac was visual, the HP 'lowered the lever' and achieved greater than 2500fpm ROD in order to remove the conflict. The other ac passed about 150m behind them at the same level. The speed and rate of descent were maintained and after about 1min the crew turned the Puma to the L to ensure that the other ac was clear as it was unsighted in their 6 o'clock. The ac was recovered to 2500ft on the RPS, heading 360° towards Shawbury, and they completed the ILS without further incident.

He assessed the risk as being high.

THE GROB TUTOR PILOT reports flying an air experience GH sortie with a cadet in a white ac with navlights and strobes switched on and squawking with Mode C. While heading 060° at 120kt between Bridgenorth and Telford in Class G airspace in good VMC and in receipt of a TS operating between 3000ft and 6000ft from Shawbury Zone, they were notified of a helicopter approaching their vicinity from the S; the type was initially described as a Lynx but subsequently corrected to a Puma. They turned towards the helicopter so he could see it and gain an understanding of its relative track. He saw the Puma at a distance of about 2nm and about 500ft below them.

While the helicopter was maintaining a straight and level NW'ly track, he descended towards it on a NE'ly track, had a look at it and then made a climbing LH turn away from it, remaining well clear of it at all times and ensuring there was never any risk of collision.

With hindsight his best course of action would have been to turn away from the other ac as soon as he identified it. However, having spent nearly 2000hrs flying the Puma during his time in the RAF, on this occasion he manoeuvred to have a look at the helicopter from a safe distance before turning away and continuing with his sortie. He allowed the Puma pilot freedom to manoeuvre at all times and guarded the safety of both ac in the open FIR.

THE RAF SHAWBURY RADAR CONTROLLER (RAD) reports that at the time of the incident he had three ac on frequency, the Puma and two Squirrels in 'boxes A and C'. His traffic loading was low and RW18 was in use and the colour state was Blue, F/S.

The Puma was handed over to Shawbury from Brize for a LARS transit but was actually inbound (for ILS and depart VFR to Stafford) so he took the handover and gave STUD 9 as the contact frequency. The Puma was at 4000ft on the QFE 983mbs. He called traffic to the Puma at about 5nm in its 12 o'clock indicating slightly above and he informed the pilot that it was a Tutor believed to be carrying out aerobatics; the Tutor was in receipt of a TS from Zone. He gave the Puma a descent to 2500ft but the pilot did not take it initially. He called the Tutor again at about 2nm slightly above then called two further tracks which the pilot did not initially acknowledge; the pilot then came back asking for the information again as he was dealing with the Tutor.

After acknowledging the other two tracks the Puma declared an Airprox against the Tutor.

In the controller's opinion there was less than 0.5nm and about 300ft separation. He asked the Puma captain to give ATC a call once on the ground.

The Supervisor relieved him from the console so that he could write up his version of events and the RT tapes were impounded.

THE RAF SHAWBURY ZONE CONTROLLER reports that he had three ac in receipt of a TS on his frequency, which included the Tutor, an additional two ac in receipt of a BS and he was operating Shawbury low level frequencies.

The Tutor was flying GH between 3000ft and 6000ft Shawbury QNH 991mb to the W of Cosford while the Puma was transiting the area that the Tutor was operating in from S to N. As the Puma got closer he called it to the Tutor, initially as a Lynx with the indicated level but after checking with the RAD he changed the TI to reflect that the ac was a Puma and the Tutor pilot acknowledged the call.

The Supervisor then relieved him so that he could write up his version of the incident.

BM SAFETY MANAGEMENT reports that APP has reported that their traffic loading was low with 3 ac on freq in receipt of a TS, in addition to the incident Puma. Zone reported that they had 5 ac on frequency including the reporting Tutor and were operating the Shawbury low-level frequencies. Although neither controller reported the task complexity, both are experienced and it is likely to have been low.

The Tutor called Zone at 1158:25 and was provided a TS to operate, "*in the block three thousand feet to six thousand feet, south of Telford*" on the Shawbury QNH of 991mb. The Puma called APP at 1206:18, maintaining an NW'ly track; initial liaison was completed and the ac was instructed to, "*set Shawbury Q-F-E nine eight three milibars fly at four thousand feet.*"

At 1209:55, Rad passed TI to the Puma on the Tutor as, "*traffic left eleven o'clock, five miles, manoeuvring, Tutor, indicating slightly above, believed to be doing aerobatics*" which was acknowledged. At that point, the Puma was indicating 4300ft and the Tutor was 6.4 nm NW of it, indicating 4800ft.

At 1210:13, Zone passed accurate TI to the Tutor on the Puma as, “*traffic south-east, five miles, tracking north-west, indicating slightly below, believed to be a Lynx*” which was acknowledged; Zone then corrected the ac type at 1210:26, which was again acknowledged by the pilot. No further updates to the TI were passed by Zone after that point.

CAP 774 states that:

‘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.’

At 1210:29 RAD instructed the Puma to descend to 2500ft QFE which the pilot readback. Subsequent to filing his report, the controller stated that the purpose of this descent was to position the Puma beneath the Tutor’s manoeuvring block. At 1211:22, RAD updated the TI on the Tutor stating, “*previously called traffic, left eleven o’clock, three miles (radar replay shows 1.9nm) tracking south, indicating two hundred feet above.*” The Puma pilot replied that they were visual with the ac and at that point 1.5nm lateral and 200ft indicated vertical separation existed. RAD then asked whether the Puma had commenced its descent; although the pilot replied, “*affirm*” this was not the case and the ac did not commence its descent until 1211:52.

The only break in the transcript of Zone’s RT during the entire incident sequence occurred from 1211:32 to 1211:52; however, this break was immediately following the initial call by unrelated traffic where Zone would have been involved logging the details on a flight strip and looking to observe the ac’s SSR code in order to identify it. This task will have been hampered by the fact that the pilot did not include a position report in his initial call to Zone.

At 1211:36 RAD passed TI to the Puma on unrelated traffic and was asked to, “*say again*” by the pilot; the TI was re-stated but not acknowledged. At that point, the Tutor was 1.1nm W of the Puma, tracking SE’ly and indicating 200ft above. At 1211:45, the Tutor commenced a left turn and, at 1211:52 the Puma commenced a descent. At 1211:54, RAD passed further TI on unrelated traffic to which the Puma replied, “*standby [Puma C/S] just bear with us due to traffic.*” At that point the Tutor was 0.4nm S of the Puma, continuing its left turn through a heading of about 030°, indicating 4400ft, 700ft above the Puma. The Tutor maintained the left turn, rolling out momentarily in the Puma’s 6 o’clock, before re-commencing a left turn to the S at 1212:09. The CPA occurred at 1211:57 as the Tutor positioned 0.3 nm in the Puma’s 6 o’clock, 700ft above; the Puma indicated 3500ft at this point.

From an ATM perspective, RAD provided timely TI, which enabled the Puma crew to visually acquire the Tutor; also Zone’s accurate TI allowed the Tutor pilot to visually acquire the Puma. Moreover, given Zone’s workload and the RT loading, BM SM contends that Zone would have been unable to update the TI prior to the CPA.

HQ JHC comments that although the main cause of the incident was that the Tutor chose to fly close enough to the Puma Helicopter to cause the Puma crew concern, the high workload experienced by the Puma crew in observing the Tutor and assessing what the aircraft was going to do caused the handling pilot to delay in initiating the descent which contributed to the cause of this incident. This report will be distributed to remind JHC pilots of the requirement to comply in a timely manner with ATC instructions once read back.

HQ AIR (TRG) comments that the Tutor pilot’s flight-path caused concern to the Puma crew. As he notes in his report, his decision deliberately to reduce his separation from uncoordinated traffic was unwise, but did not contravene any Regulation or Group Orders. The Puma pilot’s concern would have been alleviated had the Tutor pilot informed ATC that he was visual and had this information then been passed to the Puma. HQ 22 Gp have been asked to review the need for orders regarding this kind of scenario and will publicise the potential distracting effects that apparently benign actions like this may cause, even for other military crews. In the event, there was no risk of collision.

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.

It was noted that the incident took place in Class G airspace where the respective pilots had a responsibility to see and avoid each other. Both pilots wisely opted for TS to assist with their lookout responsibility and timely and accurate TI from the respective Shawbury controllers enabled both to see the opposing ac.

The JHC Member observed that the Puma crew's uncertainty over the intentions of the closing Tutor caused them to maintain their flight path by disregarding their descent for a short period and this had disrupted the routine of their instrument approach. Pilot Members agreed that, although not contravening any regulations, deliberately closing with another ac even while keeping a safe distance and having it continuously in sight, can cause its crew concern. That was the case here, despite the radar recording confirming that the separation was adequate throughout.

However, since the Tutor pilot had the Puma in sight throughout the sequence, there was never any risk that the ac would have collided.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tutor pilot flew close enough to the Puma to cause its crew concern.

Degree of Risk: C.

AIRPROX REPORT No 2011151

Date/Time: 27 Oct 2011 1459Z

Position: 5419N 00133W (1.5nm NNW
Leeming - elev 132ft)

Airspace: ATZ (Class: G)
Reporting Ac Reported Ac

Type: Hawk T Mk1A MD902

Operator: HQ Air (Ops) Civ Comm

Alt/FL: 600ft↓ 500ft
QFE (1003mb) agl

Weather: VMC CLBC VMC CLBC

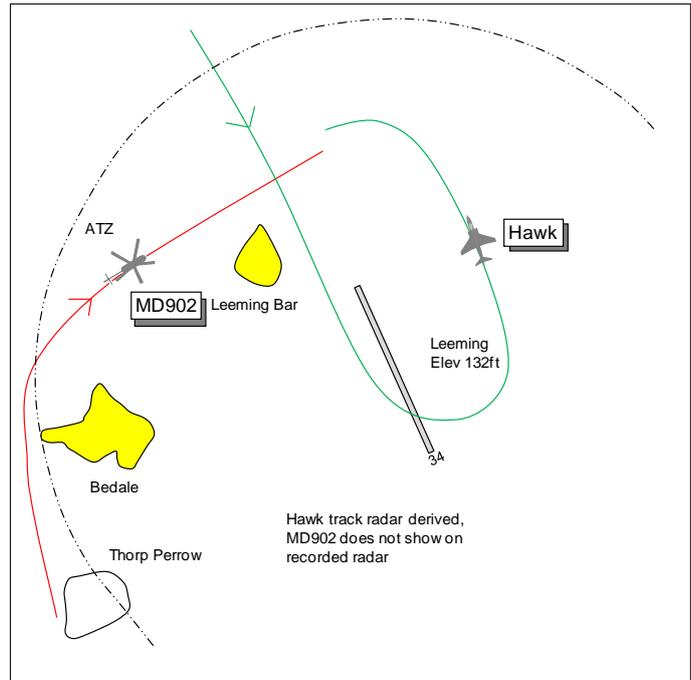
Visibility: 25km >10km

Reported Separation:

150ft V/50m H 300ft V

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK T MK1A PILOT reports on a visual recovery to Leeming and in communication with Leeming Tower, squawking 0424 with Mode C. The visibility was 25km flying clear below cloud in VMC and the ac was coloured black with nose landing light and HISLs switched on. He called "initial" for RW16 with Tower and was told the cct was clear but there was a Helimed at Bedale (3km in his 2 o'clock) not above 500ft N'bound. He became visual with the Helimed in a hover and commencing departure, assessing it as no factor as a N'y departure would deconflict from his intended cct RW16. He broke into the cct LH, turning away from the Helimed and he lost sight of the helicopter. He flew a standard pattern tipping in at the normal point. His attention was divided between the threshold and the cockpit parameters. At approximately halfway round final heading 240° at 140kt descending through 600ft QFE 1003mb he saw the helicopter in his 1130 position range 400m flying in the opposite direction and just below, assessing it was on his intended final approach path. He had time to roll off the bank to break the collision and pull gently, owing to the stall risk, and watched the helicopter pass 50m to his L and 150ft below. He reported the Airprox on the RT to Tower. At no time did Tower inform him of the Helimed's change of track. He assessed the risk as medium.

THE MD902 PILOT reports flying a HEMS mission and deployed to Thorpe Perrow near Bedale. He was in communication with Leeming Approach on 127.75Mhz when landing, squawking 0020 with Mode C; TCAS was fitted. The visibility was >10km clear below cloud in VMC and the helicopter was coloured yellow with HISLs, nav and 3 landing lights all switched on. On lifting he made an opening call to Leeming Approach with his intentions to fly to a hospital in Middlesbrough. He was asked by ATC to take up a NW'y track initially to impose some separation as there was landing traffic on long final to RW16. He had the traffic, a Hawk, both visually in sight and on TCAS. He then requested to take up a N'y track to shorten the transit to hospital and it was agreed. He passed up the W side of Bedale at 120kt and was then cleared direct to Middlesbrough so he stated that he would maintain 750ft on 1007mb and/or 500ft agl. His track took him N of Leeming Bar and Leeming, roughly on a heading 045°. The Hawk was seen to overshoot RW16 and then turn; initially he was unsure, owing to its aspect, whether it was away or towards him. He then realised it was E, away from Leeming's active RW and the Hawk climbed gently before it turned onto a N'y track (R to L in front of his helicopter) and continued to climb before levelling slightly above his level. As he was still on track he told his crew that he would turn R to pass behind the Hawk and he let ATC know that he could see the Hawk. He was unsure if he informed ATC of his intention to pass behind but by convention he

did so. At this point the Hawk, which was slightly ahead of him, dropped his landing gear and turned SW'ly towards his ac while slightly above; a TCAS TA was generated. He elected to maintain course and descend below the oncoming Hawk which passed about 300ft above where upon he turned his helicopter back on track towards Middlesbrough, approximately 045°. He made another call to ATC apologising for the nearness and tried to explain his reasoning but he initially received no reply. His next call was to clear en-route to Middlesbrough through Durham Tees Valley airspace. He assessed the risk as none. Later on their return to base while passing through Leeming airspace he was asked by ATC to telephone after landing. He did so and spoke to SATCO who was very good about the whole thing and he gave his name and address for any follow up action. At no point did he think Leeming did not give a good service. With hindsight he thought that he should have been on their Tower frequency rather than Approach, which would have helped the situation. He did not realise, until the Hawk turned towards him, that it was making a second approach visually. Leeming ATC's initial non-reply afterwards was probably owing to an Airprox report by the other pilot, which he understood immediately and waited. ATC have been before, during and since, always very helpful.

THE LEEMING TOWER CONTROLLER reports the Hawk was the only ac on frequency and was conducting a radar-to-visual approach and in the process of joining the visual cct. The Met conditions were blue although visibility was degraded by mist. Zone passed TI on a rotary Helimed departing Bedale not above 500ft routeing N'bound and stated that the helicopter pilot was aware of the Hawk. TI on the rotary was passed to the Hawk pilot although it initially appeared that the Helimed would not be a factor as the Hawk was fully established in the visual cct. At this stage he was not visual with the Helimed. The Hawk flight was cleared for a touch and go and then its pilot reported an Airprox with a rotary ac whilst on final approach. At this point he saw the Helimed crossing W to E through the extended C/L at low level but relatively close to the Hawk. The Hawk pilot reported that the rotary had crossed beneath his track. Zone was informed of the Airprox and Zone reported that the Helimed pilot had apologised but had been visual with the Hawk throughout. From the initial TI it was expected that the Helimed would maintain a N'ly track and was not intending to cross the approach lane.

UKAB Note (1): Leeming METAR shows EGXE 271450Z 25003KT 9999 -RA FEW009 OVC050 11/10 Q1007 BLU TEMPO SCT009 GRN=

THE LEEMING ZONE CONTROLLER reports that at 1456 the Helimed MD902 pilot called him to advise that he was lifting from Thorpe Perrow, near Bedale (2nm W of Leeming), en-route to James Cook Hospital, Middlesbrough. The flight was placed under a BS and was requested to maintain a NW'ly track not above 500ft on the RPS 1003mb, he thought, as the Hawk was conducting a radar to visual approach at Leeming and was O/H Catterick (5nm N of Leeming). TI on the Helimed was passed to the ADC. The Helimed pilot reported that he had the inbound Hawk on TCAS and he was requested to route behind it. The Helimed was then pre-noted to Durham Tees Valley. The Helimed pilot then reported visual with the Hawk at which point he was given permission to resume own navigation not above 500ft. Shortly afterwards the Helimed pilot confirmed that he was still visual with the Hawk, which was now on a N'ly track, and that he would pass behind it. A short time later, the Helimed pilot reported he was descending with the Hawk in sight and almost immediately ADC reported that the Hawk had called an Airprox against rotary traffic that had passed beneath him on final. The Helimed pilot apologised and stated he had turned onto a S'ly track to go behind the Hawk but it had turned into the cct to land.

BM SAFETY MANAGEMENT reports that this Airprox occurred within the ATZ at RAF Leeming between a Hawk on final to RW16 and a MD902 HEMS flight, transiting NE to James Cook University Hospital (JCUH) Middlesbrough, in receipt of a BS from Leeming Zone.

The radar replay does not display the MD902 during the incident sequence and the Hawk's radar return is lost during the final turn, prior to the Airprox.

The ADC was a relatively inexperienced first tourist controller; the Zone controller was highly experienced at Leeming. Both controllers described their workload and task complexity at the time of the occurrence as low and both have been described as highly capable by SATCO Leeming. Due to

the low traffic levels and iaw local orders, no Supervisor was in place at the time of the occurrence, with the ATCO IC controlling on APP who has also described their workload as low.

At 1456:22 the Hawk pilot called Leeming TWR to join through initials and was cleared to join and the airfield details passed; the cct was clear. Almost simultaneously, the MD902 flight called Zone, *“(MD902 c/s) just lifting from Thorp Perrow, request MATZ penetration, er, for James Cook please, VFR, five hundred feet A-G-L, if that’s alright?”* In reply, Zone asked, *“...could you maintain a north-westerly heading as you lift, I’ve just got traffic inbound [the joining Hawk], overhead Catterick this time.”* The MD902 pilot replied, *“copied, er, if you are happy, north-west side of Bedale this time?”* Zone stated, *“...roger, Basic Service, er, not above five hundred feet, I’ll keep you advised on that traffic.”* The MD902 pilot replied, *“...copied, er, if you are happy, I’ll just maintain a northerly track for the moment?”* Zone replied, *“yeah that’s fine”*, which was acknowledged by the MD902 pilot.

Bedale is 2.2nm W of Leeming; Thorp Perrow is 3.6nm SW Leeming and 1.8nm SSW of Bedale. James Cook University Hospital is in south-central Middlesbrough, approximately 21nm NE of Leeming.

Immediately after the series of transmissions between the MD902 and Zone, Zone called TWR on landline at 1457:06 to advise them, *“Zone MD902 c/s lifting, HELIMED lifting from Bedale, not above five hundred feet, knows about the traffic inbound, he is routeing north.”* At the tail of this statement at 1457:13, the Hawk pilot called initials and TWR instructed Zone to, *“standby”* while they responded to the Hawk. As this occurred, the MD902 pilot advised Zone that they could see the Hawk on TCAS. TWR then responded to Zone stating, *“okay, no worries, I’ll call it if needs be, cheers Tower”* ending the landline call.

Immediately after finishing the landline call at 1457:20, Zone responded to the MD902 pilot’s transmission about seeing the Hawk on TCAS stating, *“(MD902 c/s) once you’re happy, continue behind that traffic [the Hawk]”* which was acknowledged by the MD902 pilot. The MD902 pilot reported that in addition to acquiring the Hawk on TCAS, they were visual with the Hawk from a range of 5-6nm; however, they believed, incorrectly, that the Hawk was ‘landing traffic on long finals to RW16’, rather than a join through initials. This supposition was not based on any information provided to the MD902 pilot by Zone.

At 1457:30, with the Hawk 2.6nm NW Leeming, TWR advised the Hawk pilot of the MD902 stating, *“(Hawk c/s) one Helimed lifting from Bedale, not above five hundred feet, routeing northbound”*; this was acknowledged by the Hawk with c/s.

At 1457:52, the MD902 pilot advised Zone, *“(MD902 c/s) visual with traffic, passing behind, thanks.”* Based upon Zone’s recollection subsequent to completing their DASOR, they believe that at this point the MD902 was W of Leeming, tracking N’ly, which accords with the MD902 pilot’s report that they were passing “up the west side of Bedale.” Zone replied, *“(MD902 c/s) roger, own navigation, maintain not above five hundred”* which was acknowledged by the MD902 pilot. This communication occurred after the Hawk had flown through initials at 1457:13 and prior to reporting on the break at 1458:03. Based upon the MD902 pilot’s report, they interpreted this instruction as clearance to fly direct to JCUH. Subsequent to completing their report, Zone has stated that they believed that, having been given own navigation, the MD902 would remain outside the ATZ and thus outside the lateral dimensions of the visual cct. Moreover, they suggested that their mental picture was based upon the N’ly track that the MD902 had been following and that the ac would route to Catterick, approximately 5.7nm NW of Leeming, prior to turning NE’ly for JCUH. Zone also stated that it is routine practice to transfer ac routing low-level through the ATZ to TWR’s freq, if TWR considers it necessary. The fact that it did not happen in this instance is further evidence to support Zone’s mental picture of the MD902’s planned route as remaining outside the ATZ.

At 1458:30, the MD902 pilot re-iterated, *“(MD902 c/s) still visual with the north bound traffic”* adding 10sec later *“I’ll pass behind him.”* Zone acknowledged both these transmissions. Based upon the MD902 pilot’s statement, the Hawk was established downwind in the visual cct. At 1458:55 the Hawk

called final and was cleared to touch and go. At 1458:58, the MD902 pilot added, “(MD902 c/s) descending with him [the Hawk] visual” which was again acknowledged by Zone.

The CPA occurred at approximately 1459:01 as the Hawk pilot asked TWR, “(Hawk c/s) do you realise the helicopter [distorted word] right underneath me on finals?” The Hawk pilot reports first sighting the MD902 with approximately 400m lateral separation, with separation at the CPA of 50m lateral and 150ft vertical. The MD902 pilot was visual with the Hawk throughout the incident sequence and assessed the minimum separation as 300-400ft vertical.

TWR reported that it was at this point that they ‘established visual contact with (MD902 c/s) crossing W to E through the extended C/L at low level.’ The Unit has reported that there are a significant number of buildings and trees to the N and NW of the airfield that precludes observation of low flying traffic and would have restricted TWR’s view during this occurrence.

Subsequent to completing their DASOR, the ATCO IC has reported that although they were aware of the MD902, they were not actively monitoring Zone’s freq and were thus unable to maintain oversight of the situation.

RAF ATM Orders 100.130.6 state that ‘...outside established supervisor hours, the SATCO is to roster an officer or WO as ATCO IC the Watch...The ATCO IC is to exercise the responsibilities, and carry out the duties, of a Watch Supervisor detailed in para 100.130.5.’ RAF ATM Orders do not define established supervisor hours; however, the period that they encompass is typically deemed to be during Stn-based flying, with times defined within local orders. That said, local orders often stipulate a greater degree of flexibility than this, permitting the use of an ATCO IC during periods of reduced stn-based flying, as is the case at Leeming. At the time of the Airprox, the Hawk was the only Stn-based ac operating. 100.130.5a states that Terminal Supervisors, and by inference ATCO ICs, are to ‘develop situational awareness to ensure that all watch-keeping staff maintain safe, orderly and expeditious ATC consistent with current regulations and instructions.’ Moreover, 100.130.2 states that ‘individuals rostered to supervise are not to assume controlling duties during the period of their watch.’ However, this policy does not state whether 100.130.2 is applicable to ATCO ICs and, routinely, this decision is left to be made at a local level, generally on a day-to-day basis.

Whilst the MD902 pilot’s decision to route behind the Hawk suggests either that he had not assimilated the fact that the Hawk had joined the cct, or that he assumed that the Hawk would be deconflicted from them by ATC, BM SM contends that the cause of the Airprox was grounded in ATM human error.

Based upon the information provided to TWR by Zone at 1457:06, that the MD902 would be routing N from Bedale, TWR had no reason to suspect that the MD902 would conflict with the visual cct; as illustrated at Figure 1.



Fig: 1

Moreover, the obstructions to the N and NW of the airfield would have precluded TWR from visually acquiring the MD902 until a late stage. Finally, whilst given their low workload it is reasonable to suggest that TWR could have scanned their Hi-Brite VRD, it is just as reasonable to argue that with nothing to prompt TWR to do this, their visual focus would have remained on the Hawk.

From Zone's perspective, understandably, they wished to afford priority to the MD902; however, their mental picture of the MD902's intentions was based upon an assumed routing to the N of Leeming, outside the ATZ. Consequently, they were unable to perceive the risk inherent in authorising the MD902 flight to adopt its own navigation. Moreover, it is clear from the subsequent transmissions from the MD902 pilot and Zone's responses between 1458:30 and 1458:58, that Zone had not used this information to update their mental picture and thus their situational awareness, to perceive the developing confliction.

The remaining ATM related safety barrier in this occurrence would routinely be expected to have been provided by a Supervisor. However, due to the low traffic levels and in accordance with local procedure, a Supervisor was not operating. Moreover, APP as the ATCO IC was not actively monitoring Zone.

Having developed an incorrect mental picture of the MD902's routing, Zone authorised the MD902 to adopt own navigation. The MD902's routing then placed it into confliction with the Hawk.

Recommendation:

BM SM requests RAF ATM Force Cmd to:

- a. Review RAF ATM Force Orders 100.130 to determine whether paras 100.130.2 and 100.130.3 are applicable to ATCO ICs.
- b. Direct RAF ATM Terminal units to review local orders permitting the use of an ATCO IC, in lieu of a dedicated Sup, in a rostered control position, during core opening hours.

HQ AIR (OPS) comments that the Helimed MD902 pilot clearly did not realise that the Hawk was joining the Leeming visual cct- he stated that he thought the Hawk was on long finals for a straight in to RW16, probably because he saw the Hawk's landing light. However, the Hawk's landing light is not on the undercarriage- it is on the nose and SOP is to have it on whether the gear is up or down (for conspicuity). Further weight is that he stated that the Hawk seemed to overshoot RW16 and turn back to the N (actually a join through the deadside and a break-turn downwind). It seems that the MD902 was a CAT A status CASEVAC flight and Leeming ATC should have afforded the HELIMED the appropriate priority by asking the Hawk to remain at cct height and allow the helicopter to transit the ATZ underneath him. Not communicating the Helimed's status meant that the Hawk pilot was unaware of the helicopter's priority, routing or intentions. As a result its proximity caused alarm to the Hawk pilot causing him to alter his flight path to increase separation at a time where he had limited manoeuvrability.

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 there were a number of assumptions made which had led to actions being taken on the basis of insufficient information. The MD902 pilot had called Zone lifting from Thorpe Perrow and requested MATZ penetration towards a hospital in Middlesbrough at 500ft agl. Zone asked if he could route NW'ly owing the inbound Hawk over Catterick and, after updating his position to the NW of Bedale, the MD902 pilot asked if a N'ly track was alright and that was approved. Zone had coordinated the MD902 N'bound with TWR who agreed to pass TI if he needed to. Meanwhile the

MD902 pilot had reported seeing the Hawk on his TCAS display and Zone stated that he could route behind the Hawk. However, the MD902 pilot, who may not have been familiar with fast-jet operations and without information from ATC as to the Hawk's intentions, had assumed the Hawk was carrying out a straight-in approach to land RW16. The Hawk pilot was conducting a run-and-break join into the visual cct. Tower told him about the MD902 routeing N'bound and the pilot saw it lifting as he ran in. The MD902 reported visual with the Hawk and passing behind it before Zone then released the MD902 pilot on his own navigation maintaining not above 500ft. Zone assumed the helicopter would route outside of the ATZ but, without ascertaining or stating a route, he had no idea where the MD902 helicopter would pass in relation to the Leeming ATZ. Members believed that Zone should have anticipated that the CAT A flight would take a straight-line track from his current position towards the hospital. The MD902 pilot, mindful of his CAT A flight status and priority, assumed that 'own navigation' was clearance to route direct to his destination and an implied clearance to transit through the ATZ. No mention was made by either party of a formal clearance to cross the ATZ which, Members agreed, in normal circumstances should always be clarified since a clearance through a MATZ does not give tacit approval through an ATZ. However, in these circumstances Members believed that the MD902 pilot's actions were entirely justified by his CAT A status. The MD902 pilot then told Zone that he could still see the Hawk routeing N'bound – downwind –and that he would pass behind it. Members thought Zone could have updated his SA from these transmissions and with reference to his radar, which should have revealed the MD902's position and routeing towards the final approach track at a range from touchdown where the Hawk would be turning onto final. Shortly after this the MD902 pilot reported descending with the Hawk 'visual'. Although TWR had only been told that the MD902 was routing N from Bedale and his view to the N and NW was restricted, the MD902's track would have been apparent on the Hi-Brite display and TWR could have challenged this with Zone or updated the TI to the Hawk pilot. As it was, the Hawk pilot had lost sight of the MD902 as he ran in and broke into the cct and it was only when he reported the MD902 passing underneath that TWR became aware of the helicopter's position. Members believed that all of the actions taken by ATC and assumptions made were indicative of a low state of arousal within Leeming ATC. Members agreed that Leeming ATC should have afforded the MD902 the most expeditious routeing possible and held the Hawk not below 1000ft until the helicopter was clear. In the event it was Zone releasing the MD902 flight on its own navigation resulted in a conflict with the Hawk, causing the Airprox.

Turning to risk, after seeing the MD902 whilst joining from initial, the Hawk pilot was oblivious to the MD902's track through the ATZ and saw it only as he was turning final in his 1130 position 400m away just below. Although this had been late, he was able to stop the turn and arrest his descent, watching the helicopter pass 150ft below and just 50m to his L. Meanwhile, the MD902 pilot saw the Hawk throughout, monitored its downwind track and was endeavouring to pass behind it when it turned towards him as he was crossing the final approach. He elected to descend, passing an estimated 300ft below the Hawk. Some Members thought that the incident was risk-bearing since the Hawk pilot had limited manoeuvrability during a critical stage of flight close to the ground with the MD902 passing below. Other Members believed that the MD902 pilot had the situation under control and had acted appropriately when faced with the Hawk turning towards him by maintaining visual contact with it and descending; the combination of both pilots' actions had removed the risk of collision. These two different viewpoints could not be resolved which led to the Chairman directing a vote. Although numerically close, the Board concluded by a small majority, that any risk of collision had been removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Zone released the MD902 own navigation resulting in a conflict with the Hawk on final.

Degree of Risk: C.

AIRPROX REPORT No 2011152

Date/Time: 27 Oct 2011 1831Z (Night)

Position: 5439N 00614W (0.5nm SW
Belfast/Aldergrove - elev 268ft)

Airspace: ATZ (Class: D)

Reporting Ac Reported Ac

Type: A319 EC135

Operator: CAT Civ Trg

Alt/FL: 300ft↑ 300ft
QNH (1009mb) QNH

Weather: VMC CLBC VMC NR

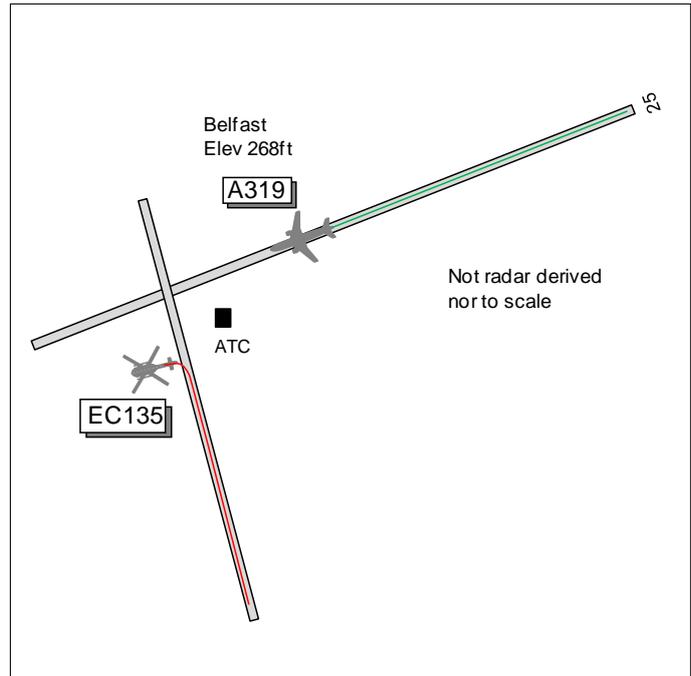
Visibility: 10km >10km

Reported Separation:

200ftV/NR H NR

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE A319 PILOT reports departing Belfast under IFR and in receipt of an Aerodrome Control Service (ACS) from Belfast Tower on 118.3MHz, squawking 7025 with Modes S and C. The visibility was 10km in VMC and the ac's anti-collision, nav and strobe lights were all switched on. They were cleared to line-up RW25, take-off clearance received and after departure a L turn to PEPOD. During the early stages of the take-off roll ATC advised them to climb straight ahead after departure, which they acknowledged. At a late stage of the take-off roll they saw traffic moving from S to N O/H the aerodrome approaching the RW. Concerned once airborne climbing through 300ft QNH at 180kt and to maintain separation, they made a 30° R turn. They asked ATC for information on the traffic who acknowledged that the traffic was turning S. At one point vertical separation of 200ft was seen on TCAS; however, the lateral separation was difficult to gauge as it was dark. He assessed the risk as high.

THE EC135 PILOT reports flying a dual proficiency check flight from Belfast and in receipt of a RCS from Belfast Tower on 118.3MHz, squawking an assigned code with Mode C; TCAS was fitted. The visibility was >10km in VMC and the helicopter's nav and tail HISL were switched on. The TRE was seated on the LHS and had elected to fly a demonstration cct during the night phase of the sortie being conducted in the Southern sector (S of Tower and RW25 and W of RW35 within the aerodrome boundary). They were cleared for take-off from the RW35 numbers for a LH cct not above 1000ft QNH SVFR and were also informed of IFR traffic shortly departing RW25. They conducted a CAT A clear area departure heading 350°, climbing at 40kt and increasing to 65kt and executed an early L turn at 300ft QNH onto 170° to remain S of the Control Tower in compliance with the local procedure. During the L turn ATC requested that they turn S immediately and not to fly any closer to RW25. As the TRE, the HP, had already passed through heading 270°, ATC was advised of this and the LH turn was continued onto a S'ly heading, reporting the A319 in sight. The A319 was not seen by him in the RH seat as they were in a L turn before the A319 became airborne; however, it was seen later over his shoulder about 2-3nm away when they were steady on 170° as the A319 flight was asked to report its passing level, which was 2000ft. He didn't recall receiving any TCAS TA indication and he assessed the risk as none. On completion of the sortie, ATC asked the crew to contact them by land-line and they were informed of the departing A319 crew's concern of their proximity and that ATC would be conducting a review. As he was P1 (u/s) and a local pilot, he

participated in the review; however, on returning to his operational flying duties he was requested to complete an Airprox report form for the incident.

THE BELFAST ADC reports the EC135 was routing from Crumlin back to its dispersal via RW35. The A319 flight was cleared for take-off from RW25 with a L turn to PEPOD after departure. The EC135 pilot then requested to “fly another cct” which was approved, expecting the helicopter to route S’bound back to its previous operating area. He amended the A319’s departure instruction to fly on the RW track after departure as he did not want it turning towards the helicopter; at this time the A319 was already on RW25. During the A319’s departure he saw the EC135 flying in a N’ly direction towards RW25 so he instructed the flight to turn L immediately to remain S of the departing A319. The A319 crew then queried the position of the helicopter and started to turn away from it to the NW, the Capt later confirming that he turned 30° to the R after seeing the helicopter. Once the A319 was above 2000ft he cleared the flight towards PEPOD. The EC135 finished its cct and landed normally.

ATSI reports that the Airprox occurred at 1831:15 (night), at Belfast Aldergrove, within the ATZ, Class D CAS, which consists of a circle 2.5nm radius, centred on the mid-point of RW07/25 and extending from the surface to 2000ft above aerodrome elevation (268ft).

The A319 was departing IFR from RW25 on a flight from Belfast Aldergrove to London Stansted. The EC135 helicopter was operating SVFR with a locally based pilot training under the supervision of an instructor who was not locally based. The instructor had requested an additional visual cct on RW35. The Aldergrove Manual of Air Traffic Services, Part 2, Section 2-28, Paragraph 3.4, Parking area for the EC135 helicopter operations, states:

‘The helicopter will park adjacent to the PSNI hangar where two pans are available. The helicopter will lift directly to/from these pans and does not require the use of runways or taxiways.’

Earlier in daylight hours, the EC135 whilst training, had been lifting from the threshold of RW35 on RW track, remaining S of the control tower line and RW25, in compliance with local procedures. The controller had been providing an ACS (Tower) for 40min prior to the incident. Workload was assessed as medium and official night was 1714 UTC (AIP SS/SR table). CAA ATSI had access to RT and area radar recordings, together with written reports from both of the pilots, the controller and ATSU investigation. The area radar recordings did not show the ac returns below an altitude of 900ft.

METAR EGAA 271850Z 25005KT 9999 SCT030 BKN040 09/07 Q1009=

The A319 flight had received an airways clearance at 1802:33, “...cleared to Stansted via Lima one zero climb to altitude five thousand feet squawk is seven zero two five,” which was acknowledged correctly by the A319 pilot.

The EC135 helicopter was on a training exercise and transferred from Radar to Tower at 1811:55, fully established on the ILS at 4nm. The EC135 pilot requested a go around followed by a L turn to operate over Crumlin (S of the airport) at 1000ft. The controller approved a L turn SVFR towards Crumlin.

At 1826:37, the EC135 pilot reported, “...the southern sector I’d like to join er straight in for a 35 direction”. The ADC cleared the flight to route to the RW35 threshold, which was correctly read back. At 1828:18, the EC135 pilot reported on final for RW35 intending to position to dispersal. The Tower controller responded, “(EC135 c/s) route to your dispersal land at your discretion surface wind is two five zero degrees eight knots.” This was acknowledged by the EC135 pilot.

At 1828:46, the A319 flight was cleared to line up and wait RW25 and at 1829:43, the A319 was given take off clearance, “(A319 c/s) after departure turn left on track PEPOD Runway two five cleared for take-off surface wind is two five zero degrees eight knots.” The A319 pilot acknowledged, “???? After departure er left turn to PEPOD and cleared for take-off Runway 25 (A319 c/s).”

At 1830:04, the EC135 instructor decided to demonstrate one more approach and transmitted, *"(EC135 c/s) er just request er one last er lefthand circuit back on Runway three five please."* The controller responded, *"(EC135 c/s) that is approved not above altitude one thousand feet please I have IFR departure will be turning left shortly."* The EC135 pilot acknowledged, *"Roger not above er altitude one thousand feet one zero one zero (EC135 c/s)."* The controller's written report and subsequent telephone conversation indicated that the controller had an expectation that the helicopter would reposition from dispersal routeing directly S of the airfield towards Crumlin for another approach to RW35.

In order to provide separation from the helicopter's southerly departure, the controller then instructed the A319 flight, *"...after departure maintain runway track initially please."* The A319 was in the early stages of the take-off roll and the A319 pilot replied, *"(A319 c/s) roger we're rolling."*

As the A319 departed, the controller observed that the helicopter was departing N and at 1831:12 the controller instructed, *"(EC135 c/s) turn left immediately do not route towards the active runway."* The EC135 pilot responded, *"Yeah we are we're er turning through two seventy now ??? in sight."* The A319 pilot transmitted, *"(A319 c/s) we have er traffic on the left advise."* The controller replied, *"It's a Police helicopter I have both of you visual"* and, *"turning south now it's clear of you."* The unit radar recording shows that the CPA between the ac was 0.2nm (370m). The EC135 pilot's written report and subsequent telephone conversation indicated that the pilot was departing from the RW35 threshold, initially N making a L turn onto a heading of 170° but remaining S of the Tower line, in a similar manner to that approved earlier in the day.

The A319 pilot had been given take off clearance without TI regarding the EC135 helicopter. The A319 pilot's written report indicates that during the late stage of take off, traffic was observed overflying the airfield from S to N, approaching the active RW. When airborne the A319 pilot initiated a R turn of 30° to maintain separation.

At 1831:50, in response to a request from the controller, the EC135 pilot reported at an altitude of 900ft and the A319 pilot reported passing an altitude of 2000ft for 5000ft. The A319 flight was then cleared L turn on track PEPOD and transferred to radar.

The ATSU investigation report and RT recordings suggest that the controller was engaged in a conversation with the ATSA just prior to the incident, which may have been an aggravating factor in the controller misperceiving the helicopter pilot's intentions.

As a result of the incident and in consultation with CAA SRG appropriate unit action has been taken with additional training for the controller and with lessons learned material disseminated within the unit.

The A319 was already commencing the take-off roll when the EC135 helicopter pilot requested a cct on RW35. A number of factors may have caused the controller's misperception and lack of situational awareness regarding the helicopter pilot's intentions:

The controller had been in position for 40min and may not have been fully familiar with the earlier training requirements of the EC135 helicopter.

In operational circumstances the EC135 would normally lift directly from dispersal and the controller's haste in approving the cct may have reflected a pre-disposed assumption that the helicopter would depart from dispersal.

The controller's conversation with the ATSA just prior to the incident, may have been an aggravating factor in the controller misperceiving the helicopter pilot's intentions.

The Airprox occurred at night whilst the EC135 was operating SVFR. The controller was responsible for providing the separation between SVFR and IFR traffic within the vicinity of the cct. The A319

flight had been given take-off clearance before the EC135 pilot requested the additional cct. The controller approved the cct, "...that is approved not above altitude one thousand feet please I have IFR departure will be turning left shortly." The phraseology used was ambiguous, implying the take-off clearance but without specific instructions or TI that would have provided separation from the departing A319.

The controller mistakenly assumed that the EC135 would route from the RW35 threshold directly to the S. However the EC135 pilot's expectation was to depart into a visual cct from RW35 threshold in a similar manner to that previously approved (remaining S of the Tower line and RW25). This resulted in the A319 and EC135 departing from crossing RWs at the same time.

In the absence of any TI, the A319 pilot departed, unaware that the EC135 helicopter was approaching, at night, from the S. The A319 crew perceived that there was a conflict and the pilot took action to ensure that separation was maintained, by turning R 30° immediately after departure.

The EC135 helicopter was a training Flight (CAT Z) and the A319 should have been afforded a higher priority. Holding the EC135 until the A319 was airborne would have resolved any separation problems. The controller's haste in approving the cct was done without the use of appropriate phraseology or clearances to provide the required separation or aid the situational awareness of the pilots. MATS Part 2, Appendix E, Page 2, Paragraph 1.1, states:

'.....Incidents and accidents have occurred in which a contributing factor has been the misunderstanding caused by the use of non-standard phraseology. **The importance of using correct and precise standard phraseology cannot be over-emphasised.**'

When the A319 was departing IFR at night from RW25, the controller approved the departure of the EC135 SVFR from RW35, without ensuring that an appropriate form of separation existed between the 2 ac.

The following were considered to be contributory factors:

An appropriate departure clearance was not provided to the EC135 helicopter and the phraseology used by the controller was ambiguous, implying a take-off clearance without specific instructions.

The controller did not have full situational awareness of the helicopter pilot's intentions and misperceived that the helicopter would route S from the RW35 threshold.

The EC135 pilot assumed that he was cleared to make an additional cct to RW35 in a similar manner to that previously approved during the day.

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 sympathised with the A319 crew's predicament. It was during their take-off roll that ATC passed an amendment to their departure, not best practice, to climb straight ahead, which they acknowledged before they saw traffic approaching the RW from their L, apparently on a conflicting flightpath. It would have been difficult to judge the helicopter's separation from its lights in the circumstances and, concerned as to its intentions, the A319 crew turned R 30° after departure. On requesting information on the traffic from ATC, the ADC told them that he had both of them in sight and that it was turning S. The reason the EC135 had been in that position was because the ADC had assumed that the helicopter would lift from its dispersal and depart to the S. The EC135 pilot had requested "a LH cct back onto 35", after the A319 flight had been issued take-off clearance, and the ADC had hastily approved it without issuing specific instructions to take-off, route, TI or any

clearance limit to its flight other than 'not above 1000ft'. The EC135 crew had been operating earlier, during daylight hours, to the S of RW25 from the RW35 threshold in accordance with normal day procedures, and although the ADC was expecting a S'ly departure from dispersal, the pilot's request for a LH cct back onto 35 should have been a clue that this expectation was incorrect. The EC135 crew did not query the ATC instruction issued, accepting it as an implied take-off clearance without specific instructions. The ADC had a responsibility to separate the 2 flights at night and it was only when he saw the EC135 transitioning to the N and heading towards RW25 that he instructed the pilot to turn L immediately and not route towards RW25. By then the EC135 was already turning through a W'ly heading and its pilot reported the A319 in sight. Members agreed that, technically, the ADC was providing reduced separation in the vicinity of the aerodrome as he had both ac in sight, but this was as the situation was unfolding, not by following a predetermined plan. With hindsight, the EC135 should have been restricted, ideally by delaying its take-off until after the A319 had departed. As it was, the A319 crew was unaware of the EC135's departure, because of the lack of TI from the ADC, which had led to their concern and which caused the Airprox.

As the EC135 pilot called for departure after the A319 flight had been given take-off clearance, the timings were not ideal for the ADC to pass TI to the A319 crew during a critical stage of flight even if he had been aware that the helicopter was going to take off towards the Airbus. As it was, by the time the ADC saw the EC135, it was already turning away and he updated the A319 crew's SA late, when they queried it. Nevertheless, although the A319 crew was unaware of the helicopter crew's intentions and turned R 30°, the EC135 pilot was always intending to turn S before reaching a line parallel to RW25 through the Tower and the unit radar recording shows the separation as 0.2nm at the CPA. These elements 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: In the absence of TI, the A319 crew was concerned by the proximity of the EC135.

Degree of Risk: C.

AIRPROX REPORT No 2011153

Date/Time: 29 Oct 2011 1504Z (Saturday)

Position: 5130N 00006W
(Central London)

Airspace: Lon City CTR (Class: D)

Reporting Ac Reported Ac

Type: EC145 Gazelle

Operator: Civ Com Civ Pte

Alt/FL: 1200ft 1200ft
QNH (1018mb) QNH

Weather: VMC CLBC NK CAVOK

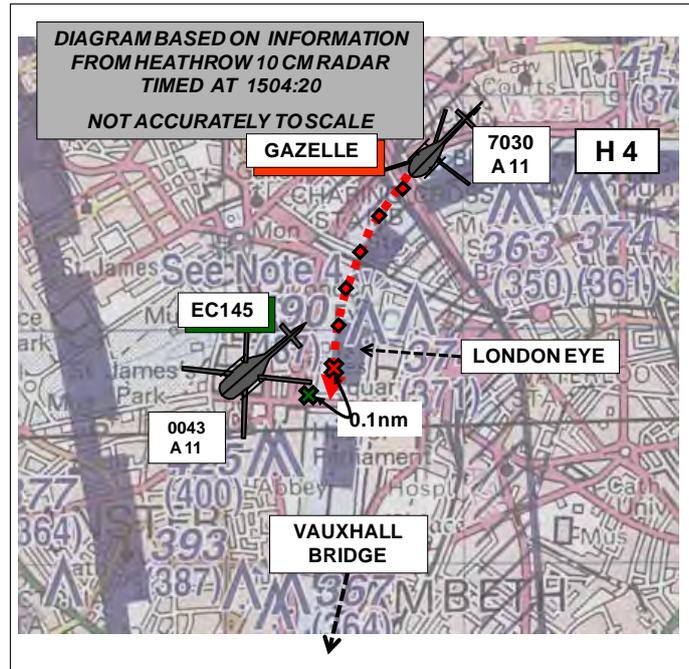
Visibility: >10km >10km

Reported Separation:

0ft V/100m H NR

Recorded Separation:

0 V/0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC145 PILOT reports flying a CAT B Police task in a TCAS equipped helicopter with 2 observers, in the hover (into wind heading 210°) at 1200ft over Central London. Heathrow Special VFR passed him TI on 2 helicopters heading along the river Westbound to the London Eye. He acknowledged the call and repeated that he was on the N side of the river. He was initially visual with the 2 helicopters through his rear window but became unsighted as they moved into his 6 o'clock position. Shortly afterwards he received a TA on the TCAS at which stage he yawed his ac right and saw the Gazelle at the same altitude about 1nm away and heading straight towards him. He initiated avoiding action by transitioning into forward flight on a W'yly heading as the Gazelle began a left hand turn to orbit the London Eye. He estimates that the Gazelle came within 100 – 150m of his position at the same alt.

THE GAZELLE PILOT reports flying a VFR private pleasure flight down the Thames from Stapleford in a red helicopter fitted with SSR and Mode C but no TCAS, with all lights switched on. He requested permission from London City to fly down the river to the London Eye and return. When over the Lea Valley at 1200ft (QNH), London City gave him a squawk, permission to fly the route under Radar Control and instructed him to report over Isle of Dogs [the entry to HR4] and to fly not above 2000ft. He reported over the Isle of Dogs, was advised that an EC120 was behind him and flying a similar route and he advised that he was visual with it.

As he was flying down the Thames, he was advised that there was a helicopter over Westminster at 1200ft. He then replied that he was visual with that helicopter, which was in the hover facing W/SW. London City asked if he was carrying on to the W upriver and he replied that he was just going to the London Eye and returning. When he was approaching the London Eye, he advised that he was turning and returning down the river and he decided to turn left so that he kept his distance from the police helicopter. When he was in the turn, London City instructed him to move to the N side of the river until the following EC120 had passed; after it had passed they instructed him to move to centre of river, which he complied with.

As he was flying E and coming towards the O2, he asked if he could carry on down-river towards Queen Elizabeth Bridge and was given permission to do so.

When he left the London City CTR and was no longer under RC he requested a frequency change to Stapleford.

He had the police helicopter in sight continuously until he turned left over the London Eye; on turning left he lost sight of the helicopter in the hover and continued E along the river to leave the CTR.

At no stage was he concerned about the proximity of the police helicopter.

He thought that the police helicopter was in the hover, pointing W/SW at the time of the incident and might have been surprised to see him as he turned from the hover. At no stage of the flight did he hear a transmission between Thames Radar and the police helicopter.

THE THAMES/SVFR CONTROLLER reported that the sectors were bandboxed; an EC145 was on station near Westminster and two helicopters were W'bound VFR on Helicopter Route H4, a Gazelle and an EC120. He instructed the Gazelle pilot to remain N [side] of the River Thames and to instruct the EC120 to remain S [side] of the river in order to achieve extra separation since the EC120 was closing with the Gazelle. TI was passed to all three helicopters and the pilot of Gazelle reported that he had the police helicopter in sight and vice versa. The Gazelle pilot had requested to turn back at the London Eye and the Controller reiterated that the ac was to remain on the N [side] of the river against the EC120 which was then heading in the opposite direction but on the S side.

The police helicopter then requested to return to Lippitts Hill, the controller approved this subject to the pilot being visual with Gazelle. Before he left the frequency the EC145 pilot requested the C/S of Gazelle.

He suspected that there might be an issue, so he telephoned the Metropolitan Police ASU and discussed the situation with the pilot. The pilot asked about the clearance and altitude that the Gazelle had been given, which was via H4 to the London Eye on the N side of the river at standard operating altitudes. The EC145 pilot was content with the clearance given but was extremely concerned about the airmanship of the Gazelle pilot. He stated that he had been facing into wind in a SW direction and when he turned to route back to base the Gazelle was filling his windscreen between 200 and 300m away at the same level. He questioned the airmanship of the other pilot in flying unnecessarily close to his ac and stated that he would be filing an Airprox in the interests of safety.

UKAB Note (2): An analysis of the recording of the Heathrow 10cm radar showed the incident clearly as described by ATSI and as depicted in the diagram above. The radar overlay depicting the River Thames is however, not accurate in the area of the incident and has not been depicted. The overlay of radar data onto the Helicopter Routes Chart has been done manually and cannot be regarded as fully accurate.

ATSI reports that an Airprox occurred at 1504:21 in the London City CTR (Class D airspace), at altitude 1200ft, between an EC145 helicopter and an SA341 Gazelle helicopter.

The EC145 was operating VFR on a CAT B flight to and from Lippitts Hill Helicopter Site and was in receipt of a radar control service from Heathrow SVFR/Thames Radar on frequency 125.625 MHz.

The Gazelle was operating on a VFR flight to and from Stapleford and was also in receipt of a radar control service from Heathrow SVFR/Thames Radar on 125.625 MHz.

An EC120B was also operating on the H4 helicopter route but was not directly involved in the Airprox.

The Heathrow SVFR and Thames Radar (combined) controller was providing an Approach Radar Control service in Class D airspace. CAP493, The Manual of Air Traffic Services Part 1, Section 3, Chapter 4, Page 1, Paragraph 3.1, states that:

'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 as specified at ...'

CAA ATSI had access to recordings of RTF from Swanwick, area radar recordings and reports from both pilots and the radar controller.

The London City METARs are provided for 1450 and 1520 UTC:

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METAR EGLC 291450Z AUTO 21010KT 180V240 9999 SCT026/// SCT035/// 16/10 Q1018=  
METAR EGLC 291520Z AUTO 21011KT 180V240 9999 FEW024/// SCT030 16/10 Q1018=
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At 1348:40 the EC145 pilot contacted Heathrow SVFR/Thames Radar requesting a VFR clearance into the London City CTR and he was given a VFR clearance to enter the zone not above alt 2000ft.

At 1451:00, the Gazelle contacted Heathrow SVFR/Thames Radar over the Lee Valley requesting to route over Canary Wharf and "*down the river to the eye and back*"; the pilot was given a squawk of 7030 and a clearance to enter the London City CTR, VFR not above alt 2000ft.

At 1453:00, the EC120 pilot contacted Heathrow SVFR/Thames Radar requesting to route from the Lee Valley along helicopter route H4 to Battersea; the pilot was given a clearance to enter the zone not above alt 2000ft and to follow H4 at standard operating altitudes (Max 2000ft as published in the UK AIP AD 2-EGLL-1-22, 29th July 2010). The EC120 pilot was given TI on the Gazelle and he reported visual with it.

At 1502:00, the Gazelle was given a further clearance to follow H4 on standard operating altitudes and was passed TI on the EC145, which was in the hover on the N bank of the Thames. The Gazelle reported visual with the EC145 and was instructed to remain on the N side of the Thames when he turned, against the EC120 that would then be opposite direction. The EC120 was then instructed to remain on the S side of the Thames against the Gazelle and was also given TI on the EC145. At 1502:40, the EC145 was given TI on both the other helicopters and the pilot acknowledged the information and reported remaining on the N side.

At 1504:00, the Gazelle reported turning at the London Eye and returning on the S side of the river; the controller corrected the pilot and reiterated the instruction to remain on the N side of the river and this was readback by the pilot.

The radar recordings show the Gazelle to be 0.2nm N of the EC145 at 1504:12 as the former was in the left turn tracking S.

The radar recordings show the EC145 stationary with the Gazelle passing 0.1nm (- the CPA) to the E of it at 1504:21, both ac indicating an alt of 1100ft; the EC145 then started to move W as the Gazelle turned to the E.

UKAB Note (1): The transcript of the Thames Radar frequency shows that the Police Helicopter called, "*complete*" at 1504:30. The controller responded with, "*C/S roger do you have that Gazelle off your right hand side in sight*" and the Police pilot replied, "*affirm*" and the controller responded, "*C/S with that traffic in sight you can route straight back to Lippits Hill on a direct track not above altitude two thousand feet VFR*". The radar recording shows the CPA as being at 1504:21.

Both ac were operating VFR in Class D airspace under a RCS. The radar controller passed TI to all three helicopter pilots. The Gazelle reported visual with the EC145 before turning at the London Eye.

Radar recordings show that the Gazelle remained over the Thames, turning left at the London Eye, passing 0.1nm from the EC145 which was in the hover on the N bank of the river facing SW, away

from the Gazelle. The EC145 pilot yawed the helicopter to the right in response to a TCAS TA and became concerned by the proximity of the Gazelle.

The helicopters had been provided with appropriate and timely TI by the controller while operating VFR in Class D airspace.

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 a report from the appropriate ATC authority.

A pilot Member experienced in this type of police operation informed the Board that pilots can feel very vulnerable operating in the hover, pointing into wind and away from traffic on the helicopter route behind them. Despite having 'land/river' separation, this can be quite small and at weekends when there is often heavy police tasking as well as sightseeing ac the area can be congested.

[Post Meeting Note: There were 2 demonstrations in Central London on the day of the incident.]

A controller Member experienced on the SVFR position pointed out that police pilots can request increased separation if the situation warrants it, but in his experience this is rarely done. He also agreed that on Saturday afternoons there are many such 'sightseeing' flights, all being flown legitimately but occasionally by pilots not fully familiar with H4. The Maximum alt for this section of H4 (outside the Heathrow CTR and VFR in Class D airspace) is 2000ft and the highest local obstacle is the London Eye (490ft) so traffic must operate at least 500ft above it. Most ac (as in this case) operate about 1000ft but there is no reason not to fly higher but still below 2000ft. Since the Gazelle pilot was aware of the police helicopter, in the Members' view good airmanship would have been to give it more vertical separation; this would not have in any way spoil their view of the Eye.

Members noted however, that although the police pilot lost sight of the Gazelle for a short period, the latter pilot had the police helicopter in sight throughout; that being the case Members agreed unanimously that, although there might have been a lapse of airmanship, there was no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Gazelle pilot flew close enough to the EC145 to cause its pilot concern.

Degree of Risk: C.

AIRPROX REPORT No 2011155

Date/Time: 31 Oct 2011 1224Z

Position: 5219N 00008W (2nm
NNW of Wyton - elev
135ft)

Airspace: London FIR/ATZ (Class: G)

Reporting Ac Reporting Ac

Type: Grob Tutor TMk1 Grob Tutor TMk1

Operator: HQ Air (Trg) HQ Air (Trg)

Alt/FL: 2500ft ↑2000ft
QFE (1008mb) QFE (1008mb)

Weather: IMC In Cloud VMC CLBC

Visibility: Nil 10km

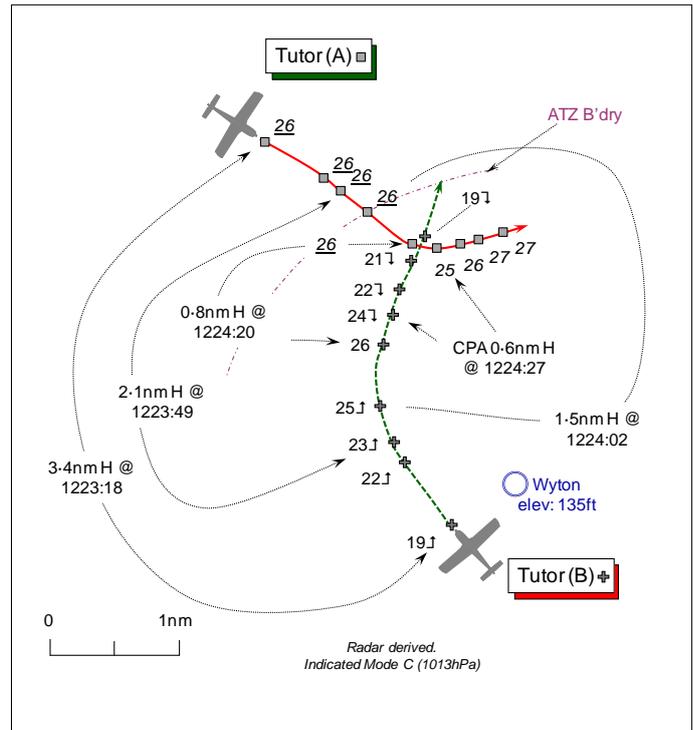
Reported Separation:

NK 800ft V/0.55nm H

Recorded Separation:

Nil V @ 0.8nm H

0.6nm Min H @ 100ft V



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PILOT OF GROB TUTOR T MK1 (A) reports he was completing a local training sortie and initially contacted Cottesmore RADAR [ZONE] on 130.20MHz to commence the recovery to Wyton. As they were above 8/8 cloud it was decided that a QGH recovery [a controlled descent through cloud using VDF] should be flown into the A/D to get VMC below. Initial descent to 4000ft was executed with Cottesmore ZONE under a TS. Upon switching to Wyton APP on 134.050Mhz, a descent was initiated to 2500ft Wyton QFE (1009mb) under a PS. During the VDF homing to the A/D O/H from the NW, heading 140° at 100kt whilst still IMC in cloud, his Traffic Alerting System (TAS) enunciated a traffic warning for a contact displayed at 10'clock less than 1nm away and 100ft below his aeroplane. To avoid it a L turn was executed, away from the contact, onto a heading of 090° and once clear of the contact the remainder of the APP was flown without incident. He assessed the Risk as 'medium' but did not estimate the separation.

His aeroplane is coloured white; the HISLs, nav lights and landing light were all on. The procedure squawk of A4601 was selected with Mode C; elementary Mode S is fitted.

THE PILOT OF GROB TUTOR T MK1 (B) reports that his student had not flown for some time and so he planned to complete some upper-air GH as refresher training, before returning to the visual cct at Wyton. The RW in use was RW15, due to a moderate S'ly wind, with BKN cloud at around 2000ft agl although gaps were beginning to appear. He had booked a SID-1B with Wyton ATC, received a clearance and got airborne from RW15. Passing 1000ft Wyton QFE (1009mb) in the climb, he turned R onto a heading of 300° enabling him to maintain the required SID track of 310°. As he was turning, ATC informed him that QGH traffic – Tutor(A) - was homing from the NW. After acknowledging the call from Wyton he switched frequency and free-called Cottesmore RADAR [ZONE] on 130.200Mhz for a TS, passing his position, the squawk assigned and type of SID he was flying.

Cottesmore were having difficulty identifying him, as they had on a previous sortie that day, so he levelled the ac at what he thought was 2000ft Wyton QFE. He was very aware of the inbound QGH traffic but felt uneasy as his TAS was displaying no other ac within the parameters he had set - 5nm and +/- 2,700ft - and he felt as though the incoming ac should have been visible on the TAS display by then, which it was not. With this in mind, he informed Cottesmore he was turning R onto a heading of 360° in an attempt to increase separation on the other ac. Flying at 80kt, predominantly in IMC, although in and out of some large gaps and in between layers, TAS remained clear of other traffic until a TA sounded. As this occurred he was VMC in clear air and he elected to initiate a rapid decent to 1500ft, away from the conflicting ac. Whilst at all times remaining out of cloud and in sight of the ground, he never saw the other ac. The conflicting ac was within 15-30 sec closure and he estimated the minimum separation was 0.55nm and about 800ft vertically, with a 'high' Risk of collision. Maintaining 1500ft until he was sure he was completely clear of the traffic, TAS was now indicating the other ac was in his 4 o'clock. At that point Cottesmore ZONE had positively identified his ac so he climbed in VMC and completed the sortie.

His aeroplane is coloured white; the HISLs, nav lights and the landing light on the lower part of the engine cowling were all on. Elementary Mode S is fitted.

THE WYTON APPROACH CONTROLLER (APP) reports Tutor(A) was on a QGH homing at 2500ft. As Tutor(A) was getting close to the O/H, the pilot advised that he had a TAS warning of traffic 100ft below within 1nm and was taking avoiding action. The other ac was not on frequency but believed to be Tutor(B).

THE COTTESMORE ZONE CONTROLLER UNDER TRAINING [SATCO] reports that all equipment was serviceable but the primary radar filters were in use. The weather was fine but a cloud layer had resulted in a number of ac conducting cloud-breaks and IFR procedures throughout the morning. Traffic had been brisk and of medium intensity for much of the preceding period, but at the time of the Airprox he considered the traffic intensity was low.

At 1221, just before the Airprox, he had released Tutor(A) to Wyton ATC for a QGH procedure N of the A/D, cleared to 2500ft Wyton QFE iaw SOPs. Another Tutor switched en-route and at 1222, the pilot of Tutor(B), which had been prenoted out of Wyton for an IFR departure, called. There was no radar contact in Tutor(B)'s reported position on either primary or secondary radar so whilst looking for the contact the time was utilised obtaining the pilot's intentions. He expected Tutor(B) to maintain a NW'ly track climbing to 2000ft QFE in accordance with the SID-1B, but then the pilot reported turning onto N. Tutor(A) could be seen established on the QGH procedure, still indicating 2500ft Mode C. In the absence of a radar contact on Tutor(B), but cognisant that the pilot required a TS, he called Tutor(A) to him in relation to Wyton A/D. About halfway through the transmission the squawk appeared with Tutor(B)'s Mode C only 200ft below Tutor(A). The Controller then identified Tutor(B) and updated the TI.

BM SAFETY MANAGEMENT reports that Tutor(A) had been in receipt of a TS from Cottesmore ZONE until 1221:22, whilst descending to 2500ft Wyton QFE (1008mb) for the QGH procedure. The pilot of Tutor(A) switched to APP, 6.3nm NW of Wyton, passing through 4100ft QFE.

At 1222:44, the pilot of Tutor(B) contacted Cottesmore ZONE, in a right turn onto NW 1nm S of Wyton, indicating 1400ft Mode C, following SID-1B. The ac was 31nm SE of Cottesmore [therefore outwith theoretical radar coverage of the Cottesmore SRE]. Flights departing on this profile should 'Climb on RW track to 1000ft QFE, then turn right onto track 310°, climbing to 2000ft QFE. At 2000ft QFE pilots should free-call Cottesmore LARS 130.2.' At this point, Tutor(A) was 4.3nm NW Wyton descending through 2900ft. The pilot of Tutor(B) reported that prior to leaving Wyton's frequency, they were advised of Tutor(A) conducting the QGH from the NW.

At 1223:20, ZONE asked the pilot of Tutor(B) his intentions and was informed that they were, "requesting a traffic service to get victor mike on top currently passing 1 thousand 9 hundred feet on 1-0-0-8." ZONE replied that they were still looking for Tutor(B) on radar, later reporting that there was no primary or secondary contact in the ac's reported position. The ATCO IC added that this 'had

been the case with every Tutor climbing out of Wyton that day.' This is likely to have been due to a combination of the selection of the processing filters on the primary radar and the height of the ac on initial contact versus their range from the radar source, both primary and secondary.

At 1223:48, Tutor(B)'s pilot advised ZONE that he was, "*coming right heading north.*" The pilot later reported that this turn was to increase separation against Tutor(A) as he felt uneasy that the ac was in the vicinity and yet not displayed on their TAS. At this point, Tutor(A) was 2.3nm NNW of Tutor(B) indicating 2600ft; Tutor(B) was indicating 2200ft. Unfortunately, the turn onto N by Tutor(B) introduced a conflict between the 2 ac.

At 1224:02, ZONE informed the crew of Tutor(B) that he still could not detect the ac on radar and that there was, "*traffic to the...bearing from Wyton 3-4-0 3 miles south-east bound on the Q-G-H, similar height.*" The Tutor(B)'s pilot replied that he was, "*correcting*" and, on the radar recording seems to have turned R onto a NNE'ly track, further into conflict. At this point Tutor(A) was 1.5nm N of Tutor(B), maintaining 2600ft (1013mb), with Tutor(B) climbing through 2400ft (1013mb). This suggests that Tutor(A) was maintaining 2450ft Wyton QFE (1008mb) and that Tutor(B) had climbed to about 2250ft Wyton QFE. ZONE reported that halfway through his transmission at 1224:02, Tutor(B)'s SSR was displayed, hence ZONE's use of the phrase "*..similar height.*" Immediately following the pilot of Tutor(B)'s reply that he was "*correcting*", ZONE transmitted at 1224:17, "[Tutor(B) C/S] *identified, that traffic in your 12 o'clock, range of half a mile [radar replay shows 1nm], southeast bound, similar height.*" [At 1224:20, the radar recording shows Tutor(B)'s SSR Mode C indicated 2600ft - 2450ft Wyton QFE (1008mb) – some 450ft above the procedure height.]

At 1224:25, the pilot of Tutor(A) commenced a turn onto E, correlating with his report, following a TAS Traffic Warning whilst IMC; simultaneously, Tutor(B) commenced a descent having reported at 1224:23 that they were, "*level at 2 thousand feet.*" The CPA occurred at 1224:27 as Tutor(A) passed 0.6 nm NNE and 100ft above Tutor(B).

From an ATM perspective, ZONE acted correctly by providing the crew of Tutor(B) with as much information as was available, updating that information as soon as Tutor(B) appeared on their surveillance display. It appears that the crew of Tutor(B) un-intentionally climbed through 2000ft Wyton QFE. This Airprox represents a conflict in Class G airspace, as a result of a level-bust by the crew of Tutor(B), which was resolved by both pilots acting in accordance with their TAS information. However, it also represents a salutary reminder of the limitations of that information, the risk inherent in flight in IMC in the absence of a surveillance based ATS and the implications of cockpit distraction.

ATSI reports that the Airprox occurred in Class G airspace, 2nm NNW of Wyton and just above the Wyton ATZ, which comprises a circle radius 2½nm centred on RW09/27, extending from the surface to 2000ft above the aerodrome elevation of 135ft.

Tutor(A) was operating IFR on a training exercise returning to Wyton for a QGH recovery in IMC and in receipt of a PS from Wyton APP. Tutor(B) had departed Wyton on an IFR SID-1B, for a training exercise and was in receipt of an ATS from Cottesmore ZONE.

Wyton Aerodrome and Approach control were operating without the aid of surveillance equipment. The controllers are located in adjacent positions and the ADC was providing training as an OJTI. RW15 was reported as the runway in use. ATSI considered the workload to be medium.

The Wyton 1150UTC METAR was: 18012KT 9999 BKN014 16/13 Q1013 GRN= (QFE 1008)

At 1218:50, Cottesmore pre-noted Wyton APP with details on Tutor(A), 12nm NW of Wyton, inbound for a QGH approach. Wyton APP gave an acceptance level of 2500ft, Wyton QFE (1008mb).

Tutor(B) departed from Wyton at 1221 following the pre-booked SID-1B departure:

'RW15: Climb on RW track to 1,000 QFE, then turn right onto track 310, maintaining VMC climbing to a maximum of 2,000 QFE. By 2,000 QFE pilots should freecall Cottesmore LARS 130.2. Pilots are not to climb above 2000ft until cleared.'

The Wyton Manual of Air Traffic Services (MATS) Part 2, Section 2, Paragraph 1.6, states:

'IFR departures and arrivals

Provided that standard vertical separation is maintained between departing aircraft and aircraft homing to Wyton, IFR departures may be released prior to QGH traffic reaching the Wyton overhead

Vertical separation is to be maintained until:

Departing ac under the control of a neighbouring radar unit.

Ac departing IFR will then be separated in accordance with the requirements specified in CAP774. Departing ac are not permitted to climb above a height of 2000' until instructed by radar. Radar units will provide lateral separation from QGH ac (with a squawk of 4601) in accordance with MATM and CAP774.'

Tutor(A) contacted Wyton APP at 1221:30, passing 4700ft heading 140°. APP instructed the pilot of Tutor(A) to squawk A4601 and agreed a PS; this was acknowledged correctly and APP instructed him to descend to a height of 2500ft QFE (1008mb). The controller advised the weather code of 'F', with the QFE 1008mb and the CHATHAM RPS also 1008mb.

At 1221:57, radar recordings show Tutor(B), just S of Wyton, displaying a Cottesmore squawk A3732, indicating 800ft Mode C (1013mb); Tutor(A) is 5.3nm NW of Wyton squawking A4601, indicating 3600ft Mode C (3450ft QFE). The Wyton TOWER controller advised the pilot of Tutor(B) about the inbound QGH traffic [Tutor(A)] homing to the overhead from the NW and the pilot of Tutor(B) reported changing frequency to Cottesmore ZONE.

The pilot of Tutor(A) reported levelling at 2500ft QFE at 1223:45, APP confirmed the QGH approach for RW08 (minima 550ft), to break off at 3nm and then join for RW15. This was correctly acknowledged by the pilot of Tutor(A). The APP controller then commenced the QGH procedure by instructing the pilot to turn onto a heading of 145°, followed by subsequent transmission (bearing) checks and confirmation of the heading of 145°.

At 1224:08 the controller asked Tutor(A)'s pilot to make a long transmission. The pilot responded, "[Tutor(A) C/S] *is coming left 0-9-0 with a TAS contact on the nose.*" The controller responded, "[Tutor(A) C/S] *roger con-maintain VFR now*" and the pilot replied, "*...unable I'm already India Mike at 2 thousand 5 hundred feet steady...0-9-0.*" APP asked the pilot to report, "*..when happy to continue under control.*"

[At 1224:20, radar recordings show Tutor(A) 2.2nm NNW of Wyton, tracking SE, indicating 2600ft Mode C (2450ft QFE). Tutor(B) is shown 1.5nm NW of Wyton, squawking A3732, also indicating 2600ft Mode C (2450ft QFE) and turning R towards Tutor(A). The distance between the two ac was 0.8nm. The CPA is shown at 1224:27, with Tutor(A) tracking E at 2500ft (2350ft QFE), with Tutor(B), 0.6nm to the SW commencing a L turn and indicating 2400ft (2250ft QFE). At 1224:39, Tutor(A) is indicating 2700ft (2550ft QFE) with Tutor(B) at 2100ft (1950ft QFE).] Tutor(B) is shown passing 0.6nm behind, as the pilot of Tutor(A) reported, "*..I've got a ca-TAS contact just going behind now*"; shortly afterwards the pilot of Tutor(A) reported, "*happy to continue*". The QGH was completed and at 1228:31, the pilot of Tutor(A) reported good VMC and breaking off the procedure to position for initials for RW15. APP agreed a BS and instructed a change of squawk to A7000; the pilot of Tutor(A) then changed to TOWER.

The Unit indicated that the APP controller had an expectation that Tutor(B), on departure, would follow the IFR SID-1B, climbing to maintain 2000ft QFE and would only climb further when instructed by Cottesmore ZONE. The QGH traffic, Tutor(A), was required to maintain 2500ft QFE until reaching the O/H and this provided the 500ft separation required in accordance with local procedures. In discussion, the ATSU indicated that TI passed by APP may have aided the SA of the pilot of Tutor(A), but may not have been considered essential by the controller, as no confliction existed.

Radar recordings show that Tutor(B) climbed to 2600ft Mode C - a height of 2450ft QFE. Both pilots responded to their TAS warnings, but neither pilot acquired the other visually. Tutor(B) then descended to a height of 1950ft.

The pre-booked IFR SID-1B, required the pilot of Tutor(B) to maintain VMC and not climb above 2000ft QFE until cleared. Aircraft departing IFR are not permitted to climb above 2000ft QFE until instructed by ZONE. The pilot of Tutor(B) was aware of the inbound QGH traffic, but it was not clear why the pilot climbed to a height of 2450ft and turned towards Tutor(A) whilst in receipt of an ATS from Cottesmore ZONE.

The QGH procedure required the pilot of Tutor(A) to maintain 2500ft QFE to the O/H. Traffic information may have aided the SA of the pilot of Tutor(A) regarding the IFR departure of Tutor(B). However, APP considered that no confliction existed as Tutor(B) was in receipt of a service from Cottesmore ZONE and would not climb above a height of 2000ft QFE until clear of the QGH traffic. Tutor(A) was in receipt of a PS. CAP774, UK Flight Information Services, Chapter 5, Page 1, Paragraphs 1 and 5, state:

‘A Procedural Service is an ATS where, in addition to the provisions of a Basic Service, the controller provides restrictions, instructions, and APP clearances, which if complied with, shall achieve deconfliction minima against other aircraft participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.’

‘The controller shall provide traffic information, if it is considered that a confliction may exist, on aircraft being provided with a Basic Service and those where traffic information has been passed by another ATS unit; however, there is no requirement for deconfliction advice to be passed, and the pilot is wholly responsible for collision avoidance. The controller may, subject to workload, also provide traffic information on other aircraft participating in the Procedural Service, in order to improve the pilot’s situational awareness.’

‘Under a Procedural Service, the controller has no ability to pass traffic information on any aircraft that he is not in communication with, unless he has been passed traffic information by another ATS unit.’

Tutor(B) turned off the 310° track and climbed above the 2000ft height requirement of the SID-1B departure route. This resulted in the two ac flying into conflict and caused the pilot of Tutor(A) to be concerned about the close proximity of Tutor(B).

UKAB Note (1): Subsequent to this Airprox, the Wyton Flying Order Book at Section B, Part 2, Order No 9 (3) was amended to reflect that:

‘VMC must be maintained throughout all QGH recoveries....’

HQ AIR (TRG) comments that the crews of both Tutors were aware of the presence of the other and took actions to remove any risk of collision. The climb above a cleared height created the conflict by eroding a robust procedural deconfliction system. The fact that Tutor(A) was in IMC added to the concern because it made a visual sighting impossible; however, this is always a possibility with any IMC departure or arrival and the procedures are able to cater for this possibility.

This incident highlights the importance of maintaining cleared heights and the potential for misjudging an avoidance turn when it is based on limited situational awareness information. The performance of TAS was mixed but broadly in line with current expectation. It provided sound information for Tutor(A) to act upon to minimise separation loss, and potentially provided Tutor(B) with the information that triggered his rapid descent, which also helped minimise separation loss. As such, TAS was effective.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The pilot of Tutor (A) reported that he had encountered IMC when the Airprox occurred; therefore, having switched from Cottesmore ZONE, Members recognised that he was relying on his ac's TAS and the PS from Wyton APP to help him discharge his responsibilities to avoid other traffic in Class G airspace. Plainly APP could only provide separation against other known traffic participating in the PS but had not warned the pilot of Tutor(A) about Tutor(B) departing on the SID-1B beforehand. However, Members understood why the APP controller would have expected that 500ft separation would be maintained between Tutor(A) maintaining 2500ft QFE for the homing and Tutor (B), if the latter did not climb above the prescribed height for the procedure of 2000ft QFE before the flight was established under a radar service with ZONE. Without an SRE Wyton APP was 'blind' to any other traffic in the vicinity and the controller would have been unaware that Tutor(B) had exceeded the prescribed height for the procedure before he had been identified by ZONE, so APP was powerless to intercede. As it was, Tutor(A)'s TAS detected Tutor(B) and provided a warning of Tutor(B) closing from the S, thereby enabling the pilot of Tutor(A) to take positive action to resolve the conflict by turning away to the L, which helped ensure that the ac got not closer than 0.6nm horizontally.

The ADC showed sound awareness when he issued a warning to the pilot of Tutor(B) about the QGH traffic homing to the overhead, which may have prompted the swift change of frequency to Cottesmore ZONE. However, with Tutor(B) climbing slowly out of the ATZ towards the point of conflict over 31nm from Cottesmore, the ac was only just entering radar coverage as the Airprox developed. With the primary radar filters deployed it was not surprising to controller Members that the Cottesmore SRE did not detect Tutor(B) until later. Moreover, with Cottesmore's SSR data sourced from Cranwell, it was understandable that Tutor(B)'s Mode C was not seen by ZONE until it was only 200ft below Tutor(A). The Board concurred that ZONE had done all that might reasonably be expected under the circumstances; although the pilot of Tutor(B) had reported climbing to get VMC on top, he had not explicitly stated he was climbing above the prescribed SID height. Whilst the pilot of Tutor(B) elected to turn R onto N – off the SID – in an attempt to resolve the conflict, it was plain to pilot Members that his mental air picture was incorrect as the R turn meant he was still converging on Tutor(A) until he initiated his avoiding action descent. Members noted that Unit orders require the SID to be flown in VMC and opined that turning off the SID was unwise without better SA on the conflicting Tutor(A), which was not displayed on Tutor(B)'s TAS until a late stage. Although the pilot of Tutor(B) had expressed concern over the performance of his TAS, the Air Cmd Member stressed it was broadly in line with expectations and did eventually enable the pilot of Tutor(B) to fly clear beneath and astern of Tutor(A). The Members agreed unanimously that the Cause of the Airprox was that the pilot of Tutor(B) had climbed above the height prescribed for SID-1B. However, it was evident to the Board that the robust avoiding action executed by both pilots had removed any Risk of a collision in the circumstances conscientiously reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The pilot of Tutor B climbed above the height prescribed for SID-1B.

Degree of Risk: C.

AIRPROX REPORT No 2011157

Date/Time: 1 Nov 2011 1533Z

Position: 5130N 00051W
(1nm N WOD)

Airspace: London FIR (Class: G)

Reporting Ac Reporting Ac

Type: C177 RG T67M

Operator: Civ Pte Civ Pte

Alt/FL: 2500ft 2500ft
QNH (1010mb) QNH

Weather: VMC VMC

Visibility: 10km 10km

Reported Separation:

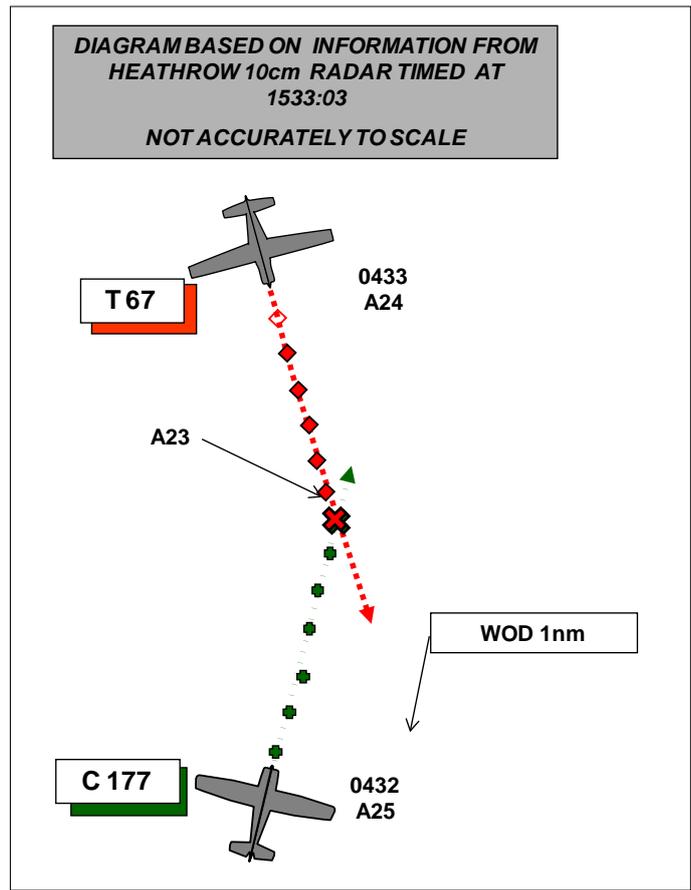
100ft V/50m H 10ft V/120m H

Recorded Separation:

200ft V/0 H

BOTH PILOTS FILED.

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB



THE C177 RG PILOT reports flying a private flight under VFR from Cherbourg to Denham in a blue and white ac, squawking as directed with Modes C and S. At the time of the incident they were in a level cruise, heading 015° at 130kt and his co-pilot was talking on the radio with Farnborough Radar who were providing a BS; Farnborough asked them to confirm their alt then asked them to descend to remain below the London TMA. As pilot in command, he was maintaining level flight and had not commenced a descent when the incident occurred. He recalls looking to the E towards White Waltham and Heathrow and then glancing down at the GPS to confirm his position and that he was on track. On looking straight ahead again, he saw another ac very late, in front and slightly to the R and below him (a yellow low-wing single-engine type). By the time he had seen the other ac it was too late to take any avoiding action and it was only by chance that a collision was avoided and he assessed the risk as being high.

THE T67M PILOT reports that he was informed of the incident late and he could not recall the detail. He was flying a private VFR flight from Leicester to Redhill in a yellow and black ac with no TCAS fitted and was in the area of the WOD NDB at the time, cruising at 110kt at 2500ft [see below]; he was in receipt of a BS from Farnborough W LARS. He saw a high-wing white single-engine ac 400yd away in his right (1 o'clock) at about the same alt but it was too late to take any avoiding action. He reported the incident on the RT and assessed the risk as being medium-high.

UKAB Note (1): The C177 pilot had previously completed and posted an Airprox form but it was sent to the old UKAB address. His second report was received 3 weeks after the event but, since the T67 pilot reported the incident on the RT, the RT and radar recordings and an accurate Controller's report were available.

THE FARNBOROUGH LARS WEST CONTROLLER reports at about 1530 she was working on the LARS W sector when during her scan she noticed a C177 from Cherbourg to Denham was just S of WOD NDB at 2500ft. She checked the level written on her strip which also said 2500ft, so she asked

the C177 pilot to confirm his level. The pilot confirmed that he was at 2500ft so she told him to descend to 2400ft to remain clear of CAS. Just as she finished telling him this she noticed that there was a 0433 (Farnborough) squawk just N of WOD indicating 2400ft. She was just about to warn the C177 about this traffic but thought that by the time she had told each of them about each other it would be too late. The C177 pilot then asked her to repeat her last transmission as he had just flown very close to another ac. The controller repeated her last transmission and the pilot did not say anymore on the matter. A couple of min later, the 0433 squawk that was a T67 from Leicester to Redhill asked for a TS, which she duly upgraded him to. At 1538 the T67 pilot asked if she had a C182 on frequency going opposite direction to him and the controller confirmed that she had worked a C177 on that detail. He then said he had a near-miss with that ac and would like to file an Airprox. Both ac were on a BS at the time of the Airprox.

ATSI reports that the Airprox occurred at 1533:04, in Class G airspace, 0.6nm NNE WOD NDB, at a distance of 15nm on the Heathrow 09R centreline and below the London TMA-1, Class A CAS, which has a base alt of 2500ft. The area around WOD is a known area of high intensity traffic below the base of CAS, with traffic routeing N and S overhead WOD.

The C177 was operating VFR on a flight from Cherbourg to Denham and the T67 was also operating VFR on a flight from Leicester to Redhill. Both ac were in receipt of a BS from Farnborough LARS-W; traffic levels were assessed as medium to high.

CAA ATSI had access to RTF and area radar recordings, together with written reports from the controller, both pilots and the ATSU unit investigation report.

The Heathrow weather was:

METAR EGLL 011520Z 23007KT 190V260 9999 FEW027 15/08 Q1010 NOSIG=

At 1518:20, the C177 pilot contacted LARS W, flying from Cherbourg to Denham via WOD and Wycombe, reporting just S of Petersfield at an alt of 2500ft on QNH 1010; a BS was agreed and the pilot was instructed to squawk 0432.

At 1526:21, the T67 pilot contacted LARS W on handover from LARS N squawking 5031; the pilot was instructed to squawk 0433 and a BS was agreed.

The LARS W controller's attention was drawn to the C177 just S of WOD at 2500ft, the base level of London TMA-1. At 1532:49, the controller asked the C177 to confirm his level and the pilot responded, *"Currently at 2500ft on QNH 1010"*. Radar recordings show the C177 overhead WOD tracking N and indicating an alt of 2500ft with the T67, 1nm N of WOD tracking S indicating an alt of 2400ft. The controller replied, *"(C177 C/S) roger, can you descend to two four zero zero feet that will keep you clear below controlled airspace"*.

The controller then noticed the 0433 squawk [the T67] indicating an alt of 2400ft and considered it was too late to pass a warning to the C177. At 1533:00, radar recordings show the distance between the two ac was 0.1nm on reciprocal tracks. The C177 was indicating an alt of 2500ft and the T67 2400ft. The C177 pilot then responded to the controller, *"Can you repeat that please, just had an ac pass by one hundred feet repeat please (C177 C/S)"*. At 1533:05, radar recordings show the two ac had passed abeam; the C177 was maintaining an alt of 2500ft and the T67 at an alt of 2300ft descending.

At 1533:15, the controller again asked the C177 pilot to descend to an alt of 2400ft to keep outside CAS and this was acknowledged correctly. At 1533:32, the T67 pilot requested a TS and the C177 was shown indicating an alt of 2300ft.

At 1537:29, the C177 reported leaving the frequency for Denham and shortly afterwards at 1538:02, the T67 pilot asked if LARS W had spoken to a C182 routeing in the opposite direction; this was confirmed as the C177 and the T67 pilot advised that an Airprox would be filed.

The LARS W controller's attention was drawn to the C177 approaching WOD at 2500ft, the base level of the London TMA-1 Class A CAS. The controller had not observed the T67 and asked the C177 to descend to 2400ft to remain below CAS. The C177 pilot did not initially hear this transmission and maintained 2500ft as the T67 passed in close proximity 200ft below. The controller then recognised that the T67 was in conflict, but judged that it was too late to pass a warning as the two ac were already passing abeam. There was no requirement for the controller to monitor the flights as both ac were in receipt of a BS. CAP 774, UK Flight Information Services, Chapter 2, Page 1, Paragraph 1, states:

'A Basic Service is an ATS provided for the purpose 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.

Basic Service relies on the pilot avoiding other traffic, unaided by controllers/FISOs. It is essential that a pilot receiving this service remains alert to the fact that, unlike a Traffic Service and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight'.

The two ac flying on reciprocal tracks in the vicinity of WOD and operating below the base of the London TMA-1, came into close proximity. Both ac were flying VFR and in receipt of a BS from Farnborough LARS-W. The controller did not observe the conflict in sufficient time to pass a warning and under a BS there was no requirement for the controller to monitor the ac.

UKAB Note (2): An analysis of the Heathrow 10cm radar showed the incident clearly as depicted above. The C177, squawking 0432 approaches the CPA tracking 015° at an alt 2500ft. Meanwhile the T67, squawking 0433 tracks 165° at an alt of 2400ft before descending to 2300ft on the sweep before the CPA. The contacts merge 1nm N of WOD at 1533:03 the C177 indicating an alt of 2500ft and the T67 2300ft.

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 NATS and the appropriate ATC and authorities.

UKAB Note (3): The following additional information was provided by NATS following a conversation between their investigator and the T67 pilot.

'The pilot of (T67 Reg) stated he had to push forward on the controller column to avoid (C177 Reg); the pilot stated this was the only option available. The pilot of (T67 Reg) stated he couldn't turn right as this would take the plane into the path of C177 Reg) and couldn't turn left as this may of caused a mid air wing tip collision'.

Although this was passed to the UKAB by NATS, it was inadvertently not included in the Part A distributed to Members before the Meeting. However, it was taken into account by the Members in their assessment of the Airprox at the meeting.

Members observed that the incident took place in Class G, 'see and avoid' airspace at a known choke point where 'head on' encounters between N'bound and S'bound traffic are commonplace. In addition to the horizontal choking, the base of the LTMA is 2500ft and this is also a significant vertical constraint to VFR transits.

Members noted that both ac were operating under a BS from Farnborough LARS and that after the event the T67 pilot asked for an upgrade to a TS and this was granted. Members therefore agreed

that at the time Farnborough had the capacity to provide such a service and had the respective pilots been operating under a TS they would most likely have had a warning of each other and the impending conflict in time to take avoiding action.

Controller Members observed that the LARS controller was not under any remit to provide TI and pilots should not expect any warning of collision when operating under a BS. A controller Member opined, however, that the LARS controller should have seen the potential conflict in time to provide warnings to the pilots and that this was a more important task than ensuring that the C177 did not encroach into the base of the TMA; further the descent instructed from 2500ft to 2400ft would have of exacerbated the risk of collision had the C177 pilot obeyed the instruction immediately it was passed. Another controller Member reminded the Board of the large geographic area covered by LARS W and speculated that the returns from both ac could have been overlaid by returns from traffic in the CAS above them; given these factors LARS-W could not have been expected to see the impending confliction.

Notwithstanding the above, the respective pilots had a responsibility to see and avoid each other. The C177 pilot did not see the T67 until it was too late to take any avoiding action; although (from his initial report) the T67 pilot saw the C177 slightly earlier 400yd away (3.5 sec at a closing speed of 240kt) but (based on the information passed to NATS) just in time to initiate a bunt to avoid it. Fortunately there was also a little horizontal and vertical separation extant but the separation was small enough and the bunt late enough to persuade Members that there was an actual risk of collision.

Both pilots commented to ATC that they had been in a close encounter; Members commended the T67 pilot for stating explicitly on the RT that he would file an Airprox thus ensuring that controller reports and data were available when they might otherwise not have been.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by the C177 pilot and a late sighting by the T67 pilot.

Degree of Risk: A.

AIRPROX REPORT No 2011159

Date/Time: 18 Nov 2011 1504Z

Position: 5152N 00035W (1nm W
Dunstable Gliding Site -
elev 500ft)

Airspace: Luton CTR (Class: D)

Reporting Ac Reported Ac

Type: ASK21 Glider T67M

Operator: Civ Club Civ Pte

Alt/FL: 950ft 1100ft
QFE QNH (NR)

Weather: VMC CAVOK VMC NK

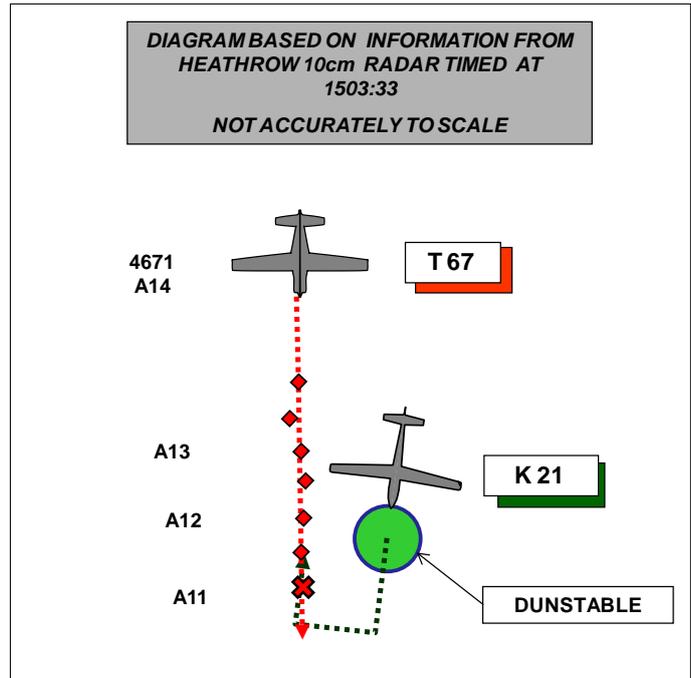
Visibility: >10km >10km

Reported Separation:

150ft V/0m H 200ft V/100ft H

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ASK21 GLIDER PILOT reports flying a white glider with no SSR fitted but listening out on Dunstable Radio located in a mobile tower. He had just completed a winch to 1100ft and about 30sec after cable release turned R then R again to position for a normal cct. After the second turn at 950ft agl then heading 010° at 55kt he saw a white low-wing single-engine light ac with a large bubble type single piece canopy 1-200ft away and head-on to him; the ac passed 100-150ft below him. An observer on the ground stated the ac was initially at same height as his glider and dived underneath it.

The pilot considered the risk to be Medium as the incident was well within the '3nm radius' of the gliding site.

After landing he consulted his CFI who advised him to call LATCC; they advised him that the ac had been identified, had submitted a flight plan from Bagby to Denham and was directed not to exceed 2,000ft. They also advised him to file an Airprox.

He was concerned that they are having an increasing number of ac of all types flying closer and closer to their busy gliding site; he has had three similar incidents this year, though not as close as this one, and had previously expressed his concern to his CFI.

London Gliding Club is the second largest gliding club in the UK and operates seven days a week, all year round. It has about 300 members and there are 131 gliders on the site.

The pilot considers a major factor in this incident was that the published air charts do not clearly define this gliding site, and that most pilots would not expect a highly active and major gliding site within Luton class D airspace.

THE T67M PILOT reports flying a white ac with strobes switched on, on a private flight and, at the time, squawking with Mode C, in receipt of a TS from Luton APP [See ATSI report] while heading 180° at 110kt and at 1100ft QNH, en-route from Cranfield to BNN [VOR]. He was cleared by Luton

APR to cross the CTR VFR not above 2000ft W of Dunstable Gliding Site and he was looking for gliders. He saw a glider in his 10 o'clock, at the same level, 1 to 2nm away, initially flying in the same direction; the glider then turned R to cross his track, so he descended to remain sighted with it. He passed well below the glider and there was never any risk of collision.

ATSI reports that the Airprox occurred at 1503:33, 0.9nm W of the Dunstable Downs Gliding site, which lies within the Luton CTR, Class D CAS, extending from the surface to an altitude of 3500ft. Dunstable Down does not have an aerodrome traffic zone (ATZ).

The ASK21 glider was operating VFR from Dunstable Gliding site, talking to Dunstable Radio, but not in receipt of an Air Traffic Control Service. Meanwhile the Slingsby T67M Firefly (T67) was operating on a VFR flight from Bagby to Denham, in receipt of an RCS [see below] from Luton Radar.

A letter of agreement exists between TC Luton and the London Gliding Club. Within the Luton CTR, airspace has been delegated to Dunstable Downs and is shown in the UK AIP, Page AD 2-EGGW-4-1 (10 Mar 11). The Airprox occurred within the delegated airspace Area 1, which extends from the surface to an altitude of 3500ft.

The UK AIP Page AD 2-EGGW (7 Apr 11) defines the latitude/longitude coordinates for Glider, Hang-gliding, Paragliding and Microlight activity and states:

'Pilots are advised that by arrangement with Luton ATC:

Pilots of IFR flights inbound to Luton airport will be vertically or laterally separated from all gliding or microlight activity within these areas through the application of normal ATC procedures;

Pilots of aircraft operating under VFR, or on a Special VFR clearance are advised to avoid these areas if at all possible. In addition, pilots operating on a Special VFR clearance are advised that due to the nature of these activities they cannot be given separation from gliders, aircraft towing gliders, hang-gliders, paragliders or microlights within these designated areas. Traffic information will NOT be passed by ATC.'

The LTC Manual of Air Traffic Services (MATS), Part 2, Section 11, Paragraph 11.5.9, states:

'If a VFR/SVFR Luton arrival or departure is likely to route through any delegated airspace, TC Luton shall notify the pilot of the intense gliding activity and if necessary, shall advise the pilot to avoid the immediate vicinity of Dunstable Downs. TC Luton shall pass generic traffic information based on reported or observed activity.'

CAA ATSI had access to the RTF and radar recordings, together with the written reports from both pilots and the ATSU investigation. The controller was not aware of the Airprox and did not file a report.

METAR 181450Z 18006KT 150V210 9999 SCT020 SCT024 13/10/Q1016=

The T67 pilot contacted Luton Radar at 1455:58, reporting overhead Cranfield at 3000ft, requesting a crossing clearance W of Dunstable Downs; he was instructed to squawk 4671, passed the QNH 1016, a TS was agreed and the T67 reported descending to 2000ft.

At 1457:00 Luton Radar cleared the T67 to cross CAS, "(T67 C/S) you are cleared to transit the Luton Control Zone V F R not above altitude two thousand feet routeing to the west of Dunstable which are active" and the pilot replied, "Luton clears (T67 C/S) to cross west of Dunstable Downs which is active not above two thousand feet VFR".

During the period from 1500:35 until 1506:57 a radar handover took place.

At 1502:46, radar recordings show the T67 had crossed the Luton CTR boundary into controlled airspace indicating an altitude of 1400ft (Luton Radar did not advise the pilot of the change to a RCS but this was not a factor in the Airprox).

The ATSU report indicates that no other traffic, either primary or secondary, was observed in the vicinity of Dunstable Downs. This was confirmed with the radar recordings, using the NODE Multi Radar Tracking (MRT), provided to TC positions through the use of the SYSTEM picture.

The Airprox was considered to have occurred at 1503:33, 0.9nm W of Dunstable Downs. Radar recordings available to ATSI, utilising the Debden and Stansted 10cm as single source radars, showed an intermittent contact overhead Dunstable Downs at 1502:10, 1503:17 and then again at 1503:36, 0.3nm N of the T67 tracking S and indicating an alt of 1100ft. This intermittent primary contact was believed to have been the ASK21 glider downwind in the circuit at 950ft agl on a N'y track.

At 1506:55, as the T67 crossed the Southern boundary of the Luton CTR, the Luton controller downgraded the service to a BS and the T67 pilot reported changing to Denham.

The LTC MATS Part 2 requires the Luton Controller to notify VFR aircraft likely to route through the delegated airspace, of any intense gliding activity, if necessary advising the pilot to avoid the immediate vicinity with generic TI based on reported or observed activity.

Although Dunstable Downs was notified as active, the [Luton] radar system did not show any gliding activity. However, the controller advised the T67 pilot that Dunstable Downs gliding site was active and instructed the pilot to route W of the site.

The glider had launched from Dunstable Downs for a circuit. The T67 ac passed 0.9nm W of the ARP, passing in close proximity to the glider which had turned downwind into the visual circuit at 950ft agl.

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 authorities.

Members were shown photographs of the Dunstable Glider Launching Site to familiarise them with the local area. The gliding Member advised the Board that the high ground to the NW, precludes the ground party seeing ac approaching from that direction. They were also briefed that the glider site is very busy 7 days per week when the weather is suitable and therefore the entry in the UKAIP advises that ac transiting the Luton CTR under VFR give Dunstable a wide berth. There are no significant airspace restrictions to the W of Dunstable that would have precluded the T67 from routing further to the W and avoiding the circuit area.

Although the incident took place in Class D Airspace, both ac were operating VFR under the 'see and avoid' principle and not deconflicted in any way by ATC. The gliding Member opined that it would be helpful if Luton controllers could remind transiting pilots of the maximum height of the launch cable as an incentive to remain clear of the site. In this case although both pilots saw the other ac in good time, thus removing any risk of collision, Members agreed that the T67 should have avoided the Dunstable Glider Launching Site and the associated circuit area by a greater margin.

The Gliding Member suggested that Luton ATC should, as well as stating that Dunstable is active, remind pilots that the cable height is 2000ft agl; the NATS Advisor agreed to investigate.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The T67 pilot flew close to Dunstable Glider Launch Site and into conflict with the ASK21 downwind in the circuit.

Degree of Risk: C.

AIRPROX REPORT No 2011161

Date/Time: 25 Nov 2011 1045Z

Position: 5226N 00010E (11nm
ENE of Wyton)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Grob Tutor TMk1 PA28

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 2000ft 2500ft
RPS (1017hPa) NK

Weather: VMC CLAC VMC NK

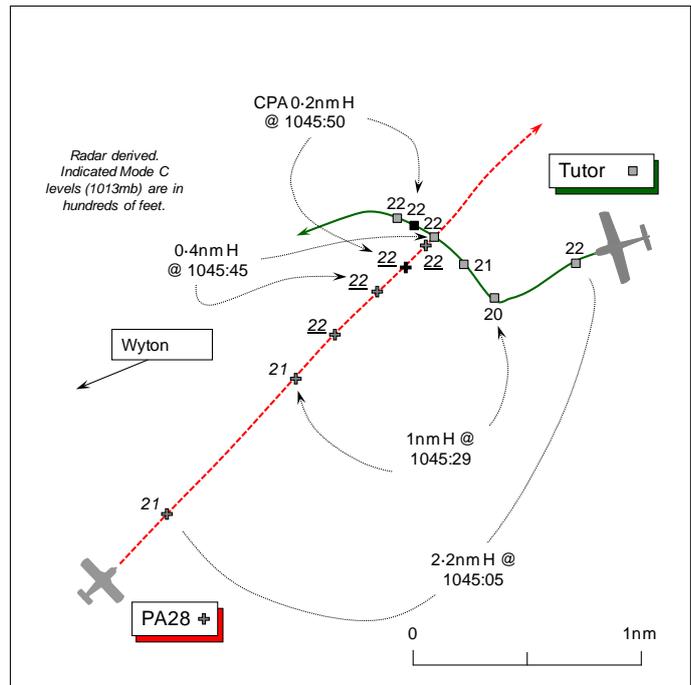
Visibility: 20km >10km

Reported Separation:

Nil V/100m H Not seen

Recorded Separation:

Nil V/0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GROB TUTOR TMK1 PILOT reports he was conducting a local VFR solo continuation training sortie from Wyton, whilst in receipt of a reduced TS from Marham ZONE on 124.15MHz. A squawk of A3662 was selected with Mode C; elementary Mode S and TAS are fitted.

During GH, flying into wind to track towards Wyton for a stalling setup, he encountered a shallow layer of FEW cumulus clouds at 2000-2400ft so he entered a climb to remain VMC. He was not able to out climb the cloud, so following a full lookout with nothing seen he commenced a climbing turn to the R. Once established in the climbing turn, ZONE transmitted a traffic call advising of traffic, close - 2-3nm away - but not on a conflicting track. He rolled out of the turn into a straight climb at 80kt. When checking the 'downgoing' port wing, another ac [the PA28] was seen 'close' in his 10 o'clock 100-200m away flying at the same level, on a conflicting course. The white PA28 appeared from within the cloud gap but had not been visible beforehand. To avoid it he initiated an evasive turn to the R at 60° AOB flown at full power. The conflicting PA28 maintained a straight and level course with no avoiding action apparent. No prior indication had been given by his Tutor's TAS about the PA28, which passed about 100m to port with a 'very high' Risk of collision. He reported the Airprox to ZONE over the RT as the PA28 passed into his 6 o'clock with no further conflict.

His Tutor is coloured white and blue; the white strobes were on.

THE PIPER PA28 PILOT reports he was flying a solo VFR NAVEX from Cambridge and return in a level cruise at 2500ft at 105kt. He was in receipt of a BS from Cambridge APP on 123.600MHz and a squawk of A7000 was selected with Mode C; Mode S is not fitted. He flew a route from Cambridge – Oakington (disused A/D) – Earith – along the Bedford Levels to the Ely/March railway line – March; thence following the railway line to Whittlesey – Grafham Water to return to Cambridge. The Grob Tutor flown by the reporting pilot was not seen.

His aeroplane is coloured white/grey/red; the HISLs and red tail beacon were on.

THE MARHAM ZONE CONTROLLER (ZONE) reports that he was instructing an ab-initio controller under training in ZONE working a single VHF frequency. He assessed his workload as Medium with 6 ac on frequency: 1 ac under a TS and 5 ac under BS over a 40nm range from Marham.

The Tutor pilot declared a PRACTICE PAN with simulated engine mechanical failure, executing a PFL. The UT controller gave the Tutor pilot a heading for Wyton and a terrain reminder, requesting that the pilot report climbing away after the PFL. After climbing away with the PFL complete, the Tutor pilot levelled at 2000ft heading W. Traffic information was given on unknown ac squawking A7000 [the PA28] 2nm SW of the Tutor tracking NE indicating 2000ft Mode C. Traffic information was called for a second time when the unknown ac was 1nm SW of the Tutor tracking NE indicating 2000ft, whereupon the Tutor pilot reported visual. Later, once well clear, the Tutor pilot reported an Airprox with the unknown ac. The Airprox position, weather and details were noted and the Tutor pilot requested to contact the Marham ATC SUPERVISOR after landing. He and his UT were relieved from the console shortly afterwards.

BM SAFETY MANAGEMENT reports that this Airprox occurred to the W of Littleport some 19.2nm SW of Marham; the Tutor pilot was in receipt of a reduced TS from Marham ZONE following the selection of radar processing filters to reduce surveillance clutter; the PA28 pilot was in receipt of a BS from Cambridge APP.

ZONE was manned by an ab-initio recently graduated from the Joint ATC Course and an experienced instructor. The incident sequence commenced at 1044:00 as the Tutor called "*climbing away*" from a PFL which had been instigated at 1038:53. At this point, the PA28 was 5.7nm SW of the Tutor, tracking NE'ly towards the Ely-March railway line, indicating 2100ft Mode C (1013hPa); the Tutor was tracking W'ly indicating 600ft Mode C (1013hPa).

At 1044:37, with 3.9nm lateral separation between the two ac, as the Tutor climbed through 1100ft it turned L onto a WSW'ly track. Between 1044:43 and 1045:00, ZONE was involved in liaison with unrelated traffic operating N of Marham.

At 1045:22, ZONE provided TI to the Tutor pilot about the PA28 stating, "*traffic south-west 2 miles [radar replay shows 1.4nm], opposite direction, indicating same*" which was acknowledged by the pilot. Up to this point, both ac had maintained their respective NE'ly and WSW'ly tracks which, by extrapolation, would have seen them pass with approximately 0.3nm lateral separation.

Subsequent to completing his report, the ZONE instructor has stated that during the time from 1045:00 until 1045:22, the trainee was continuing to divide his attention between other ac on frequency. They did not believe that, given the relative speeds of the ac, there was a requirement to provide TI earlier.

CAP774 states that:

'..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... Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5nm, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary.'

At 1045:30, the Tutor commenced a right turn to steady on a NW'ly track at 1045:42. During this turn, at 1045:38, ZONE updated the TI on the PA28 stating, "*previously called traffic, south west, 1 mile [radar replay shows 0.7 nm], indicating 2 thousand feet.*" The Tutor pilot replied immediately at 1045:46 that he was visual with the PA28 and later reported that the 'aircraft came from within the cloud gap but was not visible beforehand.' The PA28 passed 0.1nm SE of the Tutor. Potentially of note is the fact that the CPA was approximately 1nm S of the Ely-March rail line, the PA28 pilot's notified turning point.

[UKAB Note (1): The CPA was recorded on the Stansted 10cm single source radar as occurring at 1045:50, as per the diagram, with the PA28 tracking NE 0.2nm S of the Tutor that was heading NW, with both ac indicating 2200ft Mode C.]

Given the pilot's responsibility to 'see and avoid', this incident was caused by a late sighting on the part of the Tutor pilot, contributed to by the cloud reported in the area, and a non-sighting by the PA28 pilot. From an ATM perspective, whilst the TI provided at 1045:22 was timely enough to enable the Tutor pilot to assimilate the information, it is reasonable to argue that this was as a result of the relative speeds of the two ac, rather than deliberate decision making by ZONE that they could delay passing TI.

Although there were no RT transmissions between 1044:04 and 1044:43, it was not until the Tutor turned onto a WSW'ly track at 1044:37 that the risk of conflict was introduced between the 2 ac and, by inference, the requirement to pass TI to the Tutor. Given that ZONE was busy with unrelated traffic between 1044:43 and 1045:00, this allowed only a relatively short time window in which ZONE could have provided TI earlier; 1044:37 to 1044:43 and from 1045:00.

From conversation with the ZONE instructor it appears that, from the trainee's perspective, the delay in providing TI was caused by the interruption of their work cycle by the unrelated traffic at 1044:43, the place of the Tutor within that work cycle and the wide geographic spread of the traffic. However, whilst the instructor felt that the TI was timely and did not perceive a requirement to intervene, BM SM contends that when provided at 1.4nm separation, the TI was later than is both ideal and required. Whilst the delay in providing TI did not cause the late sighting of the PA28 by the Tutor, it was, alongside the cloud structure, a contributory factor.

ATSI reports that at 1034:10 the PA28 pilot called Cambridge APP (123.600MHz) as it left the cct. The pilot requested a BS, which was agreed and reported that the flight would be GH to the W and NW. The ATS from Cambridge ATC was provided without the assistance of surveillance radar.

The Cambridge weather was: visibility in excess of 10km and cloud FEW at 2200 feet, QNH 1022hPa.

At 1039 the PA28 reported O/H Oakington. The PA28 pilot's report indicated that the navigation exercise being followed would route Oakington – Earith – along the Bedford Levels to its intersection with the Ely/March railway. A course would then be set to March. Surveillance Replay confirmed this as the route being flown and at 1043 the PA28 was observed to turn R at Earith and route NE bound parallel to the Bedford Levels.

[UKAB Note (2): ATSI also provided a very helpful radar synopsis, broadly in accord with the diagram and that of BM SM, but omitted here in the interests of brevity.]

Both ac were in Class G airspace at the time of the Airprox, where the avoidance of collision rests with the pilots.

At 1047:40 the PA28 reported having climbed to 3100ft and being W of Ely, en-route to March.

HQ AIR (TRG) comments that there are several inconsistencies in the Tutor pilot's report, but these do not materially change the assessment of the event. The pilot reports taking evasive action based on his sighting of the PA28, which occurred after rolling out from a R turn. The reported evasive turn to the R is not apparent from the radar trace. The sighting appears to occur when the PA28 is at about 0.7nm in the Tutor's 9.30-10 o'clock. The lateness of the TI was a significant factor as it gave little time to achieve a visual acquisition, and more so because the TAS proved ineffective in this instance. Equally, it gave the pilot minimal time to consider opting for a DS, and even less time for such a service to be effective. In the event, the PA28 was sighted as early as practicable, using effective lookout techniques, and the encounter was a conflict in Class G. Following the turn, the geometry of the conflict left the Tutor pilot with few options to increase separation, other than to climb, descend, or increase speed. Albeit late due to the cloud, the sighting by the Tutor pilot, aided

by the TI passed, meant that he retained the ability to avoid an actual collision, even if the geometry had been worse. It is a concern that the PA28 pilot, who emerged from an area that the Tutor pilot had assessed to be unfit for VFR flight, did not see the Tutor despite it passing through his 12 o'clock, co-altitude, at about 0.4 - 0.6nm. This event highlights the rationale behind the VFR requirements in terms of separation from cloud, and the short acquisition time available at the limits of those requirements.

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.

The Tutor pilot had wisely obtained a TS from Marham ZONE to assist his lookout, albeit that this was a 'reduced' service as the use of primary radar filters to reduce clutter will inevitably attenuate the radar's capabilities somewhat. Whilst taking account of the 'reduced' TS, the Tutor pilot would have expected timely and accurate TI to be provided on other ac observed by ZONE in the vicinity that might present a conflict. The Board recognised that the LATCC (Mil) radar recording does not replicate the radar picture displayed to Marham ZONE, but the BM SM report nevertheless highlights that the first iteration of TI about the PA28 had been passed when the aeroplane was at a range of about 1.4nm – not the 2nm transmitted within the ZONE trainee's call. The radar recording substantiates that this TI was being transmitted as the Tutor pilot was executing his R turn NW'ly; whilst the TI was relatively complete, Members agreed that this was given later than ideal. Although the mentor suggested his trainee was busy beforehand, it seemed that he should have ensured that his ab-initio trainee was giving due priority to the TS traffic where necessary, ensuring the TI was timely and stepping-in himself if necessary. Members suggested that when the Tutor pilot reported climbing away from his PFL might have been a more appropriate juncture. While it is often difficult to judge how much latitude to give a trainee before stepping-in, the essential point here is that the instructional setting should not be allowed to adversely impact the provision of the TS to the Tutor pilot to any significant degree.

Whilst the TI had alerted the Tutor pilot to the unseen PA28 somewhat late, it was apparent that cloud had masked its presence until the Tutor pilot saw it in his 10 o'clock, whereupon he turned away robustly at 60°AOB under full power. Whereas the pilot reports this sighting range as 100-200m, the radar recording suggested that at that point the range was somewhat more than his estimate; the minimum separation was also slightly greater and in the order of 0.2nm – 400yd - as evinced by the Stansted 10cm recording. This convinced Members that the Tutor pilot had seen the PA28 as early as he could in this situation, despite the absence of an alert from the Tutor's TAS. It was not clear why the TAS had not reacted but the Board was reassured to learn from the HQ Air Trg Member that the Tutor pilot's Unit are tracking the performance of the Tutor TAS installation closely. The Board agreed that TCAS I devices such as TAS should only be considered as an adjunct to a thorough lookout regimen. The Board concluded that for his part, the Tutor pilot had done all that might be expected of him in these circumstances.

Turning to the PA28 pilot's account, it was plain that he had elected to remain with Cambridge ATC during his VFR NAVEX and the ATSI report confirms that he had been afforded a BS. Cambridge were unable to supplement that with a radar service even if he had asked for one and Members perceived that it might have been preferable in this instance to call Marham ZONE and request a TS. As it was, the PA28 pilot did not see the Tutor at all as it crossed less than ½nm ahead of his aeroplane from R – L, indicating exactly the same level the radar recording reveals. It seems that the PA28 pilot's lookout might have been impacted by the same clouds that had encouraged the Tutor pilot to climb above them to ensure that he could maintain VMC. The PA28 pilot shared a responsibility to 'see and avoid' other ac whilst operating VFR in Class G airspace. Moreover, the geometry of this encounter was such that the Tutor was always to his R and in this situation he was required by the 'Rules of the Air' to 'give way' to traffic to his R. However, he had not seen the Tutor, leading the Board to conclude that the Cause of this Airprox was a non-sighting by the PA28 pilot.

Nevertheless, the Board agreed that any Risk of a collision had been countered effectively by the Tutor pilot's sighting and robust avoiding action, resulting in the minimum separation evinced by the radar recording.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the PA28 pilot.

Degree of Risk: C.

AIRPROX REPORT No 2011162

Date/Time: 23 Nov 2011 1106Z

Position: 5242N 00235W (163°
Shawbury A/D 6.3nm -
elev 249ft)

Airspace: Shawbury AIAA (Class: G)

Reporting Ac Reported Ac

Type: Squirrel HT Mk1 PA38

Operator: HQ Air (Trg) Civ Trg

Alt/FL: 2200ft 2000ft
QFE (1014hPa) QFE

Weather: VMC CLOC VMC CAVOK

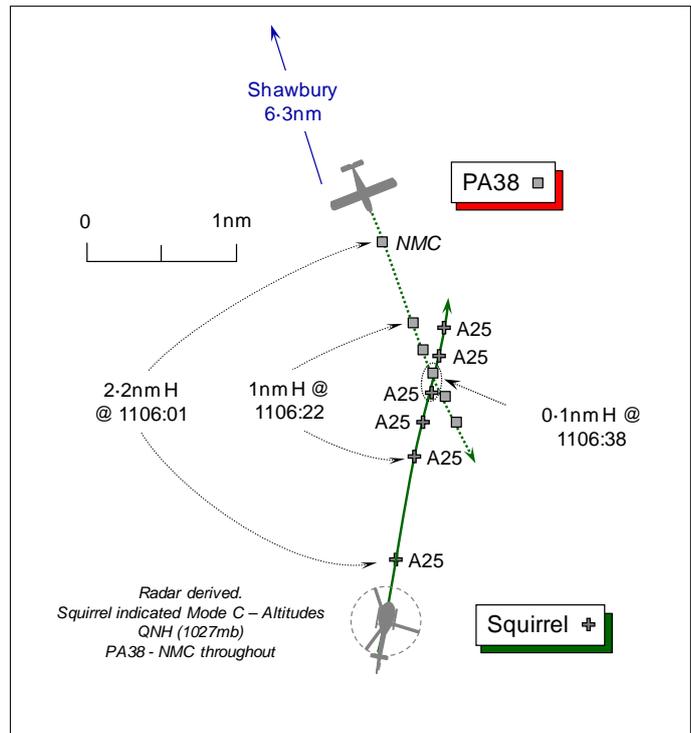
Visibility: 10km >10km

Reported Separation:

300ft V NK

Recorded Separation:

<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SQUIRREL HT Mk1 HELICOPTER PILOT reports he was conducting an instrument training sortie from Shawbury; the PF in the RH seat was using an IF training visor. After departing 'Box 'C', which is part of the Shawbury instrument flying training area, the Squirrel was descended from 3000ft to 2200ft QFE under a TS from Shawbury APP on 282.00MHz. A squawk of A0237 was selected with Mode C; neither TCAS nor Mode S is fitted.

Heading 010° at 90kt, level at 2200ft QFE (1014hPa) in VMC with SCT cloud at 3000ft, inbound for a radar to PAR recovery to Shawbury, APP passed TI about traffic 4nm away but with no height information available; the traffic was not seen. The traffic was reported again at 3nm range without height information and remained unseen. About 2min later, a white single engine low-wing civilian light ac was first seen ¼nm away approaching from 1 o'clock on a reciprocal heading, which passed 300ft underneath his helicopter in level flight and slightly to starboard. Although in no immediate danger - he assessed the Risk as 'low' – both pilots were concerned at the late sighting and close-proximity of the ac as it passed.

His helicopter has a black/yellow colour-scheme; the HISLs and landing lamp were on.

THE PIPER PA38 TOMAHAWK PILOT reports he was conducting an instructional VFR flight with a student routeing from Hawarden direct to a turning point just S of Telford at 90kt, in a level cruise at 2000ft Shawbury QFE. Following the MATZ transit, he was in receipt of a BS from Shawbury RADAR (LARS) on 120.775MHz. The assigned squawk of A0241 was selected; neither TCAS, Mode C nor Mode S are fitted.

As they cleared the summit of the hill to the SW of Telford [after the Airprox occurred], heading 150° slightly into Sun, they began an 80kt cruise climb to 2300ft QFE to clear the operating cooling towers ahead, informing RADAR of their new height when level. After turning at Broseley they routed NW at the same height. The helicopter flown by the reporting pilot was not seen.

His ac is coloured white with a blue stripe; the HISLs were on.

THE SHAWBURY APPROACH CONTROLLER (APP) reports he was mentor to a trainee controller on the APP position. The crew of the Squirrel helicopter was under a TS descending to 2200ft Shawbury QFE when conflicting traffic was spotted, he thought 3nm N of the Squirrel. TI was given in the correct format [and actually transmitted by the trainee at a range 4nm] and was subsequently updated, advising the Squirrel crew of the 'previously reported traffic 12 o'clock, 3 miles crossing left to right..', which the crew acknowledged. At no time did he believe there was a danger of collision as the correct TI had been passed and it was evident from his displayed radar picture that the contacts would not merge. The pilot of the Squirrel did not ask for any further TI or avoiding action, but then reported seeing a light civil ac passing about 500ft below them.

THE SHAWBURY ZONE CONTROLLER (LARS) reports taking over the position at about 1055Z; several tracks were handed over that were in receipt of a BS. One of these was a PA38 from Harwarden on a NAVEX, using the SWB beacon to transit through the Shawbury O/H from NW to SE. When he took over the operating position the PA38 crew had already been cleared through the MATZ at 2500ft QFE and then several other flights called for a BS in the area; traffic levels were moderate at the time. After the PA38 had passed through the O/H, it continued on its SSE'ly track towards The Wrekin and the Mode 'C' readout was intermittent, he thought [no Mode C is fitted to the PA38], but the weather and traffic conditions were such that he did not consider it an issue. At no point did he consider there to be any conflict or that the PA38 was likely to merge with any other contacts.

BM SAFETY MANAGEMENT reports that this Airprox occurred between a Squirrel HT1 in receipt of a TS from Shawbury APP and a PA38 in receipt of a BS from Shawbury LARS. Shawbury ATC benefits from open-microphone recording; consequently, BM SM had access to all communication between personnel within the ACR.

APP was manned by a trainee and an experienced screen controller who described their workload as 'medium to low' with minimal task complexity. Whilst LARS also described their workload as 'medium to low' with minimal complexity, the SUPERVISOR believed that the controller's workload was high to medium and this view is supported by BM SM. The controller had taken over the LARS position about 8½min before the Airprox and was providing a service to 8 ac on LARS – 5 with a BS and 3 under a TS – and banded with Shawbury Low-Level.

The incident sequence commenced at 1058:15 as LARS passed TI to APP on the PA38 crossing the Shawbury CMATZ. LARS stated that the PA38 was, "*Sleap northeast 4 miles tracking south squawking 0-2-4-1 through your overhead 2 thousand feet Q-F-E*", which was acknowledged by APP. No further liaison was conducted between APP and LARS in relation to the PA38 and Squirrel. There was no liaison recorded between the SUP, APP or LARS throughout the incident sequence.

At 1104:12, APP turned the Squirrel onto N from its previous heading of 030°. By extrapolation, at this point the PA38 was 7½nm N of the Squirrel tracking SSE'ly at 2000ft Shawbury QFE, some 2.7nm SE of Shawbury crossing the CMATZ; however, the PA38 squawking A0241 was not displaying Mode C. At 1104:27, APP instructed the Squirrel crew to "*set Shawbury Q-F-E 1-0-1-4 descend to height 2 thousand 2 hundred feet.*" Shawbury ATC has confirmed that the descent to 2200ft was to take account of the terrain safe level around The Wrekin, it was not to take account of the PA38 at 2000ft. At this point, the PA38 was maintaining its SSE'ly track approximately 6.4nm N of the Squirrel.

At 1105:14, APP provided TI to the Squirrel crew about the PA38 stating, "*..traffic north 4 miles (2-sec pause) tracking east no height information.*" This TI was acknowledged by the Squirrel pilot who reported "*..roger now maintaining 2 thousand 2 hundred feet 1-0-1-4*". The radar replay shows the PA38 maintaining its SSE'ly track. At 1105:46, APP updated the TI to the Squirrel crew stating "*..previously called traffic now 12 o'clock [radar replay shows 11 o'clock] 3 miles crossing left-right, no height information.*" Analysis of the radar replay shows that the 2 ac were on constant, almost reciprocal, converging tracks from the start of the incident sequence. Subsequent to completing his written account, the Squirrel pilot has stated that the mental picture that the crew developed, based

upon this TI, was that the PA38 was no factor and would pass E of them; however, this may have been made with hindsight. APP gave no further update of TI and subsequently reported that 'at no time did he believe that there was a danger of collision...and it was evident from the radar picture that the contacts would not merge.'

CAP 774 Chapter 3 Section 5 states that:

'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.'

CAP 413 Chapter 5 1.6.1 states that:

'Whenever practicable, information regarding traffic on a possible conflicting path should (include the) relative bearing of the conflicting traffic in terms of the 12 hour clock with the optional prefix 'left or right' as appropriate; distance from the conflicting traffic; direction of flight of the conflicting traffic; relative speed of the conflicting traffic or the type of aircraft and level if this is known...Relative movement and level should be described by using one of the following terms as applicable: closing, converging, parallel, same direction, opposite direction diverging, overtaking, crossing left to right, crossing right to left.'

The PA38 was in receipt of a BS and no TI was passed on the Squirrel; RT on the LARS frequency was continuous throughout the incident sequence. LARS reported that 'at no point did I consider there to be any point of confliction, or that the PA38 was likely to merge with any other contacts.' LARS has subsequently stated that whilst they recall making this assessment at some point during the incident sequence, they cannot recall when.

Between 1106:00 and 1106:25, APP was involved in liaison with unrelated Squirrel traffic. [The CPA occurred, in between sweeps, just after 1106:38 when the PA38 was marginally L of the Squirrel's 12 o'clock at a range of 0.1nm.]

Notwithstanding the non-sighting and effective non-sighting respectively by the PA38 and Squirrel crews and their responsibilities to 'see and avoid' in Class G airspace, the ATM aspects of this Airprox warrant further analysis. Whilst APP passed the initial TI to the Squirrel crew on the PA38, the description of the PA38's track at 1105:14 as "*..tracking east..*", did not accurately describe that track. Moreover, given the PA38's converging track, the description of its track relative to the Squirrel at the update at 1105:46 "*..3 miles crossing left-right..*", did not adequately describe that track either. Combined, these errors may have caused the Squirrel crew's incorrect mental picture. Moreover, although the Squirrel crew did not request updated TI or deconfliction advice, given that they had not called visual with the PA38 and that it continued to pose a definite hazard, the TI should have been updated after 1105:46. Given APP's moderate taskload and low complexity, it is difficult to comprehend how both the mentor and trainee mis-perceived the surveillance display and determined that the PA38 did not pose a continued 'definite hazard' to the Squirrel. Furthermore, whilst it could be argued that the vector onto N at 1104:12 introduced the risk of confliction between the PA38 and Squirrel, there is a hindsight bias inherent in this argument, given the separation that existed when the turn was issued combined with the dynamic nature of operating in Class G airspace. However, given the respective ATs, whilst the instruction to descend to 2200ft was in-line with regulation, it did not reflect good practice as APP had received prior notification of the PA38 maintaining 2000ft QFE.

LARS was not required to pass TI to the PA38 crew under a BS and even if he had judged correctly that a confliction existed between the two ac that warranted a warning the RT frequency was too busy.

The remaining ATM related safety barrier in this occurrence would routinely be expected to have been provided by a Supervisor. Whilst the SUP states that he witnessed the occurrence, he is

unable to recall the event with any clarity and does not appear to have taken a part in the incident sequence. However, whilst direct liaison between APP and LARS may have been difficult given LARS' workload and RT loading, the absence of any liaison being conducted within the ACR suggests that there was a disconnect between the control positions, which would routinely have been filled by the Supervisor.

From an ATM perspective, the TI from APP to the Squirrel crew did not accurately or adequately describe the PA38's track. Given APP's moderate taskload and low task complexity, as the PA38 continued to pose a definite hazard a further update to the TI was warranted.

HQ AIR (TRG) comments that they concur with the BM SM assessment of the incident and agree that the Squirrel crew formed an incorrect mental air picture based on misleading TI. This TI was based on an erroneous assessment that the geometry of the situation was not a definite hazard. Without accurate height information on the PA38, it is not clear how this assessment was reached. As it was, the PA38 was spotted at a late stage and slightly low, so avoiding action was not required to prevent an actual collision. Had the crew opted for a DS, a more comfortable separation might have been achieved. However, with the information provided and the flight conditions prevailing it was entirely reasonable to be operating under a TS.

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.

Members noted that the Squirrel pilot had received two transmissions of TI from APP, but did not see the PA38 until it was ¼nm away, moments before it passed slightly to starboard and beneath his helicopter. The BM SM report shows that the first TI was passed at 4nm and stated that the PA38 was, "*..tracking east no height information.*" This TI was incomplete because it did not include the PA38's height of 2000ft QFE, which was known traffic to APP from the co-ordination effected by ZONE, when the PA38's squawk was pointed out to APP prior to the MATZ crossing. The TI was also inaccurate. It was evident to Members that the PA38 was not tracking E when this TI was given and it should also have been clear to the APP mentor that his trainee's TI was plainly wrong as the PA38 cleared from the Shawbury overhead heading SSE, which should have been corrected. It had been suggested by BM SM that the Squirrel safety pilot's mental air picture had been distorted by this inaccurate TI and pilot Members agreed that the pilot's perception would have been of traffic ahead clearing to the E and not flying towards his helicopter. This perception would have been reinforced by the subsequent call of, "*...3 miles crossing left-right.*", which inadequately described the geometry of the situation less than 1min before the CPA. Members agreed that inaccurate TI was part of the Cause. Moreover, as the PA38 continued to pose a hazard, notwithstanding that the Squirrel pilot had not asked for it, a further update of TI was warranted. It was not until the PA38 crossed ahead of the Squirrel into its 1 o'clock that the instructor safety pilot spotted it passing beneath his helicopter. This convinced the Board that the safety pilot in the LH seat had not seen the PA38 until after the conflict was subsiding; therefore, with the PF in the RH seat 'under the hood', this was effectively a non-sighting by the Squirrel instructor and another part of the Cause.

Moments after the first transmission of TI was given by APP the Squirrel pilot reported "*..now maintaining 2 thousand 2 hundred feet 1-0-1-4*" – on the QFE. Therefore, in following the trainee's instructions the Squirrel crew had descended to just 200ft above the PA38's height that had earlier been passed to APP. This should have raised a concern with the APP mentor and controller, and Members questioned the mentor's appreciation of the traffic situation. It was accepted that under the ATSS afforded the respective crews, neither APP controlling the Squirrel under the TS, nor ZONE providing the BS to the PA38 crew, were required to effect separation between these two ac. Nevertheless, Members were perplexed as to why the two controllers had not foreseen the possibility of a conflict or that these two ac contacts were likely to merge with each other. Whilst the radar

recording does not reflect the same radar picture displayed to the Shawbury APP and ZONE controllers, the potential for a conflict should have been readily apparent, contrary to both controllers' reports, as it is clear from the recorded radar data that these ac would fly into close quarters. This caused some Members to question why a warning had not been issued to the PA38 crew about the proximity of the Squirrel under the ZONE controller's duty of care. However, no liaison had been effected with ZONE to advise of the Squirrel's descent and, as the BM SM report had contended that the frequency was too busy and the controller's workload was 'high to medium', the Board accepted that ZONE might not have seen the helicopter's Mode C indications, thus a warning might not have been feasible in this instance. Operating under VFR, without the benefit of a TS, the PA38 crew were relying solely on their own lookout scan, but the PIC reports they did not see the Squirrel. It seemed that the PA38 pilot had requested a BS but a TS from ZONE, if available, might have forewarned the pilot of the approaching helicopter. Given that the PA38 crew had an equal responsibility to 'see and avoid' other traffic operating in Class G airspace and did not do so, the Members agreed this was the final part of the Cause. The Board concluded, therefore, that this Airprox had resulted from a non-sighting by the PA38 crew and, following inaccurate TI, effectively a non-sighting by the Squirrel instructor.

Turning to the inherent Risk, only one pilot here had sighted the other ac and that was after the conflict had passed. In the absence of any intervention by ATC, neither crew had seen the other ac in time to take positive steps to ensure appropriate separation was maintained. Indeed it was fortuitous that there was about 200ft of vertical separation as the PA38 passed less than 0.1nm ahead and then down Squirrel's starboard side. Although the Squirrel instructor's sighting at a range of ¼nm and his estimated vertical separation of 300ft would have been sufficient to avert an actual Risk of collision, the Members concluded unanimously that the safety of these two ac had been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the PA38 crew and, following inaccurate TI, effectively a non-sighting by the Squirrel instructor.

Degree of Risk: B.

AIRPROX REPORT No 2011163

Date/Time: 2 Dec 2011 1057Z

Position: 5151N 00057W (WCO)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Merlin PA34

Operator: HQ JHC Civ Trg

Alt/FL: 3000ft 3000ft
QNH (1015hPa) QNH

Weather: VMC CLBC VMC CLOC

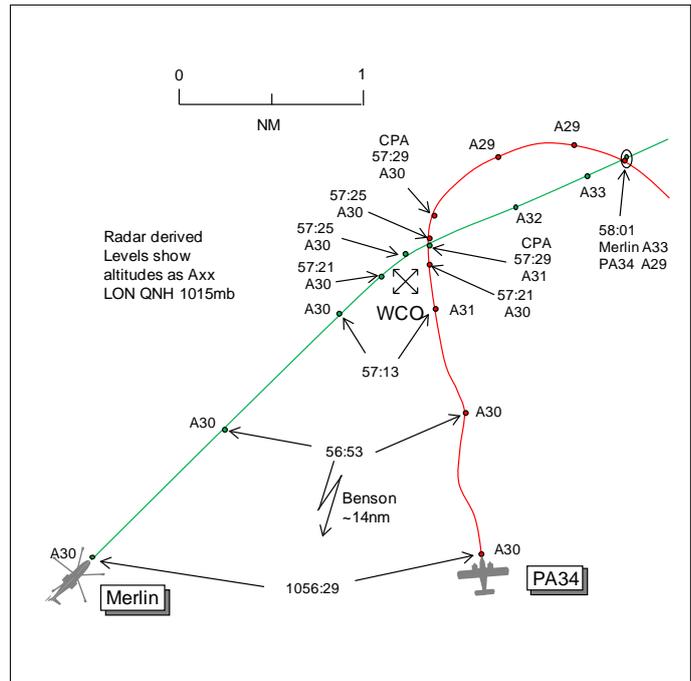
Visibility: 20km 10km

Reported Separation:

Nil V/50-100m H 400ft V/NR H

Recorded Separation:

100ft V/0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MERLIN PILOT reports en-route to Cranfield under IFR on an IRT and in receipt of a TS from Benson on 376.65MHz, squawking an assigned code with Modes S and C. The visibility was 20km flying 2000ft below cloud in VMC and the helicopter was coloured green with nav, both landing lights and HISLs all switched on. They had completed IF GH to the W of Benson and were routing to Cranfield via WCO NDB. Heading 060° at 120kt and level at 3000ft QNH 1015mb with approximately 1nm to run to WCO the Capt saw a white and blue coloured light, twin-engine ac 100m away converging from their R at an identical altitude. The HP, seated on the RHS, took avoiding action to the L, although this was after the ac had passed 50-100m in front, before it banked hard L and then around to the R and departed to the NE. He assessed the risk as very high.

THE PA34 PILOT reports flying a dual training sortie from Oxford, VFR and in receipt of a BS from Oxford on 125.325MHz, squawking 7000 with Modes S and C. The visibility was 10km flying clear of cloud in VMC and the ac was coloured white/blue. Over WCO the student started a R turn onto heading 160° at 120kt and 3000ft QNH when he saw a Merlin in their 4 o'clock 200-300yd away and 400ft above. They continued the turn to pass behind and below it, assessing the risk of collision as none.

THE BENSON APPROACH CONTROLLER reports working the Merlin under a TS before 3 Tutor flights called in quick succession. He looked up at the Merlin and was happy that it had no traffic to affect. He identified each of the Tutors, placing them under a TS and checking the Mode C. He passed TI to all the Tutor pilots with regard to each other and gave them their departure clearances. He then code c/s converted one of the squawks so that it was easier to maintain ident. At this time there was a change of Wx information affecting the QNH and QFE. As all ac were flying on the QNH he made an 'all stations' broadcast and then started to receive acknowledgements from all of the flights on frequency. After an acknowledgement from all of the Tutor pilots he looked up at the Merlin to check its track and get an acknowledgement. He then saw a 7000 squawk approximately 0.5nm away just as the pilot called Airprox. After the pilot passed the details he informed the Supervisor.

THE BENSON SUPERVISOR reports that he did not witness the incident. Having just finished speaking to a pilot regarding the use of the airfield for a non-related flying event he left the ACR; the APP was working one flight. He then carried out a safety brief with a Safety Management team

member and on completion of the brief he was advised that an Airprox had occurred. He immediately informed the relevant authorities and impounded the tapes.

BM SAFETY MANAGEMENT reports that this Airprox occurred between a Merlin HC3 operating IFR in VMC in receipt of a TS from Benson APP and a PA34 operating VFR in VMC in receipt of a BS from Oxford APP.

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated.

The respective narratives of the aircrews, APP and SUP are accurate enough to provide an adequate picture of what occurred during the incident.

From the Merlin crew's perspective, the PA34 had been on a constant relative bearing, co-altitude in their 2 o'clock, since 1055:34. This, combined with the use of an IF visor by the HP in the RHS affecting the crew's lookout to starboard and the lack of TI from APP, caused them to sight the PA34 late. There is no mention in the PA34 pilot's report of any factors that may have affected their ability to visually acquire the Merlin.

The CPA was at 1057:29 with the PA34 at 3000ft having passed ahead of and now 0.1nm from the Merlin in it's 11 o'clock showing 3100ft.

This Airprox was caused by a late sighting by the Merlin crew and an effective non-sighting by the PA34 crew. From the Merlin's perspective, this was contributed to by a lack of TI from APP and the use of an IF visor by the RHS HP combined with the conflicting path of the PA34.

ATSI reports that the Airprox occurred at 1057:29, in Class G airspace, overhead WCO NDB, between a PA34 and a Merlin HC3 helicopter. The PA34 flight was operating VFR in receipt of a BS from Oxford Approach and the Merlin was in receipt of a TS from Benson Radar.

CAA ATSI had access to RT and area radar recordings, together with the written reports from both pilots. The Oxford controller was not aware that an Airprox had occurred and did not complete a report.

The weather for RAF Benson and RAF Brize Norton are provided:

METAR EGUB 021050Z 20003KT CAVOK 06/03 Q1015 BLU NOSIG=
METAR EGVN 021050z 24005KT CAVOK 04/02 Q1015 BLU NOSIG=

The PA34 flight departed from Oxford, VFR contacting Oxford Approach at 1047:22. The PA34 pilot reported passing 2000ft on QNH 1014 and the Oxford controller replied, "*(PA34 c/s) Oxford Approach Basic Service Oxford has no other reported traffic known to the east of the airfield.*"

At 1047:33 the PA34 pilot reported, "*and (PA34 c/s) we'll be operating at three thousand feet over the Westcott er NDB.*" This was acknowledged by the Oxford controller.

At 1054:15 the radar recording shows the PA34 manoeuvring 3nm to the SE of WCO, with the Merlin 8.2nm SW of, and tracking towards, WCO. Both ac are indicating an altitude of 3000ft.

At 1057:13 the radar recording shows both ac on tracks converging towards WCO. The Merlin is shown 0.5nm to the SW of WCO indicating an altitude of 3000ft and the PA34 0.3nm SE of WCO indicating an altitude of 3100ft.

At 1057:21 the radar recording shows both ac approach WCO at an altitude of 3000ft. The PA34 is tracking NNW with the Merlin in the PA34's half past eight at a range of 0.3nm tracking NE on a converging heading.

[UKAB Note (1): The next radar sweep at 1057:25 shows the PA34 crossing 0.2nm ahead of the Merlin, both ac at altitude 3000ft. Four seconds later at 1057:29 the CPA occurs, the PA34 level at 3000ft having crossed R-L ahead of the Merlin indicating 3100ft QNH, in the Merlin's 11 o'clock at a range of 0.1nm.]

The Merlin then continues on a NE'y track and the PA34 commences a R turn to re-cross the Merlin's track at 1058:01, at a position 1.4nm NE of WCO. The Merlin is indicating an altitude of 3300ft and the PA34 2900ft. The 2 ac then begin to diverge.

The PA34 pilot's written report indicates that the Merlin was sighted at 4 o'clock and 400ft above. This is believed to correspond with the second pass at 1058:01.

The Merlin pilot's written report indicates that after the first encounter, the PA34 departed NE. It is not clear if the Merlin pilot was aware of the second encounter at 1058:05.

At 1117:53, the PA34 flight contacted Oxford Approach, 10nm E of Oxford for an O/H join. The controller was not aware of the Airprox and no comment was made by the PA34 pilot.

The PA34 was in receipt of a BS from the Oxford controller, who was not aware of the Merlin helicopter or of the Airprox. CAP 774, UK flight Information Services, Chapter 2, Page1, Paragraph 1, states:

'A Basic Service is an ATS provided for the purpose 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.

Basic Service relies on the pilot avoiding other traffic, unaided by controllers/FISOs. It is essential that a pilot receiving this service remains alert to the fact that, unlike a Traffic Service and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight'.

HQ JHC comments that the reduced scan from the RHS pilot when conducting the IF sortie with an IF visor and lack of TI from the Benson App resulted in the late sighting of the PA34 conflicting traffic. However, the effective non-sighting by the PA34 pilot flying VFR under a BS from Oxford also contributed to this Airprox. With the limitations of a BS, pilots must always remain vigilant and a comprehensive lookout scan is essential. HQ JHC is also actively pursuing a collision avoidance system, which would have given the Merlin crew vital SA. This Airprox will be used to remind Benson ATC and Merlin crews of the necessity to maintain good situational awareness and lookout for aircrew in high workload environments in the busy Benson local area airspace.

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.

As this incident occurred in Class G airspace, there was equal responsibility on both crews to maintain their own separation from other ac through see and avoid. The Merlin crew, flying under IFR in VMC, was augmenting their look-out by receiving a TS from Benson but the controller did not provide the crew with TI as he was concentrating on 3 Tutor flights that had called for a service. The Supervisor was unable to assist APP in seeing the confliction, as he had left the ACR when only the Merlin was on frequency and was made aware of the Airprox after it had occurred. Members thought that APP should have allocated his priorities better by giving more attention to the ac he already had under service. The Merlin crew's lookout was undoubtedly degraded by the HP, seated on the RHS, using an IF visor; however, the PA34 was there to be seen for some time converging from their R.

Pilots should take these factors into account and mitigate this risk by moving their heads or the ac's nose during their lookout scan. It was not clear from their report whether there were rear crewmen on board the Merlin to supplement the lookout on the RHS. In the absence of TI, the crew reported seeing the PA34 100m away as it was converging from their R and taking avoiding action but only after it passed ahead, which Members agreed was effectively a non-sighting and part cause of the Airprox. Members wondered if the PA34 crew was also carrying out simulated IF as, from the radar, the ac appeared to be tracking the WCO NDB and turning O/H the beacon as the Airprox occurred. If so, the Instructor's lookout from the RH seat could also have been impaired if the ac was fitted with IF screens or the HP was using an IF hood or goggles. It was noted that the PA34 crew was in receipt of a BS from Oxford when a radar service may have been available from Brize Norton to supplement their lookout. The Merlin would have been visible to the PA34 crew in their L 8 o'clock position before the PA34 crossed ahead however, the PA34 crew only saw the Merlin in their 4 o'clock as they were turning R, after they had passed ahead of it, effectively a non-sighting and another part cause of the Airprox. Although the PA34 had right of way under the RoA Regulations, these rules only work if pilots see each other's ac in order to comply with them. With both ac passing each other by luck, with neither crew seeing the confliction in time to take effective avoiding action, the Board concluded that an actual risk of collision existed during the encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the PA34 crew and, in the absence of TI, effectively a non-sighting by the Merlin crew.

Degree of Risk: A.

AIRPROX REPORT No 2011164

Date/Time: 11 Dec 2011 1331Z (Sunday)

Position: 5152N 00142W (0.5nm S Little Rissington - elev 722ft)

Airspace: Oxford AIAA (Class: G)

Reporting Ac Reporting Ac

Type: Vigilant C340

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 800ft 2000ft
QFE (979hPa) QNH

Weather: VMC CLBC VMC CLBC

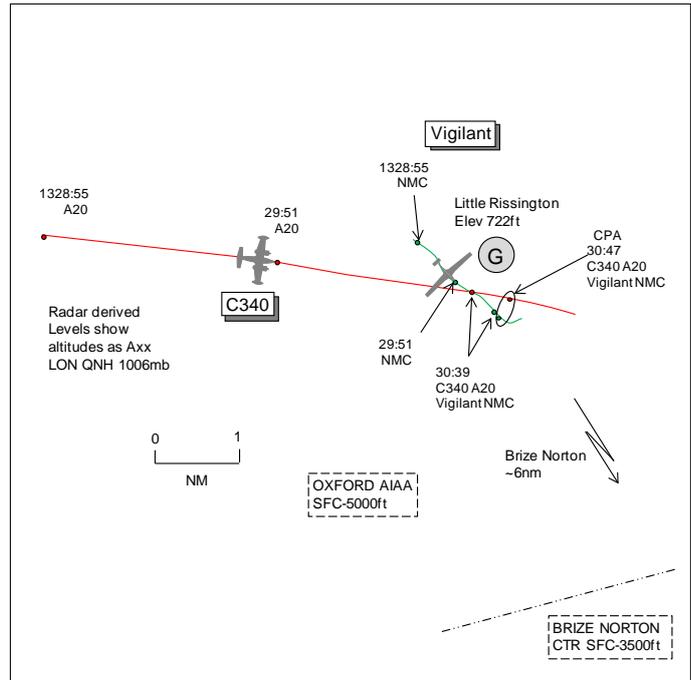
Visibility: 10km >10km

Reported Separation:

200ft V/0.25nm H 500ft V/1nm H

Recorded Separation:

0.25nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE VIGILANT PILOT reports flying a local dual training sortie, VFR and in receipt of an A/G service from Little Rissington on 124.1MHz, squawking 7000 with NMC. The visibility was 10km flying clear below cloud in VMC and the ac was coloured white/day-glo with landing, nav and strobe lights all switched on. Heading 175° at 60kt, level at 800ft QFE 979hPa, as he was commencing a crosswind join for RW22, a light twin engine ac was seen to his L and behind at range 0.25nm approaching from the NW on a SE'ly heading at an estimated height of 1000ft aal. This ac was then seen to fly through the established cct pattern, passing 200ft above and 0.25nm away laterally behind his ac. He maintained straight and level on the crosswind leg, delaying his turn onto downwind. The other ac was observed to continue SE'ly and then commence a climb before disappearing into a cloud layer. TI was given to him by the Duty Instructor, which assisted him to visually acquire the twin-engine as it passed. He assessed the risk as medium. Brize were contacted by telephone in order to attempt tracing action and a controller stated that he was not working the traffic but saw a 7000 squawk tracking SE at about 180kt indicating 2000ft.

THE C340 PILOT reports en-route from Gloucestershire to Oxford, VFR and in receipt of a BS from Gloucestershire then Oxford, squawking 7000 with Modes S and C. The visibility was >10km flying 1500ft below cloud in VMC and the ac was coloured white/blue; lighting was not reported. Heading 100° at 2000ft QNH and 145kt, a white with pink/red wing-tips coloured motor-glider was seen at about 1500ft passing ahead and about 500ft below on an approximate heading of 170° (70° relative to his ac) in uncontrolled airspace to the S of Little Rissington. The Motor-glider was seen clear to his R 500ft below and 1nm clear at the CPA and he assessed the risk of collision as none. His track had taken him close to the S of Little Rissington and the airfield was seen as inactive on the ground and in the area at the time of passing, other than the sighted ac. No course change was initiated or was considered necessary as there was no conflict.

ATSI reports that Gloucestershire ATC confirmed that the C340 flight was in receipt of a BS and was requested to report 10nm E of Gloucestershire which it duly did with the C340 pilot reporting changing frequency to Oxford at 1328:17. At the time of the Airprox the C340 pilot would have been establishing contact with Oxford for a BS. Oxford is not surveillance equipped and would not have been aware of the presence of the Vigilant.

UKAB Note (1): The Brize METARs show EGVN 111250Z AUTO 20010KT 9999 –SHRA BKN039/// BKN049/// 09/05 Q1004= and EGVN 111344Z 20012KT 9999 SCT017 BKN040 09/06 Q1003 WHT TEMPO 6000 RA SCT012 GRN=

UKAB Note(2): The UK AIP at ENR 5-5-1-4 promulgates Little Rissington as a glider launching site centred on 515200N 0014136W where tug ac/Motor-glidern may be encountered sunrise to sunset Fri, Sat, Sun & PH or as notified by NOTAM; site elevation 722ft.

UKAB Note (3): The recorded radar clearly captures the incident. At 1328:55 the C340 is seen 5.3nm W of Little Rissington tracking 095°, G/S 175kt, indicating altitude 2000ft LON QNH 1006hPa. At the same time a 7000 squawk with NMC, believed to be the Vigilant, is seen in the C340's 1130 position range 4.4nm, just 1nm W of Little Rissington, tracking 135° G/S 45kt. The ac converge and by 1329:51, separation has reduced to 2.1nm as the Vigilant is about to cross obliquely ahead of the C340 from L to R. At 1330:39 as the C340 is passing 0.6nm SW of Little Rissington the Vigilant is still tracking SE'ly on the crosswind leg for RW22 in the C340's 1 o'clock range 0.3nm. The CPA occurs on the next sweep 8sec later at 1330:47 as the C340 passes through the Vigilant's 0830 position range 0.25nm. Thereafter the C340 continues to the E and the Vigilant is seen to turn L towards the NE onto the downwind leg for RW22. The Vigilant pilot reported level at 800ft QFE 979hPa during the incident which equates to 1500ft QNH, which would place the Vigilant 500ft below the C340 level at altitude 2000ft as they pass with 0.25nm lateral separation at the CPA.

HQ AIR (TRG) comments that the Duty Instructor provided an excellent service to his ac by providing TI that allowed the pilot to gain tally on an ac approaching from astern. The C340 pilot appears to have seen the Vigilant from some distance ahead as it crossed his nose and perceived no need to take further avoiding action. Whilst he appears to have passed through an active glider site, he was aware of the traffic and maintained sufficient separation, albeit that the Vigilant pilot was still concerned by his proximity. Operations in uncontrolled airspace attract a certain level of risk, which is mitigated through good awareness and lookout. The highest risk, around launch and recovery sites, is reduced if transiting ac remain sufficiently clear.

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 operating authorities.

Little Rissington is depicted on the topographical charts as a glider launching site but with no maximum activity height as winch launching does not take place. A pilot Member commented that although activity is infrequent, transiting pilots should take due regard of traffic operating in an aerodrome cct environment by avoiding the airspace with sufficient separation margins. The C340 pilot had seen the Vigilant as crossing traffic at 1500ft and had deemed that, as it was passing 500ft below his flightpath, there was no need to take avoiding action, Little Rissington appearing to be inactive. However as Little Rissington is on high ground over 700ft amsl, the Vigilant was actually at cct height and joining on a crosswind leg and it was the C340's passage through the cct area which had caused the Vigilant pilot concern and led to the filing of an Airprox. Members commended the Duty Instructor's provision of TI to the Vigilant pilot which enabled him to visually acquire the C340 passing behind and to his L. The Vigilant pilot estimated vertical separation as 200ft; however, this was not borne out from the radar recording which shows the C340 in level flight at altitude 2000ft, 500ft above the Vigilant and the visual cct, with lateral separation measured at 0.25nm. In the circumstances that pertained, the C340 pilot had maintained visual contact on the Vigilant and watched it pass clear to his R and below which allowed the Board to conclude that no risk of collision existed during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The C340 pilot flew close to the cct area of an active glider site causing the Vigilant pilot on the crosswind leg concern.

Degree of Risk: C.

AIRPROX REPORT No 2011165

Date/Time: 30 Nov 2011 1332Z

Position: 5348N 00304W
(2nm NW Blackpool
Airport - elev 34ft)

Airspace: Blackpool ATZ (Class: G)

Reporting Ac Reported Ac

Type: Dauphin 365N3 C172

Operator: Civ Com Civ Club

Alt/FL: 1000ft 1000ft
QNH QFE

Weather: VMC CAVOK NR

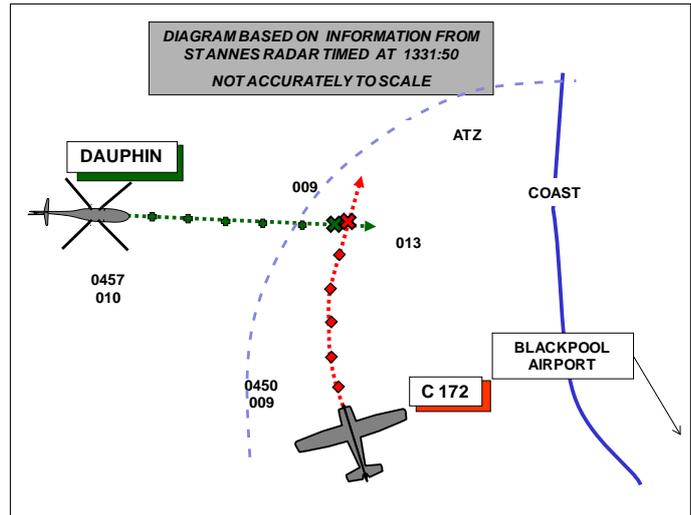
Visibility: 35km NR

Reported Separation:

0ft V/300yd H NR

Recorded Separation:

400ft V/0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DAUPHIN 365N3 PILOT reports flying a commercial VFR flight inbound to Blackpool in receipt of a BS [ACS, See ATSI report] from them, while squawking with Mode C and TCAS was fitted. They were heading 090° at 120kt, were cleared by ATC to join the cct from the W, were informed of a C172 on climb out and that its intention was to turn N towards them. ATC then asked them if they were visual; he replied that they were not and the C172 was instructed to pass behind them. The Cessna replied they had the Dauphin visual and would pass behind it as instructed, he thought [see ATSI report] and would climb to 1000ft. They had a TCAS indication of close proximity, but it was not accurate enough at the very close range to establish the exact position of the contact.

As they continued their lookout, they first saw the C172 about 300yd away in the position indicated on TCAS [UKAB Note (1): His diagrams showed the C172 in his 2 o'clock crossing from R to L at the same height ahead of him]. After taking avoiding action, their ac was landed without further incident. He has no criticism of ATC as all their instructions were concise and apparently also understood by the C172 pilot. They had no reason to believe that there was any risk of collision but reported the incident to ATC on landing.

THE C172 PILOT reports that his original Airprox report was mislaid but when contacted he made a further report passing it to the flying club owning the ac who in turn forwarded it to the UKAB, albeit later than desirable.

He departed Blackpool from RW28 and turned N at 800ft climbing at an indicated 1100fpm and 70kt, establishing a heading of 360° at 1000ft.

The Dauphin helicopter was first seen at about his height and descending into Blackpool and he reported visual contact with it to the ADC when it was about 2nm from the coast [offshore] in his 10-11 o'clock position. He then mentally assessed that their tracks would intersect in about 1min without any conflict. He assessed the helicopter was flying at about 120kt which gave him 1min to climb from 800ft to about 2200ft at his indicated performance.

ATC then requested that he position behind the helicopter but this request came much too late for him to comply with.

There was a >40kt Southerly wind at 2000ft and the wind effect on a left turn to crosswind at that stage would have positioned him virtually on a reciprocal heading to the helicopter, would have reduced his climb rate and positioned the helicopter in his blind spot under the nose.

After the ATC request the only safe course of action was to continue with his original plan which proved to be correct and he had the helicopter in view at all times and had adequate vertical separation.

In summary it was he who had the initial visual contact; as he was on the right he had right of way, so in the event of a conflict the helicopter should have given way to him.

THE BLACKPOOL ADC reports that at about 1325, the Dauphin pilot called on frequency and requested joining instructions; he was instructed to join the cct, RH downwind for RW28 and expect to break off to land on taxiway B.

The C172 was cleared to line up on RW28 shortly afterwards and the pilot was passed TI about the Dauphin inbound from the W. The Dauphin pilot was also passed TI about the C172 that was just rolling on RW28 and after airborne it would be turning to the N. Updated TI was then passed to the Dauphin as the ac approached the downwind position as the C172 became airborne. The Dauphin pilot reported that he was not visual with the Cessna, at which point, the C172 pilot reported visual with the Dauphin. The C172 pilot was then instructed to pass behind the Dauphin and to contact Blackpool Radar but the Dauphin pilot reported that the C172 had passed in front of him.

THE DSATCO AT BLACKPOOL AIRPORT reports that TI was passed to both pilots. The Cessna pilot was then instructed to pass behind the helicopter but he passed in front of it causing its pilot to take avoiding action.

ATSI reports that an Airprox occurred at 1331:51, in the Blackpool ATZ (Class G airspace), which comprises a circle radius 2.5nm centred on RW 10/28, extending from the surface to 2000ft above aerodrome level (34ft).

The Eurocopter AS365N3 helicopter (Dauphin) was operating VFR on a flight from the offshore rigs to Blackpool and was in receipt of an ACS from Blackpool TWR.

The Cessna 172 (C172) was operating on a VFR local flight from Blackpool and was also in receipt of an ACS from Blackpool TWR (on the same frequency).

The Blackpool TWR controller was providing an ACS in Class G airspace. CAP493, the MATS Part 1, Section 2, Chapter 1, Page 1, Paragraph 2.1 states that:

‘Aerodrome Control is responsible for issuing information and instructions to ac under its control to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

- a) ac flying in, and in the vicinity of, the ATZ;
- b) ac taking-off and landing;
- c) ac moving on the apron;
- d) ac and vehicles, obstructions and other ac on the manoeuvring area.’

CAP774, Flight Information Services, Chapter 1, Page 1, Paragraph 2, states that:

‘Within Class F and G airspace, regardless of the service being provided, pilots are ultimately responsible for collision avoidance and terrain clearance.’

CAA ATSI had access to recordings of RTF from Blackpool and area radar recordings together with written reports from the pilot of the Dauphin and the Blackpool ADC.

The Blackpool METARs are provided for 1320 and 1350 UTC:

METAR EGNH 301320Z 18016KT 9999 FEW045 11/07 Q1013=
METAR EGNH 301350Z 19019KT 9999 –SHRA FEW044 11/07 Q1013=

At 1321:00 the C172 contacted Blackpool TWR requesting taxi; the pilot was given taxi instructions to holding point E2 via Bravo, Charlie and Echo.

At 1328:20 the Dauphin pilot contacted Blackpool TWR with 9nm to run to the airfield and was instructed to report with 3nm to run and to position for a downwind right hand join “*east about*”. Blackpool MATS Part 2, Section 1, Chapter 20, Paragraph 1.3 states that with regard to rigs-contracted helicopter operations:

‘the pilot may request an arrival or departure directly into wind or east about the tower’.

At 1329:00, the C172 was given a squawk and then clearance to line-up. The controller gave TI about the Dauphin joining downwind right hand, which the C172 pilot acknowledged and he was cleared for take-off; the Dauphin pilot was then passed TI on the departing C172.

When the C172 was airborne the ADC asked the Dauphin pilot, “*are you visual with that traffic now*” and updated the position of the C172 but he informed the controller, “*not visual yet*”.

At 1331:20 the C172 pilot reported visual with the Dauphin and climbing to 1000ft. The ADC instructed him to pass behind the helicopter and to contact Blackpool Radar; the pilot readback the frequency change but did not readback or acknowledge the instruction to pass behind the helicopter. (The instruction “*pass behind*” does not specifically require a compulsory readback as dictated in CAP493, Appendix E, Page 11, Paragraph 5.3.1).

Radar recordings show the C172 in a right turn at 1331:32, heading towards the Dauphin. The Dauphin pilot’s report states that he heard the instruction from ATC and expected the C172 to pass behind him. Radar recordings at 1331:51 show the C172 crossing right to left in front of the Dauphin at a distance of 0.1nm; the Dauphin pilot saw the C172 late and descended to avoid it and at 1331:40 the pilot informed the ADC that the C172 had climbed in front of them.

Both ac were operating VFR in Class G airspace under an ACS. The ADC gave TI to both pilots and the C172 reported having the Dauphin in sight. When the controller issued the C172 pilot an instruction to pass behind the Dauphin, the instruction was not readback or acknowledged by the pilot; it is not clear whether or not the C172 pilot understood the instruction to pass behind the Dauphin. The instruction to route behind the Dauphin was given in the same transmission as a frequency change and it is possible that the ADC took the readback of the frequency as an acknowledgement of the instruction to pass behind.

As both ac were operating VFR in Class G airspace, and the C172 had reported visual with the Dauphin, there was therefore a reasonable expectation by the ADC that the C172 pilot would discharge his responsibility for collision avoidance appropriately whether or not any instruction was issued.

As there is no written report available from the pilot of the C172 it is unclear why the pilot flew in front of the Dauphin.

UKAB Note (2): The recording of the St Annes Radar shows the incident. The Dauphin approaches the CPA from the W, squawking 0457 with Mode C indicating FL010. After getting airborne the C172 is first seen at FL005 commencing a right turn and squawking 0450. The C172 rolls out on N at

1331:37 continuing its climb and the Dauphin continues tracking E at FL010. The C172 crosses 0.1nm in front of the Dauphin and 400ft above it at 1331:50 just inside the ATZ, as shown in the diagram 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 controller involved and reports from the appropriate ATC authorities.

Members noted that the C172 pilot informed ATC that he was making a right turn out after the Dauphin was on frequency; shortly afterwards ATC reiterated that it was departing to the North and later passed a further report of its position. This gave the Dauphin crew three opportunities to assimilate that there might be a conflict.

Members observed that it is the duty of ATC to provide information to traffic in the vicinity of the ATZ to allow pilots to prevent collisions. Both ac were operating VFR and the C172 being on the Dauphin's right should have had right of way under the RoA. While not strictly required to do so, the controller instructed the C172 pilot to route behind the Dauphin and Members agreed that, in the circumstances, this was a reasonable instruction. Bearing in mind the C172 pilot's report however, Members agreed that the call came too late for the pilot to enact it safely. One Military Member disagreed with this view stating that there was sufficient time available and even a small turn to the left would have broken the immediate collision risk and allowed the helicopter to pass ahead. Another Member also pointed out that as the C172 pilot opted not to accept the controller's instruction to go behind the Helicopter for safety reasons, then, notwithstanding that 'pass behind' is not a mandatory readback item, good airmanship would have been to tell ATC that he was not accepting the instructions and why; this would have had the additional benefit that the Dauphin pilot would have had more accurate information as to the C172 pilot's intentions.

The C172 pilot had the Helicopter in sight until it disappeared well below and behind him and was relatively unconcerned by the incident. Despite accurate TI and slightly less accurate TCAS indications, the Dauphin pilot did not see the C172 until it was an estimated 300yd away in his 2 o'clock. Although the Dauphin pilot thought the C172 was at the same alt, the radar showed it to be above him and climbing, giving a separation of 400ft when their flightpaths crossed. Although in the event the ac were well separated, the Dauphin crew was startled and concerned to see the C172 passing ahead of them when they expected it to pass behind. Members agreed that the cause of this concern had been the late sighting of the C172 rather than its proximity.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by the Dauphin pilot.

Degree of Risk: C.