

ASSESSMENT SUMMARY SHEET FOR UKAB MEETING ON 19 JAN 2011

Total 20	Risk Cat A: 3	Risk Cat B: 3	Risk Cat C: 13	Risk Cat D: 1
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No	Reporting	Reported	Airspace	Cause	Risk
2010090	DHC-8 (CAT)	A320 (CAT)	G	Sighting report.	C
2010092	SAAB 340B (CAT)	Harrier T12 (MIL)	G	The Harrier crew flew close enough to the SAAB to trigger a TCAS RA.	C
2010096	Apache AH1 x 2 (MIL)	Chinook HC1 x 2 (MIL)	G	Conflict in Night Rotary Region 1 between two helicopter formations.	A
2010097	Apache AH1 x 2 (MIL)	Chinook HC1 (MIL)	G	Whilst overtaking, the Chinook pilot flew sufficiently close to cause the Apache formation leader concern.	C
2010100	PA28 (CIV)	PA28 (CIV)	G	PA28 (B) turned into conflict with PA28 (A) in the Wycombe ATZ.	B
2010102	PA34-200T (CIV)	PA34 (CIV)	G	The pilot of PA34 (B) did not comply with the APP's instructions.	C
2010104	B737-800 (CAT)	DA42 (CIV)	D	TWR did not pass the altitude restriction to the B737 crew resulting in a conflict with the DA42. Contributory Factor: RAD did not assimilate the B737 crew's cleared level report on first contact.	C
2010105	Harrier GR9 (MIL)	Untraced (NK)	G	Conflict in Class G airspace resolved by the Harrier pilot.	C
2010108	Grob Tutor II (MIL)	Unknown Microlight (NK)	G	Conflict in class G airspace resolved by the Grob Tutor pilot.	C
2010109	Puma (MIL)	NK	G	A conflict on the Benson instrument approach between a Puma and a light aircraft conducting aerobatics.	B
2010111	BH06 JetRanger (CIV)	Lynx AH7 (MIL)	G	A conflict in Class G airspace resolved by both pilots.	C

2010116	Hawk T1 (MIL)	Untraced Glider (NK)	G	A conflict in Class G airspace resolved by the No 2 Hawk pilot.	C
2010118	F406 (CIV)	Pegasus Flexwing M/L (CIV)	G	Effectively a non-sighting by the Pegasus microlight pilot and a late sighting by the F406 pilot.	B
2010123	A319 (CAT)	ATR72 (CAT)	D	The ATR72 crew descended below their cleared level and into conflict with the A319.	C
2010125	Merlin HC3 (MIL)	Glider (NK)	G	Effectively a non-sighting by the Merlin crew and a possible non-sighting by the glider pilot.	D
2010129	Skydiver (NK)	R44 (CIV)	G	The R44 pilot flew into a notified and active DZ and into conflict with a skydiver.	A
2010131	C150 (CIV)	PA32 (CIV)	G	The PA32 pilot flew close enough to the C150 to cause its pilot concern.	C
2010137	C152 (CIV)	Beagle Pup (CIV)	G	The Beagle Pup pilot did not establish visual contact with the C152 in order to integrate into the circuit.	A
2010147	Paragliders x 3 (CIV)	EC145 (CIV)	G	The EC145 pilot flew close enough to cause concern to a group of paragliders, some of which he may not have seen.	C
2010148	JS41 (CAT)	BE200 (CIV)	G	APP cleared the BE200 into conflict with the JS41.	C

AIRPROX REPORT No 2010090

Date/Time: 8 Jul 2010 1612Z

Position: 5045N 00238W (5nm W GIBSO)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: DHC-8 A320

Operator: CAT CAT

Alt/FL: FL145↓ FL145↑

Weather: VMC CAVOK VMC CLOC

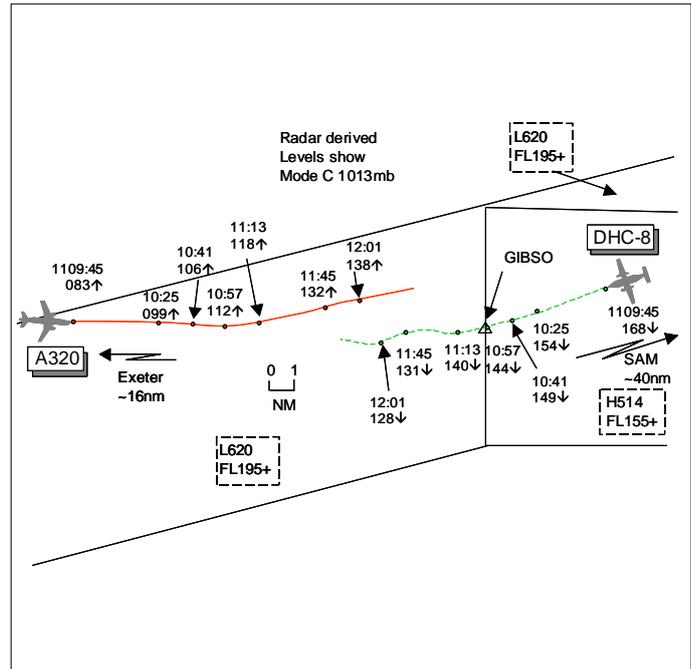
Visibility: 10km

Reported Separation:

1000ft V/2.5nm H NR

Recorded Separation:

1000ft V/1.9nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DHC-8 PILOT reports inbound to Exeter IFR and in communication with London squawking 6260 with Modes S and C. Descending from FL180 to FL100 outside CAS in the area of GIBSO heading 270° at 340kt they were not under Western Radar cover. They saw proximate traffic on TCAS before seeing the A320 flying level, he thought, on their R in the opposite direction. As they descended through its level, a TCAS TA was generated; they turned L due S away from the A320 to avoid, estimating 1000ft vertical and 2.5nm horizontal separation at the CPA. They heard the A320 flight report a TCAS RA. He assessed the risk as low.

THE A320 PILOT reports outbound from Exeter IFR squawking an assigned code with Mode S and C. During the climb at 240kt towards GIBSO to FL160 they were handed over early to London, given a TS and informed of a descending ac leaving GIBSO for Exeter. They made a request to turn L to avoid the traffic and increase their track distance to GIBSO, as they were unable to make GIBSO level FL160 in accordance with their clearance owing to an increasing tailwind component. They picked up the descending ac on TCAS and visually, and saw that it would pass down their RHS. However a TCAS TA and then a brief RA - <1sec – was received and they carried out the RA actions.

THE S20T CONTROLLER reports the DHC-8 was an Exeter inbound who had been cleared to leave CAS; Exeter had accepted the flight at FL100. The A320 then became airborne from Exeter, cleared to join CAS at GIBSO at FL160. TI was passed to the DHC-8 flight about the A320 and again when the A320 was 25nm W of GIBSO. The A320 flight called passing FL85 and was given TI about the DHC-8. As the A320 was climbing through FL105 the crew advised that they could not make their clearance and asked for a heading for extra track miles to make their joining clearance; the crew took a L turn of 15°. The DHC-8 was now outside CAS and the crew also asked for a turn, which they did by L 15°. After the ac passed the A320 flight was given joining clearance on track SAM and the DHC-8 was transferred to Exeter. The A320 crew reported having a TCAS RA whilst the DHC-8 crew stated they didn't but they were visual with the A320.

ATSI reports that the Airprox occurred in Class G, uncontrolled airspace and was reported by the pilot of a DHC-8 in the vicinity of GIBSO at FL145. The DHC-8 was inbound Exeter from Amsterdam via SAM – GIBSO and was in contact with LAC Sector 20 (S20) on 129.425 MHz. The A320 was outbound from Exeter to Dalaman via GIBSO and was also on the S20 frequency. S20 was being

operated by a Tactical Controller (T) and Planning Controller (P). The Airprox occurred at 1612 and at this time there was no Western Radar service available for traffic into and out of Exeter: operational hours on the date of the incident were between 0630 and 1330 (UTC).

At 1557 the DHC-8 flight called S20, maintaining FL240 and routeing towards SAM. The DHC-8 was under a RCS and shortly after this, the S20(T) instructed the DHC-8 to route direct to GIBSO and descend to FL190. S20(P) issued an airways joining clearance direct to Exeter for the departing A320 in accordance with MATS Part 2 procedures: on-track GIBSO, FL160.

For Exeter departures excluding LATCC (Mil): (paragraph 2.6.4.1.2) states:

'All Exeter departures flight-planned to join the ATS route structure at GIBSO/SAM will require Exeter ATC to request a joining clearance from S20. The aircraft shall be transferred directly from Exeter to S20.

... the S20 Planner..., subject to the traffic situation, will issue a joining clearance (which will be passed to Exeter by the S20 Assistant).

... Exeter ATC will turn (the aircraft) on track GIBSO/SAM, subject all traffic.

... The aircraft will be released to LAC S20, on the notified contact frequency, when the aircraft is clear of all traffic'.

At 1603:38 the DHC-8 flight was informed that, "...Exeter will accept you at flight level one hundred you're to be [part word] cleared to leave controlled airspace by descent". This was read-back correctly by the DHC-8 pilot and the Mode S SFL on the situation display was observed to change to FL100. At 1606:09 the A320 was observed to become airborne from Exeter, passing FL010 for FL050. The flight worked Exeter Approach before transfer to S20. Shortly after this at 1606:20 the DHC-8 was advised, "...just be advised there is erm opposite direction traffic there's one just getting airborne off Exeter will be joining GIBSO at flight level one six zero". This was acknowledged and the TI was updated at 1608:10, "...the er previously mentioned traffic is passing flight level four five and he's oh at two five twenty-five miles to run to GIBSO". At this time the DHC-8 was 12nm E of GIBSO passing FL205 in the descent to FL100.

The A320 flight called S20 at 1609:20 routeing direct to GIBSO and climbing FL160. S20(T) immediately informed the A320, "...be advised there is opposite direction traffic is five miles to the east of GIBSO passing flight level one seven three in the descent flight level one hundred". The A320 pilot replied, "Er sorry you were stepped on say again please". S20(T) then transmitted 1609:42, "...traffic information there is five miles to the east of GIBSO a opposite direction traffic descending out of flight level one six seven in the drop to descend to flight level one hundred".

CAP493 Manual of Air Traffic Services Part 1, Section 1 Chapter 5 paragraph 1.2.2 Type of Surveillance Services states:

'Pilots must be advised if a service commences, terminates or changes when:

- a) they are operating outside controlled airspace; or
- b) they cross the boundary of controlled airspace'.

The A320 pilot reported being given a TS. The UK AIP ENR 1.1.2 Para 2 Service Principles states:

'Within Class G airspace, regardless of the service being provided, pilots are ultimately responsible for collision avoidance and terrain clearance, and they should consider service provision to be constrained by the unpredictable nature of this environment.

A pilot shall determine the appropriate service for the various phases and conditions of flight and request that service from the controller/FISO. ...

Controllers will make all reasonable endeavours to provide the service that a pilot requests. However, due to finite resources or controller workload, tactical priorities may influence service availability. ...

Agreements can be established between a controller and a pilot such that the operation of an aircraft is laterally or vertically restricted beyond the core terms of the Basic Service or Traffic Service.'

CAP493 Section 1 Chapter 11 paragraph 2.7.1 Appropriate Type of Service states:

'A pilot shall determine the appropriate service for the various phases and conditions of flight and request that service from the controller. If a pilot fails to request a service, the controller should normally ask the pilot to specify the service required...'

In addition, paragraph 2.8.1 Standard Application of Service states:

'Fundamental to the provision of the UK FIS outside controlled airspace is the standard application of the services to prevent the boundaries between the services becoming confused. Agreement to provide a service and acknowledgement of that level of service by a controller and pilot respectively, establishes an accord whereby both parties will abide with the definitions of the service...'

At 1610:25 the DHC-8 left CAS 2.5nm E of GIBSO, passing FL154 in the descent.

At 1610:40 the A320 pilot reported that the ac would not make the required FL160 by GIBSO and requested a turn to increase track mileage. The S20(T) replied, "A320 c/s you can turn left er fifteen degrees". At this time the A320 was 13nm W of GIBSO passing FL106 in the climb. The DHC-8 crossed GIBSO at 1610:57, making a slight R turn towards Exeter. The S20(T) then updated the DHC-8's TI on the A320, "...the traffic is now in your one o'clock range of ten miles passing flight level one one six". At 1611:15 the DHC-8 flight replied "...er we'd like to turn left to avoid this traffic if possible". S20(T) then stated, "...you are now outside controlled airspace turn left fifteen degrees it's an information service". The DHC-8 pilot read-back, "information service turning left er fifteen degrees DHC-8 c/s er we are visual with the traffic now". S20(T)'s report indicated that a BS was being provided to both ac. The DHC-8 pilot's report stated that the service being provided was 'not advised'. The ANSPs Incident Report stated that: '... the controller was aware ... incorrect phraseology (was used)... (the controller's) intention was to provide a Traffic Service.'

At 1611:45 the distance between the ac was 3.3nm laterally and 100ft vertically, the A320 climbing through FL132 in the DHC-8's 1 o'clock and the DHC-8 descending through FL131. At this point the DHC-8's L turn is seen to commence. Vertical distance between the 2 ac increased and the lateral distance between the 2 decreased. At 1612:01, as the ac pass abeam each other 5nm W of GIBSO, the lateral distance between the 2 ac was 1.9nm with 1000ft vertical distance.

At 1612 the S20(T) informed the A320 flight, "...the traffic's passed down your right hand side you're clear to join controlled airspace on track Southampton in the climb flight level two nine zero". The A320 pilot read-back the amended clearance correctly and reported receiving a "Resolution Advisory in that er climb". S20(T) replied, "Roger you're not yet in controlled airspace". At 1612:30 the S20(T) instructed the DHC-8 flight to, "...resume own navigation for Exeter" and stated, "my radar service terminates". The DHC-8 was then transferred to Exeter Approach. The A320 entered CAS at 1613:03, 2.5nm N of GIBSO passing FL155 and later, at 1614:20, S20(T) informed the A320 flight, "radar control service".

The Airprox occurred when, further to the A320's clearance to join CAS E'bound at GIBSO FL160, the DHC-8 flight was instructed to leave CAS W'bound through GIBSO to an acceptance level of FL100. Standard procedures were followed for the A320 Exeter departure to join CAS at GIBSO. The A320 flight reported being in receipt of a TS at the time of the Airprox however, the type of service required was not stated by the A320 pilot nor requested by the S20(T) on first contact. It is likely, but unconfirmed, that the perceived TS was initially established between Exeter Approach and the A320. The provision of TI to the A320 crew on first contact with S20(T) would enhance the A320 pilot's belief that the ac continued to be subject to a TS. The crew of the A320 was operating under the belief that they were in receipt of a TS; therefore they had ultimate responsibility for collision avoidance. The DHC-8 flight was cleared to leave CAS in the descent to FL100. Whilst still within CAS, S20(T) passed the DHC-8 TI on the A320. The DHC-8 pilot did not state the service required outside CAS nor did the S20(T) controller request the type of service required. The omission of establishing an accord/contract for service provision between the ac and S20(T) was not

commensurate with the fundamental provision of flight information services outside CAS, i.e. there was a lack of standard application. The DHC-8 flight was outside CAS for approximately 1min before being informed as such and was then informed by S20(T) that it was under an 'information service'. An 'information service' is not one of the UK Flight Information Services. The DHC-8 pilot read-back 'information service' but did not challenge the controller as to what this service was. The S20(T) controller's report stated that a BS was being provided to both flights; however, the ANSP showed that the controller had intended to give a TS. This may be borne-out by the provision and updating of TI by S20(T) to both ac. The provision of TI would indicate that S20(T) considered the 2 ac to be in likely conflict. The A320 crew requested a deviation of track to the L in order to attain the required level at GIBSO and this took the A320 N of the DHC-8's track to GIBSO. However, the DHC-8's own navigation to Exeter, after GIBSO, continued to take the DHC-8 towards the A320. Both crews were visual with each other's ac and the DHC-8 crew instigated, by request, a manoeuvre to the L to avoid the A320.

The Airprox resulted from 2 conflicting clearances through GIBSO issued by the S20 controlling team. S20(T)'s TI to both flights aided the pilots' awareness of each others' ac and an avoiding manoeuvre was undertaken by the DHC-8. This Airprox highlighted a lack of standard application of the UK Flight Information Services, with particular respect to ac leaving and joining CAS. The type of service provision outside CAS was not established between the pilots and controller involved and, whilst not considered directly contributory to this Airprox, was considered to be outside the prescribed requirements for service provision as stated in CAP493 and the UK AIP.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The discussion initially focussed on the provision of ATSOCAS to both flights in the absence of Western Radar. The NATS Advisor informed Members that from the ANSP perspective, both flights were not on clearances per se. The DHC-8 had been cleared to leave CAS by descent and had been given an acceptance level from Exeter whilst the A320 had been given a level at GIBSO to enter CAS. A CAT Member believed that normal SOPs for these CAT flights would be for the crews to seek a DS whilst within the Class G airspace portion of their flight W of GIBSO. In this case, although the level of service was not stated to the A320 flight - the crew thought they were under a TS - and an 'Information service' was offered and accepted by the DHC-8 crew, it appeared that the S20T was endeavouring to provide a TS to both flights. Both crews were responsible for requesting the level of service from the ATSU although S20T might not have been able or willing to give a DS, a secondary task to the primary task of providing RCS within CAS. A controller Member thought that Exeter would have been aware of the potential conflict and the Western Radar closure so could have provided a DS to both. That said, Exeter had transferred the A320 in accordance with the MATS Part 2 procedures, which Members believed was appropriate as the DHC-8 still within CAS and the subject ac were going to pass when very close to GIBSO. The information passed by S20T to both flights was, for all intents and purposes, the same as would have been given under a TS. Both crews' SA was enhanced by the TI given and had afforded them a reasonable time to assimilate and act on the information. Both crews saw each other's ac on TCAS; the A320 crew had requested a L turn to increase track distance for their climb and to avoid the DHC-8, whose crew also saw the potential conflict and requested a L turn. TCAS TAs were generated on both flightdecks and visual acquisition was made, the ac passing separated by 1000ft vertically and 1.9nm horizontally on parallel opposing tracks; the A320 crew received a momentary RA as they passed. Members agreed that both crews had fully discharged their responsibilities with respect to maintaining their own separation from other traffic within Class G airspace and this Airprox could be classified as a sighting report where the actions taken had removed any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Sighting report.

Degree of Risk: C.

AIRPROX REPORT No 2010092

Date/Time: 20 Jul 2010 0900Z

Position: 5626N 00252W (3.7nm
N of Leuchars - elev 38ft)

Airspace: Leuchars MATZ/FIR (Class: G)

Reporting Ac Reported Ac

Type: SAAB 340B Harrier T12

Operator: CAT HQ AIR (Ops)

Alt/FL: 3000ft 3000ft
QNH (1009mb) QFE (1008mb)

Weather: VMC CLAC VMC CLBC

Visibility: 40km 20km

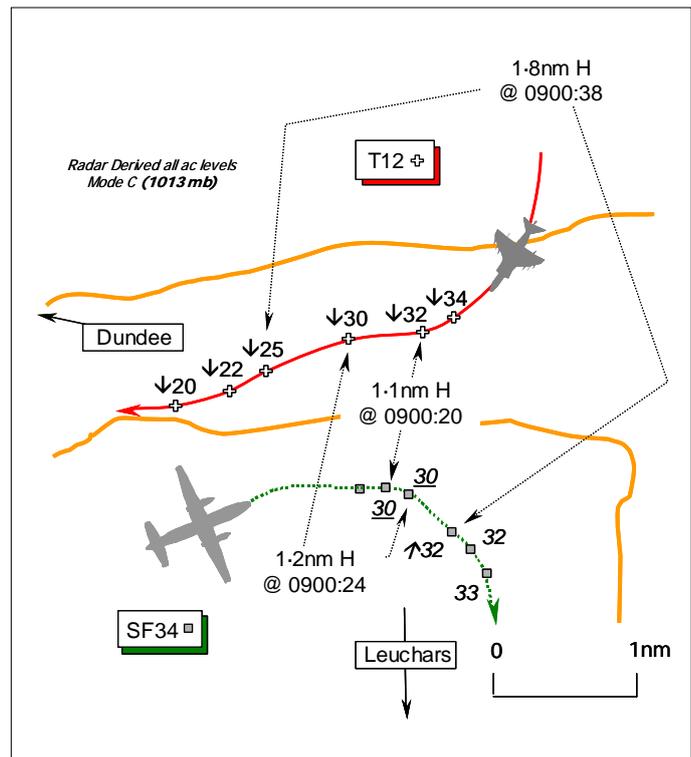
Reported Separation:

100ft V/2nm H 1500ft V/3nm H

Recorded Separation:

200ft V @ 1.1nm Min H

Nil V @ 1.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SAAB 340B (SF34) PILOT reports he was inbound to Dundee from the S at 7000ft under VFR and in receipt of a TS from Leuchars APP. He was instructed by Leuchars APP to descend to 3000ft Dundee QNH (1009mb) and asked to report visual with Dundee Airport. At a range of 6nm DME, in good VMC, they reported visual with the Airport and requested to transfer to Dundee APPROACH if Leuchars had nothing further [to affect their flight]. They were handed over, he thought, [free-called following a pre-note] to Dundee whilst maintaining level flight at 3000ft and began to position L base for RW27 with the A/P engaged, when a TCAS contact appeared on the screen to the NE rapidly approaching their position, displayed at +900ft and at a range of 8nm. The TCAS contact continued to converge on a constant 'heading' whilst descending and both he and his 1st Officer looked for the other ac but could not see it. TCAS then enunciated a 'TRAFFIC' alert. At this point, heading 070° at 180kt, with the TCAS contact about 2nm away, the Captain (PF) disconnected the A/P and turned R into a climbing turn avoidance manoeuvre. TCAS then enunciated an RA - MONITOR VERTICAL SPEED. The other ac was now showing red on the TCAS display at +100ft. Within a few seconds TCAS enunciated CLEAR OF CONFLICT. Despite good visual conditions and a good lookout from both pilots the other ac was never visually identified.

They contacted Leuchars APP on VHF box 2 and were told the other ac was a Harrier on a practice diversion (PD) into Leuchars. The pilots then reconfirmed their position with Dundee ATC and continued inbound for a visual approach to RW27. He assessed the Risk as 'high'.

After shutdown a Dundee ATCO visited the flight deck to discuss the situation and asked them to contact Leuchars by telephone. The Captain duly contacted the Leuchars ATC Supervisor and was informed the inbound Harrier with an instructor and student had made a very late call at 6nm from Leuchars requesting the PD. They were also informed that Leuchars had attempted to pass them TI on the Harrier, but they had already switched over to Dundee ATC and been cleared for the visual approach. The Leuchars ATC Supervisor also stated that as the event took place in Class G airspace there was nothing they could do about it. After discussion with the Chief Pilot a report was filed of a suspected Airprox.

THE BAe HARRIER T12 PILOT reports he was flying a dual VFR PD into Leuchars and in receipt of a TS from Leuchars APP on 308-875Mhz; the assigned squawk was selected with Mode C. The ac has a grey low-conspicuity colour-scheme but the HISLs were on.

Turning R through 250° at 300kt, about 6nm N of Leuchars at 3000ft, APP informed them that another ac was recovering into Dundee Airport. Both aircrew were visual with the low-wing twin from 5nm away during their recovery into Leuchars and maintained visual separation criteria throughout. No avoiding action was taken and the twin passed about 3nm away to port with minimum vertical separation of about 1500ft. There was never any Risk of a collision, as their flight paths did not cross. Both ac were in class G airspace throughout the period of the Airprox.

THE LEUCHARS APPROACH (APP) CONTROLLER reports he was mentor for a trainee. APP was bandboxed with DEPS/LARS, operating from the APP control position and monitoring the 2 LARS frequencies along with APP [308-875MHz] and DIR UHF. Digital Readout Direction Finder (DRDF) was u/s.

His trainee had only one ac under an ATS on VHF - 126.5MHz - the SF34 under a TS. The SF34 crew was given a L base visual join to RW27 at Dundee and just prior to being switched to Dundee ATC was descending through about 4000ft Dundee QNH (1009mb). Traffic was observed 6nm NNE of the SF34 tracking SSE squawking A7000 and indicating 4000ft (1013mb) and was called to the SF34 crew. The Saab pilot informed them that they had the other ac on TCAS and he thought the trainee released the SF34 crew to call Dundee for their visual approach at that point.

The moment the Saab was released, the ac squawking A7000 called Leuchars on UHF - 308-875MHz - for an approach with a simulated emergency. This ac – the Harrier T12 - was now only 6nm N of Leuchars tracking S. The T12 crew requested a visual join and was subsequently given the duty RW [RW27RH and the A/D CC – BLUE]. The T12 pilot then read back RW07 and proceeded to turn to the W to set up for an approach to the wrong RW, which was also towards the SF34 inbound to Dundee. [UKAB Note (1): It was at this point – 0859:31, that the SF34 crew was actually instructed to “...squawk 7 thousand continue with Dundee 1-2-2 decimal 9”.] The T12 pilot was informed of his error and turned his ac back towards the correct RW. During this period the SF34 pilot came back on frequency and asked for a traffic update on the ac that had flown close-by and was informed that it was the previously reported traffic – the Harrier T12.

THE LEUCHARS ATC SUPERVISOR reports that APP was band-boxed with LARS, with a trainee in position. No station-based fast jet traffic was notified to fly until early afternoon. He noticed traffic inbound to Dundee at 3500ft some 4nm N of Leuchars turning SE towards the Leuchars visual cct, which APP informed him had been free-called to Dundee ATC. The Harrier T12 had free-called APP 7nm N requesting a visual join and then the SF34 pilot recalled LARS to say that he was manoeuvring in accordance with a TCAS RA and requesting further information on the traffic. He spoke to the Dundee controller and requested that the SF34 pilot call once on the ground. The SF34 Captain informed him that he was filing an Air Safety Report (ASR) as a result of the TCAS RA.

HQ 1GP BM SM reports that Leuchars ATC provide a surveillance-based ATS to ac inbound to Dundee Airport and the SF34 crew had been in receipt of a TS from APP on VHF before the Airprox occurred. APP was manned by a controller under training and Mentor who, at 0858:42, provided timely TI to the SF34 crew on an unknown ac squawking A7000, “..traffic north 6 miles tracking south east indicating 8 hundred feet below”, which subsequently proved to be the reported Harrier T12 inbound to LEU with a simulated emergency. Although APP reported the range between the ac as “6 miles” the radar recording shows that it was about 9nm away. The SF34 crew acknowledged the TI, stating that they could see the contact on TCAS.

Coinciding with this TI transmitted on VHF, the Harrier T12 crew free-called APP on UHF at 0858:40. Whilst this does not accord with the APP controller’s report, which states that the Harrier T12 crew called after the SF34 crew had been released to Dundee, the tape transcript provides a clearer view of events.

At 0858:56, the Harrier T12 crew transmitted to APP, “...with a simulated engine emergency requesting a straight in approach runway 2-5”. At this point, the Harrier T12 was approximately 9nm NW of LEU. The LEU entry in the RAF FLIP En-Route Supplement ERS (BINA) states that all ac inbound to LEU are to call APP by 40nm. Notwithstanding the importance of the training value afforded to fast-jet pilots of practising no-notice emergency PDs into aerodromes, the instruction to visiting aircrew to call APP by 40nm is to facilitate the integration and sequencing of LEU and Dundee traffic. In this case, the late call from the Harrier T12 crew served to increase the workload of LEU APP and degraded that integration process.

APP passed the ‘short’ weather to the Harrier crew at 0859:08, “[C/S] squawk 0-2-4-6 with ident Leuchars runway 2-7 right hand colour code blue fully serviceable set Q-F-E 1-0-0-8”. Unfortunately, APP did not detect the incorrect readback from the crew of “..runway 0-7..”, instead of “..2-7..” when they responded at 0859:21, “squawking 0-2-4-6 1-0-0-8 and apologies that will be a straight in for runway 0-7”. DRDF was u/s, so the first confirmation to APP about the proximity of the Harrier to the SF34 was when the Harrier’s SSR of A0246 appeared at 0859:25; however, this was when the squawk was apparent on the radar recording and not necessarily the time that it appeared on the controller’s Watchman ASR display. Overlapping the end of the weather transmission by about 2sec is a transmission on VHF from the SF34 crew at 0859:27 that they were, “..happy to change..” frequency to Dundee; it is possible that the overlapping transmissions caused APP to miss the incorrect read-back from the Harrier crew. The transmission from the SF34 crew will have forced APP to change their visual focus from the radar display to their RT frequency selector panel to de-select UHF and then re-select VHF in order to transmit to the SF34 crew. APP’s quick response to the SF34 crew’s call at 0859:31, transferring the flight to Dundee ATC without any TI update, suggests that they did not perceive a conflict between the two ac at this point. It is possible that this was based upon an assessment of the acs’ relative flight paths, such that there was no requirement to update the TI. Alternatively, the increased cognitive arousal caused by the Harrier crew free-calling with a simulated emergency could have induced attentional tunnelling in the trainee such that he provided an automatic response to the SF34 crew, without consideration of the circumstances, to allow the trainee to focus their cognitive resource on the Harrier. Additionally, the fast RT response from the trainee in approving the transfer of the SF34 to Dundee would have prevented the mentor from intervening. However, it is impossible to determine conclusively the reason for the lack of updated TI to the SF34 crew.

At 0859:47, APP commenced a transmission to the Harrier crew on UHF placing the flight under the requested TS. The conflict between the two ac was evident from about 0859:49, following the Harrier crew’s turn onto S, towards the SF34. It is likely that this turn onto S was a positioning turn for an approach to RW07, which the Harrier crew erroneously believed was the duty runway. At 0900:14, APP passed TI to the Harrier crew about the SF34, “[C/S] traffic 12 o’clock half a mile tracking east believed to be civil traffic inbound to Dundee”. [The diagram commences at 0900:16 during this transmission.] The crew replied immediately that they were visual, [with separation of about 1.4nm evident – not the ½ mile reported by APP.] APP believed that the Harrier crew would have been positioning for RW27 and would not therefore have expected the turn onto S commenced at 0859:49, it is reasonable to argue that there was no reason for APP to provide the Harrier crew with TI about the SF34 before 0859:49. Furthermore, given that APP was already transmitting as the conflict became evident, they would not have been able to provide TI until at best 0859:54. However, an opportunity did exist to provide TI from this point, which best practice dictates should have been issued, given the developing situation.

[UKAB Note (1): Minimum horizontal separation occurred at 0900:20, as the Harrier turned R through W descending through 3200ft Mode C (1013mb), with the SF34 1.1nm to the S and 200ft below it. Horizontal separation starts to increase through 1.2nm as the Harrier descends through the SF34’s level on the next sweep, both ac indicating similar levels on Mode C. The climb reported by the SF34 pilot is evident on the recording at 0900:38, as the range increases to 1.8nm with vertical separation of 700ft apparent.]

In part, the decision by the Harrier crew to call APP late, contrary to the LEU entry in the ERS BINA, began a chain of events that led to this Airprox because of its effect on the APP controller’s workload.

Notwithstanding that the Airprox occurred after the SF34 crew left APP's freq and that they had reported that they had contact with the Harrier on TCAS, best practice suggests that the SF34 crew should have been given updated TI on the Harrier before being transferring to Dundee. However, it is unlikely that the provision of this updated TI would have affected the outcome of the occurrence.

As the Harrier crew report maintaining visual separation throughout, it is impossible to state whether the provision of additional TI by APP to the Harrier crew would have resulted in a different outcome. Certainly, the SF34 crew had received timely TI on the Harrier, were monitoring its progress on TCAS and responsible for maintaining their own separation. Whilst not a contributory factor to the Airprox, it is clear that APP should have provided more timely TI to the Harrier T12 crew.

ATSI reports that the Airprox occurred in Class G airspace, 8nm E of Dundee Airport. Dundee Aerodrome and Approach control were operating combined without the aid of surveillance equipment, which is not provisioned at Dundee. The SF34 was IFR in receipt of a Procedural Service and had reported E of Tayport [350° Leuchars 4¼nm] with the aerodrome in sight. The SF34 was cleared for a visual approach to RW27. Shortly afterwards Leuchars RADAR rang Dundee, concerned that the SF34 was turning E towards the Leuchars cct. Leuchars RADAR requested that the SF34 pilot contact Leuchars after landing. The Dundee controller was not aware of other traffic in the vicinity and not immediately aware that an Airprox had occurred.

The pilot of the SF34 was in receipt of a Procedural Service. CAP493 MATS Pt1 (01/07/10), Section 1, Chapter 11, page 10, paragraph 6.1.1, states:

'A Procedural Service is an ATS where, in addition to the provisions of a Basic Service, the controller provides restrictions, instructions and approach 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 Dundee 0850UTC weather was reported as: Surface Wind 220°/3kt; Visibility >10km; Cloud FEW @ 1500ft; Temp 17/15; QNH 1009mb.

HQ AIR (OPS) comments that the Harrier was visual with the Saab from 5nm and whilst manoeuvring towards the intended final approach path maintained adequate separation.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Although the SF34 pilot reported that he was flying under VFR at the time of the Airprox it was evident that he had not cancelled their flight plan and was still operating under IFR, even though the crew was flying a visual approach into RW27 at Dundee. As this ATSU is not radar equipped, the Board recognised the Dundee controller would have been unaware of the Harrier's presence and would not have been able to provide any TI under the Procedural Service unless Leuchars had told him about it. Moreover, Dundee ATC could only separate the IFR SF34 from other IFR flights under their control. With the SF34 just inside the northern boundary of the Leuchars MATZ, after the radar based TS with Leuchars ATC had been terminated and the Harrier still just outside the MATZ under a TS when this Airprox occurred in Class G airspace, the responsibility to effect separation between these two flights under 'see and avoid' remained with the crews themselves.

It was apparent that the SF34 crew had been given TI about the Harrier before both crews called their respective destinations, actually when it was 9nm away the HQ Air ATC report revealed, and a controller Member emphasised that it was unknown traffic at that stage. This had alerted the SF34 crew who reported that it was displayed to them on their TCAS and that would have reassured APP when later advised that the flight wanted to switch to Dundee ATC. However, having been told

originally that the unknown traffic was “..indicating 8 hundred feet below”, a CAT pilot Member suggested that the SF34 crew would have been concerned when, not being able to detect it visually, their TCAS enunciated the TA followed by the fleeting RA triggered by traffic descending from above, in all probability not realising at the time it was the same ac they had been told about earlier when it was below them. Following the TA, the SF34 Captain reports he disengaged the A/P, turned R and climbed to avoid the Harrier shown on their TCAS, before the RA commanding the crew to MONITOR VERTICAL SPEED was triggered. The radar recording showed the climb in response to the RA had been initiated after the CPA when the Harrier was already 500ft below the SF34’s altitude and some 1.8nm astern, so it seemed that the crew’s reaction to their TCAS RA had little impact on the overall outcome here. Whilst manoeuvring on the basis of a TA alone is contrary to established practice, CAT pilot Members recognised that the SF34 crew would have been greatly concerned at the possibility of a conflict with the fast moving ac and would want to preserve whatever separation they could. In the vertical plane TCAS information is entirely accurate, whereas azimuth indications can give a misleading impression of the actual geometry.

Whilst HQ 1 Gp had suggested the Harrier should have called APP for the PD at an earlier opportunity, the HQ Air Ops Member expected military ATSUs to be able to accommodate short or no notice practice emergencies such as these whenever at all possible. During training great emphasis is placed on the potential for such emergencies, which are practised at every opportunity. Military aircrew and controller training must contain this essential element and it was important that ATC should react promptly to such requests. Furthermore, the Air Ops Member contended that the Harrier instructor might well have realised that his student was turning to approach the A/D from the wrong direction and wanted to see how his student would subsequently react. A CAT pilot Member identified that this turn for the wrong RW was significant and in his view the catalyst to the conflict. The Harrier was originally heading SE and would not have flown into conflict as the Harrier’s course for a visual straight in approach to RW27 would not have conflicted with the SF34. APP was not busy and it was unfortunate that the trainee, and more especially the mentor, had not subsequently detected the incorrect read-back from the Harrier crew which resulted in the Harrier turning westerly toward the SF34. Whilst APP would not have been expecting this, a military controller Member suggested that the APP mentor was not paying sufficient attention to his trainee and should have spotted the Harrier crew’s mistake earlier. Another controller Member perceived that the TI passed to the Harrier crew about the SF34 could have been passed earlier; indeed the HQ 1 Gp report concluded that an opportunity did exist to provide more timely TI to the Harrier crew. Controller Members agreed that in this situation, given the Harrier crew’s unexpected turn for the wrong RW and thus toward the SF34, the mentor should have recognised the potential for a conflict and ensured that TI was promptly issued to the Harrier crew.

It was plain that TI about the SF34 was actually passed at a range of 1.4nm not the ½nm transmitted, but it was unfortunate that APP had not appreciated what was happening earlier. Nevertheless, the Harrier pilot reported they had sighted the SF34 from about 5nm away, well before this TI was given, and responded immediately that they had it in sight. However, despite maintaining visual contact on the SF34 throughout the encounter it was evident the Harrier crew had flown closer to it than they had realised during their initial manoeuvring for their approach. The radar recording revealed that the horizontal separation was 1.2nm, when the Harrier descended through the twin’s level and somewhat less than the 3nm/1500ft the Harrier pilot subsequently reported. Nevertheless, the HQ Air Member opined that the Harrier crew had spotted the SF34 in good time and had avoided it by a suitable margin. The Board concluded therefore that this Airprox had resulted because the Harrier crew flew close enough to the SAAB 340B to trigger a TCAS RA. However, with the Harrier crew entirely cognisant of their position relative to the SF34 and able to manoeuvre their nimble ac whatever the SF34 crew might do, no Risk of a collision had existed.

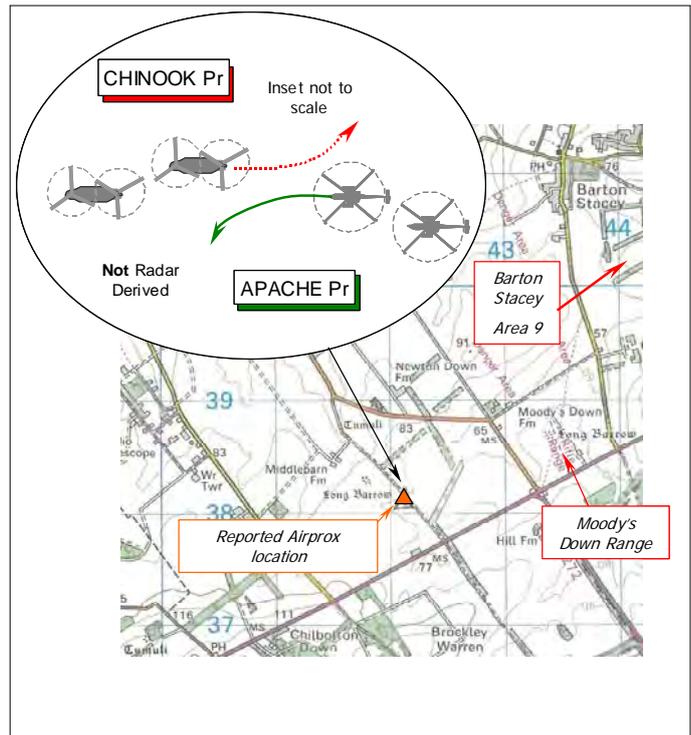
PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Harrier crew flew close enough to the SAAB 340B to trigger a TCAS RA.

Degree of Risk: C.

AIRPROX REPORT No 2010096

Date/Time: 21 Jul 2010 2216Z NIGHT
Position: 5108N 00122W (6½nm E of Middle Wallop)
Airspace: NLFS NRR1 (Class: G)
Reporting Ac **Reported Ac**
Type: Apache AH1 x2 Chinook HC1 x2
Operator: HQ JHC HQ JHC
Alt/FL: 115ft 250ft
agl agl
Weather: VMC CLBC VMC CLBC
Visibility: 15km 20km
Reported Separation:
100ft V/nil H 100ft V/50ft H
Recorded Separation:
Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE APACHE AH1 HELICOPTER PILOT, a QHI, reports he was leading a pair of Apache ac, flying dual with a student as the PF, on a pairs final handling test for conversion to type. He was flying approximately 4-5 rotor spans in front of the No2 Apache. In accordance with SOPs, his lead helicopter was showing IR lighting and the No2 was fully lit; both ac were displaying glimmers [non-NVG compatible tactical lights not visible all round] and conventional navigation lights on steady bright; in addition his No 2 also had red HISLs on. He was not in receipt of an ATIS but monitoring UHF LFS Common - 278.00MHz. A squawk of A2676 was selected [unverified Middle Wallop conspicuity] with Modes C & S on; TCAS is not fitted.

Whilst in a level transit at a height of 115ft, S of Moody Down range [1½nm S of Barton Stacey] prior to starting field ccts to an area 1nm W of Moody Down Range, he heard a call from Middle Wallop ATC, transmitting blind on LFS Common, that 2 Chinooks were approaching Barton Stacey from the SW. He perceived that these two helicopters were N of his formation. However, to assist the Chinook crew's situational awareness he transmitted blind that his formation of 2 Apaches were transiting S of Moody Down range to operate 1nm W of the range. A few minutes later, heading 270°(T) at 120kt, he spotted a single Chinook on Forward Looking Infra Red (FLIR), at very close range, head-on to his Apache pair. He took control from his student and rolled his ac L and down, away from the Chinook, which was high and to the R of his helicopter. He then saw the second Chinook fly 100ft directly above his Apache. At this point he transmitted blind on LFS Common declaring his position and his general concern about what had just happened. Avoidance between the 2 pairs was purely down to luck, the closing speed probably in excess of 250kt and the Risk of collision 'very high'. He noted that flying on FLIR it is not easy to see conventional lighting. His own workload was high, instructing and leading a pair, while the instructor in the No 2 ac had a very high workload monitoring his student flying in formation at low level.

He was concerned that they had no prior notice before departing Middle Wallop that there would be any low-level Chinook traffic in the area. Under normal operational conditions this would be acceptable, but the ability of QHIs to monitor a 'chat' frequency and conduct suitable instruction to train new Apache student pilots can cause considerable difficulties. If prior notice of the Chinooks routeing had been given then they would have been much more conscious of the potential for a conflict and pro-actively looking for them.

THE CHINOOK HC1 PILOT reports that he was the No2 of a pair of Chinook helicopters on a night tactical formation check conducted by his leader. They were based on Salisbury Plain and had departed Netheravon bound for Odiham. The lead helicopter had NVG formation lights on and NVG upper (IR) strobes ('Glimmer up 2 & Moonrise'); his No2 ac was displaying conventional 'white light' navigation lights and upper red HISLs as per SOP.

Approximately 1½ hours into the sortie his formation was approaching Barton Stacey from the SW at 250ft msd and receiving a BS from Middle Wallop APP. However, the lead was in the process of changing to Odiham INFORMATION on VHF, whilst retaining LFS Common set on UHF. They positively identified a red strobe in the formation's 12 o'clock in the vicinity of Barton Stacey and he called this information to his leader on air-to-air (VHF FM) who acknowledged the call. The strobe was moving slowly from L to R about 3–4nm ahead, which then became stationary indicating the other ac was now either travelling away from, or heading towards the formation. At this point he transmitted blind on LFS Common that 2 Chinooks were approaching Barton Stacey from the SW, to pass to the S and then departing to the E. This call was acknowledged by another crew who stated they were established in a cct at Barton Stacey [UKAB Note (1): A Lynx AH Mk 7 QHI was circuiting within Barton Stacey Area 9 at the time of this Airprox – the Lynx pilot's report is included below. The transcript of LFS Common revealed that another Chinook was also operating in the vicinity, it was subsequently ascertained this activity was N of the A303, circuiting to Longparish.] No other call on LFS Common was heard or acknowledged. Heading 090° at 120kt, the single red strobe then began moving from R to L before again becoming stationary, however at a closer distance and closing. He began to flash his NVG landing lamp for about 5secs as did the lead Chinook; however, the red strobe remained stationary. At this point his leader called to break L, which both Chinooks did. During the turn he saw an Apache appear out of the darkness and pass down his starboard side about 100ft below his helicopter and some 50ft away. No lights could be seen on or off 'goggles' from this ac by either the pilot or the No2 crewman. The red strobe that had been previously identified then passed a few seconds later to starboard of the formation, again lower, where it then became apparent that this was the No2 of a pair of Apache helicopters. The lead Apache pilot then called on LFS Common stating his concern, which was acknowledged with their callsign. He assessed the Risk as 'medium' and added that whilst switching from Middle Wallop to Odiham, there was a short period when the Chinook formation was 'not under a radar service' [sic].

THE LYNX AH MK 7 pilot, a QHI, was requested to provide an account and reports that he was conducting confined area training for the rear crew at Barton Stacey Area 9 when he heard a radio broadcast from Wallop APP on 278.00MHz LFS Common about a pair of Chinooks transiting to the N of Barton Stacey. Shortly after this a blind call on LFS Common was heard from an Apache pair, stating that they were operating in the area of Moody Down. He acknowledged this call with his location and intentions. Another call was then heard, again on LFS Common, from one of the Apache pilots directed at the Chinook pair that had approached the area from the S and had apparently flown very close to the leading Apache helicopter. The Apache pilot stated that he was unhappy with the proximity of the Chinook and the lack of SA.

UKAB Note (2): A transcript of LFS Common 278.00MHz and the Middle Wallop APP frequency was helpfully provided by the Unit. All relevant transmissions received on the Middle Wallop recording are included below. However, it should be noted that some UHF transmissions made by ac operating at low-level might not have been received because of terrain shielding.

THE MIDDLE WALLOP APPROACH RADAR CONTROLLER (APR) reports that the Chinook formation called Wallop APP requesting a BS and MATZ transit routeing eastbound from a position 8nm SW of Middle Wallop at a height of 250ft agl passing no closer than 4nm to the aerodrome. The Chinook formation was placed under a BS, the Middle Wallop QFE issued and a warning passed that Barton Stacey was active. He then made a broadcast [at 2209:52] on LFS Common - 278.0MHz – giving the position, route and height of the Chinook formation. [At 2210:22, APP advised the Chinook Leader, "...I've just had (heard) a broadcast on 2-7-8 decimal 0 I believe there are a couple of cabs operating in the vicinity of Barton Stacey at this time", which was acknowledged, "that traffics all copied [C/S]..".] A second broadcast was transmitted by APP on LFS Common with an updated

position of the Chinook formation as they passed Stockbridge [some 3½nm SE of Middle Wallop]. [At 2213:17, APP broadcast, *“Wallop Approach blind call on 2-7-8 decimal 0 previously reported Middle Wallop MATZ transit traffic 2 Chinooks 1 mile south of Stockbridge tracking east 250 feet Wallop Q-F-E Wallop broadcast out.”* The Chinook leader reported switching en-route to LFS Common and Odiham on VHF at 2214:02]. Shortly after this there was an exchange of RT messages on LFS Common between the leader of the Apache formation and the Chinook formation, the former saying he was filing against two Chinooks that had affected their sortie activity. The Apache formation leader then called Wallop APP for the callsign of the conflicting traffic.

UKAB Note (3): At 2213:50, the Apache formation reported on LFS Common, *“L-F-A-1 2 Apaches routeing south of Moody Down range to operate to the area just west of Moody Down range by 1 mile L-F-A 1 transmitting blind”*. The Lynx crew operating at Barton Stacey responded at 2214:05, *“L-F-A-1 – 1 Lynx operating in area 9 field circuits on goggles L-F-A-1”*. At 2214:48, the Chinook formation broadcast, *“Barton Stacey 2 Chinooks approaching from the southwest passing south routeing east Barton Stacey”*, which was followed by a transmission from another single Chinook operating N of the A303 at Longparish, *“Barton Stacey 1 Chinook operating at Barton Stacey in the circuit”*. The Chinook formation then reported at 2215:04, that they were visual with traffic at Barton Stacey, *“..in your south west now”*. Just over one minute later at 2216:12, the Apache formation advised, *“[C/S] south of Barton Stacey you just went head to head with me there not happy”*. A further transmission was then made by the Apache formation, *“[C/S] south of Barton Stacey this is [C/S] formation a pair of Apaches routeing now west”*. The Chinook formation responded at 2216:31, *“Apache callsign this is [Chinook formation C/S] on Stud 9 we were visual with you and broke left we didn’t see the pair (sic) at the front we saw the trail aircraft thought we’d keep clear of that”*. The formation leaders then agreed to discuss the incident after landing.

UKAB Note (4): This Airprox is not shown on recorded radar.

SATCO MIDDLE WALLOP confirmed that the formation of 2 Chinook Helicopters transited through the Middle Wallop MATZ receiving a BS from Middle Wallop APP on 280-625MHz. Meanwhile, the formation of 2 Apache helicopters was operating to the E of Middle Wallop in the vicinity of Barton Stacey on LFS Common - a frequency that was being proactively monitored by the APR. Recognising the potential for a confliction between these ac, the APR informed the Chinook formation of the activity at Barton Stacey, which was acknowledged. Then outwith his normal remit, the APR conscientiously transmitted two broadcasts on LFS Common endeavouring to assist the Apache crews’ SA by informing them of the potential confliction. At 2214 the Chinook pair exited the Middle Wallop MATZ, as cleared with APP, and switched to LFS Common, checking in immediately on that frequency with a broadcast as is required. The Airprox occurred 2min later.

The Chinook pair was operating out of Netheravon as part of an exercise; therefore, they did not have advance notification of the Middle Wallop night flying routes. Similarly, the Apache crews did not have advance notification of the Chinooks routeing. None of the crews involved had the opportunity to deconflict whilst still on the ground. However, the RT transmissions should more than mitigate this fact. It should also be noted that Middle Wallop is currently trialling the Centralised Aviation Data System (CADS) [a Web based low-flying route notification tool], which is not used by all other LFA users.

However, he was puzzled as to why the Chinook pair was such a surprise to the Apache pair as the APR had done his best to pass them TI. The Apache pair had two early ‘heads-up’ broadcasts from the APR, followed by the call from the Chinook pair on LFS Common. If they were not visual, there was an opportunity to reply to their transmission.

ATSI had nothing further to add.

HQ JHC comments that this was a very serious event that nearly had a catastrophic outcome. There was a high degree of chance that led to this being an Airprox, rather than a mid-air collision. This head-to-head Airprox between two formations occurred in very congested airspace at night - a result of the imperative to train at night for current operations. The lack of notification of the Chinook

formation's route has been resolved through fixed and portable versions of CADS, although this measure alone will not solve all conflicts. This HQ recognises the high risks involved with multiple ac operating in the same vicinity and is actively pursuing all mitigating measures. The difficulties involved with the identification of conflicting traffic, some of whom are in formation with different light set-ups and perhaps through different media (some on NVG, some on FLIR) are well understood by crews and this Airprox will be widely publicized.

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 controller involved and reports from the appropriate operating authority.

This Airprox was one of two incidents to be considered by the Board involving Apache and Chinook helicopters operating at night with NVDs in NRR1 - the other being Airprox 2010097. Significantly in this case, however, the two formations had not spotted each other before they flew into close quarters.

The Apache pilot reports he was not aware of the Chinook's transit through NRR1 before take-off and it was apparent the Chinook formation had been operating from an exercise location within the Salisbury Plain Training Area. The HQ JHC Member advised that the Chinook crews were unable to pass details of their flight for the benefit of other NRR1 users beforehand. Board members were pleased to learn that the shortcomings in the notification system had been identified and addressed. The HQ JHC Member stressed that since this Airprox had occurred CADS was now being trialled by Odiham and other participants who operate in NRR1 so that information could now be exchanged at the flight planning stage. This would undoubtedly improve crews' SA if planned routes and timings could be adhered to. However, military pilot Members were acutely aware that many factors could intervene to upset a carefully balanced programme so that 'see and avoid' was still the essential method for averting any conflict. Indeed civilian ac might well be encountered at night with no notification whatsoever, albeit that only Police helicopters would be likely to be using NVDs or operating at the heights involved in this incident. This seemed to the Board to be quite a congested training area with 6 airframes/4 speaking units in an area of a few square miles. However, the Board's low-flying Advisor pointed out that all the crews here were flying in conformity with procedures for NRR1. The HQ AAC Member stressed the very high demands placed on Units to accomplish their training objectives and instructors were operating under a considerable workload. Training night field circuits is a difficult task demanding rapt concentration. Disturbances and distractions to this complex activity were not welcome, but these crews followed all applicable procedures in an effort to ensure the safe conduct of their sorties yet still a conflict resulted in this 'see and avoid' environment.

The HQ Air pilot Members questioned whether the ac involved here were sufficiently well lit. The JHC Member contended that the lighting displayed by the helicopters was in accordance with SOPs for such sorties and the Command had no concerns on that topic. However, he went on to explain to the Board that the FLIR used by the Apaches has a narrow field of view and for the Chinook crews, relative distance/depth perception is one of the most difficult aspects of operating with NVDs. Whilst it was accepted this was a difficult task it was imperative to train crews in the use of these devices. The HQ JHC Member stressed that night conflicts are not accepted lightly; these Airprox have been considered most seriously and the Command continues to investigate ways of minimising the potential Risk.

The Board commended the Middle Wallop APR for recognising the potential for a conflict between the Chinook formation as they transited past Barton Stacey and the other helicopters known to be circuiting there. The controller's positive stance in making blind calls on LFS Common about the Chinook formation's transit had alerted the lead Apache pilot, but the latter reported he was expecting them to transit further to the N and their appearance was a surprise when encountered to the S of Barton Stacey. The Board was briefed that there are three locations in the vicinity of Barton Stacey

that are commonly used by military helicopter units for training sorties and some confusion might have arisen over which was being referred to on the RT. The blind call from the lead Apache, which had been answered by the Lynx pilot operating in Area 9, was evidently made 1min before the Chinook pair switched to LFS Common and made their own transmission. However, the Chinook's call, "*..approaching from the southwest passing south routeing east..*" should have made it plain where they were intending to fly. This was answered in turn by the singleton Chinook crew operating at Longparish. Therefore the presence of the Apache pair, S of Barton Stacey heading SW, would not have been immediately apparent to the Chinook pair who would have only expected to see traffic circuiting further to the N. It was evident that the Chinook formation had 'positively identified' a moving red strobe at range in the formation's 12 o'clock in the vicinity of Barton Stacey, which they reported sighting on RT subsequent to the singleton Chinook's call. With a Lynx helicopter also in the vicinity of Barton Stacey the Board was unable to confirm with certainty the identity of the 'red strobe' first seen. Evidently, the Chinook pilots were not aware that another formation was flying toward them until the single red strobe subsequently bloomed into the No2 Apache, and not immediately aware that the Apache they saw was the No2 of a pair. Members noted that the flashing of the Chinooks' NVG landing lamps did not alert the Apache lead pilot who only spotted the lead Chinook on his FLIR display - at very close range he said. While it was possible that each could have done more to advertise their ac's presence, it was stressed that there was a significant amount of cultural lighting potentially affecting both crews in this vicinity from the A303, the A34, the city lights of Salisbury and Andover to the SW. The HQ AAC Member opined that as they were approaching their landing site the lead Apache crew would have been scanning the ground more, but when the lead QHI saw the leading Chinook he took control from his student, rolled L and down to avoid it, unaware that the No2 Chinook was also just about to overfly him. It seems that this was about the same time that the lead Chinook pilot recognised the situation and called the L break to his wingman, based on observation of the No2 Apache, but significantly neither the Chinook leader nor his No2 were aware of the closer leading Apache until after they had turned and the No2 Chinook pilot saw the leading Apache fly past to starboard. After a comprehensive debate, the Board concluded that this Airprox had been the result of a conflict in Night Rotary Region 1 between two helicopter formations.

The crews of both formations had eventually seen and avoided each other but, in the absence of radar data, the actual separation between them could not be determined independently. Both pilots' reports agreed that the vertical separation was a mere 100ft; from the No2 Chinook pilot's perspective the horizontal separation was no more than 50ft and he assessed the Risk as 'medium', whereas the reporting Apache pilot considered that the horizontal separation was 'nil' as the No2 Chinook overflew his ac and the Risk 'very high'. Fortunately, both formation leaders had elected to turn L, but this was an uncoordinated manoeuvre and the Board agreed that it was a very close encounter indeed between four helicopters, where chance had played a significant part in the outcome. Members agreed unanimously and that an actual Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in Night Rotary Region 1 between two helicopter formations.

Degree of Risk: A.

AIRPROX REPORT No 2010097

Date/Time: 22 Jul 2010 2130Z NIGHT

Position: 5120N 00131W (1½nm
SE of Rivar Hill GS - elev
730ft)

Airspace: NLFS (Class: G)

Reporting Ac Reported Ac

Type: Apache AH1 pr Chinook HC1

Operator: HQ JHC HQ JHC

Alt/FL: 300ft 250ft
agl agl

Weather: VMC CLOC VMC N/R

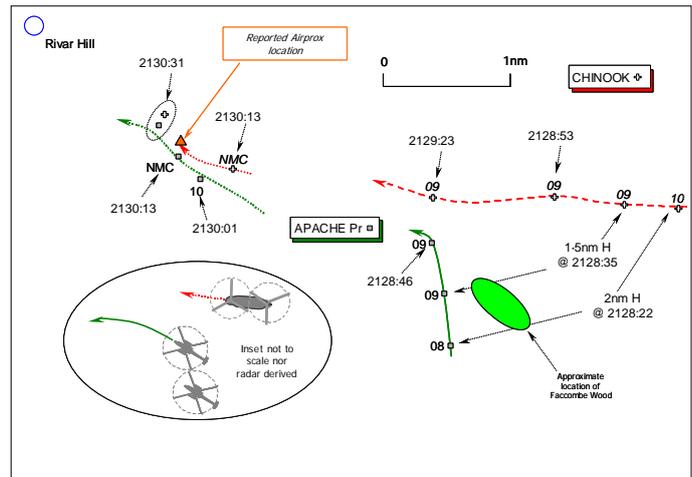
Visibility: 15km 10km

Reported Separation:

Nil V/150m H 400m H

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE APACHE AH 1 PILOT reports he was leading a pairs night low-level conversion training sortie departing from Middle Wallop and routeing N from Andover at 300ft agl, VFR and not in receipt of an ATS. A squawk of A2676 was selected [unverified Middle Wallop conspicuity] with Mode C on; TCAS is not fitted. Both ac were displaying glimmers [non-NVG compatible tactical lights not visible all round] and conventional navigation lights on steady bright; in addition his No 2 also had red HISLs on.

Monitoring LFS Common – 278.0MHz – he heard a Chinook crew making a blind call on the frequency stating that they would be routeing Newbury - Burbage [about 4½nm W of Rivar Hill] - Westbury. As the formation commander he made a blind call on LFS Common that the 2 Apaches were routeing N from Andover and thence N to Faccombe Wood, before turning W towards Rivar Hill Gliding Site (GS) [at 51° 20' 38"N 001° 32' 35"W]. From the Chinook crew's call he knew that they would be roughly in the same area at the same time so he tried to get a formal acknowledgement that they had received his RT call. No response was heard from the Chinook crew after 2 attempts, but he then gained visual contact on the Chinook and realised that it would be behind them; his No 2 remained visual with the Chinook until he also turned away routeing to the W [leaving the Chinook astern]. About 2nm out from Rivar Hill GS he then heard the Chinook crew call 'routeing Burbage following a formation of 2 ahead'. This gave the Apache formation leader the impression that the Chinook would remain behind his formation. About 1 min later heading 300°(T) at 80kt his No 2 called 'break left and climb', which he started to do. At this point he saw the Chinook on his starboard side overtaking his helicopter at the same height. To avoid the Chinook he rolled L and entered a slight climb as it passed about 150m away to starboard with a 'high' Risk of collision. The Airprox occurred at OS Grid SU 338 591 - 51° 19' 46"N 001° 30' 53" – about 1½nm SE of Rivar Hill. He established communication with the Chinook crew and voiced his displeasure over the RT. The Chinook then continued to fly across his intended flight path, which took it over Rivar Hill GS. After discussing events with his No2 he then reported an Airprox with Wallop APP.

His concern was that the Chinook came too close and then overflew his intended landing point. He was unaware that the Chinook crew intended to overtake his formation as close as they did. Having spoken to the Chinook Captain after landing he had been assured that the Chinook crew had both Apaches visual and therefore the risk of collision was relatively low, if they had maintained their

respective flight paths. However if he had manoeuvred his formation to the R the chance of a collision would have been 'very high' due to the unnecessary proximity of the Chinook. He added that if the Chinook pilots wanted to pass, then simple deconfliction could have been achieved on the RT and all the crews involved would have then been aware of what was happening.

THE CHINOOK HC1 PILOT reports that he had departed Odiham for a dual night low-level NVD transit and was flying from Bramley to Burbage within NRR1. He was not in receipt of an ATS but monitoring LFS Common; a squawk of A3646 [unverified Odiham conspicuity] was selected with Mode C on. Navigation lights and the red upper HISL were on.

Approaching Rivar Hill from the E at 250ft agl heading 275° at 140kt, he acquired a formation of 2 Apache helicopters from a distance of about 4nm. His crew positively identified both ac in the formation, even though the lead Apache was not displaying any external lights. They initially slowed their Chinook to a TAS of about 90kt to allow time to assess the actions of the Apache formation and whilst flying at reduced speed an information call was broadcast on LFS Common, stating that their Chinook was routeing to Burbage behind a formation of two ac; no response was heard initially from the formation. Once the Apache formation's track was established, because of the slow speed of the formation a decision was made to overtake the Apache formation to their R, whilst accelerating to 140kt. During the overtake, his co-pilot and No 1 crewman maintained positive visual identification on both Apache helicopters within the formation to port and both crew members considered the separation between their Chinook and the Apache formation to be sufficient to allow the Apache crews tactical freedom of manoeuvre. Shortly after passing the Apache formation an RT call was heard from the lead pilot expressing concern at their helicopter's proximity. The RT call was acknowledged and their callsign passed to the Apache formation.

The crew was surprised at the radio call from the lead Apache pilot as they believed the separation they had afforded was adequate throughout. Neither he nor any of his the crew believed they had flown closer than 400m to the Apache formation and assessed the Risk as 'low'.

UKAB Note (1): The LATCC (Mil) radar recording does not illustrate this Airprox clearly. However, the Apache formation and the Chinook are both shown on the Pease Pottage Radar at the extremity of coverage as intermittent SSR contacts only, but not always at the same time. The Chinook is shown westbound toward the Airprox location, at an indicated altitude of 900ft London QNH (1015mb) unverified Mode C and radar ground speed (RGS) of 120-125kt, as the Apache pair follow a northbound track from the vicinity of Andover at a RGS of about 120kt. At 2128:35, the Apache formation is in the Chinook's L 11 o'clock - 1.5nm at the same altitude of 900ft unverified Mode C. After passing the vicinity of Facombe Woods, secondary contact becomes very intermittent following the Apache pair's westbound turn. With only one ac generally shown it is not possible to differentiate which ac is the lead ac. The Chinook seems to maintain a broadly westerly course maintaining an altitude of 900ft, before fading for a while with only intermittent returns evident thereafter. The Apache formation are displayed again, intermittently but now definitely tracking NW'ly, approaching the reported Airprox location maintaining an altitude of 1000ft QNH at a RGS of 70-75kt with occasional paints from the Chinook suggesting it was flying a WNW'ly course. No contacts are evident on either ac after 2130:31. The intermittent nature of the recording does not allow the geometry nor the minimum separation of this encounter to be assessed with confidence.

UKAB Note (2): A transcript of LFS Common 278-00MHz was provided by Middle Wallop ATC; all relevant transmissions received on the Middle Wallop recording are included herewith. However, it should be noted that some UHF transmissions made by ac operating at low-level might not have been received because of terrain shielding. Whilst unlikely, it was feasible that not all transmissions had been captured.

The Apache formation checked-in on frequency and broadcast at 2124:14, "*blind call L-F-A 1, [Apache C/S] north of Andover descending low level to operate Ink Pen Ridge*" [2nm ENE of Rivar Hill]. A further call was made at 2124:28, "*blind call [Apache C/S] Andover routeing north Facombe Wood turning left..to route west towards Rivar to operate there for circuits L-F-A 1*".

The first recorded transmission from the Chinook crew was at 2126:57, when they called, "*Chinook crossing the A 34 south of Burbage (sic)..south of Newbury enroute Burbage*". Moments later the Apache formation advised the Chinook crew at 2127:23, "*Chinook entering L-F-A 1 south of Newbury 2 Apaches routeing north to the area of Rivar gliding site for circuits.*" No reply is recorded from the Chinook crew. A further call was made by the Apache formation at 2128:05, "[Apache C/S] *the Chinook..just..to the...south of..Newbury..2 Apaches turning left [one word unintelligible] Rivar*". The Apache Leader then queried at 2128:24, [Apache C/S] *Chinook routing to Burbage 2 Apaches routeing to Rivar are you visual?*" No reply is recorded from the Chinook crew, however, at 2129:45 they transmitted, "*L-F-A 1 Chinook approach..(part of word followed by short break) approaching Burbage enroute Westbury following tw..(part of word) a formation of 2.*"

After the Airprox had occurred at 2130:31, the Apache pilot queried, "*..Chinook just north of Rivar did you have us visual*", whose crew responded, "*..affirm*". In his next transmission the Apache pilot expressed his concern about the proximity of the Chinook during the overtaking manoeuvre and the Chinook pilot advised the Apache pilot "*..we transmitted that we were coming up behind you*".

THE MIDDLE WALLOP APPROACH RADAR CONTROLLER (APR) reports that at 2130 the Apache pilot called on RT and reported an Airprox with a Chinook close to Rivar Hill. The pilot estimated the Chinook passed within 100m of his Apache formation. Neither crew were in receipt of an ATS from Middle Wallop APP at the time of the Airprox.

SATCO MIDDLE WALLOP added that the formation of 2 Apache Helicopters was operating in the vicinity of Rivar Hill GS on a low-level pairs training sortie. Meanwhile, a Chinook was transiting through the area, crossing the A34 S of Newbury then routeing westbound towards Burbage. The Airprox took place at 2130z and all the crews involved were operating on LFS Common – 278.0MHz - and transmitting broadcasts in accordance with the LFA agreement. No ATS was being provided to any of these flights.

It should be noted that Middle Wallop is currently trialling the Centralised Aviation Data System (CADS); [a Web based low-flying route notification tool], which at the time of the Airprox was not in use by all other LFA users. The Chinook routeing was not entered onto CADS by Odiham, nor by any user at Middle Wallop due to the late notification and lack of specific route information; instead this information was provided in textual format for OC Night Flying to brief Middle Wallop crews verbally.

HQ JHC comments that this is an unfortunate event where all involved were aware of each other at the time due to the recent change to LFA1 procedures, one element of which requires blind call transmissions passing certain line features. The Chinook crew did not give warning of their intention to overtake. There was an opportunity for the Chinook crew to declare their intentions as the Apache crew were expecting the Chinook to trail them due to the Chinook transmission on LFS Common.

A causal factor identified by the Command within this report and Airprox 2010 096 was the lack of detail with the night flying information being passed from Odiham to Middle Wallop – the routeing information was vague. There have since been two LFA 1 meetings when both these Airprox were the subject of much discussion. The shortcomings in the notification system were identified and have been addressed. A Systems trial of a new planning tool - CADS - is underway on a limited number of units at Middle Wallop, Benson and Odiham to ascertain the utility of the system. This HQ emphasises that this is a deconfliction planning tool – without TCAS or an ATS, the principle of 'see and avoid' prevails over 'plan to avoid'.

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 controller involved and reports from the appropriate operating authority.

It was reported that the Apache crews were not aware of the Chinook's transit before take-off and that the night flying information passed from Odiham to Middle Wallop lacked detail. The Command's view was that the shortcomings in the notification system had been identified and addressed by the use of the CADS, which was being trialled. Moreover, as all of the crews involved were aware of each other's presence before the Airprox occurred, earlier notification would not have affected the outcome. Indeed civilian ac might well be encountered at night with no notification whatsoever, albeit that only Police helicopters would be likely to be using NVDs or operating at the heights involved in this encounter.

The HQ JHC Member briefed the Board that the lighting displayed by the respective helicopters was in accordance with SOPs for such sorties and that the Command had no concerns over that aspect. However, the demands placed on aircrew when operating and training with these highly sophisticated helicopters should not be underestimated and in this scenario the instructors were working under significant pressure. Nonetheless, it seemed to the Board that the lead Apache pilot had shown sound SA and done all he could to make the Chinook crew aware of his presence and intentions. Indeed the radar recording reflected that the Apache leader's query, "...*Chinook routing to Burbage 2 Apaches routeing to Rivar are you visual?*", was transmitted whilst the pair was still northbound and before they turned W, when the Chinook was about 2nm away. In the other cockpit, the Chinook crew had acquired the two Apache helicopters at an earlier stage – the Chinook pilot reported he had them in sight from a range of 5nm. This had been helpfully transmitted to the Apache crews ahead as the Chinook approached from astern, but not until later, about 1min after the pair had turned L and slowed to a RGS of about 70-75kt the radar recording reflected. Whilst the Apache leader reports hearing the Chinook pilot's call being visual with the Apache formation, no RT call was evident on the transcript that the former was overtaking. After the event the Chinook pilot advised the Apache pilot "...*we transmitted that we were coming up behind you*", but the words he had actually used "...*following..a formation of 2*" clearly led the Apache leader to believe that the Chinook would follow his formation and remain clear astern. The JHC Member explained that all was in order until the Chinook pilot decided to overtake without passing a warning on the RT. In the Command's view, better airmanship dictated that the Chinook pilot should have made his intentions more plain on the RT, and it was surprising to the Members that he had not done so, which evidently took the Apache leader by surprise. Whereas the Apache pilot reported the Chinook passed 150m away, the Chinook crew reported they had not flown closer than 400m. Without better radar data it was not possible to resolve the differing perceptions of the minimum horizontal separation. With the Chinook overtaking the Apaches on their starboard side, as is required by the Rules of the Air, the Chinook PF in the right hand seat was relying on his co-pilot and crewman to judge the separation. It was suggested that the westbound Chinook crew – using NVDs – might not have realised that the Apache pair had taken up a NW'ly course toward Rivar Hill resulting in unexpectedly converging tracks with the Chinook, albeit that Rivar Hill had been mentioned on RT as their destination. The JHC pilot Member explained that relative distance/depth perception is one of the most difficult aspects of operating with NVDs, suggesting to other Members that this might have been a factor here.

It was clear to the Board that the Chinook Captain, in the overtaking ac, was responsible for the separation between himself and the overtaken Apache pair until he had passed and was well clear. The Apache crews would have been unable to see the Chinook until it started to draw almost abeam and they would not have been able to monitor the separation or affect the outcome until the No 2 saw it first and called the break. Whatever that distance, it was plain the Apache pair were surprised by the Chinook Captain's actions and felt obliged to take avoiding action. Consequently, the Board concluded that the Cause of this Airprox was that whilst overtaking, the Chinook pilot flew sufficiently close to cause the Apache formation concern. However, the Board was briefed that the Chinook is a very manoeuvrable helicopter and, visual with both Apaches, the Chinook pilot was always able to manoeuvre and give them a wider berth if needs be. The Members agreed, therefore, that there was no Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Whilst overtaking, the Chinook pilot flew sufficiently close to cause the Apache formation concern.

Degree of Risk: C.

AIRPROX REPORT No 2010100

Date/Time: 23 Jul 2010 0948Z

Position: 5238N 00050W (1nm
NW Wycombe - elev
520ft)

Airspace: Wycombe ATZ (Class: G)

Reporting Ac Reported Ac

Type: PA28 PA28

Operator: Civ Trg Civ Pte

Alt/FL: 1000ft 600ft ↑
(QFE 1001mb) (QNH)

Weather: VMC CLBC VMC CLBC

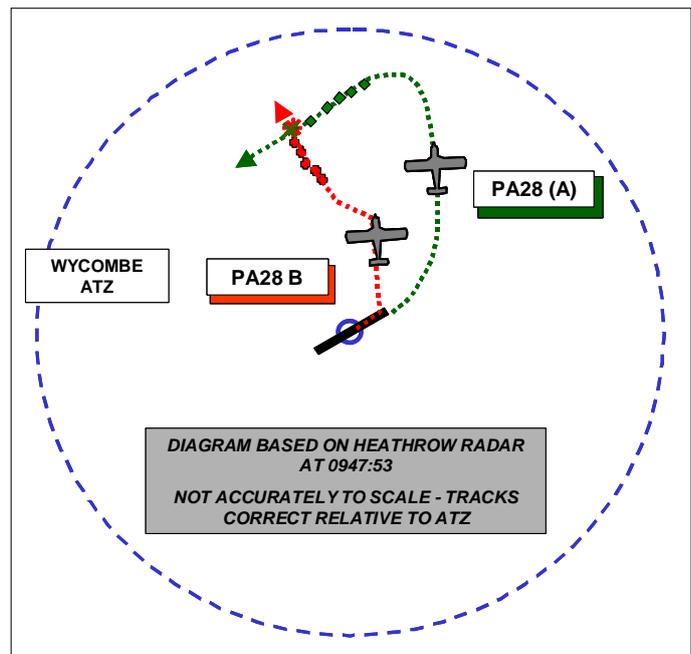
Visibility: 10km 8km

Reported Separation:

0ft V/100m H Not Seen

Recorded Separation:

0ft V/ <0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PA28 PILOT (A) reports that she was conducting a CPL Skills test (partial) in the cct in a white ac with orange stripes and was squawking 7000 with Mode C, while in receipt of an Aerodrome Control Service from Wycombe TWR. The cct traffic was light and only a few transmissions were heard on the RT. While at the mid-point downwind for RW06 (LH) heading 240° at 120kt, and discussing what type of approach to do next, her candidate saw another PA28 (with wheel spats) 150m away in their 10 o'clock, crossing their flightpath from left to right, at a similar height. As he exclaimed the ac passed 100m ahead of them heading in a northerly direction.

The examiner asked the controller if he had transit traffic, to which he replied “No, just a departure to Halton”. Since a test was being conducted she did not report the incident until they were on the ground and assessed the risk of collision as being high.

THE PA28 PILOT (B) reports that he was flying a private flight from Wycombe to RAF Halton in a white and red ac squawking 7000. On arrival at Halton he was informed of an Airprox but saw no other ac.

Prior to departure at checkout he enquired about the noise abatement procedure and he had a chart showing the details.

On departure ATC told him to proceed to point Alpha [the N end of the parking apron] and hold, which he did. They then told him to move to the grass taxiway [S and parallel to the asphalt RW] indicated by the white markers but he held his position for a moment as a stationary ac was facing him at point Bravo [on the taxiway at the end of the grass parallel RW] but he was urged to move, which he did and subsequently taxied to the run up position for RW06 and advised that he was ready for departure. ATC then asked him to hold for incoming ac, which he did; after the incoming ac had passed they told him to line up and he was then cleared for take off. While initially heading 020° at 80kt he was aware of an ac ahead in the climb-out, which he subsequently assumed to be the incoming ac doing a touch and go. He is fairly certain that he called, ‘C/S taking off’, as this is his normal procedure and that he flew the appropriate noise abatement turns which end on a track of

360° then headed north towards Halton. He does not recall hearing any other messages from ATC but before he made the frequency change he thanked Wycombe for their help.

He thought he had maintained a good lookout throughout and could not understand why, having been cleared for take off, there was another ac in the vicinity.

ATSI reports that the Airprox occurred at 0948:39 in Class G airspace, 1.7nm NW of Wycombe Air Park and within the ATZ (radius 2nm up to 2000ft aal 520ft).

Wycombe Air Park provide an Aerodrome Control Service (ADC) and RW06, with LH ccts, was the notified RW.

The Wycombe unofficial weather observation was reported as: 230955Z 020/05-10kts 9999 BKN020 Q1021.

ATSI had access to controller and pilot reports, together with radar recordings but, due to an administrative oversight, the original RTF recordings were not available. The controller was therefore questioned some time after the incident in order to clarify events.

The Wycombe Air Park AIP entry for noise abatement, AIP AD2-EGTB-1-5 (**22 Oct 09** i.e. the version valid at the time of the incident) paragraph 2.21, stated:

'a. Pilots of departing aircraft are required to conform to strict Noise Abatement Procedures. These are available from the Aerodrome Operator.'

When Runway 06 is in use the Sands Noise Abatement Zone, which lies to the northeast, is active. Wycombe Air Park MATS Part 2, Section 1, Chapter 5, Page 1, paragraph 1, together with the Aerodrome pilot briefing diagram and sheet states:

'Runway 06 In Use:

As soon as **safely** possible, before reaching the M40 (e.g., at the windsock), turn left to maintain a track 020° M. Upon reaching 600 feet turn crosswind to track 360° M and maintain to circuit height.

WARNING: *Close proximity of helicopters during initial climb.*

Practice Engine Failures after Take Off are forbidden.

If remaining in the circuit, commence turn downwind to remain inside the Aerodrome Traffic Zone following the published downwind track for 24/06. DO NOT OVERFLY LANE END OR FRIETH whilst on the Downwind leg.

The fixed wing circuit is to be flown at 1000ft QFE.'

The PA28-201 (PA28 (A)) was an exam VFR flight, conducting visual LH ccts on RW06 while PA28-161 (PA28 (B)) was on a VFR flight from Wycombe Air Park to Halton Airfield and was given taxi clearance for departure RW06. When the pilot called ready for departure, PA28 (A) was turning final and had been cleared for a 'touch and go'. The PA28 (B) was given a conditional clearance, "*after the landing Cherokee line-up and wait*". Once the PA28 (A) completed the 'touch and go', the controller gave the PA28 take off clearance with an instruction to follow the noise abatement procedures. The controller expected PA28 (B) to take up a heading 020° until reaching 600ft and then turn onto a heading of 360° to leave the ATZ. PA28 (B) reported changing frequency to Halton Radio shortly after departure. The controller then passed instructions to a helicopter on the apron and did not observe the PA28 (B) as it tracked N.

The controller indicated that when the PA28 (A) reported downwind, the pilot asked whether he was aware of an over flight and described the ac that was in close proximity. The controller recognised that the ac described was probably the outbound PA28 (B) but he was unsure if the PA28 (B) had been given TI on the PA28 (A) in the cct; he believed, however, that it was evident that the cct was active and considered that the instruction to follow the noise abatement procedure would ensure that both ac initially followed the same track with PA28 (B) passing behind PA28 (A) as it turned downwind.

AIP AD2-EGTB-1-5 (22 Oct 09) paragraph 2.22, 3/iii, states:

'Pilots of aircraft flying within the confines of the Wycombe ATZ are responsible for providing their own separation from other aircraft operating within the ATZ.

MATS Pt1, Section 1, Chapter 12, Page 3, paragraph 2, states:

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

aircraft flying in, and in the vicinity of, the ATZ.'

The Airprox occurred within the ATZ. It is not clear if the Controller passed TI to the PA28 (B) regarding the PA28 (A) ahead in the cct but he issued instructions to the PA28 (B) to ensure that after departure, the ac followed the noise abatement procedures. The Controller believed that both ac would follow the same noise abatement procedure, with the PA28 (A) turning downwind, while the PA28 (B) departed the ATZ on a northerly track towards Halton, which lies NNE of Wycombe. The PA28 (B) reported changing to Halton Radio but the controller did not see it turning onto a northwesterly track and was therefore not aware of the potential conflict.

Radar recording shows the PA28 (A) follow the noise abatement procedure for a standard circuit with the PA28 (B) turning left at 480ft aal. PA28 (B) can be seen tracking 330° and climbing to circuit height, crossing the midpoint of the downwind leg in close proximity to PA28 (A).

UKAB Note (1): Although there is no transcript, it is understood that, while taxiing out (due to his unfamiliarity with Wycombe) the pilot of PA28 (B) had difficulty in assimilating the instructions passed to him by TWR. On further questioning it became apparent that both ac were using RW06 (Asphalt) and that PA28 (B) was instructed to backtrack down RW24 (Grass) to the holding point for RW06 (Asphalt).

UKAB Note (2): The incident shows clearly on the recording of the Heathrow 23cm radar (and others). The geometry is as described in the ATSI report above and as depicted in the diagram.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar recordings, reports from the air traffic controller involved and reports from the appropriate ATC authorities.

The Board noted that the respective pilots, one a locally based examiner and the other a visitor, had seemingly interpreted the published (mandatory) noise abatement procedures differently; PA28 (A) pilot apparently continuing to the airfield boundary before turning onto 020°, while PA28 (B) turned just after getting airborne and possibly about half way down the RW. [It was not possible from the information available to determine what precise track either ac flew on getting airborne as it was not mentioned in any of the reports and the ac were below the base of recorded radar coverage]. Having been briefed on the procedures in force at the time of the incident, the Board agreed that both interpretations were understandable. There was however, an expectation from both the controller and PA28 (A) crew that the correct procedure [for RW06] was to fly the ground track as depicted in

both the locally produced handout and in Pooley's Flight Guide, which continues straight ahead to the airfield boundary, rather than turning onto 020° 'as soon as safely possible', which in many cases can involve a significantly different ground track.

Although the ADC did not see the incident, and was therefore not able to provide any warning to the respective pilots, without the benefit of a transcript Members could not determine whether or not his actions had been reasonable.

Notwithstanding the factors above, both ac were operating in the area of the visual cct, which is a 'see and avoid' environment. The crew of PA28 (A) were engaged on a high-pressure check flight and, although they saw the opposing ac pass 100m ahead of them, the sighting was too late to take any effective avoiding action. PA28 (B) pilot on the other hand did not see, nor was he aware of (A), at any time. That being the case, the 'built-in' avoidance of about 150m [radar verified] had occurred purely by happenstance.

Members debated whether or not there had been an actual collision risk; considering the crossing geometry, however, they agreed that had there been an actual risk then PA28 (A) would have been in PA28 (B)'s forward field of view for some time, albeit possibly on a constant bearing. Since apparently this was not the case, the Board agreed that, although safety had not been assured, there had been no risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: PA28 (B) turned into conflict with PA28 (A) in the Wycombe ATZ.

Degree of Risk: B.

AIRPROX REPORT No 2010102

Date/Time: 29 Jul 2010 1310Z

Position: 5150N 00119W
(Oxford/Kidlington
RW01RHC - elev 270ft)

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

Type: PA34-200T PA34

Operator: Civ Trg Civ Pte

Alt/FL: 800ft NR
QNH (1016mb) (N/K)

Weather: VMC VMC NR

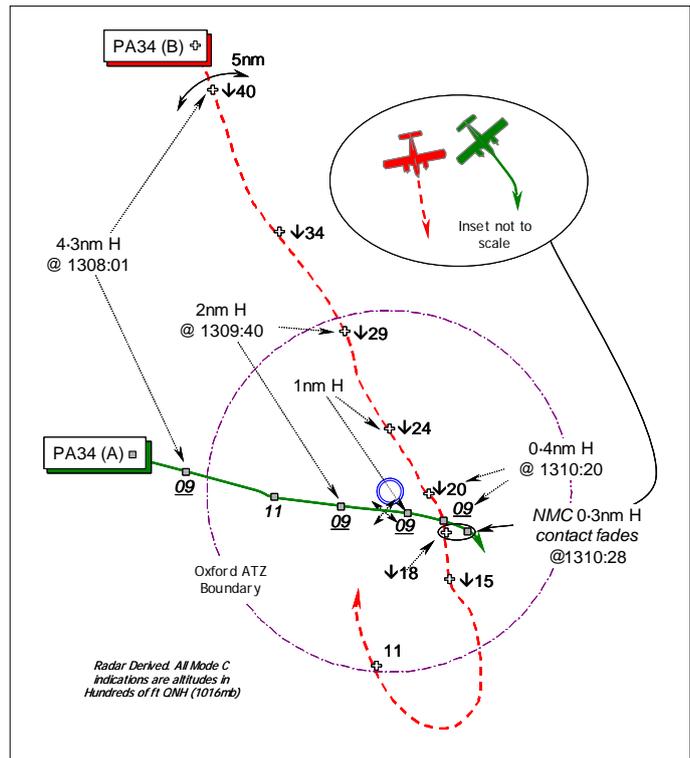
Visibility: >10km >10km

Reported Separation:

200ft V NR

Recorded Separation:

>0.3nm H - see Note (2)



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PILOT OF PA34-200T (A) reports that he was instructing a local instrument training flight at Oxford under VFR in VMC finishing with an NDB approach. The runway in use was RW01 and he was flying the published OXFORD/KIDLINGTON NDB (L)/DME 100° procedure with visual manoeuvring to the active RW. On completion of the approach, as instructed by Oxford TOWER, they were joining visually to RW01RHC - low level - at 800ft QNH (1016mb) [a height of about 530ft]. The controller had instructed them to position No2 to a Zlin on final approach but at the end of the downwind leg heading 190° at 120kt, TOWER alerted them to another ac joining the cct – another PA34 that was inside of them - and therefore to position as No3 in the pattern. Looking to their R nothing was seen until his student indicated the ac was above them, where it was seen 200ft above them, gear down and descending. No avoiding action was taken as they were visual with it and he assessed the Risk as 'low'.

His ac is coloured blue & white and the HISL was on; a squawk of A7000 was selected with Mode C.

THE PILOT OF PA34 (B) reports he was inbound to Oxford/Kidlington on an IFR flight plan from Durham Tees Valley Airport and was flying a visual approach from the NNW at 160kt. Descending to the cct pattern altitude and about to cross the runway mid-field to join RH downwind for RW01, 'the radar controller (sic)' [UKAB Note (1): actually the procedural APPROACH controller as there is no ASR provisioned at Oxford] drew his attention to opposite direction traffic below his ac several miles away, which he reported in sight. The controller made no mention of other general traffic in the vicinity or in particular other ac in the pattern. As he was switched to the TOWER frequency, he saw a light twin below and slightly to his L on approximately the same track and he remarked to the controller about seeing a small ac below his ac. The other ac was first seen about 500-700ft below his ac to the L, and as he had higher speed the other ac was immediately obscured by his port wing and engine nacelle. The controller's response was 'there are a lot of aircraft over Oxford not necessarily in contact with this unit'. This was a very chilling message, which he remembers very clearly. As the ac below was now invisible under his port wing and he was descending into the pattern altitude, to avoid it he made an instant decision to turn 90° to the R to join a tight RH downwind pattern. As he switched to TOWER frequency, he could hear the ADC asking another pilot – the pilot of PA34 (A) - to extend his pattern as the other Seneca was cutting inside. At this point he understood that his ac - PA34 (B) - was 'the other Seneca' and the ac he had seen was in the cct –

PA34 (A). He said something like 'sorry about that' over the RT, but did not feel especially guilty as deciding on a tight pattern at this instant in time seemed the natural thing to do to avoid descending onto another ac believed to be on easterly track. Transitioning into a climb and executing a missed approach would possibly have been a better option, but he was not fully aware at this point about the boundaries of Brize Norton's CAS [just to the W].

He added that although unfamiliar with Oxford airport, he was also unfamiliar with the practice that the radar controller (*sic*) omits to mention other landing traffic after being cleared for a visual approach. He assessed the Risk as low – medium. The ac's HISL was on.

THE OXFORD PROCEDURAL APPROACH CONTROLLER (APP) was not informed of the Airprox until a couple of days afterwards but provided a comprehensive report to the best of his recollection.

Traffic levels on APP at the time were moderate to high with PA34 (A) flying VFR on the 100° procedure, a number of other ac operating in the local area VFR, some over flights and PA34 (B). LTC pre-noted PA34 (B) leaving HON approaching the Airprox from the NNW. Upon first contact the pilot of PA34 (B) requested radar vectors to an ILS approach for RW19. The pilot was informed that Oxford is not radar equipped, that RW01RHC was in use and that the current procedure available was the 100° approach with visual manoeuvring to RW01 RHC. The pilot of PA34 (B) declined and stated he would join visually and had the field in sight. He requested the ac's range, which was 10 DME, before requesting that he report at 5 DME, to descend as required to 2500ft QNH and to expect a crosswind join for RW01RHC, which was all read back. The crosswind join had been co-ordinated with TOWER and approved by the ADC. Meanwhile, PA34 (A) already inbound on the 100° procedure had cancelled IFR and joined the cct. Basic TI was given on a couple of ac that were operating VFR out to the NW conducting general handling at various levels. When the pilot of PA34 (B) reported 5 DME field in sight, still indicating NNW, he was instructed to join crosswind at 1500ft QNH, which was read back. He advised the pilot of PA34 (B) that there were a number of ac in the cct and to contact the TOWER on 133.425MHz, which was read back by the pilot who then switched to TOWER. He was not aware that the pilot of PA34 (B) had any sort of difficulty in finding the field; visibility was good and he had reported field in sight at 10 DME.

THE OXFORD AERODROME CONTROLLER (ADC) reports that PA34 (A) was in the visual cct to RW01RHC and had called downwind. APP was working PA34 (B) inbound for a crosswind join and the controller had already commented on apparent language difficulties he was experiencing with the pilot and apparent lack of preparation for arrival at Oxford. PA34 (B)'s crosswind join was co-ordinated by APP and had been accepted with 1 ac in the cct. As is normal, the transfer of communication was to be at 5nm, and as the transfer was taking place he looked to check the position of PA34 (A) in the cct in order to give TI to the pilot of PA34 (B) when he called. From overhead the Control Tower, PA34 (B) suddenly appeared, apparently diving into the cct, straight at PA34 (A). TI was given to PA34 (A) but because of the angle of approach, apparently the instructor had not seen PA34 (B) until pointed out by his student. By this time PA34 (B) had turned inside PA34 (A) and had started to pull ahead. With language difficulty in mind, the crew of PA34 (A) was asked to reposition No2 to PA34 (B) in order to alleviate any further problems. The pilot of PA34 (B) then contracted TWR and was instructed to report final No1. Both ac landed safely without further incident.

ATSI reports that because of a problem with the recording equipment at Oxford, no RT data is available for the period of this Airprox. The Unit confirm that the problem has been rectified. Furthermore, a new recording system has been identified and replacement is now at an advanced stage. In the absence of any RTF recordings, information was taken from the controllers' recollection of events, together with reports from the pilots of the subject ac.

The Oxford unofficial 1250Z weather observation was: Surface wind 290°/10-15kt; Visibility 10km; Cloud: FEW @ 3300ft, BKN @ 4800ft; Temperature +19/+11; QNH 1016mb, QFE 1006mb. Oxford ATC is not equipped with any surveillance radar equipment.

PA34 (B) was inbound to Oxford IFR from Durham Tees Valley Airport. The flight exited CAS at HONILEY, the controller believing he had issued FL50 when the Airways Controller requested a level. On first contact, the pilot of PA34 (B) requested radar vectors to the ILS for RW19. The pilot was informed that no radar was available and the RW in use was RW01 with a right hand cct (RHC). The current procedure was the 100° approach with visual manoeuvring to RW01. The pilot then stated his intention of carrying out a visual approach and reported the airfield in sight, at a range of 10nm to the NNW. The pilot of PA34 (B) was requested to report at 5nm DME, to descend to 2500ft QNH (1016mb) and advised to expect a crosswind join for RW01RHC, which was read back. This join had been co-ordinated with the ADC. When the pilot of PA34 (B) reported at 5nm DME (still NNW of the airport), with the airport in sight, he was instructed to join crosswind at an altitude of 1500ft. This was read back correctly. The pilot was informed there were a number of ac in the cct and then transferred to the TOWER.

Meanwhile, PA34 (A) was returning to Oxford on an IRT, operating VFR, following an NDB approach and go around that was positioning into the RH cct to RW01. The pilot reported downwind with TOWER and was instructed to continue No2 to a Zlin ac.

The ADC heard APP transfer PA34 (B). The controller confirmed that it was normal for inbound ac to be transferred to the TOWER frequency at a range of 5nm. The ADC reported that, prior to the pilot of PA34 (B) contacting TOWER, he checked PA34 (A)'s cct position. As he was establishing this, he noticed PA34 (B) suddenly appearing from overhead the VCR, descending into the cct towards PA34 (A). He immediately warned the crew of PA34 (A) and instructed them to continue behind PA34 (B). By this time, PA34 (B), whose pilot was still not in contact on the TOWER frequency, had proceeded ahead of and inside PA34 (A).

The UK AIP, Page AD 2-EGTK-1-6, states the Noise Abatement procedures for Oxford. Included:

‘Whenever possible aircraft joining the circuit should, subject to ATC approval, plan to join on base leg or via a straight-in approach, giving way to traffic already established in the circuit’.

Additionally, on the same page, Flight Procedures-Circuits states:

‘Circuits variable. To be flown to the east of runway 01/19. To provide separation between fixed-wing and rotary-wing traffic, the circuit height for fixed-wing aircraft is 1200ft QFE’.

With no radar information, Oxford ATC relies on position reports from the pilots and DF indications. On this occasion, the ADC believed that PA34 (B) was some 5nm NNW of the airport, when he was transferred from APP. Accordingly, he checked the position of other traffic in the cct, so as to be able to inform the pilot of PA34 (B) of the cct situation on initial contact. Fortunately, he was able to observe PA34 (B) as it exited the VCR overhead and was able to warn the crew of PA34 (A) of its presence.

UKAB Note (2): The LACC System recording shows PA34 (A) approaching Oxford Airport from the W, level at an indicated altitude of 900ft QNH (1016mb); on completion of the 100° procedure the ac passes S abeam the Airport at a Radar Ground Speed (RGS) of 108kt. PA34 (B) is shown approaching the Airport in a continuous descent on a generally SSE'ly track. PA34 (B) is shown inside 5d from Oxford at 1308:01, 4.3nm N of PA34 (A). PA34 (B) descends into the ATZ at a RGS of about 190kt after crossing through the climb-out to RW01 ½nm N of the airport and descending through 2300ft QNH. At 1310:20, PA34 (A) is shown crossing through PA34 (B)'s 12 o'clock at a range of 0.4nm indicating 1100ft below the latter, before PA34 (A) commences a R turn downwind. PA34 (B) passes 0.3nm W of and inside PA34 (A) descending through 1800ft before PA34 (A) fades from coverage. Continuing on a southerly course PA34 (B) extends downwind to a range of 2.6nm from the Airport before turning in onto final approach for RW01RHC and fading from coverage

UKAB Note (3): The UK AIP at AD 2-EGTK-1 – 5 notifies the Oxford/Kidlington Aerodrome Traffic Zone (ATZ) as a circle radius 2nm centred on the midpoint of RW01/19, extending from the surface to 2000ft above the aerodrome elevation of 270ft.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authority.

The unserviceability of the Oxford RT recorders and hence the absence of an RT recording of the APP and TWR frequencies had hampered the investigation of this Airprox significantly. Controller Members were concerned that this should have occurred as usually a dual recorder system is proof against such difficulties. The Board was reassured that a new recording system was being procured. Nevertheless, without an RT transcript it was not feasible to resolve exactly what information was passed to the pilot of PA34 (B) or when he called. However, there was no reason to doubt the veracity of the accounts submitted by the controller's involved nor the report submitted by ATSI.

It was evident to the Board that the crux of this Airprox was the integration of an IFR visual approach with VFR cct traffic in a non-radar environment where APP could only provide a Procedural Service. A highly experienced GA Member believed it should have been plain to the pilot of PA34 (B) from his pre-flight planning that no radar services were available from Oxford and that radar vectors to the ILS were not an option. Noting that the IFR flight plan had not been cancelled, the Member opined that after refusing the offered 100° approach to circle for RW01RHC and instead electing to fly a visual approach, the pilot of PA34 (B) was obliged to set-up his visual arrival in an appropriate manner by complying with the APP controllers instructions and not by entering the cct area, fast, from above. CAT pilot Members agreed that if the pilot of PA34 (B) had done as instructed the Airprox would not have occurred.

Whilst the pilot of PA34 (B), as IFR traffic, expected to be given TI about other ac in the cct, he had reported that he was not advised that PA34 (A) was already in the pattern. This was at odds with APP's report that when the pilot of PA34 (B) reported he was at 5 DME, he was instructed to join crosswind at 1500ft QNH, that there were a number of ac in the cct and to contact TWR, which was all read back. Without a transcript it was not possible to resolve this discrepancy but it seemed to pilot Members that these instructions were plain enough and, if complied with, would have allowed sufficient time for TWR to update the cct information on PA34 (A), for the pilot of PA34 (B) to sight PA34 (A) ahead in the pattern and fit in with it. However, several controller Members disagreed. In their view APP had not done enough to integrate the arrival of the IFR PA34 (B) on his visual approach with the VFR PA34 (A) establishing downwind ahead. Although the pilot of PA34 (B) had refused the 100° procedure, APP should have done more and did not give an appropriate level of service to the IFR flight. A Member opined that APP could have insisted that the pilot of PA34 (B) execute the 100° procedure, which would have ensured the flight's safe integration. But it was evident that this was not what APP had coordinated with TWR and some controller Members did not believe that APP should have arranged PA34 (B)'s visual approach in this way.

The ATSI Advisor explained that it was in order for APP to instruct the pilot of PA34 (B) to join crosswind at 1500ft QNH, clear of PA34 (A) and that is what TOWER expected. Whilst APP did not know exactly where PA34 (B) was in this non-radar environment until the pilot reported at 5DME, he instructed the pilot to call TOWER at that point and passed TI, albeit the detail of that information was not known. PA34 (B) pilot's actions were plain from his report, insofar as he was joining by descending to traffic pattern altitude whilst crossing the runway midfield to join right downwind for RWY01RHC when he saw PA34 (A) below his port wing. The radar recording shows that the pilot of PA34 (B) had flown his visual approach as he reported but this was at variance with APP's instructions. Moreover, he did not call TWR straight away it would seem; the pilot of PA34 (B) reports that as he switched to the TOWER frequency he saw the light twin - PA34 (A) - below and slightly to his L on approximately the same track. This occurred when both ac were to the SE of Oxford Airport,

after PA34 (A) had crossed ahead and below PA34 (B), whose pilot therefore, could not have called TOWER when instructed at 5DME to the NNW.

TOWER had planned the cct pattern based on the co-ordination with APP and was expecting PA34 (B) crosswind for RW01RHC, level at 1500ft QNH a controller Member stressed, not descending into the cct late downwind. If the pilot of PA34 (B) had done as instructed accurate TI could have been issued on PA34 (A), visual contact by PA34 (B) confirmed and the order of landing established, or other instructions issued. PA34 (A) had little impact on the outcome. PA34 (B) entered the cct area fast, descending and still not in contact with TOWER the controller reported. This necessitated a swift adjustment of the landing order, which was communicated to the pilot of PA34 (B) as soon as he called. It was evident from the radar recording that PA34 (B) flew inside PA34 (A) descending through 1800ft QNH, still 300ft above the pattern altitude and probably about 900ft above PA34 (A) the recording suggests, although PA34 (A)'s Mode C is not evident at that point. Without the transcript it was impossible to be dogmatic about what was actually transmitted and when, but it was plain to pilot Members that this was a poorly planned and executed arrival and not in accord with the instructions given to integrate these two flights. The Board agreed therefore that this Airprox had resulted because the pilot of PA34 (B) did not comply with the APPROACH controller's instructions. However, at the distances recorded here the Members agreed unanimously that no Risk of a collision had existed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The pilot of PA34 (B) did not comply with the APPROACH controller's instructions.

Degree of Risk: C.

AIRPROX REPORT No 2010104

Date/Time: 10 Aug 0954Z

Position: 5047N 00158W
(5nm W of Bournemouth
Airport elev: 38ft)

Airspace: Solent CTA (Class: D)

Reporter: Bournemouth ATC

1st Ac 2nd Ac

Type: B737-800 DA42

Operator: CAT Civ Trg

Alt/FL: 3700ft↑ 4000ft
QNH (1011mb) QNH (1011mb)

Weather: IMC In Cloud IMC In Cloud

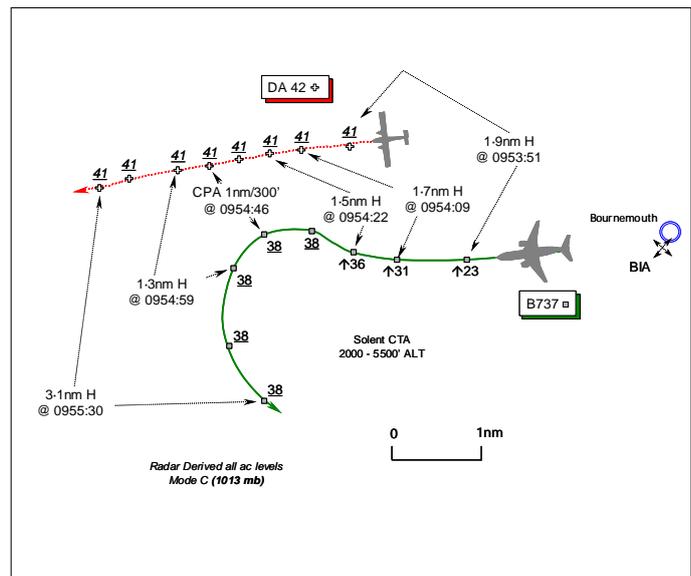
Visibility: Nil 500m

Reported Separation:

300ft V/1nm H 200ft V/1nm H

Recorded Separation:

300ft V/1nm H



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BOURNEMOUTH APPROACH RADAR CONTROLLER (RADAR) reports that the B737 was departing IFR under a RCS and released to stop climb at 3000ft Bournemouth QNH. The restriction was because of a DA42, operating IFR, holding on the BIA at 4000ft QNH to the WNW of the Airport. The DA42 had been 'locked' onto a heading of 260° and the B737 crew was instructed to fly a heading of 080°, which was queried by the B737 crew but the transmissions crossed. The B737 was then observed climbing through 3000ft, so the crew was instructed to 'stop climb now' by which time their ac was at an altitude of 3700ft. TI was passed to the B737 crew about the DA42 and the airliner was turned L onto a heading of 080°. Minimum separation was estimated to be 200-300ft/1nm; once horizontal separation was achieved the B737 was climbed to FL70.

THE B737-800 PILOT reports he was departing from RW26 at Bournemouth under IFR bound for Ibiza. They were cleared for an easterly departure climbing to an altitude of 4000ft QNH. Passing about 2000ft, IMC in cloud, they were switched to RADAR and checked in with their passing altitude and cleared altitude. RADAR then instructed them to fly a heading of 080° and they began a R turn at 165kt in line with the direction of their departure. A few seconds after commencing the R turn they spotted traffic on their TCAS display 3nm away in the direction they were turning and immediately reversed the turn and pressed ALT HOLD. They questioned the direction of the turn with RADAR who confirmed it should be a R turn and they were then told to level at 3000ft QNH. At this point they were at 3700ft and, as the ac was still levelling slowly with the other ac appearing to be close, they activated control wheel steering. They estimated from their TCAS that minimum horizontal separation was 2nm, with vertical separation of 300ft; subsequently ATC informed them that they had come within 1nm of the other ac. RADAR then instructed them to continue their L turn to a heading on 080°. He assessed the Risk as 'moderate'; neither a TA nor RA was enunciated.

THE DA42 PILOT, a flying instructor, reports he was conducting an instrument training flight, under IFR and in receipt of a RCS from Bournemouth RADAR. A squawk of A7357 was selected with Mode C; elementary Mode S is fitted.

Flying level at 4000ft QNH in the Bournemouth NDB hold for RW26 at 125kt, as they turned westbound in the hold they were instructed to maintain present heading, which they reported as 265°. A few moments later they heard the B737 crew call RADAR on frequency departing from Bournemouth stating they were climbing 4000ft. The controller then said to the B737 crew that their cleared altitude was 3000ft, which the B737 queried saying they had been cleared to 4000ft. ATC instructed the B737 crew to stop climb due to traffic above in the hold – his DA42 – whereupon they heard the B737 pilot state he was at 3700ft before ATC turned them S. These transmissions took only a few moments and in the meantime they maintained their heading of 265° and looked for the B737. No TCAS equipment is fitted to his DA42, therefore he waited for instructions from ATC as they did not know if the B737 was to their L or R, or beneath his ac as they were in solid IMC in cloud. No avoiding action was taken by him or issued by ATC.

In a later telephone conversation with Bournemouth ATC he was told that the B737 reached 3800ft, 1nm from his ac. He assessed the risk as 'medium'.

THE BOURNEMOUTH TOWER CONTROLLER reports that the B737 was lined up on RW26 when he received the release from RADAR, which was to stop climb at 3000ft QNH. As he wrote this down on the fps he was distracted by a call from the Airfield Ops vehicle about a fox that was approaching the RW. Instructing the Airfield Ops vehicle driver to enter the RW to remove the fox, he informed the B737 crew about this and a possible delay. Once the fox had been removed and the Airfield Ops vehicle had vacated the RW he looked at the B737's fps, saw the '3A' restriction that he thought he had passed and cleared the flight for take-off. As the B737 climbed through 1000ft he informed the crew that they might detect an ac holding at 4000ft on their TCAS and transferred the flight to RADAR. The B737 pilot read back the frequency and acknowledged the TI on the ac in the hold. It was not until a minute or so later that he became aware of what had actually occurred.

ATSI reports that the Airprox occurred within Class D CAS, 5nm W of Bournemouth Airport. Both flights were in receipt of a RCS from Bournemouth RADAR. Staffing levels were considered normal with AIR and GROUND combined as Bournemouth TOWER. The TOWER controller reported traffic levels as being 'medium' and had been in position for 50min before the Airprox occurred. Although not feeling 100%, the RADAR controller considered that she was nevertheless fit for duty and commenced work just before the incident occurred. RADAR reported traffic levels as medium, with a number of ac on frequency.

The Bournemouth 0950UTC weather was: surface wind 250/06kt; Visibility >10km; Cloud, FEW010 SCT034; QNH 1011mb.

The Bournemouth MATS Part 2, Section 1, Chapter 5, page 1, paragraph 1.5.3, Noise Abatement Procedure for Runway 26, states:

'Climb on runway QDM to 0.6 DME then track 270 deg Mag to 3.5 DME, to be no lower than altitude 2000ft before any further turn.'

Bournemouth MATS Part 2, Section 3, Chapter 2, page 4, paragraph 3.2.10, Turns after Departure, states:

'The direction of turn must be specified with the take-off clearance to all aircraft. In the case of aircraft subject to the Noise Abatement Procedure, the phrase "after noise abatement" must be included with the direction of turn instruction if any doubt exists that the preferential noise route would not be followed.'

Bournemouth MATS Part 2, Section 4, Chapter 2, page 2, paragraph 4.2.3, Departure Routes, states:

'All departures will comply with the published Preferential Noise Routes (PNR) and may only vary to suit ATC safety requirements. Airway Clearances will be referred to as "Standard" between APS & GMC/Air.' Standard Clearance Eastbound is stated as 'SAM-GWC'.

The BIA NDB (L) is located on the airport, with a holding pattern to the NW that comprises a 1 minute racetrack pattern, with an inbound track of 078°, turning L at the BIA NDB (L) and flying an outbound track of 258°. The unit had recently made a recommendation that controllers consider the need to vector holding traffic away from the BIA hold in order to facilitate continuous climb for commercial jet departures.

The DA42 had departed from RW26, 20min before the Airprox and been cleared by RADAR to take up the hold at the BIA NDB (L) at an altitude of 4000ft. The DA42 crew requested two holds followed by an NDB procedure.

At 0935:24, the B737 crew called TOWER, “.[B737 C/S] stand 5 QNH 1-0-1-2 request clearance to Ibiza.” TOWER replied, “[B737 C/S] Bournemouth Tower standard departure clear Ibiza routeing SAM Goodwood 4 thousand feet squawk 7-7-1-7”, which was acknowledged correctly. The B737 crew was given taxi clearance for RW26 at 0947:51.

Bournemouth MATS Part 2, Section 1, Chapter 17, page 2, paragraph 1.17.3, states:

‘All departing IFR/SVFR traffic is subject to a "Check Before Release (CBR)" from APS (Approach Procedural Surveillance)[RADAR]. This has the added advantage of alerting APS to the aircraft's imminent departure and an up-to-the-minute departure clearance can be issued.’

At 0948:23, the B737 crew was given line up clearance for RW26 that was correctly acknowledged. In response to a request from TOWER, the B737 was released by RADAR with a climb restriction of not above 3000ft ALT, due to traffic in the hold at 4000ft ALT. TOWER correctly annotated the departure restriction on the B737's fps, however, at 0950:45 the Airfield Ops vehicle driver called, “Bournemouth Tower Safety 1 I have got a fox heading towards the runway.” TOWER instructed the vehicle to enter the runway and advised the B737 crew, “...there's a fox just coming up to the runway gonna clear him before we..let you go”. During the period that the runway was obstructed, the controller reported that there was a certain amount of discussion regarding the fox. This break in the sequence of events caused a distraction. When the Airfield Ops driver called vacating the runway at 0951:54, the local departure climb restriction of 3000ft had not been passed to the B737 crew. At 0952:13, the B737 was given take off clearance, “[B737 C/S] after noise right turn clear take off wind 2-5-0 degrees 5 knots”. For IFR traffic departing Eastbound from RW26, a R turn is standard but the B737 crew's clearance and climb to 4000ft had not been amended. The B737 departed at 0953 and when safely airborne, TOWER passed TI to the crew, “[B737 C/S] there's traffic in the hold at 4 thousand feet which you may pick up on your TCAS contact radar 1-1-9 decimal 4-7-5...”. The B737 pilot replied, “Yes have it on TCAS...1-1-9-4-7-5 [C/S]”. TOWER subsequently stated that the B737 had been cleared for departure, in the belief that the local restriction of 3000ft had been passed. It was only after the Airprox, that the controller realised the fps and climb restriction had not been ticked to indicate the correct passing and read-back of the clearance.

Meanwhile at 0951:25, the DA42 crew established in the hold reported ready for an approach, so RADAR instructed them to maintain 4000ft QNH and to report beacon outbound. As the B737 took-off the radar recording shows the DA42 in the hold, 2nm NW of the airport, tracking W. Rather than allow the DA42 to turn back towards the overhead with a loss of radar contact, RADAR decided to change the plan by letting the DA42 continue W, which would keep it within good radar coverage and allow the B737 to make a R turn behind the DA42, facilitating an early climb from 3000ft. The DA42 crew was instructed, “..change of plan continue present heading report your heading”, which was 265°; RADAR then advised, “[DA42 C/S] roger continue on that heading until advised there's gonna be traffic departing and he'll climb through your level.”

MATS Part 2, Section 3, Chapter 1, Page 16, paragraph 20.7, states:

‘Pilots of all aircraft flying instrument departures are required, on first contact, to inform the approach/approach radar controller of their callsign, SID designator (if appropriate), current or passing level and their cleared level. If the SID involves a stepped climb profile then the initial altitude/flight level to which the aircraft is climbing will be given. If the pilot does not provide the

cleared level then controllers shall, without delay, either confirm that the crew are climbing to the correct initial level or clear the aircraft to climb to a higher altitude or flight level.'

At 0953:50, the B737 crew called RADAR, "...good morning [B737 C/S] passing altitude 2 thousand 4 hundred climbing altitude 4 thousand on an easterly departure". The B737's fps did not indicate that verification of the Mode C had been completed and the controller reported she had not heard the pilot's report, "...passing altitude 2 thousand 4 hundred climbing altitude 4 thousand..". The controller believed that this was due to the workload and distraction in dealing with another ac, but could not recall the precise details of any coordination or conversations at the point when she missed hearing the report. The RADAR frequency was quiet during the minute prior to the first call from the B737. Telephone transcription was not available at the time of the investigation and it was not therefore possible to establish a precise reason for the reported distraction. [UKAB Note (1): Despite the absence of a landline transcript, the TOWER and RADAR controllers concurred that the landline co-ordination conversation relating to the 3000ft climb-out restriction for the B737 had actually taken place.]

After the initial call was received from the B737 crew, RADAR replied, "[B737 C/S] Bournemouth RADAR good afternoon fly heading 0-8-0 degrees". A direction of turn was not specified by RADAR but had been passed previously by TOWER. The B737 was now climbing to 4000ft and the crew was aware of the DA42 in the hold at 4000ft. This prompted the B737 pilot to question the R turn towards the DA42, "right turn heading 0-8-0 degrees [B737 C/S]..is that a right turn can you confirm we have traffic on the TCAS around that area". At 0954:11, RADAR responded, "...you're maintaining altitude 3 thousand feet and right turn on to a heading of 0-8-6", and, "just confirm you're maintaining 3 thousand feet". (It was noted the controller specified 086° instead of 080°). At this point the NATS radar replay shows the B737 indicating 3100ft (1013mb) – equating to an altitude of 3040ft QNH (1011mb). This would have shown as 'A30' on RADAR's display. The B737 crew advised, "Negative we're not we're climbing altitude 4 thousand feet and we're turning back round again". At 0954:22, RADAR instructed the B737 crew, "roger stop your climb now"; the radar recording shows the two ac on parallel tracks with the B737 commencing a R turn indicating 3600ft (1013mb) – about 3540ft Bournemouth QNH – with the DA42 1.8nm NW of the B737, indicating 4100ft (1013mb) – about 4040ft QNH.

At 0954:23, the B737 crew reported that the climb had been stopped at 3800ft ALT and RADAR passed TI, "[B737 C/S] roger traffic information in your 11 o'clock now range of 1 mile maintaining 4 thousand feet in the hold is..a D-A 42". The B737 pilot responded, "Okay we're taking up runway heading again is that..good for you." RADAR advised "That's fine if you continue on the left turn now on to a heading of 0-8-0 degrees that turn will take you away". This was acknowledged by the B737 pilot at 0954:47. At this point the radar recording shows the minimum spacing between the 2 ac is 1nm and 300ft with the B737 turning L. RADAR then passed TI to the DA42 crew, "...traffic information for you a mile south of you 3 thousand 7 hundred feet maintaining that altitude on to an easterly heading is a 7-3-7", which was acknowledged. Once separation was re-established the B737 crew was climbed to FL70.

RADAR could not recall hearing the B737 pilot's level report of passing 2400ft for 4000ft and believed that this may have been due to the workload at the time. When questioned about the proximity of the 2 ac and the consideration of avoiding action, RADAR reported that the realisation of the situation came as a shock and having given a L turn to resolve the situation, considered this to be an avoiding action turn. The controller recognised that the correct phraseology was not used, but commented that this was probably due to the speed of events occurring and unexpected circumstances of the situation.

TOWER did not ensure that the 'standard clearance' was amended to include the climb-out restriction of 3000ft and did not check the fps to ensure that the amendment had been passed. The TOWER controller did pass TI about the DA42 in the hold, which aided the B737 crew's SA and alerted them to the position of the DA42 on TCAS. It was evident that the delay to the B737's departure caused by the fox, together with discussion amongst the VCR staff caused a distraction. This delay and distraction broke the natural sequence of events and interrupted TOWER's normal thought process.

When the Airfield Ops vehicle reported clear of the runway, the controller resumed operations, wrongly considering that the climb restriction had already been passed and without the appropriate check of the ac's fps. Consequently, TOWER allowed the B737 to climb unrestricted to 4000ft, the level occupied by the DA42, resulting in a loss of separation.

Once the B737 was airborne and transferred to RADAR, the pilot's first transmission, correctly included the 'level reporting', with passing level and cleared level should have alerted the RADAR controller to the TOWER controller's error; however, the 'level reporting' was not heard. It was not possible to establish what caused the controller to miss the level reports, but the controller considered that it was due to workload and this is supported by the fact that RADAR had not marked the fps to signify that verification of Mode C had been achieved. The opportunity to detect and correct the error was therefore missed and this was considered by ATSI to have been a contributory factor.

With the B737 now climbing to 4000ft and the crew having been made aware of the DA42 in the hold also at 4000ft, the B737 pilot questioned the R turn towards the DA42. The RADAR controller, in the expectation that the B737 was levelling at altitude 3000ft, initially confirmed the R turn was correct. This belief was reinforced when at the time the B737 pilot queried the heading, but the controller's radar display will have shown the B737 climbing through 3000ft ALT. However the pilot reported that the B737 was in fact climbing to 4000ft and the RADAR controller immediately instructed the pilot to 'stop the climb', followed by a L turn to resolve the conflict. The term 'avoiding action' was not used. The RADAR controller reported that the continued climb of the B737 had been unexpected and she was surprised and shocked when the realisation of the situation became clear.

Subsequent to this Airprox, ATSI made a number of recommendations that:

- a. In addition to the Unit's review of the current procedures for amending a standard clearance before departure, that the unit ensure, whenever possible, these are passed before a departing ac is given clearance to line up.
- b. The Unit include, as part of their Training in Unusual Circumstances and Emergencies (TRUCE) programme, unusual events or circumstances that cause a period of delay or break in operations, with a view to ensuring that controllers pause to complete a situational check, before resuming normal operations.
- c. Unit controllers are reminded of the importance of ensuring that distractions in the operational room do not result in a lack of attention or lapse. (MATS Pt1, Section 8, Chapter 2, page, paragraph 5.3 refers.)
- d. Unit controllers are reminded of the importance of ensuring that the 'level reporting' of departing ac is used to verify the aircraft Mode C, and the cleared level, as soon as possible after departure.
- e. Unit controllers are reminded of the requirement to use the correct phraseology, when issuing 'avoiding action' in accordance with ATISIN 141.

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 authority.

It was plain that the 3000ft climb-out restriction was not passed by TOWER to the B737 crew before they took-off. Although it had been written on the strip, the appropriate check mark was absent from the ac's fps, which should have alerted the controller to his omission if checked before he issued the take-off clearance. Controller Members recognised that TOWER had been distracted at a critical

moment; the effectiveness of noting such restrictions on the fps with a check before clearing the flight to depart was not in doubt and if the controller had followed this simple procedure this Airprox could have been averted. This was a good example of what can go wrong when normal sequences are interrupted and the catalyst for the conflict with the DA42.

A controller Member suggested simply monitoring the TOWER frequency might have revealed the controller's error to RADAR, but not all Airports operate in this manner. At military aerodromes, a controller Member opined, the ATC SUPERVISOR might well have been monitoring what was happening and intervened. Nevertheless, it was apparent that RADAR had not assimilated what the B737 crew had said when they checked-in and reported, "*..passing altitude 2 thousand 4 hundred climbing altitude 4 thousand..*" and contrary to the restriction passed by RADAR to TOWER. In the absence of any Mode S derived selected level information being displayed to RADAR, the read-back from the B737 crew of their cleared altitude provided an opportunity for RADAR to forestall this Airprox, but it was missed. A CAT pilot Member believed that this was fundamentally part of the Cause; whilst there was general accord that it was certainly contributory to the outcome and a lost opportunity, the overwhelming view amongst the Members was that the fundamental Cause was TOWER's omission to pass the restriction in the first instance. The Board agreed, therefore, that the Cause of this Airprox was that TOWER did not pass the altitude restriction to the B737 crew resulting in a conflict with the DA42. Furthermore, it was agreed that a Contributory Factor was that RADAR did not assimilate the B737 crew's cleared level report on first contact.

Turning to the inherent Risk, when the B737 crew 'checked-in' with RADAR at 0953:50, the two ac were a little under 2nm apart but, forewarned by TOWER, the B737 pilots had subsequently spotted the DA42 on their TCAS and queried the situation with RADAR. A controller Member commended TOWER for wisely passing TI about the DA42 in the hold at 4000ft. This sound practice had ensured that the B737 crew were primed to look out for the other ac when they departed and, in his view, had ameliorated the Risk significantly. At this point it was the direction of turn not their cleared altitude that was at issue. Even when RADAR queried, just after 0954:11, "*just confirm you're maintaining 3 thousand feet*", the controller would not have realised what was happening as the B737's Mode C would not have shown any excursion above 3000ft QNH at that stage with 'A30' on RADAR's display. So it was a full 30sec after their first call before RADAR realised what was happening and instructed the B737 crew to stop their climb. The B737 crew demonstrated sound appreciation here as they turned back onto the RW heading and then to the L following RADAR's revised instructions. The B737 crew's prompt response to the stop climb enabled them to level their ac 300ft below the DA42 that was still over 1nm away. The Board recognised that although the DA42 crew were cognisant of what was happening they had no impact on the outcome as they maintained their heading while the B737 crew promptly reversed into a L turn and passed no less than 1nm away, thereby averting any need for the B737's TCAS to intercede. This led Members to agree, unanimously, that no Risk of a collision had existed in the circumstances conscientiously reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: TOWER did not pass the altitude restriction to the B737 crew resulting in a conflict with the DA42.

Degree of Risk: C.

Contributory Factors: RADAR did not assimilate the B737 crew's cleared level report on first contact.

AIRPROX REPORT No 2010105

Date/Time: 9 Aug 2010 1031Z

Position: 5012N 00110W (1½nm
NW of Daventry)

Airspace: UK DLFS (Class: G)

Reporting Ac Reported Ac

Type: Harrier GR9 Untraced Ac

Operator: HQ Air (Ops) NK

Alt/FL: 340ft
agl NK

Weather: VMC CLOC NK

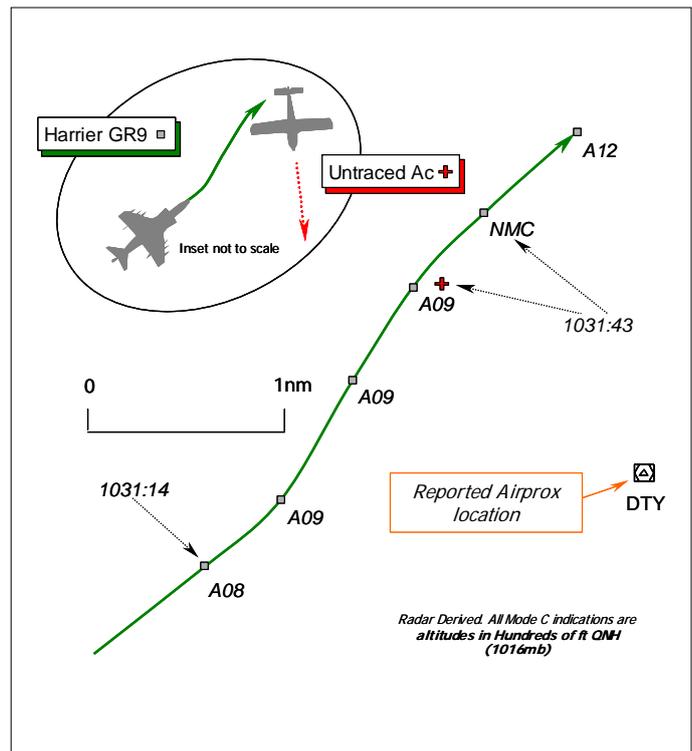
Visibility: 30km NK

Reported Separation:

¼nm H NK

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BAe HARRIER GR9 PILOT reports he was on the final leg of a low-level training flight from Wittering. He was not in receipt of an ATS; a squawk of A7001 was selected with Mode C. Neither TCAS nor Mode S is fitted.

In the vicinity of Daventry at 340ft agl, flying a NE'ly course at 420kt a small high wing Cessna-type white coloured light ac (LA) was spotted in his 120'clock about ½nm away crossing from L – R, slightly low, flying straight and level. To avoid the LA, he pulled 5G and climbed to the L as the LA passed about ¼nm away to starboard with a 'high' Risk of collision. He opined that his Harrier would have collided with the LA 2-3sec later if he had not taken avoiding action, adding that with the Sun behind him coupled with a low workload he had the best chance of spotting the LA, but 'it was still a late spot'.

LATCC (Mil) RADAR ANALYSIS CELL reports that the absence of radar data on the reported LA has inhibited tracing action. Despite checking the movements logs of numerous aviation facilities in the vicinity of the Airprox location and following several leads, all enquiries proved fruitless. Consequently, the identity of the reported white high-wing monoplane remains unknown.

UKAB Note (1): The LATCC (Mil) Radar recording shows the Harrier approaching the reported Airprox location at the time given, but no other radar contacts are evident in the vicinity. Just after 1031:14, when the Harrier indicated an altitude of 800ft unverified Mode C (1016mb), a climb to 900ft ALT and L turn are evident. As the Harrier passes abeam DAVENTRY VOR at 1031:43, a single solitary primary contact is shown directly astern of the Harrier, which might be the reported LA. Thereafter on the next return the Harrier displays 1200ft ALT Mode C, indicative of an avoiding action climb. No further radar returns are evident in the vicinity that might be associated with the reported LA.

HQ AIR (OPS) comments that this was a timely visual pick up by the Harrier pilot who took effective avoiding action. The use of a CWS may have reduced the risk by increasing the situational awareness of both pilots. Sadly the Harrier is not equipped and the LA was not squawking.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the Harrier pilot, radar video recordings and comment from the appropriate operating authority.

It was unusual to encounter a civilian powered ac in this height range – below 500ft and therefore potentially operating contrary to the Rules of the Air, a GA Member pointed-out - unless it was landing or taking-off, but no other ac had been identified in this locality during the search for the reported ac. Members understood that the paucity of radar data on the reported LA had not helped here and there were no further clues to its identity. Without the LA pilot's report, the Board could only assess this Airprox on the basis of the Harrier pilot's account coupled with the radar data on his ac. Therefore, it was most unfortunate that the reported pilot's perspective on this encounter in Class G airspace was not available.

Sighting the LA at a range of ½nm crossing ahead, the Harrier pilot suggested frankly that he had seen it at a late stage. The Board accepted that a white LA with a small frontal cross-sectional area is difficult to spot at the same height, but without knowledge of the actual size or type of the reported ac pilot Members recognised that the Harrier pilot might well have seen it as soon as was practically feasible, which argued somewhat against a late sighting on his part. It was suggested that the Harrier pilot's robust 5G avoiding action climb, coupled with the L turn, enabled him to avoid the LA as best he could and was effective in preserving horizontal separation of about ¼nm clear astern. With these few facts, the Board could only conclude that this Airprox had been the result of a conflict in Class G airspace resolved by the Harrier pilot. Furthermore, with sufficient time to engineer vertical and horizontal separation, Members agreed unanimously that, on the evidence available, there was no actual Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause:	Conflict in Class G airspace resolved by the Harrier pilot.
Degree of Risk:	C.

AIRPROX REPORT No 2010108

Date/Time: 18 Aug 2010 1324Z

Position: 5224N 00001E (5½nm NE of Wyton – elev 135ft)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Grob Tutor II Unk Microlight

Operator: HQ Air (Trg) NK

Alt/FL: 2000ft NK
RPS (1002mb)

Weather: VMC CLBC NK

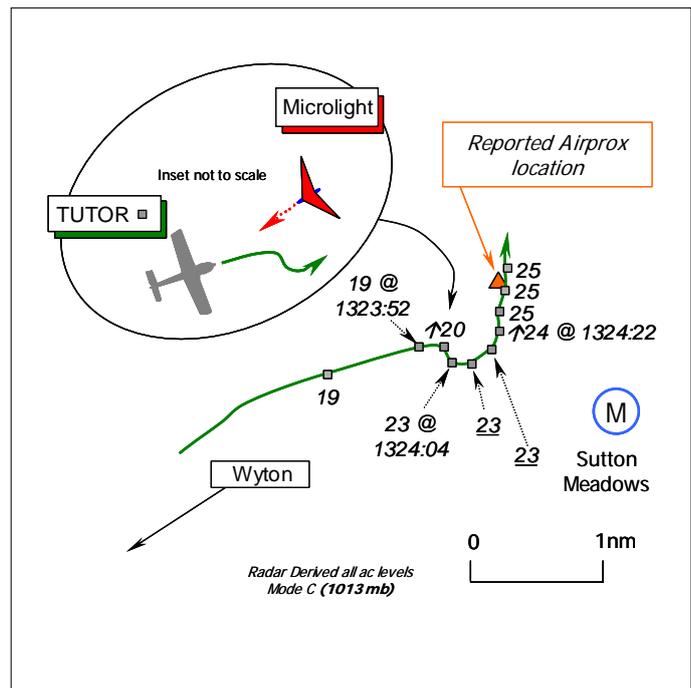
Visibility: >10km

Reported Separation:

50ft V/150m

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GROB TUTOR II PILOT reports he was conducting a local VFR instructional sortie from Wyton and was in receipt of a BS from Wyton APP on 134.05MHz. A squawk of A7000 was selected with Mode C on; elementary Mode S is fitted but the aeroplane is not equipped with TCAS.

Flying in a level cruise at 2000ft Chatham RPS (1002mb) [he reported 1500ft on the RT] some 4000ft clear below cloud, approaching a position about 6nm NE of Wyton heading 060° at 100kt, a red flex-wing microlight was spotted at 11 o'clock about 300m away some 50ft below his aeroplane. The microlight was virtually head-on with a 'low profile', appearing in his field of view from below the horizon. To avoid it he executed a 3½G break to the R. The microlight passed about 150m to port and 50ft below his aeroplane with a 'moderate' Risk of collision. After breaking R, he reversed his turn to re-establish visual contact but the microlight did not appear to manoeuvre at any point and its pilot may not have seen his aeroplane. He reported the Airprox to Wyton APP on RT, and followed this up with a telephone report after landing.

His aeroplane is coloured white and the HISL was on.

LATCC (Mil) RADAR ANALYSIS CELL (RAC) reports that the position of the Airprox was reported as 1¼nm NW of Sutton Meadows Microlight Site. Following several conversations with the CFI, and despite some conflicting advice, it was ascertained that none of the pilots airborne from Sutton Meadows saw a Grob Tutor at all during their flights. Therefore, the search area was expanded to include, amongst others: Alconbury, Chatteris, Deenethorpe, Boston, Halton, Hunsdon, Ridgewell, Brooklands, Peterborough/Conington, Wingland, Sandy and Northampton/Sywell. During the course of tracing action some 15 microlight sites in the area were contacted whilst attempting to identify the reported microlight pilot, but all proved fruitless. Consequently, the reported microlight pilot remains untraced.

THE WYTON APPROACH CONTROLLER (APP) confirmed that he was providing a BS to the Grob pilot. Furthermore, he provided the detail of the Airprox report transmitted to him on RT by the Grob Tutor pilot. As this detail is contained within the pilot's account, in the interests of brevity, it is not repeated here. The actual Wyton weather was reported to be: visibility of 30km with cloud, FEW at 3500ft.

ATSI had nothing further to add.

UKAB Note (1): This Airprox is not shown on LATCC (Mil) radar recordings as the reported microlight is not evident at all. Only the Grob Tutor is shown squawking A7000 on a broadly ENE'ly course indicating 1900ft Mode C (1013mb) - equating to about 1570ft Chatham RPS (1002mb) - as it approaches the reported Airprox location. The Airprox is presumed to have occurred just after 1323:52, when a tight R turn is evident as the Grob climbs through 2000ft Mode C, levelling initially at 2300ft (about 1970ft RPS) - in conformity with the reported avoiding action R break - before turning L onto a northerly track. A further climb is then evident to 2500ft Mode C.

HQ AIR (TRG) comments that this was an alarming incident for the Tutor pilot and was actioned and reported correctly. It serves as a reminder that despite every effort being taken to reduce collision risks through an appropriate ATS, threats will remain - particularly from small and hard to see ac. The importance of an effective lookout scan is paramount and should always be afforded an appropriate degree of effort and emphasis.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report from the Grob Tutor pilot, a transcript of the relevant RT frequency, radar video recordings, a report from the air traffic controller and comment from the appropriate operating authority.

It was evident to the Members that the RAC had expended considerable effort to identify the reported microlight, but all to no avail. Without the microlight pilot's report and in the absence of any radar data on the microlight, the Board could only assess this Airprox on the details contained in the Grob Tutor pilot's account, coupled with the radar plot available on his aeroplane. Therefore, it was most unfortunate that the reported pilot's viewpoint on this Airprox was not available to provide further insight into this close quarters encounter in Class G airspace.

The Board was well acquainted with the difficulties of sighting small ac such as the red flex-wing microlight reported here. The small frontal cross-sectional area, especially when viewed virtually head-on makes these ac very difficult to spot when they appear from below the horizon at a similar height. However, the Grob pilot had seen the flex-wing in his 11 o'clock at a range of about 300m, some 50ft below his aeroplane, and had taken robust avoiding action, which enabled him to maintain 150m separation from the flex-wing, and argued against a late sighting on his part. Although it seemed that none of those airborne from Sutton Meadows had been involved, a Member questioned whether the Grob pilot had flown too close to the Microlight Site that was about 1¼nm to the SE of the Airprox location. Pilot Members agreed it was only the Grob pilot's robust 3½G break to the R to avoid the microlight to port that had taken his aeroplane legitimately closer to Sutton Meadows than his original track, which in the Board's view was taking the Grob sufficiently clear to the NW. Moreover the Grob pilot had not loitered unnecessarily and had turned N without delay, whilst keeping careful watch on the microlight and climbing further above 2000ft RPS the radar recording revealed, thereby exiting the area expeditiously. With the limited information available, the Board could only conclude that this Airprox had been the result of a conflict in Class G airspace resolved by the Grob Tutor pilot.

Turning to the inherent Risk, some Members contended that with horizontal separation halved from the 300m at first sighting down to 150m, coupled with the Grob pilots robust 3½G break, safety had not been assured. However, other Members were of the view that whilst this might be less than ideal, the Grob pilot had seen the slower microlight in sufficient time to take appropriate action in his nimble aeroplane to remain as far away from it as he could. The Board seemed fairly evenly divided over this point and so the Chairman called for a vote. By a majority verdict, the Board concluded that there was no actual Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

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

Degree of Risk: C.

AIRPROX REPORT No 2010109

Date/Time: 18 Aug 2010 (Wednesday) 1920Z

Position: 5140N 00104W (4nm
N Benson)

Airspace: Benson MATZ (Class: G)

Reporting Ac Reported Ac

Type: Puma NK

Operator: HQ JHC NK Due to the dynamic situation and the light ac frequently dropping below radar cover, a diagram is not possible

Alt/FL: 1200ft NK
(QFE 1000mb)

Weather: VMC CLBC NK

Visibility: 30km NK

Reported Separation:

300ft V/0m H NK

Recorded Separation:

NR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PUMA PILOT reports that he was conducting an instrument recovery to RAF Benson following a local-area training sortie and was squawking 3617 with Mode C. They had climbed to above the Safety Alt, were remaining VMC below the cloud base due to the absence of an IF option since there were CBs reported. During the hold for the VOR-ILS/DME procedure for RW19 at Benson, the crew had been given a TS [by APP] and were visual with an ac, reported by ATC, conducting aerobatics about 1000ft below and 3nm away, but clear of the approach lane.

Following the hold the crew continued outbound with the procedure then turned onto the final approach for RW19 heading 190° at 100kt. When established on the localiser established the pilot began a descent on the glideslope and agreed a TS from Talkdown (PAR). Although VMC, the handling pilot was simulated IF and 'eyes in' flying the ILS. At 4nm on the approach, the Talkdown Controller warned the crew of traffic in their 1 o'clock at ½nm in a rapid climb and on looking up, the HP immediately saw the ac as it climbed vertically from below to above them. Both pilots were by then visual with the ac, which was conducting aerobatics, but the HP elected to hold course until after the ac's manoeuvre so that he could determine the direction that the ac would fly. Following what appeared to be a stall-turn or flick manoeuvre (the ac appeared to have zero velocity at the top of the climb), it began a rapid descent, moving right to left, towards them [still on the approach]. The HP called evasive action to the crew and initially banked left but as it became clear that the two ac were on converging tracks, he reversed the manoeuvre by breaking right, to pass beneath the other ac.

The crew estimated that the ac came within 300ft on a converging track while it was conducting high-energy manoeuvres before climbing away and departing to the E.

The crew then resumed the approach, landing at Benson without further incident.

They assessed the risk as being high.

The other ac was reported as being a low-wing dark coloured monoplane.

The PAR Controller provided a report but for brevity has not been included as it is summarised well below.

MIL ACC reports that while the radar replay does not start early enough to verify that the TI provided by Benson APP to the Puma referred to the reported ac, in a subsequent conversation APP has stated that this was the case. Furthermore, while the submitted tape transcript does not extend to cover the end sequence of the occurrence as the Puma avoided the reported ac, RAF Benson has confirmed after listening to the tape, that there are no further transmissions on the PAR frequency, other than those normal for ILS monitoring.

Although it does not appear on the tape transcript, given that the tapes were only originally impounded to cover the period immediately before the Airprox, APP reported in a subsequent conversation that what he believed to have been the pilot of the reported ac, called on the RT around an hour before the occurrence to request a service and to conduct aerobatics at Benson. Since Benson was busy at the time, this request was declined and the pilot replied that they would conduct the aerobatics elsewhere also turning down the offer of an ATS.

As the Puma manoeuvred in the hold and then commenced the procedure, APP provided TI on a manoeuvring primary radar contact on four occasions, with the pilot reporting visual on the first, third and fourth occasions. Although the radar replay does not cover this period, it is clear from the transcript that the TI is related to a single ac and, based upon the controller's report, that APP believed it to be the same ac that had called him previously.

At 1819:43, the Puma pilot established contact with Benson PAR who was using the PAR to monitor the ILS approach. At 1821:15, PAR passed accurate TI to the Puma and the pilot responded that they were visual around 3sec later.

The CPA occurred at about 1821:45 with the radar returns merging, as the reported ac apparently completed a stall-turn manoeuvre and descended back through the level of the Puma.

Benson APP and PAR showed a sound appreciation of the situation and provided timely and relevant TI to the Puma crew, which enabled them to develop their SA, which in turn allowed them to avoid the reported ac.

Although understandably, the light ac pilot's request to conduct aerobatics at Benson was denied, he declined the further offer of an ATS and proceeding to conduct high energy manoeuvres, without an operative transponder, in the approach lane to a busy airfield. Whilst the CPA was in Class G airspace, and it is understood that there is no requirement for civil pilots to recognise MATZs, HQ Air BM SM considers that the pilot of the reported ac demonstrated a poor level of airmanship and decision-making.

UKAB Note (1): The Puma shows throughout the recordings of all nearby radar heads, squawking 3617, in the hold and subsequent instrument approach as described by its pilot. The light ac can be seen on the recording of the Heathrow 10cm radar as a primary only contact, first appearing in the region of Long Crendon, Bucks at 1813:30. It also shows intermittently on other radar heads. It flew aerobatics in approximately that position until 1816:40 before drifting to the S onto the Benson instrument approach lane and into the MATZ (but just outside the ATZ - over the M40 at 1818), before continuing further S and continuing its aerobatics 3nm N of Benson at 1820. The CPA is at 1821:45 but the aerobatic ac has disappeared below radar cover reappearing behind the Puma 4sec later. The ac then continues to fly aerobatics in the general area of the M40 NE of Benson until the end of the recording at 1831:48. Despite extensive procedural tracing action the other ac could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the Puma pilot, transcripts of the relevant RT frequencies, radar recordings, reports from the air traffic controllers involved and reports from the appropriate ATC authorities.

Members agreed that, although not specifically prohibited, conducting aerobatics near or in the MATZ of a busy airfield during its published operating hours and without the knowledge of ATC, is poor airmanship. Although they could not conclude that the pilot who called about an hour before the incident requesting that he conduct aerobatics over Benson, was the same one as the Puma pilot encountered later, Members considered that this could well have been the case; it was therefore disappointing that the identity of the ac was not captured on the RT recording. Pilot Members observed that, since the radar recording showed that the light ac had conducted what appeared to be several successive aerobatic sequences, it was most likely being flown by a competition (and therefore by implication experienced GA) pilot, so the lapse of airmanship was doubly disappointing.

In this incident, however, the accurate TI passed on several occasions by Benson concerning the manoeuvring ac, enabled the Puma crew to see it and keep a mental plot of its approximate position. At the CPA [by then with the Puma on the ILS localiser], however, and again prompted by TI from Benson at ½nm, they regained visual contact with it but were not able to take effective avoiding action, as they were unable to predict the other ac's flightpath. Even when unhindered by flying simulated IF, Members observed that avoiding an aggressively manoeuvring small ac can be very difficult as the intentions of the pilot are not predictable. That being the case, Members agreed that in this incident there had been a degradation of normally accepted safety standards.

The Board considered whether or not it was reasonable to expect the Puma crew to have seen the light ac earlier and broken off the approach. They reported on 2 earlier occasions that they had seen the ac, but Members thought that maintaining continuous visual contact with it would probably not have been possible due to the restricted vision from the Puma and the turns required by the instrument pattern being flown. That being the case they agreed that this had been a conflict between the 2 ac in Class G airspace.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict on the Benson instrument approach between a Puma and a light aircraft conducting aerobatics.

Degree of Risk: B

AIRPROX REPORT No 2010111

Date/Time: 17 Aug 2010 1443

Position: 5353N 00122W (6.5nm WNW Church Fenton - elev 29ft)

Airspace: Vale of York AIAA (Class: G)

Reporting Ac Reported Ac

Type: BH06 JetRanger Lynx AH7

Operator: Civ Pte HQ JHC

Alt/FL: 1500ft 2000ft
(QNH) (RPS)

Weather: VMC CLBC VMC CLBC

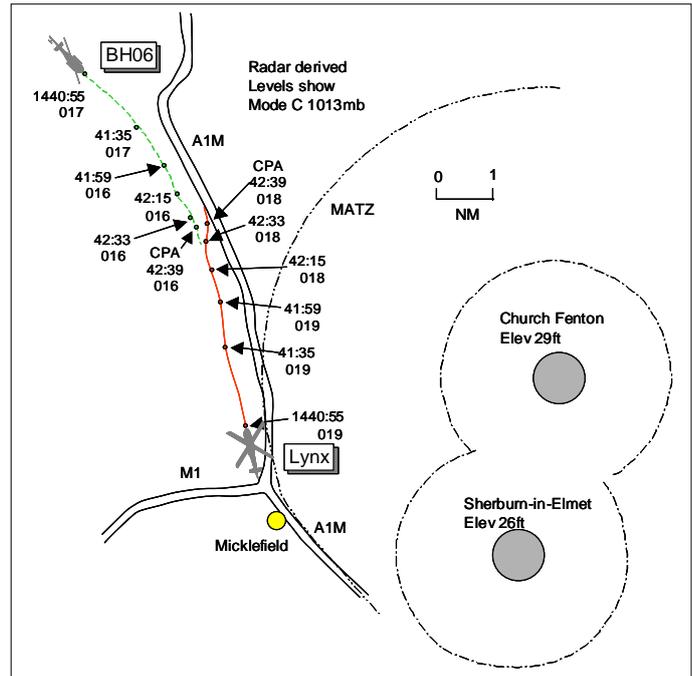
Visibility: 30km >10km

Reported Separation:

NR Nil V/300m H

Recorded Separation:

200ft V/<0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BH06 JETRANGER PILOT reports en-route from a private site in N Yorks to Sherburn-in-Elmet (SIE) VFR and in receipt of a BS from Church Fenton on 126.5MHZ, squawking an assigned code with Mode C. The visibility was 30km flying 4000ft below cloud in VMC and the ac was coloured blue with anti-collision and nav lights switched on. Heading 160° at 110kt and 1500ft QNH he had been handed over from Leeming to Linton-on-Ouse then Church Fenton involving 3 frequencies and 3 squawk changes. He received a call from Church Fenton on opposing traffic, 0.5nm, slightly lower to which he responded, "He's just gone past my window". He saw the Army helicopter late and turned R to avoid it, assessing the risk as high. He spoke to Linton ATC after the Airprox who informed him that under a BS there was no requirement for ATC to report conflicting traffic. He asked ATC why did he receive a very late call and was told that ATC need not have done that either. Later he asked what would have happened if there had been a mid-air collision and was told that there would be an inquiry.

THE LYNX AH7 PILOT reports from Middle Wallop to Dishforth VFR and in receipt of a BS from Linton Zone squawking an assigned code with Modes S and C. The visibility was >10km flying 3000ft below cloud in VMC and the ac was painted in grey/green camouflage; no lighting was mentioned. About 6nm W of Church Fenton heading 330° at 120kt and 2000ft RPS during a period of low workload he saw a JetRanger helicopter in his 12 o'clock, range 1km at the same level so he turned R in good time to avoid, estimating separation at the CPA as 300m. The JetRanger took no avoiding action and he did not hear the flight on the Linton frequency for ATC deconfliction. As far as his crew was concerned, this was not an Airprox, assessing the risk as low.

THE CHURCH FENTON APPROACH (CFN APP) CONTROLLER reports that he was informed of the Airprox 3 months post incident so his recollection of the event was poor. Following the initial call from the JetRanger flight he asked the pilot if he was aware of the inbound routeing to SIE, to which the pilot replied negative. CFN APP gave the JetRanger pilot instructions to follow the A1M motorway until Micklefield and then route direct to SIE not above 1500ft CFN QFE iaw the LoA with the SIE aeroclub. The JetRanger pilot requested and was given a BS. The pilot asked why he had to route in this manner and was told that it was in order to de-conflict with CFN operations. He had other traffic on UHF, possibly a radar PFL, therefore generating a reasonably high workload; on completion he scanned his display for the JetRanger and saw a conflicting ac flying in the opposite direction in close proximity. He called the traffic to the JetRanger flight whose pilot said that the call

was late but did not state his intention to file an Airprox. He did not remember the Lynx being on frequency at the time and, if it was, whether he passed TI to its pilot on the JetRanger. The Supervisor told him the following day that the JetRanger pilot had telephoned and provided APP with a resume of the conversation but again no mention was made of the Airprox.

THE LINTON-ON-OUSE SUPERVISOR (LIN SUP) reports that he received a telephone call from the pilot of the JetRanger who complained about the late calling of traffic by CFN APP. Whilst working Linton Zone the pilot was aware of the Army Lynx routeing in the opposite direction also at 1500ft RPS but complained that he had been handed over to CFN APP and was no longer on the same frequency. Further complaint was made that CFN APP had not called the Lynx traffic soon enough and that the Lynx had had to take aggressive avoiding action to avoid a collision. Also the pilot questioned why he had been routed via Micklefield, a location he was not familiar with. SUP told the pilot that he was not aware of the incident but would listen to the RT tapes to ascertain the full details and would call the pilot back; however, the pilot appeared to be unhappy with his response. He telephoned the pilot and informed him that both ac were under a BS where both pilots are responsible for avoiding other traffic unaided by controllers and that controllers are not required to monitor the flight. The pilot was not content with this information and again asked why the traffic had been called late. He was informed that if a definite risk of collision existed, subject to workload, under duty of care a warning may be passed. The pilot stated that as the unit had radar and had issued a squawk, the controller should have been passing TI and should have been aware of his location. SUP read the pilot an extract from CAP774 describing the terms and provisions of a BS.

HQ 1Gp BM SM reports that the Airprox occurred between the Lynx AH7 routing N towards Dishforth in receipt of a BS from Linton (LIN) Zone and a Bell 206 JetRanger routing S towards SIE in receipt of a BS from Church Fenton (CFN) Approach (APP), situated at Linton.

Unfortunately, the unit was delayed in raising reports on the occurrence. However, whilst the APP controller has described their recollection of events as "poor", they accord reasonably well with the more detailed account of the SUP and the tape transcript. Whilst a report and transcript from LIN were not requested, the RT recordings were subsequently examined to provide additional information.

In order to facilitate the sequencing of CFN and SIE traffic, CFN APP provides ATS to SIE inbounds and outbounds in accordance with a LoA between RAF Linton on Ouse and the Sherburn Aero Club.

Initially, as the JetRanger transits S it is handed over from Leeming to LIN ZONE, before subsequently being handed over to CFN APP for the transit to SIE, in accordance with the LoA. Examination of the LIN ZONE RT recordings demonstrates that ZONE's workload was moderate and that the JetRanger was on frequency at the point when the Lynx flight makes first contact with LIN ZONE at Ferrybridge (7nm SE of CFN) inbound to Dishforth. Furthermore, LIN SUP cites the JetRanger pilot as stating that they were aware of the Lynx travelling in the opposite direction at the same altitude. No further transmissions were made to or by the Lynx flight until it reached Newby Hall (15nm N of CFN) and went en-route; consequently, it can be seen that LIN ZONE did not provide any warning to the Lynx about the proximity of the JetRanger.

At 1440:56 the JetRanger flight contacted CFN APP "*Fenton ????? JetRanger c/s ?????*" (words unintelligible). CFN APP transmitted, "*...JetRanger c/s Fenton Approach eh Basic Service Barnsley one zero zero two route inbound to Sherburn via Micklefield, are you familiar.*" The JetRanger pilot replied, "*Eh one zero zero two eh Basic Service I'm eh just North North-West of eh Sherburn by ten miles this time, not familiar with Micklefield and eh I've got Sherburn visual JetRanger c/s.*" CFN APP transmitted "*JetRanger c/s roger if you follow the A1 eh obviously southbound and the fork with the M1 that should be Micklefield and eh you turn left towards Sherburn direct there.*" The JetRanger pilot replied "*I don't fly straight lines with these things.*" CFN APP replied "*It's just to avoid the climb out lane at Fenton.*" The JetRanger pilot read back "*JetRanger c/s route via Micklefield JetRanger c/s.*" which was acknowledged by CFN APP. It is clear from LIN SUP's subsequent conversation with the JetRanger pilot and the CFN APP tape transcript that the JetRanger pilot was unaware of SIE recovery procedures and the requirement to route via Micklefield. Once CFN APP had completed

briefing the JetRanger pilot of the arrival procedures at 1441:37, there were no further transmissions on the CFN APP freq until 1442:37 when a traffic warning was passed. CFN APP transmitted *“JetRanger c/s traffic South half a mile tracking North indicating slightly below.”* The JetRanger pilot replied *“He’s just gone past me a bit higher in fact thanks.”*

[UKAB Note (1): The radar recording at 1440:55, when the JetRanger pilot makes initial contact with CFN APP, shows the JetRanger 9.7nm NW of Church Fenton tracking 135° indicating FL017 (1370ft RPS 1002). At the same time the Lynx is 5.4nm WSW of Church Fenton tracking 350° indicating FL019 (1670ft RPS), in the JetRanger’s 1 o’clock range 6-7nm. Just over 1min later at 1441:59 the JetRanger has descended 100ft and turned R about 25° head-on to the Lynx in its 12 o’clock range 2-6nm. Both helicopters converge and by 1442:15 the Lynx is indicating FL018 (1470ft RPS) 1.5nm ahead of the JetRanger.]

Although CFN APP recalls their workload at the time of the occurrence being “reasonably high,” this is not borne out by the tape transcript. Further investigation with the unit proved that the Airprox occurred immediately after a lengthy period of high workload for CFN APP, although their workload in the minute immediately prior to passing the warning to the JetRanger pilot was low, with no other transmissions being made. Consequently, best controlling practice suggests that the opportunity existed for a more timely warning to be given. Considering the length of time that has elapsed between the occurrence and the controller’s completion of the DFSOR, the difference in recollection is understandable. However, research has demonstrated that psychophysiological alertness reduces significantly immediately following a high to low workload transition and remains so for up to 15min, regardless of the individual’s motivation for the task. Further research has proved that humans consistently over-estimate their level of psychophysiological alertness. Whilst this poses a supervisory challenge for ATM, it is a fact not well known within the Specialisation.

At the point when the Lynx’s avoiding turn to the R becomes evident at 1442:33, the JetRanger has entered a slight turn to the L, bringing it further into conflict with the Lynx, separation 0.5nm and 200ft. At 1442:37, CFN APP passes TI to the JetRanger flight and the CPA occurs 2sec later at 1442:39, with just under 0.2nm lateral separation existing - at this point the JetRanger has appeared to turn back to the R, away from the Lynx.

Whilst the opportunity existed for CFN APP to pass a more timely warning to the JetRanger, it is reasonable to suggest that given their workload history, they were suffering from reduced psychophysiological alertness, which served to delay their perception of the growing conflict. That notwithstanding, CAP774 is clear about the pilot’s responsibilities for seeing and avoiding other ac stating that under a BS ‘pilots should not expect any form of TI from a controller...and the pilot remains responsible for collision avoidance at all times.’ CAP 774 does however permit a warning to be transmitted to the pilot, if the controller ‘perceives a definite risk of collision,’ but qualifies this by stating that ‘whether or not TI has been passed, a pilot is expected to discharge his collision avoidance responsibility without assistance from the controller.’

Notwithstanding the fact that at the time of the Airprox the JetRanger and Lynx flights were operating on different frequencies, the information provided by the Lynx flight on its initial contact with LIN ZONE should have prompted the pilot of the JetRanger to focus their scan on their forward arc in order to visually acquire the Lynx. It appears from the SUP’s record of his conversation with the pilot of the JetRanger, specifically relating to the use of radar, that the pilot may have been under a misunderstanding as to the level of information provided under a BS. This may have served to degrade his visual scan causing the effective non-sighting of the Lynx. Furthermore, despite not receiving any TI, the Lynx pilot reported that he had sighted the JetRanger at a range of approximately 1km and been able to take effective avoiding action. Unfortunately, the separation gained by this avoiding action was eroded by the JetRanger’s L turn towards the Lynx. The JetRanger pilot does raise a potential issue that warrants further investigation in terms of the visibility of the SIE VFR arrival procedures to private pilots.

UKAB Note (2): The UK AIP at AD2-EGCJ-1-5 Para 2.22 Flight Procedures for Arrivals states:

'a. Pilots of inbound aircraft are to contact Fenton Approach on 126.5MHz when at 15nm or 5 minutes flying time from the MATZ boundary and are to enter the MATZ at 1500ft on the Sherburn QFE.'

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.

It was clear that the JetRanger pilot was expecting more from a BS than was likely to be provided; Members concurred with the Linton SUP's explanation of the service, reinforced by HQ 1Gp BM SM, it being important to ensure that there was no blurring of services under ATSOCAS. Members understood how pilots might be lulled into a false sense of security under a BS when working a radar equipped ATSU that issues a squawk; however, pilots requiring TI should request a TS. That said, under a TS as well as a BS, pilots should be in no doubt that they are still responsible for their own separation from other traffic, whether TI or warnings are passed or not. The JetRanger pilot, although unfamiliar with the SIE arrival procedure, was told of the preferred routing, which necessitated following the A1M line feature under the RH traffic rule. The Lynx was routing direct to Dishforth, situated just E of the A1M NW of Linton-on-Ouse, but its pilot was not mirroring the JetRanger pilot's RH traffic rule orientation. Pilots should always take due regard when a planned track coincides with a line feature by either adopting a track to follow the line feature on its R or moving clear of the line feature laterally if not following the RH rule. The Church Fenton APP passed a late warning to the JetRanger pilot who saw the Lynx slightly above, and turned R to avoid it. Given the geometry of the encounter, with a small target aspect visible of a helicopter approaching head-on, Members accepted this sighting was as soon as practicable. Fortunately the Lynx pilot had seen the JetRanger slightly earlier (1km), and also turned R, estimating separation as 300m which was corroborated by the radar recording. Taking these elements into account, the Board agreed that this had been a conflict resolved by both pilots whose actions had been effective in removing any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in Class G airspace resolved by both pilots.

Degree of Risk: C.

AIRPROX REPORT No 2010116

Date/Time: 11 Aug 2010 1231Z

Position: 5203N 00228W (2¼nm NW of Ledbury)

Airspace: UK DLFS/FIR (Class: G)

Reporting Ac Reported Ac

Type: Hawk T1 Untraced Glider

Operator: HQ Air (Trg) NK

Alt/FL: 500ft NR
RPS (1006mb)

Weather: VMC NR NR

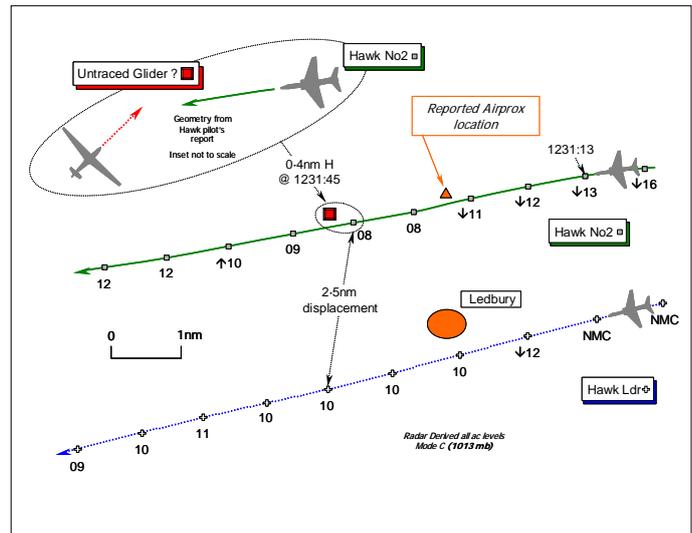
Visibility: 40km NR

Reported Separation:

Nil V/200m H NR

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BAe HAWK T1 PILOT, a QFI, reports he was the wingman of a pair of Hawks carrying out a dual instructional evasion sortie in LFA 4. They were not in receipt of an ATS but monitoring a discreet frequency. A squawk of A7001 was selected with Mode C on; neither TCAS nor Mode S is fitted. His ac has a black colour-scheme and the white HISLs were on.

Approaching a position 2nm N of Ledbury, heading 260° at an altitude of 500ft RPS (1006mb), a white glider was spotted ½nm directly ahead at 500ft agl crossing from L - R. To avoid the glider a breaking turn to the L was initiated, the glider passing 200m away at the same altitude with a 'medium' Risk of collision.

LATCC (Mil) RADAR ANALYSIS CELL reports that a single primary radar contact, without any supporting SSR, 'pops up' on radar 2¼nm NW of Ledbury, in the vicinity of the reported Airprox location [2nm N of Ledbury] but the absence of a continuous radar contact has inhibited tracing action of the reported glider. Despite contacting all glider sites in the area surrounding the Airprox, the identity of the glider remains unknown.

UKAB Note (1): This Airprox is not illustrated clearly on the LATCC (Mil) Clee Hill Radar recording. The Hawk formation is shown approaching the reported Airprox location at 1231:13, the No2 - the most northerly of the pair squawking A7001 - descending through 1300ft unverified Mode C (1013mb) – equating to about 1090ft RPS (1006mb). The Hawk pair maintained a continuous descent on a W'ly course in wide battle formation at a track displacement of about 2½nm. The reported glider is not evident at all until 1231:45, when a single primary contact that might or might not be the reported glider is shown for one sweep only in the No2's 1 o'clock at a range of 0.4nm, the latter indicating 800ft Mode C – about 590ft RPS. A climb is evident thereafter by the No2 that ascends to 1200ft Mode C, but the breaking L turn is not apparent. No further radar contacts which might be associated with the reported glider are evident at close quarters in this vicinity.

HQ AIR (TRG) comments that the No2 Hawk pilot took sensible avoiding action upon sighting a confliction in class G airspace. Whilst an earlier sighting, or a climb, might have produced a more comfortable miss distance, gliders are notoriously difficult to see at the best of times so this is a case where the see-and-avoid principle worked as well as could be expected. LFA 4 is a busy area which

demands the greatest care and vigilance to navigate and this report serves as a reminder of the importance of a rigorous lookout procedure.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included a report solely from the No 2 Hawk pilot, radar video recordings and comment from the appropriate operating authority.

The Board was briefed that a Y Series (LFS) NOTAM had been issued for LFA 4 located some 5nm to the E, but this warning referred to a para-gliding activity. The BGA Member suggested that during August, in the middle of the day, it is highly possible the reported ac was a motor glider on a cross country or a glider from a gliding site some distance away elsewhere. Such flights can roam far afield; however, when encountered at 500ft agl, especially in this terrain, it could be that it was a motor glider, or glider, executing a landing away from base, but it was an unusual height to encounter an unpowered ac. More probably at 500ft agl, it was a motor-glider or a microlight operating independently from local sites the Member added. It was unfortunate that the reported ac could not be traced and without the other pilot's account the Board could only assess this Airprox, rather unsatisfactorily, on the basis of the No2 Hawk pilot's report.

Whatever the other ac was, the No2 Hawk pilot saw it first from a range of ½nm, directly ahead. Certainly any ac is more difficult to see when approaching almost head-on, but white gliders with a small frontal cross-sectional area, possibly against a cloudscape, without any other additional aids such as HISLs to their improve their conspicuity, can be more challenging to spot. Nevertheless, the see-and-avoid principle appears to have worked as well as could be expected in these circumstances and, although the sighting range was not ideal, the other ac was seen in sufficient time to enable the No2 Hawk pilot to take effective avoiding action. Based on his account, the Hawk pilot was able to remain 200m clear of the other ac; moreover, the radar recording also evinced a climb in the vicinity. The Board could only conclude therefore, on the basis of the limited information available, that this Airprox was the result of a conflict in Class G airspace resolved by the No2 Hawk pilot and that the avoiding action taken was effective in ameliorating the Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Conflict in Class G airspace resolved by the No2 Hawk pilot.

Degree of Risk: C.

AIRPROX REPORT No 2010118

Date/Time: 31 Aug 2010 0749Z

Position: 5048N 00112W (1nm SE
Lee-on-Solent - elev 32ft)

Airspace: LFIR (Class: G)

Reporting Ac Reporting Ac

Type: F406 Pegasus
Flexwing M/L

Operator: Civ Comm Civ Pte

Alt/FL: 2400ft 2400ft
(QNH 1027mb) (QNH)

Weather: VMC CAVOK VMC HAZE

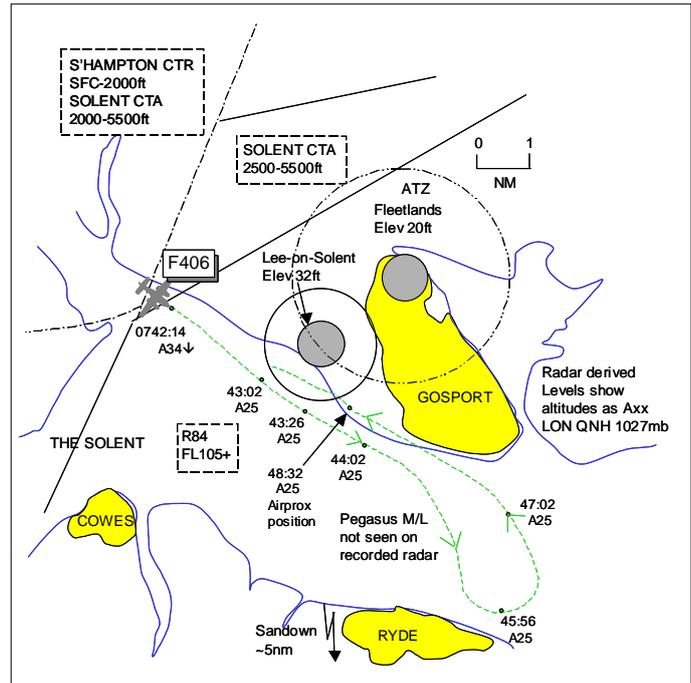
Visibility: 10km >10km

Reported Separation:

Nil V/100m H Nil V/100m H

Recorded Separation:

NR



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE F406 PILOT reports carrying out a photographic survey flight and in receipt of a limited TS from Solent Radar on 120-225MHz, squawking 3660 with Modes S and C. The visibility was 10km in CAVOK VMC and the ac was coloured purple/white with nav and strobe lights switched on. After completing runs at FL70 to the NW of Southampton, he descended to altitude 2400ft towards Gosport and flew the first line to the SE before carrying out a teardrop to re-establish on a NW'ly line (300°). He heard a M/Light flight contact Solent Radar reporting airborne from Sandown, crossing the Solent N'bound at 2200ft, he thought. He looked for the M/Light, aware of the potential conflict, although the M/Light pilot had reported at 2200ft and he was flying level 200ft above. Heading 300° at 135kt and 2400ft QNH he continued the survey run whilst looking for the M/Light traffic. When close to Lee-on-Solent he caught sight of the M/Light in his 9 o'clock range 500m at the same level on a converging heading so he commenced a hard R turn for avoiding action, estimating he passed 100m in front of the M/Light. The M/Light did not appear to take any action, which led him to believe that its pilot was not visual with his ac. Once clear of conflict he reported the incident to Solent Radar requesting to file an Airprox. He assessed the risk as medium.

THE PEGASUS FLEXWING MICROLIGHT PILOT reports en-route from Sandown to Popham, VFR and in receipt of a BS from Solent Radar on 120-225MHz; no transponder was fitted. Close to Lee-on-Solent heading 036° at 43kt and 2400ft QNH a twin-engine ac suddenly appeared in his 2 o'clock range 100m banking R to avoid a collision before it passed 100m in front on a W'ly course. The other ac's pilot and he both reported the incident to Solent Radar. He assessed the risk as high. At the time of the Airprox, the F406 approached from the E and there was glare from the sun, 30° to his R.

THE SOLENT RADAR CONTROLLER reports that the F406 flight, which was under a BS, advised that it wished to file an Airprox against a M/Light O/H Lee-On-Solent. The M/Light flight was under a BS and had reported over the mainland coast descending from 3000ft to 2200ft. The F406 pilot reported he was tracking 300° at 2400ft and the M/Light was crossing his track at 90°, estimating separation as 50m. The M/light pilot then reported passing 2300ft and seeing the F406 with separation of 100m.

ATSI reports that the Airprox occurred at 0748:31 within Class G airspace in the vicinity of Lee-on-Solent. Prior to the Airprox the F406 was conducting an approved flight survey, within the Solent Control Area (CTA), Class D controlled airspace (CAS). The Pegasus Microlight was on a VFR flight within Class G airspace, from Sandown to Popham. The Solent Radar Controller was providing a BS to both flights. CAA ATSI had access to radar recordings from NATS Swanwick and written reports.

METAR EGGH 310720Z VRB01KT CAVOK 11/10 Q1026=
METAR EGGH 310750Z 00000KT CAVOK 12/11 Q1026=

At 0738:50 the Microlight flight contacted Solent Radar routing from Sandown to Popham at 3000ft, QNH 1026mb. Solent Radar instructed the Microlight to report at the mainland coast and a BS was agreed. The radar recording shows the F406 within the Solent CTA, manoeuvring to the S of Southampton Airport at FL70. At 0739:00, the F406 commenced a descent to 2400ft, QNH 1026mb, in order to fly a SE'ly track towards Gosport [3nm SE Lee-on-Solent]. This routed the F406 outside CAS and the pilot's written report indicates that he intended to carry out a teardrop turn to establish on a NW'ly track of 300°, which would lead the F406 to re-enter CAS. The F406 pilot confirmed his intention to operate VFR. At 0742:14, radar recording shows the F406 leaving the Solent CTA descending through altitude 3400ft and just under 1min later Solent Radar agreed a BS. Shortly afterwards at 0743:24, in response to a request from Solent Radar, the Microlight pilot reported halfway across the Solent. At 0744:00, Solent Radar gave the F406 a clearance to enter CAS at 2400ft and to report any change in level. At this point radar recording shows the F406 continuing to track SE in Class G airspace.

At 0745:51, the Microlight pilot reported approaching the mainland coast at Lee-on-Solent, descending to 2200ft. Solent Radar instructed the pilot to report at New Alresford and to remain outside CAS. No primary contact was seen on the radar recording. However, the Southampton unit investigation report indicated that a primary contact was observed on the Southampton radar recording, approximately 3nm SE of Lee-on-Solent. At 0745:56 the radar recording shows the F406, 5-9nm SE of Lee-on-Solent at 2400ft commencing a L turn onto a NW'ly track.

At 0748:34 the radar recording shows the F406, 1.5nm SE of Lee-on-Solent but no primary contact is observed. The Southampton unit investigation report indicated that the Southampton radar recording showed the F406 merge with a primary contact.

At 0749:04 the F406 pilot asked Solent Radar if they were aware of a Microlight in the vicinity. Solent Radar reported the position of a Microlight, as N of Lee-on-Solent. The pilot of each ac then reported an Airprox.

The F406 pilot's written report indicates that he believed the Microlight to be crossing the Solent at 2200ft and considered it was 200ft below. However, the Microlight was at 3000ft and it was only when the Microlight crossed the coast at Lee-on-Solent, that the pilot had reported descending to 2200ft.

CAP493, Manual of Air Traffic Services, Part 1, Section 1, Chapter 11, Page 4, Paragraph 3.1.1 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.'

Paragraph 3.5.1 states:

'Pilots should not expect any form of traffic information from a controller, as there is no such obligation placed on the controller under a Basic Service outside an Aerodrome Traffic Zone (ATZ), and the pilot remains responsible for collision avoidance at all times. However, on initial contact the controller may provide traffic information in general terms to assist with the pilot's situational awareness. This will not normally be updated by the controller unless the situation

has changed markedly, or the pilot requests an update. A controller with access to surveillance derived information shall avoid the routine provision of traffic information on specific aircraft, and a pilot who considers that he requires such a regular flow of specific traffic information shall request a Traffic Service. However, if a controller considers that a definite risk of collision exists, a warning may be issued to the pilot.'

Both flights were in receipt of a BS from Solent Radar. CAA ATSI considered that although the provision of TI is not a requirement, the passing of a traffic warning would have aided the situational awareness of both pilots and would, in this case, have been appropriate.

UKAB Note (1): The radar recording shows the F406 approaching Lee-on-Solent from the SE tracking 300° level at altitude 2500ft LON QNH 1027mb before passing about 0.75nm SW abeam of Lee-on-Solent tracking towards the Solent CTA.

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.

An experienced pilot Member informed the Board that survey flight operations normally led to a busy cockpit environment, particularly when flown by a single pilot. Members wondered why the F406 pilot had not asked for a TS from Solent as the flight was leaving CAS to reduce his workload and supplement his lookout scan for other traffic. It was clear that the F406 pilot was under the misapprehension that the Microlight was at 2200ft, which had clouded his SA. The Pegasus pilot had reported his altitude as 3000ft and 2min before the Airprox had made a position report approaching the mainland and descending to 2200ft. Although both flights were on the same frequency for some time, the Pegasus pilot would have had great difficulty in assessing the F406's intended flightpath from the RT exchanges and so his SA was reduced. With both flights under a BS, both pilots were responsible for maintaining their own separation from other traffic through see and avoid. It was unfortunate that the Solent Radar controller had not issued a traffic warning to either flight as this might have taken the 'sting' out of the Airprox. As it was, the F406 pilot saw the Microlight late on his LHS and immediately made an abrupt R turn to avoid it, estimating 100m separation. The Pegasus pilot only saw the F406 as it crossed in front by 100m from R to L, as it was taking avoiding action, which Members agreed had been effectively a non-sighting. The visual acquisition by the F406 pilot and his prompt and robust actions were thought to have been just enough to remove the actual collision risk; however, the Board believed that the ac had passed with margins reduced such that safety was compromised during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by the Pegasus Microlight pilot and a late sighting by the F406 pilot.

Degree of Risk: B.

AIRPROX REPORT No 2010123

Date/Time: 2 Sep 2010 0615Z

Position: 5503N 00502W (5nm
SSW TUNSO)

Airspace: AWY P600 (Class: D)

Reporting Ac Reported Ac

Type: A319 ATR72

Operator: CAT CAT

Alt/FL: FL140 ↓FL150

Weather: VMC NR VMC NR

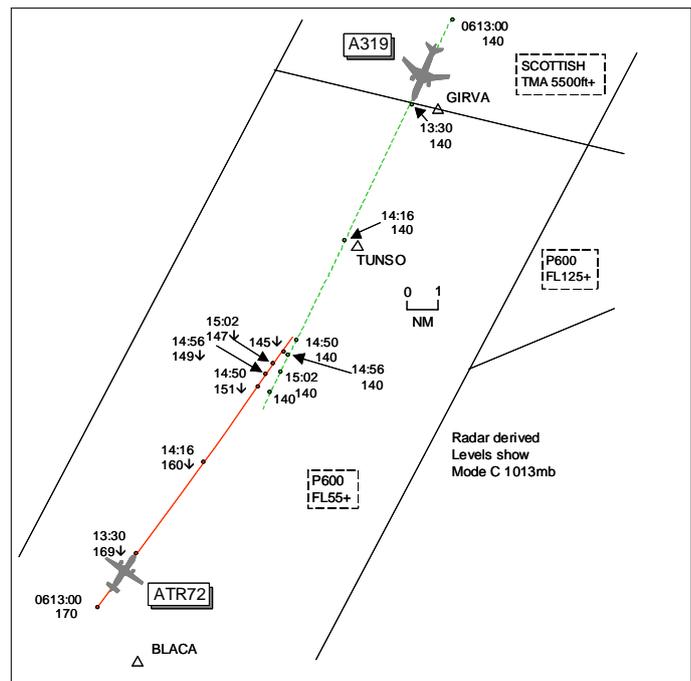
Visibility: NR NR

Reported Separation:

400ft V NR

Recorded Separation:

700ft V/0-3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE A319 PILOT reports cruising at FL140 en-route to Belfast IFR and in receipt of a RCS from ScACC on 123-775MHz, squawking with Modes S and C. ATC advised them of opposite direction traffic that had been cleared to descend to FL150; visual contact was made with an ATR 15nm ahead. A TCAS TA occurred as the ATR passed O/H as it had descended to +800ft of their level, before a TCAS RA 'monitor v/s' was received before 'clear of conflict' soon followed with no level deviation. Their TCAS showed the ATR to be behind them when it stopped its descent +400ft above their level. ATC checked with the ATR crew for their cleared level and told them of their 'level bust'. ATC was informed of their TCAS RA and they replied that a report had been filed. Visual contact was maintained continuously until the ATR passed O/H and he assessed the risk as high.

THE ATR72 PILOT reports en-route to Edinburgh, IFR and approaching TUNSO, having been cleared from FL170 to FL150 when ready, to be level by TUNSO. He, the Capt and PF, should have set the new cleared level on the altitude display unit (ADU) [MCP] straight away but instead he put FL150 into the GNSS [FMC] to work out the descent profile and missed the ADU. He thought a radio call to another ac just before their descent call distracted him, as he believed this other ac was also routing towards TUNSO and was given the same level restriction they were expecting. They remained at FL170 for another few miles until he initiated descent by selecting VS mode and a ROD of 1200fpm, before increasing this to around 1800-2000fpm as they approached TUNSO. Whilst descending ATC told them to maintain FL150 on reaching as an A319 was cleared to 1000ft below their cleared level in the opposite direction. Both he and the FO looked out and watched the A319 pass by and then TCAS sounded "traffic traffic". He looked back in at the altimeter and noticed his error simultaneously as an RA 'adjust v/s' was received. He corrected their flightpath to regain their correct cleared level. They were able to make visual contact with the A319 as soon as the controller had told them to expect to see it and they remained in visual contact with the A319 throughout the whole incident. He opined that had they adhered better to their SOPs the 'level bust' could have been avoided. He believes that a significant factor was tiredness/fatigue as he had been on 4 very early starts in a row, before 0500, and had flown 80 odd sectors in the previous month; his FO had had a similar workload. He subsequently completed a level bust survey, which was included with his report.

THE ANTRIM SECTOR CONTROLLER (SC) reports the ATR72 flight was given descent to FL150 with TI on opposite direction A319 at FL140 whose crew was also given TI on the ATR. STCA

activated when the ATR was descending through FL147 and, after the ac passed, he saw the ATR descend to FL144. No avoiding action was given as the ac were passing each other as STCA activated.

NATS PRESTWICK UNIT INVESTIGATIONS reports the Airprox occurred when the ATR72 flight, having been issued with descent clearance to FL150 and which was correctly read back, passed through its cleared level by 600ft.

The ATR72 flight first called the Antrim SC at 0553:15 climbing to FL150 and was advised of the landing RW at Edinburgh. The standard route is ROTEV – GOTNA – BLACA – TUNSO – TLA for a TWEED arrival. The Antrim Sector was then handed over and was then controlled by a single controller operating as the Tactical and Planner. At 0609:40 the ATR72 was issued with descent to meet the standing agreement between Antrim sector and the adjacent Galloway sector, *“ATR72 c/s when ready descend flight level one five zero level by TUNSO”* which was read back correctly. At 0611:15 the A319 flight called on its own navigation for BLACA as per the agreement with the Galloway Sector. About 2 min later at 0613:14 the Antrim SC passed TI to the ATR72 flight, *“ATR72 c/s maintain flight level one five zero on reaching there is opposite direction ‘A319 company’ one thousand feet beneath your cleared level”*. The ATR72 crew replied *“Okay we’ll maintain flight level one five zero on reaching ATR72 c/s”*. The SC then transmitted, *“A319 c/s when ready descend flight level one hundred”* which was read back correctly. Immediately after this the SC gave TI to the A319 flight, *“A319 c/s you might see opposite direction traffic on TCAS shortly he’s descending to one thousand feet above your current level”* to which the crew replied, *“Ah looking for traffic A319 c/s”*.

At 0614:59, as the ac were about to pass, Antrim SC transmitted, *“ATR72 c/s contact Scottish Control on one two one decimal three seven five”*, which was correctly read back. During this exchange at 0615:01 separation was lost as the ATR72 descended through FL148 before 2sec later at 0615:03 STCA activated as a low severity alert (white) with separation 700ft and 0.4nm [the ac have crossed]. Four seconds later at 0615:07 STCA changed to a high severity alert (red) with 500ft and 1.1nm separation, the SC then transmitted, *“ATR72 c/s just confirm your cleared level flight level one five zero”*. The ATR72 crew replied, *“We’re just ???????? (unclear but sounds like “maintaining”) flight level one five zero now ATR72 c/s”*. Meanwhile at 0615:11 STCA changed back to low severity alert (400ft/1.4nm) before ceasing at 0615:16. The ATR72’s Mode C shows FL142 at 0615:19 before indicating a climb; standard separation was regained at 0615:31. The A319 crew then transmitted, *“and A319 c/s we got an RA off that ATR72 company”*; the SC replied, *“A319 c/s roger I will have to file he did uh bust his level”*. The SC then called the ATR72, *“and ATR72 c/s you did uh break ah go through your level, flight level one four five at the minute”*. The ATR crew replied, *“That’s copied just correcting on a bit of a glitch in the system here”*.

[UKAB Note (1): The CPA occurs between radar sweeps. The radar recording at 0614:56 shows the ATR descending through FL149 in the A319’s 1 o’clock range 0.9nm whilst the next sweep 6sec later at 0615:02 shows the ac having passed starboard to starboard separated by 0.4nm, the ATR72 descending through FL147, 700ft above the A319 and in its 4 o’clock. The CPA is estimated to be 0.3nm and at least 700ft vertically.]

The Antrim SC was operating on his first morning shift of a 6-day cycle. The shift commenced at 0600 but he had plugged in on sector about 10min earlier. The Sector was described as moderately busy; a Planner was available but the radar controller did not feel it was necessary for the sector to be split. The controller stated that STCA triggered during the transfer of the ATR72 to the next sector. The data blocks were garbling and he was unable to read the levels. He then noticed the ATR72’s Mode C indicating FL148 and although this was not a level deviation he chose to question the crew immediately but chose not to offer avoiding action as the targets were already diverging. The radar recording shows that separation was lost for 30sec but for 28sec the tracks were diverging.

When the descent clearance was issued to the ATR72, the Mode S SFL did not change from the displayed FL170. The initial investigation revealed that where an ac is being flown manually it is unlikely that the SFL will change to reflect the cleared level. The SC did not notice the discrepancy between Mode S and the flight’s cleared level. His perception is that Mode S on certain ac types is

unreliable and in some others it is missing completely. He thought that, in hindsight, the lack of Mode S information may have triggered something but in all likelihood he would have just considered the SFL readout to be unserviceable; the controller was aware of the phraseology relating to SFL. The SC had correctly issued the level change and monitored the read back, which was all that was required. The MATS Part 2 MOPS Section 4.3.1.6 Policy for the use of SFL states:

‘When available from suitably equipped aircraft, the SFL will be permanently displayed on the radar display.

Although the checking of SFL is not a mandatory task for controllers, it is encouraged for early identification of possible level busts.

The display of SFL is not a substitute for RT read back, which remains a mandatory controller task.

The SFL will be automatically removed from the Target Label on final approach.

Phraseology when SFL is observed to be at variance with an ATC clearance states:

‘Under these circumstances, controllers must not refer to the incorrect SFL observed on the radar display and must avoid debate over the RTF. Where controllers choose to query the discrepancy, the phraseology which should be used is:

“Callsign... check selected flight level. Cleared level is Flight Level/Altitude (number)”

During this event there were at least 2 other flights within the sector that had been given similar levels and routes to TUNSO but both flights were on a similar track to the ATR72 and ahead.

ATSI endorsed the findings of the Prestwick Unit Report (APX-64618). In addition to the allocation of safe clearances to both ac the Antrim controller also chose to give TI about the respective ac 1000ft above and below.

In addition, the non-standard behaviour of the Mode S Selected Flight Level (SFL) on the controller's situation display was highlighted to other unit controllers in the form of an Incident Brief, which was disseminated shortly after the incident. Standard phraseology is available for controllers to use when a challenge of Mode S information is appropriate (CAP493 Manual of Air Traffic Services Part 1, Appendix E (Attach) Page 14, 11 March 2010, refers).

The unit report also recommends the review of airspace 'hot spots', where similar occurrences might be likely. This has been accepted by unit management and the ATSD En-Route Inspectorate will monitor the progress of the recommendation as required.

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.

Experienced CAT Members pointed out that the statement in the NATS Unit Investigations report regarding the SFL not reflecting the cleared level when an ac is being hand flown was incorrect. As shown in this case, the SFL displayed was not the ATR72's cleared level because the crew had not set FL150 in the MCP. The ATR72 was being flown using the v/s Mode of the AP but the functionality of SFL would have been no different if the ATR72 was being flown manually. It was clear to CAT Members that had SOPs been followed the AP would have captured the cleared level. Although the ATR72 Capt believed he had become distracted when the level change instruction was received, Members wondered why normal CRM cross-checking had not picked up this MCP/SFL anomaly. Furthermore, there should have been further cross checking as the flight descended with 1000ft to go checks as the ac approached its cleared level of FL150. It appeared the ATR72 crew were both looking out for the opposite direction A319, following good 'defensive' controlling by the Antrim SC when he passed TI to both flights, and they had watched the A319 pass below. In doing so the ATR72 crew descended below their cleared level and into conflict with the A319, which caused

the Airprox. Separation was then lost as they crossed which then triggered the safety nets of STCA and TCAS. TCAS TAs and RAs were briefly generated which alerted the ATR72 crew to their error and caused the A319 crew some concern as they had watched the ATR pass 800ft above and then continue its descent before establishing into a climb back to FL150. With both crews' visual sightings and the ac rapidly diverging after they had crossed the Board agreed that any risk of collision risk had been effectively removed.

Members noted that the Antrim SC had not noticed the SFL/cleared level discrepancy but were surprised by his perception regarding the reliability and/or missing of SFL. A CAT Member informed the Board that whilst there is a known SFL transmission problem within a certain ac type in the UK leading to the SFL being missing, the problem is being addressed and there is no fundamental issue with the accuracy or reliability of Mode S equipment. Controller Members, familiar with LTC operations, informed the Board that checking of SFLs was 'modus operandi' since its introduction and querying of the SFL with crews, if it did not change when a flight was instructed to change level, was second nature.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The ATR72 crew descended below their cleared level and into conflict with the A319.

Degree of Risk: C.

AIRPROX REPORT No 2010125

Date/Time: 2 Sep 2010 (Thursday) 1555Z

Position: 5404N 00102W (7nm
E Linton on Ouse)

Airspace: Vale of York AIAA(Class: G)

Reporting Ac Reported Ac

Type: Merlin HC3 Glider

Operator: HQ JHC NK

Alt/FL: 2000ft NK
(QNH 1020mb)

Weather: VMC CLBC NK

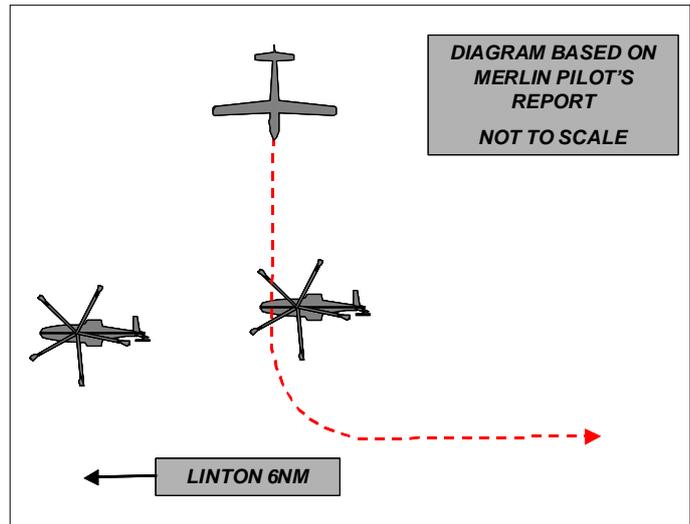
Visibility: 50km NK

Reported Separation:

100ft V/150 m H NK

Recorded Separation:

NK



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MERLIN HC3 PILOT reports that he was flying as No2 in a pair of green helicopters on recovery to Linton on Ouse, squawking 7000 with Mode C but, although the ac was fully lit, TCAS was not fitted. They were listening out on Linton APP, heading 270° at 2000ft agl and flying at 120kt, when the crewman observed a glider 100m away, pass approximately 100 ft above their ac and 150m to their right. The glider was tracking from N to S and turned onto E just after the ac crossed. They were unable to take any avoiding action as the ac had crossed before there was time to react but reported the incident immediately to Linton APP and their ac was recovered with no further incident.

They assessed the risk as being high.

Despite extensive procedural tracing action, the glider could not be traced.

MIL ACC reports that during a visual recovery to RAF Linton on Ouse, a formation of Merlin HC3s, declared an Airprox against an unknown glider operating 6nm to the E of Linton. The APP Controller reported that the glider was not displayed on the Watchman Radar and therefore he was unable to provide any TI. Consequently, there is no ATM aspect to this incident.

This is a further example of an ac operating without a transponder in busy airspace, which has negated the available safety measures.

UKAB Note (1): The Merlins show clearly on the radar recordings but the glider does not show at any time.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the Merlin pilot, a radar recording, reports from the air traffic controller involved and reports from the appropriate ATC authorities.

Members noted that both ac had been operating legitimately in Class G airspace where see and avoid is the principal method of collision avoidance; they agreed however, that gliders can be very hard to detect visually, especially when head-on, at a similar altitude and not manoeuvring.

An experienced Gliding Member opined that the glider pilot would have both seen and heard the helicopters but, he believed one possible explanation for his not reporting the incident might be that the miss-distance had been slightly larger than estimated by the Merlin crew and therefore he had not considered it to be abnormal for glider operations.

This incident provided another example that if gliders are not fitted with SSR they usually do not paint on radar and therefore controllers are not able to warn or vector other ac round them.

Without in any way doubting the accuracy of the Merlin crewman's estimate of the separation, without a report from the glider pilot about what he saw or radar verification, Members agreed that they could not positively determine the degree of risk.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively a non-sighting by the Merlin crew and a possible non-sighting by the glider pilot.

Degree of Risk: D.

AIRPROX REPORT No 2010129

Date/Time: 2 Sep 2010 (Thursday) 1518Z

Position: 5229N 00005E
(Chatteris – elev 5ft)

Airspace: Lon FIR (Class: G)

Reporting Ac Reported Ac

Type: SKYDIVER R44

Operator: NK Civ Trg

Alt/FL: 2500ft 1500ft
(agl) (NK)

Weather: VMC NK VMC NK

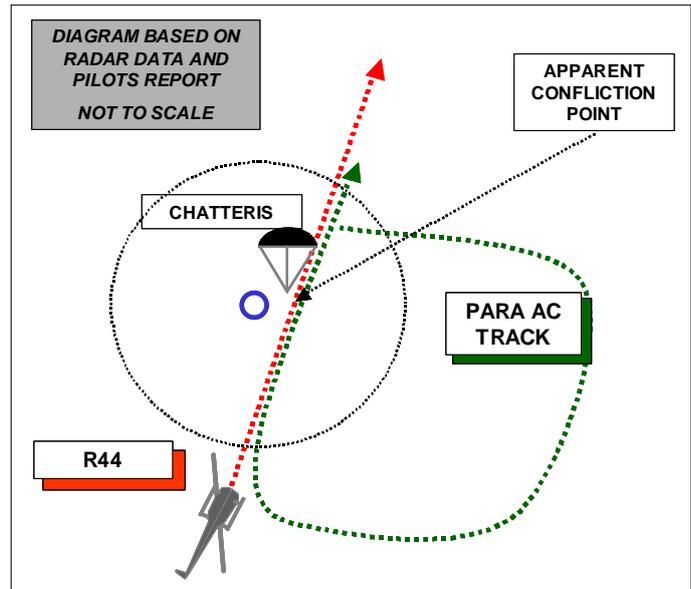
Visibility: unltd unltd

Reported Separation:

NK NK

Recorded Separation:

NK



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SKYDIVER reports that he is the CFI of North London Skydiving Centre and jumped from their Twin Otter ac at 5000ft agl following an AFF (Accelerated Free-Fall) student who deployed his main canopy 7sec after exit. He then deployed his multi coloured canopy which opened at 3000ft and had a fully operational parachute at 2500ft when he 'released his brakes' and looked to his right, immediately seeing a helicopter coming straight towards him. His immediate reaction was to pull down on both brakes, which had the effect of slowing his descent rate and the black helicopter, which looked like an R44, passed directly below him. It was difficult to tell the helicopter's exact height but the parachutist could clearly see the single helicopter occupant wearing a pink shirt, with blue trousers and he had brown hair. As the helicopter went away from him he tried to see the registration, but due to the angle he was unable to see the markings. He landed as soon as possible and immediately spoke to the DZ controller who was in RT contact with their ac and was talking to RAF Lakenheath Radar who reported that they had tracked the helicopter.

He assessed the risk as being high.

THE R44 PILOT provided a very brief report stating that he was flying a black and white helicopter on a qualifying NAVEX from a private site near Salford. Although he was in the area at the time he saw nothing at the reported time of the incident.

UKAB Note (1): The recording of the Debden Radar shows the dropping ac and a contact squawking 7000 with Mode C, presumed to be the R44. At 1511:18 the Twin Otter first shows on radar 1nm NE of Chatteris tracking 110° and passing FL006 climbing; meanwhile the R44 is 8nm S of it tracking N at FL013. At 1513 the R44 turns right onto a track of 015° and the Twin Otter is 2nm SE of the airfield in a right hand climbing turn passing FL032. At 1514:54 the Twin Otter passes over the airfield on an N'y track at FL050, having completed one full orbit; at that time the R44 is 2nm due S of the airfield still tracking 015°. At 1518 the R44 passes 0.2nm to the E of the airfield centre (probable incident position) at FL014 (1710ft amsl) still tracking 015°; at that time the Twin Otter is 1.6nm to the NE still in a second RH orbit passing through E. The ac then pass 1.4nm apart on opposite headings. Although both ac show throughout, the precise geometry of the incident cannot be determined. It is assumed that the jump takes place as the Twin Otter passes just to the E of the

airfield at FL050, tracking 015°, at 1515:43. The R44 passes through the precise position some 1min 15 sec later at 1517:58.

UKAB Note (2): Chatteris is promulgated in the UKAIP ENR 5-5-3-1 as a Free-Fall Drop Zone of 1.5nm radius, up to FL150 and is active daylight hours Tue-Sun & PH. (Incident day Thursday). This is a warning not a prohibition.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the skydiver, the R44 pilot and radar recordings.

The Board considered this a very straightforward example of inadequate flight planning by an inexperienced pilot. Chatteris DZ is promulgated and clearly marked on recognised VFR charts and electronic navigation systems; therefore the Board could not understand why the R44 pilot had not avoided it by a reasonable margin and, apparently, was not aware of its existence. While recognising that like many others, Chatteris Free-Fall DZ is not restricted airspace, Members agreed that, in order to ensure the safety of both skydivers and aircraft, pilots should avoid the site by a suitable margin during promulgated operating hours.

Bearing in mind the Skydiver's very limited ability to manoeuvre, that the R44 pilot did not see or avoid the former and that, although the actual separation could not be estimated, it was clearly very close, Members agreed unanimously that there had been a risk that the skydiver would have collided with the R44 most likely with fatal consequences.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The R44 pilot flew into a notified and active Free-Fall DZ and into conflict with a Skydiver.

Degree of Risk: A.

AIRPROX REPORT No 2010131

Date/Time: 9 Aug 2010 1627Z

Position: 5136N 00016E (5nm SE LAM)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: C150 PA32

Operator: Civ Trg Civ Pte

Alt/FL: 2000ft 2000ft
(QNH 1015mb) (QNH)

Weather: VMC CLNC VMC CLBC

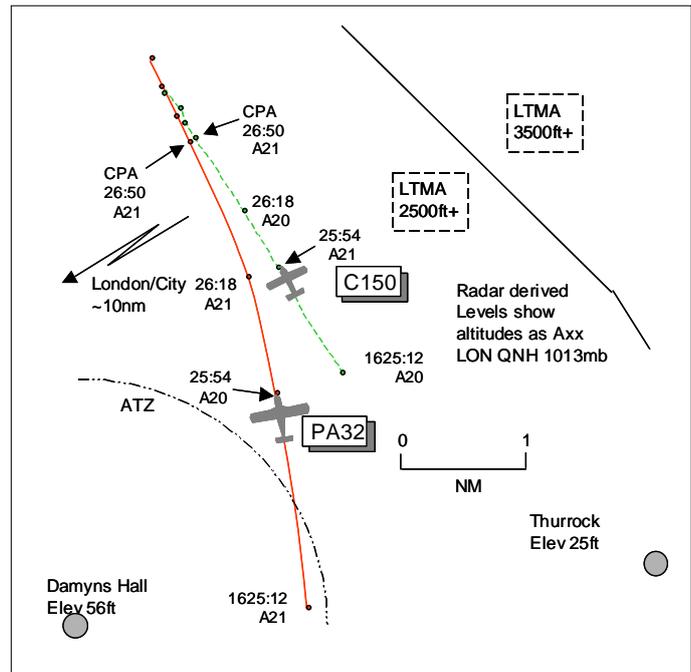
Visibility: >10km 7km

Reported Separation:

40ft V/20-30m H 100ft V/500m H

Recorded Separation:

Nil V/<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE C150 PILOT reports flying an instructional sortie inbound to Elstree VFR and in receipt of a BS from Farnborough N, squawking an assigned code with Mode C. The visibility was >10km in VMC and the ac was coloured red/white/blue with anti-collision light switched on. After hearing TI passed to another flight he realised that they were conflicting traffic to it and that it was catching them up. Owing to their high-wing configuration, he couldn't see the other ac, which was behind them and to their L (7 o'clock) and reported to be 100ft above. Heading 330° at 85kt and 2000ft QNH they wanted to climb to overfly the Stapleford ATZ so he asked Farnborough if it was clear for them to do so, thinking the other ac may not be a factor any longer. They were told that there was no reason why they couldn't climb and just as the student advanced the throttle the other ac, a PA32, was seen to pass about 40ft above and 20-30m clear to their L.

UKAB Note (1): The completed CA1094 was received at the UKAB on the 15th September by which time the Farnborough RT recording had been returned to service so was not available for transcription.

THE PA32 PILOT reports en-route to N Weald VFR and in receipt of a TS from Farnborough squawking an assigned code with Modes S and C. The visibility was 7km flying 100ft below cloud in VMC; no colour scheme or lighting was mentioned. When SE of LAM heading 330° at 2000ft and 145kt he saw an ac on his R about 3nm away on a W'ly heading and on a converging flight path. As they closed he identified it as a C152 [actually a C150], and assessed that it was lower and that his ac was quite a lot faster. He did not consider the C150 to be a threat but wondered why Farnborough did not say anything about it. He was aware of how busy the airspace in that area can be, hence it was not unusual to be close to another ac. He estimated it passed 100ft below and 500m clear laterally and assessed the risk as none. The pilot also supplied a photo of the Cessna taken at the time.

ATSI reports that the Airprox occurred at 1626:54, 5.1nm to the SE of LAM, between a PA32 and C150. The Airprox report was received from the C150 pilot, 38 days after the incident and consequently RT recordings were no longer available for transcription. The controller was no longer at the unit and it was not possible to obtain a controller's written report. ATSI had access to radar recordings and the Farnborough fpss for the 2ac involved, together with the written reports from the 2 pilots.

The PA32 fps indicates that the flight called Farnborough at 1553, at an altitude of 1900ft, routing from Bembridge to North Weald, in receipt of a TS and allocated squawk 5021. The C150 fps indicates that the ac was at an altitude of 2000ft, routing from Rochester to Elstree, in receipt of a BS, and allocated squawk 5030. At 1625:09 the radar recording shows both ac on converging tracks towards LAM, with the PA32 aircraft, 8.7nm SE of LAM, indicating altitude 2100ft and the C150, 6.5nm SE of LAM, indicating altitude 2000ft. Radar recording shows that the tracks of the two aircraft cross at 1626:56.

METAR EGLL 091620Z 22011KT 190V250 CAVOK 24/11 Q1013 NOSIG=

The C150 pilot's report indicated an awareness that Farnborough had passed TI to the PA32, advising that the pilot of the PA32 was catching up the C150. The PA32 pilot's written report indicated that he had the C150 in sight and did not consider it a threat but wondered why Farnborough did not say anything. The PA32 was in receipt of a TS and according to the C150 pilot TI had been passed to the PA32. CAP493 Manual of Air Traffic Services Part 1 (01/07/10), Section 1, Chapter 11, Page 5, paragraph 4, states:

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

The 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.'

The pilot of the C150 reported an intention to climb in order to overfly the Stapleford ATZ and was also aware of the PA32 behind in his 7 o'clock. The pilot reports that ATC advised that there was no reason the C150 couldn't climb. It has not been possible to determine if the controller considered there to have been a risk of collision; however no warning was passed. The pilot of the C150 was in receipt of a BS CAP493 MATS Pt1 (01/07/10), Section 1, Chapter 11, page 4, paragraph 3, 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.

Pilots should not expect any form of traffic information from a controller, as there is no such obligation placed on the controller under a Basic Service outside an Aerodrome Traffic Zone (ATZ), and the pilot remains responsible for collision avoidance at all times. However, on initial contact the controller may provide traffic information in general terms to assist with the pilot's situational awareness. This will not normally be updated by the controller unless the situation has changed markedly, or the pilot requests an update. A controller with access to surveillance derived information shall avoid the routine provision of traffic information on specific aircraft, and a pilot who considers that he requires such a regular flow of specific traffic information shall request a Traffic Service. However, if a controller considers that a definite risk of collision exists, a warning may be issued to the pilot.

Whether traffic information has been passed or not, a pilot is expected to discharge his collision avoidance responsibility without assistance from the controller.'

UKAB Note (1): The RoA Regulations 2007 Section 4 General Flight Rules Rule 8 Avoiding Aerial Collisions states: '(1) Notwithstanding that a flight is being made with air traffic control clearance it shall remain the duty of the commander of an aircraft to take all possible measures to ensure that his aircraft does not collide with any other aircraft. (2) An aircraft shall not be flown in such close proximity to other aircraft as to create a danger of collision. (4) An aircraft which is obliged by this Section to give way to another aircraft shall avoid passing over or under the other aircraft, or crossing

ahead of it, unless passing well clear of it.’ Rule 9 Converging states ‘(3) When two aircraft are converging in the air at approximately the same altitude, the aircraft which has the other on its right shall give way.’ Rule 11 Overtaking states ‘(1) An aircraft which is being overtaken in the air shall the right-of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering course to the right. (2) An aircraft which is overtaking another aircraft shall keep out of the way of the other aircraft until that other aircraft has been passed and is clear, notwithstanding any change in the relative positions of the two aircraft.’

UKAB Note (2): The radar recording at 1625:12 shows the PA32 1.9nm E of Damyns Hall tracking 350°, G/S 145kt, indicating altitude 2100ft LON QNH 1013mb with the C150 in its 1 o'clock, range 2nm tracking 330°, G/S 85kt, indicating altitude 2000ft QNH. Both ac continue on steady tracks and by 1625:54 the C150, now showing altitude 2100ft, has moved into the PA32's 1230 position range 1nm, the PA32 now showing altitude 2000ft. The PA32 is seen to commence a slow L turn and by 1626:18 separation has reduced to 0.5nm, the C150 indicating 100ft below the PA32, before the PA32 passes the C150 on its LHS by <0.1nm at 1626:50, the CPA, both ac indicating altitude 2100ft QNH. The PA32 then pulls away from the C150 passing through its 12 o'clock with lateral separation increasing.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Members were disappointed that the late filing of the Airprox had resulted in a lack of an RT transcript and the lack of the LARS controller's input, which had hindered the ATSI investigation. Without a transcript Members were unable to resolve the contradictory information from both pilots. The PA32 pilot believed he was not told about the C150, but the C150 pilot thought he heard Farnborough pass TI on his ac to the PA32 flight. Furthermore, the RT exchange between LARS and the C150 flight, when its pilot asked if there was anything to affect a climb approaching Stapleford ATZ, could not be corroborated nor whether LARS had perceived a collision risk at the time.

It was clear that as this incident took place in Class G airspace below the LTMA, both pilots were responsible for maintaining their own separation from other ac through see and avoid. The PA32 pilot saw the C150 in good time and elected to overtake on its L which, although contrary to Rule 11 of the RoA Regulations, was thought not to have contributed to the Airprox. The radar recording shows the PA32 passing close to the C150 (<0.1nm or 185m) leaving Members wondering why the PA32 pilot had not altered his flightpath to give the C150 a wider margin; an early turn of 5-10° and/or a climb/descent would have sufficed. Therefore the Board concluded that the PA32 pilot's chosen separation distance was close enough to cause concern to the C150 pilot, which had led to the Airprox being filed.

Turning to risk, the C150 instructor and student were surprised as the PA32 appeared on their LHS, having approached from behind and above, as they were commencing a climb in the belief that the other ac was no longer a factor. However, the PA32 pilot's early sighting and continuous visual contact with the C150 was enough to persuade the Board that he was always in a position to manoeuvre his ac further, should it have been necessary, thereby removing the risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA32 pilot flew close enough to the C150 to cause its pilot concern.

Degree of Risk: C.

AIRPROX REPORT No 2010137

Date/Time: 18 Sep 2010 (Saturday) 1429Z

Position: 5228N 00012W
(Conington - elev 26ft)

Airspace: Conington ATZ (Class: G)

Reporting Ac Reporting Ac

Type: C152 Beagle Pup

Operator: Civ Trg Civ Pte

Alt/FL: 500ft 800ft
(QFE NR) (QFE 1019mb)

Weather: VMC CAVOK VMC NR

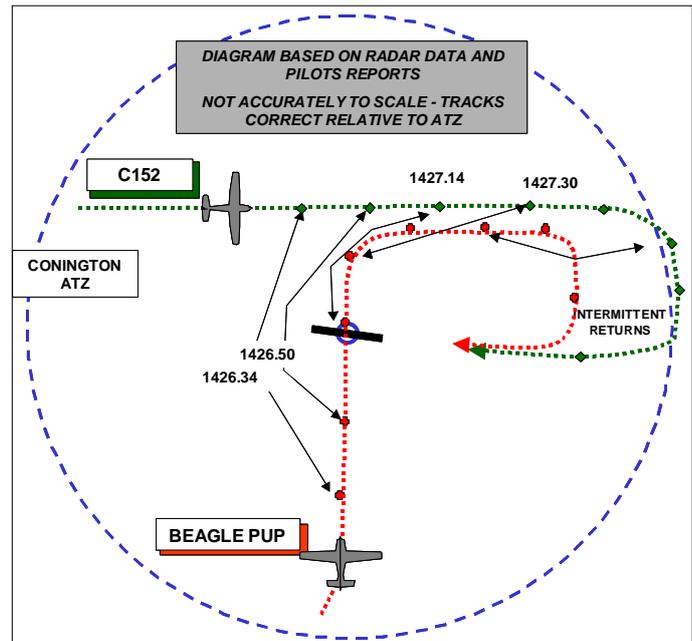
Visibility: >30km 30nm

Reported Separation:

V 30ft/H 30-50m V 30ft/H 0ft

Recorded Separation:

NR (See UKAB Note: (1))



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE C152 PILOT reports that he was instructing a student pilot on cct procedures and was in a RH pattern for RW28 at Conington with the surface wind varying between W and NW averaging 10kt. His ac was blue and white but his SSR was unserviceable and he was in receipt of an A/G service from Conington Radio; TCAS was not fitted.

After take-off on RW28 he initiated a simulated engine failure from 700ft in order to demonstrate the relevant drills and recovery. As the subsequent recovery took their ac slightly outside the ATZ and he was aware that another ac had recently reported that it was descending deadside, prior to joining the downwind leg of the cct, he made a radio call "C/S rejoining downwind from the West". As they rejoined the downwind leg from the W, looking out of sun, he saw a Beagle Pup in their 2 o'clock on the deadside at the same level. Abeam the threshold of RW10, his student made a radio call "C/S downwind". He was still visual with the Beagle Pup, which was now in their 3 o'clock deadside, tracking North at the same level.

As they approached the end of the downwind leg he heard the Beagle Pup pilot call downwind. He looked behind to check the horizontal separation between them and was satisfied it was about 1nm and the ac was at a similar level. Having conducted a lookout check to the L&R, the student turned the ac onto base leg, configured it for landing (65kts, 20° flap) and, following a further lookout check L&R at about 800ft, turned the ac onto final approach. As they reached about 500ft at about 0.7nm on the approach, the student remarked that an ac (which it transpired was the same Beagle Pup) had just appeared from their right and beneath them. He (the instructor) then became visual with the ac and estimated that it was 30ft below them and taking up a position about 30-50m away in their 10 o'clock on final, on a track parallel to theirs. The instructor reported an Airprox on the frequency in use and instructed the student to manoeuvre their ac to the right so that they could maintain visual contact with the other ac. He made a radio call to establish what the other pilot's intentions were and was advised that he was landing. The other pilot went on to ask if they had joined on a left base but he informed him that they had been ahead and in the cct pattern. Given that the Beagle Pup pilot's intentions were now clear and it was the lower ac on the approach, he instructed the student to execute a go-around.

He assessed the risk as being high and the remainder of the cct detail was completed without further incident.

THE BEAGLE PUP PILOT reports that he was flying solo in a blue and white ac on a private VFR flight from Leicester to Conington, squawking with Mode C in communication with Conington radio. TCAS was not fitted. This was his 4th visit to Conington in 2010 and he descended dead-side at 80kt to the south of the field, obtained the airfield information from the 'TWR' which was reported as RW28 RH and he set the QFE of 1019mb. He heard another ac call that he was departing to the W and would join again downwind. As he went cross wind the radio was busy and it was not until he was opposite the RW28 threshold that he could call *'late downwind'*; although he had kept a very good lookout he saw no other ac either in the crosswind or downwind positions.

He does remember hearing another ac call *'final'* and on base leg looked carefully both at the whole length of the final approach both towards and away from the field and saw no other ac before he turned final. He assumed that the other ac had extended on final [downwind] and that that was why he could not see it. The visibility was very good and he did not think it necessary to ask the ac's range as he often did when in doubt.

The Airprox occurred just after he had turned and called final for RW28 when the other ac appeared on his left and passed 30ft above and flying at 60° to his track. The ac disappeared to his right very quickly and there was no need to take avoiding action but nonetheless he assessed the risk as being high.

He was unsure as to whether it is appropriate to give his opinion as to why this Airprox occurred, but in this case elected to do so. The only explanation that he could offer was that the other ac must have been in a blind spot, more probably above than below, as it appeared above him. Similarly he believes that his ac might also have been in the other one's blind spot below it as the other pilot described how he 'popped up' in front of them.

UKAB Note (1): Both ac show in the Conington cct on the recording of the Claxby radar. The Beagle Pup is squawking 7000 with Mode C but the C152 is a primary only contact. The geometry of the ccts flown is as depicted above with the Beagle Pup flying a tighter cct than the C152. The Beagle Pup passes over the RW at 1427:14 tracking N, while the C152 is in its 1 o'clock at about 1nm tracking E, before the former turns E onto downwind 0.1nm inside the C152'S track. At 1428:18 the Beagle Pup commences a R turn onto base leg (1.5nm from the RW threshold) while the C152, having already turned base but 1nm further out (2nm from the RW threshold), is in its 12 o'clock at 1.0nm. At 1428:55, just before the CPA, the C152 disappears from radar on the final turn while in the Beagle Pup's 9 o'clock at about 0.2nm and is not seen again. At the time the Beagle Pup is descending through FL007 (850ft aal) just about to turn final 300m inside the C152. By projection of the C152's position forward by 8 sec the ac get very close (say 50m) at about 1429:00.

UKAB Note (2): Peterborough Conington is a licensed aerodrome with a 2nm radius ATZ; the RW is 3283ft long.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board noted that the radar recordings provided a useful picture of the tracks flown and relative positions of the two ac in the circuit area; unfortunately without a RT transcript, the sequence of transmissions or the ac positions when they were made could not be verified.

Both ac had been operating legitimately in the visual circuit at Conington. Although the C152 had departed from the recognised circuit pattern briefly to conduct a simulated engine failure drill, the pilot [reportedly] made his intentions known and correctly called rejoining downwind, thus establishing the circuit pattern. The radar recording showed that at the time the C152 was in the downwind position

re-establishing the pattern, the Beagle Pup was approaching the overhead to join from the South, with the C152 1nm directly ahead of it crossing from L to R and apparently at the same altitude. The C152 was therefore, in a position where it should have been visible to the Beagle Pup pilot. Indeed at that point the C152 pilot was visual with the Beagle Pup in his 3 o'clock joining at the same level. That being the case, and since the C152 student had called downwind well before the Beagle Pup was in the downwind position, Members agreed that the onus had been on the Beagle Pup pilot to integrate safely behind the C152 and conform to the pattern formed by it. That the C152 [the radar showed] had extended downwind was not considered relevant and the Beagle Pup pilot should either have followed it or gone around if conforming made the circuit excessively long. Some Members doubted whether the Beagle Pup pilot had seen the C152 ahead and therefore he had not been able to integrate with it; a pilot Member pointed out that this is most inadvisable as safe separation in the visual circuit is dependent on pilots establishing and maintaining visual contact with other ac therein, both before joining and when in the pattern itself. [ANO, Rules of the Air, Rule 12 applies].

It appeared to Members that the Beagle Pup pilot had turned final inside the C152 ahead without visual contact with it and that on the final turn the former would have been obscured to the pilots of the high-winged C152; thus for most of the final turn the respective pilots had not seen the opposing ac and separation was by happenstance. Further, both pilots agreed that the separation on final had been minimal. When considering these factors, a small majority of Members agreed that there had been a risk that the ac would have collided.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Beagle Pup pilot did not establish visual contact with the C152 in order to integrate into the circuit.

Degree of Risk: A.

AIRPROX REPORT No 2010147

Date/Time: 26 Sep 2010 (Sunday) 1028Z

Position: 5041N 00403W (Corn Ridge Near Oakhampton)

Airspace: Lon FIR (Class: G)
Reporting Ac Reported Ac

Type: Paragliders x 3 EC145

Operator: Civ Pte Civ Pol

Alt/FL: 500ft agl 1500ft
(RPS/QNH & RA)

Weather: VMC NR VMC NR

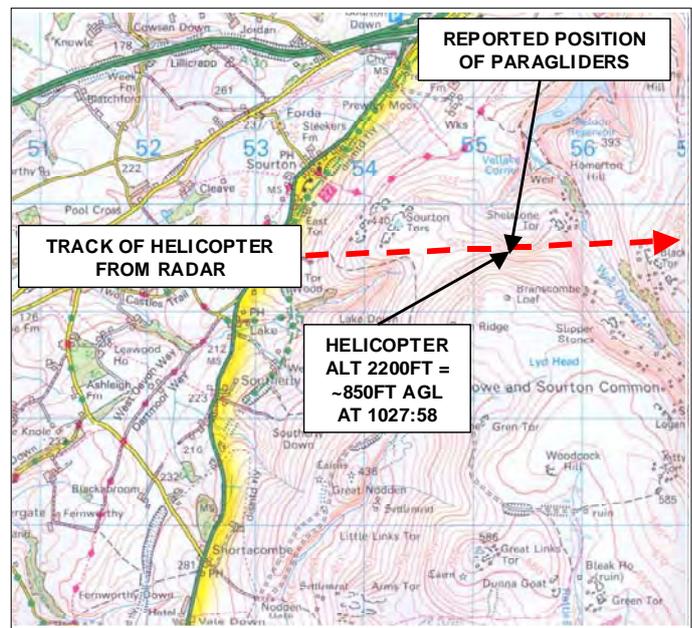
Visibility: NR >10km

Reported Separation:

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

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PARAGLIDER PILOT reported (2 reports were received but 3 paragliders were involved) that he was flying a multi-coloured paraglider at a local flying site with 2 other paraglider pilots. One had climbed to around 500ft above the hill [ground] and 200ft out from the ridge, another was around 100ft behind at a similar height and the third was 300ft to the W also at a similar height; all were ridge soaring at about 12kt. The first and second pilots both saw a blue and yellow police helicopter about 1nm away to the SW at about 700ft agl (i.e. 200ft above them) coming towards them. The helicopter continued on a straight and level course directly towards them and passed directly over them about 200ft above. The first pilot made large hand gestures to the helicopter pilot while the second made large turns, to show their position, but the helicopter took no evasive action or make any attempt to give them wider separation. The helicopter continued on his track towards Exeter without changing heading.

He pointed out that their ac are very delicate and do not react well to turbulent air and they consider themselves lucky to not have been affected by the downdraft. The first pilot assessed the risk of collision as being high and the second as low.

It was not possible for them to move quickly out of the way as, due to the wind speed on the day (12-18mph), they had very little ground speed and conducting emergency descents would have been dangerous at their low altitude.

THE EC145 PILOT reports recovering from the Padstow area to Exeter in a blue and yellow police helicopter, with all lights on, squawking 0032 with Mode C. At the time they were transferring from a BS with Newquay to Exeter, in the cruise heading 090° at 120kt, following a routine police task, in good VFR, when both he and the crew saw paragliders about 3km away on the windward slopes of Dartmoor near to Okehampton.

He conducted a gentle turn away and maintained 500ft vertical separation, thus ensuring that there was no risk of collision.

The paragliding was not NOTAMed on the day in that area, despite there being intense activity.

UKAB Note (1): The EC135 shows on the recording of the Burrington radar, squawking 0032 and tracking 085 at FL022 (QNH 1013mb - 2200ft amsl). The terrain in the area varies from ~500ft to the W rising to 2038ft just to the SE of the incident position; although the ground height varies considerably, the height in the area reported was 420m – 1380ft. The paragliders do not show at any time.

UKAB Note (2): The reported time of the incident was 1hr in error resulting in some confusion and a delay in obtaining the EC135 pilot's report.

THE BHPA comments that all the ac were being operated normally in Class G airspace. There is no requirement for this sort of paragliding activity to be NOTAMed, nor any method by which it could practically be NOTAMed. [See Part B]

With the helicopter pilot having the paragliders in sight the BHPA believes that there was no risk of collision, however, there was a risk from the helicopter-generated turbulence.

The BHPA understands that UKAB is charged with assessing only the risk of a collision between ac and not the risk associated with the effect of the helicopter's downwash on the paragliders.

Over the years there have been a number of helicopter/paraglider incidents the common feature of which has been the helicopter pilot's insistence that their downwash could not affect the paraglider. It seems that many pilots of powered ac are unaware that what they feel as a mild bump when crossing the wake of another ac (something most pilots have probably experienced) is sufficient to cause the total collapse of a paraglider - at 500ft agl this could well be fatal since there is insufficient time to recover or deploy a reserve parachute.

Over the years the BHPA has requested that the CAA consider research into the actual extent and possible effects of helicopter generated turbulence upon lightweight ac. These requests have been turned down. The BHPA believes that with the increase in both light-weight ac and helicopter activity over the last ten years it is unfortunately only a matter of time before there is a fatality, or serious accident, effectively caused by a helicopter pilot's lack of knowledge, knowledge which is currently not available.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar recordings and a report from the BHPA.

Board Members were not able to reconcile the significant differences in the separation reported by the respective pilots. The Secretariat informed the board that the position of the incident reported by the Paraglider(s) was an accurate Latitude and Longitude, indicating that it had probably been GPS-derived and therefore, in their view, unlikely to be significantly in error. One Member however, pointed out that the pilot might have noted this position some time after the actual event. Although the radar-derived track of the helicopter was also accurate (within the limits of radar accuracy and plotting - say 200m) when the track and position were plotted the separation appeared to be closer to the distance estimated by the helicopter pilot than the paragliders. The reports provided by 2 of the paragliders indicated that there were at least 3 of them in the area but did not state the actual number in the area and Members agreed that there had most likely been more. The reports also stated that the paragliders were spread over an area of some hundred metres and that the pilots had made hand gestures at the Helicopter; Members reasoned that they would have been unlikely to have made hand gestures at the helicopter if it had been 1nm away, as reported by the helicopter pilot. As is usual in such cases of conflicting information Members placed equal weight on both reports but, since they were significantly differing, they sought a plausible explanation. A Member suggested that the helicopter pilot might have seen (and reported) other paragliders and estimated the separation from them; Members agreed that although this would provide a plausible explanation, it would not be possible to substantiate the theory. They also agreed that an experienced professional helicopter

pilot would not have deliberately flown 200ft directly over (or just upwind of) a paraglider, as he would almost certainly be aware of the hazard that would result from his flightpath. That being the case, Members agreed that the helicopter pilot had most likely not seen the reporting paragliders.

The DAP Advisor informed the Board that, contrary to the BHPA comment, it is straightforward to report such activity to AUS, for instance by mobile telephone, and for them to issue a NOTAM; he agreed however, that on some occasions, such NOTAMS might be promulgated too late for them to be effective.

The Board agreed that, since the helicopter pilot had not seen the Paragliders in his forward field of view above the ridge and there had been 200ft [reported by the paragliders] vertical separation, there had been no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The EC145 pilot flew close enough to cause concern to a group of paragliders, some of which he may not have seen.

Degree of Risk: C.

AIRPROX REPORT No 2010148

Date/Time: 29 Sep 2010 1006Z

Position: 5824N 00255W (7nm
SE Wick - elev 126ft)

Airspace: SFIR (Class: G)

Reporting Ac Reported Ac

Type: JS41 BE200

Operator: CAT Civ Comm

Alt/FL: ↑3000ft 1800ft
(QNH 1012mb) (QNH 1012mb)

Weather: IMC KLWD IMC KLWD

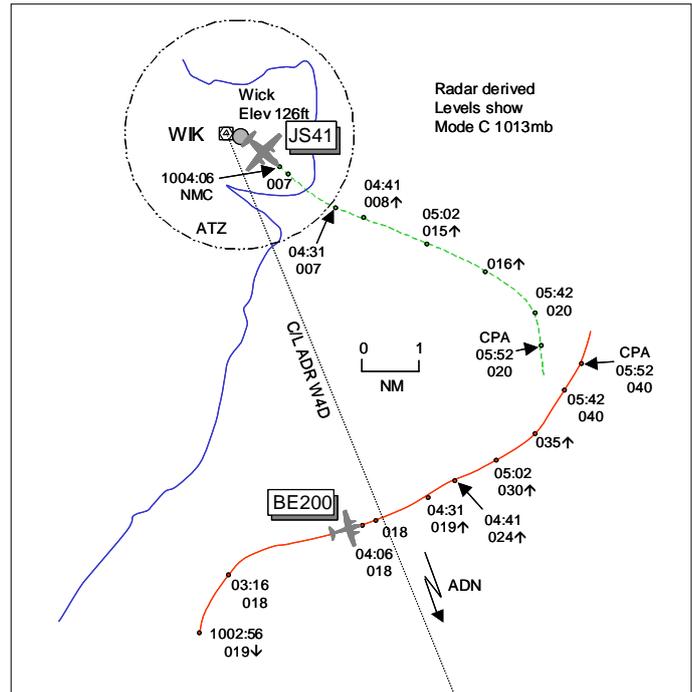
Visibility: 4000m NR

Reported Separation:

1200ft V/5nm H 1800ft V/5nm H

Recorded Separation:

2000ft V/0.7nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE JS41 PILOT reports outbound from WICK IFR and in receipt of a PS from Wick squawking an assigned code with Modes S and C. On line-up RW13 they were given a local restriction on departure to climb and maintain altitude 3000ft owing to a BE200 inbound from the SE, which they believed had been cleared for the RW13 procedure maintaining 4000ft. On rotation he, the Capt PNF, noticed a TCAS contact 6-7nm ahead 1700ft above their ac. He confirmed this geometry with the PF and agreed to dial 1000ft into the ALT SEL window whilst the PF flew manually at 160kt and reduced the ROC until they had 'cleaned up' the ac. He requested ATC to confirm the level of the inbound ac to which they replied altitude 4000ft. He advised the controller that this did not agree with their TCAS display so ATC interrogated the BE200 crew and found that the flight was at 1800ft. The controller then instructed the BE200 pilot to climb immediately to 4000ft before they were instructed to climb and maintain altitude 2000ft. It appears that the BE200 crew was under the impression that they were cleared to descend with the RW13 arrival as 1800ft is the platform altitude. He assessed the risk as low.

THE BE200 PILOT reports inbound to Wick IFR at 180kt and in receipt of a PS from Wick squawking with Modes S and C. ScACC had cleared them down to 4000ft and handed them over to Wick and they were then told that they were cleared for the procedure RW13 under a PS. The start of this procedure involves a turning onto a 5DME arc at 1800ft. They reported turning onto the arc and when established another ac's crew, a JS41 flight on departure, asked for their position and altitude. They stated 1800ft, 5DME and the radial following which ATC told them to climb immediately to altitude 4000ft and report beacon outbound. He disconnected the A/P and initiated a climb; the procedure was completed and the ac landed safely. After landing they visited ATC and discussed the incident. The controller stated that they had been cleared for the procedure maintaining 4000ft; however, they had not read back 'maintaining 4000ft' nor had ATC repeated the 'maintain 4000ft altitude' restriction. Neither he nor the FO had heard the call from ATC.

THE WICK APP reports mentoring a trainee under OJTI supervision. The BE200 was inbound on the WIK 195R at altitude 4000ft under a PS, ETA WIK 1004. The BE200 crew was asked to maintain altitude 4000ft until advised and was cleared for the VOR/DME Direct Arrival RW13 and to report beacon outbound. The JS41 departed RW13 at 1003 under a PS routeing W4D to Aberdeen climbing to maintain altitude 3000ft. As the JS41 commenced its climb-out the crew queried the level

of the BE200 whose pilot reported maintaining altitude 1800ft. He took control and told the BE200 pilot to climb to altitude 4000ft to achieve standard vertical separation.

ATSI reports that the Airprox occurred outside the Wick ATZ (radius 2nm) situated in Class G airspace. Advisory Route W4D, Class F airspace, commences at WIK on magnetic track 163°. The base of the ADR is FL35 in the vicinity of WIK. Wick ATC is not equipped with surveillance equipment.

Wick Aerodrome/Approach position, which always operates combined, was being operated by a mentor and trainee. The mentor reported that the trainee was making all the RT transmissions until the time of the Airprox, albeit he was having to prompt him on occasions. The mentor reported that the workload was light, the subject ac being the only flights on the frequency.

The Wick 0950 METAR: 14022KT 6000 RADZ SCT004 BKN006 12/12 Q1012=.

The VOR direct arrival to RW13 at WICK from the S (UK AIP Page AD 2-EGPC-8-3) states:

'At MSA or above, at 7 DME WIK turn right to intercept the 5 DME arc WIK (CAT A,B), or at 9 DME WIK turn right to intercept the 7 DME arc (CAT C,D). Once established on the 5 or 7 DME arc descend **not below 1800** (1686). At lead radial R127 WIK turn left to intercept the R111 inbound to WIK VOR, **not below 1800**(1686). Continue to overhead WIK VOR then follow Basic Procedure'.

On this occasion, the BE200, on a CAT A flight, was routeing from the S direct to WIK, to establish on the procedure as stated above.

At 0956, the JS41 flight was cleared to taxi to holding point 'C', initially, for a departure from RW13. Subsequently, it was instructed to backtrack the RW. At this time, the BE200 established communication with Wick. The controller updated the Wx information (moderate rain and drizzle) and reported he was providing the flight with a PS. At the controller's request for his range and bearing from WIK, the pilot reported, *"Roger we are on a bearing of er One Nine Seven degrees and the range is twenty six nautical miles and expecting runway One Three confirm"*. This was confirmed and, at 0959:10, the BE200 flight was instructed to, *"...descend to altitude four thousand feet on the Wick QNH One Zero One Two"*. The pilot read back, *"Descend altitude four thousand feet one zero one two BE200 c/s"*. Shortly afterwards, the controller transmitted, *"BE200 c/s clear altitude four thousand feet to advise you are clear the VOR/DME direct arrival runway One Three next report Beacon Outbound"*. The pilot acknowledged the transmission just using his c/s. Consequently, the trainee, prompted by the mentor, requested a read back of the clearance. The pilot stated, *"BE200 c/s er roger the direct arrival for runway One Three and confirm that that's round the arc 'cause we're that's what we're intending to do round the five DME arc coming in and then outbound Three Hundred"*. The controller confirmed, *"...affirm that's the procedure"*. (The procedure is stated previously in paragraph above). Albeit that the pilot did not read back the ATC service being provided and this was not challenged by the trainee (a MATS Part 1 requirement), it is not considered to be a causal factor to the Airprox. The mentor commented later that he was aware that his trainee's plan was to issue descent to 4000ft to the BE200 flight and to allocate 3000ft to the outbound the JS41 flight. Consequently, he expected his trainee to instruct the BE200 crew to continue for the procedure but to maintain 4000ft until advised. The mentor agreed, with hindsight, that this instruction was not issued and he had missed this omission when the trainee passed the BE200 flight clearance for the procedure. Additionally, he had not registered that the pilot had not stated any altitude restriction during his read back. Therefore, the mentor believed that an altitude restriction of 4000ft had been placed on the BE200 until further advised. He commented that he had, previously, experienced problems with his trainee not obtaining read backs. Consequently, he agreed that he should have monitored his trainee's actions closer to ensure that the correct instruction was issued and read back correctly.

Nearing the end of its backtrack, the JS41 flight was issued with its departure clearance, *"...expect a local restriction after departure clear to Aberdeen via Whiskey Four Delta climb to maintain level"*

Niner Five squawk is Six Zero Two Four and a Procedural Service". The pilot read back the clearance and the type of service correctly. Approximately one minute later, the local restriction was passed to the JS41 crew, *"...local restriction climb and maintain three thousand feet"*. This restriction was read back correctly. The controller now believed that procedural separation of 1000ft was established between the subject ac; however, no TI was passed regarding the reason for the local restriction that would have aided the pilot's situational awareness. At 1002:56, the JS41 flight was cleared for take off, with a R turn from RW13. However, the radar recording shows that, at the time, the BE200, 8.8nm S of WIK, was passing 1900ft and its Mode S Selected Flight Level (SFL) was 1800ft.

Shortly afterwards, at 1003:15, the BE200 crew reported *"...is turning right on the Arc"*. The controller requested the pilot to, *"...report turning left inbound on the One One One Radial"*, which he acknowledged. No mention was made about BE200's altitude, which was now 1800ft.

When airborne, the pilot of the JS41 requested at 1003:50, *"confirm level of the er outbound traffic"*. This message referred to the BE200. The controller, still believing that the BE200 was only descending to 4000ft replied, *"...the inbound traffic's now descending to the altitude Four Thousand feet"*. The pilot responded 1004:00 *"Roger our TCAS could be ?????(possibly lower)"*. As a result of this call, the pilot of the BE200 stated, *"Er BE200 c/s just to confirm we're at One Thousand Eight Hundred feet on the QNH One Zero One Two"*. Up until this point, the ATC transmissions had been made by the trainee. However, the mentor, realising that separation was not ensured, now took over (1004:10) and instructed the BE200 to, *"...climb to altitude Four Thousand feet expedite climb"*. This instruction was read back correctly. His next transmission was to the JS41, *"...stop climb altitude Two Thousand feet BE200 c/s is climbing to altitude Four Thousand feet"*. The JS41 crew replied, *"That's all copied we're maintaining one thousand feet on reaching JS41 c/s."*

[UKAB Note (1): The JS41 first appears on the radar recording at 1004:06 0.8nm SE of Wick tracking 130° indicating NMC with the BE200 in its 0130 position range 6.3nm level at 1800ft; the next sweep shows the JS41 level at 700ft.]

The following transmissions were then made to and from the BE200:

BE200 1004:30	<i>"????? BE200 c/s we are now climbing through Two Thousand Two Hundred feet can you confirm we were cleared in the procedure which involves One Thousand Eight Hundred feet at this point"</i>
ATC	<i>"BE200 c/s you were clear you were asked to maintain altitude Four Thousand feet until advised and cleared for the VOR DME direct procedure to runway One Three."</i>
BE200	<i>"Roger don't remember the first bit but anyway er BE200 c/s's passing Two Thousand Eight Hundred."</i>
ATC	<i>"BE200 c/s er roger report passing altitude Three Thousand feet."</i>
BE200 1005:00	<i>"BE200 c/s is now passing Three Thousand feet BE200 c/s."</i>

Thereafter, vertical separation existed and the JS41 flight was again instructed to climb altitude 2000ft.

The radar recordings of the event reveal that, at the lowest vertical separation of 1100ft, the aircraft were 5nm or more apart. Thereafter, vertical separation generally increased as the horizontal distance decreased. By the time the 2 ac were at their CPA (0.7nm) at 1005:52, vertical separation was 2000ft.

A Safety Directive was issued by Highlands and Islands Airports Ltd (HIAL) Head Office in August 2009 (04/09), concerning Instrument Approach Procedure (IAP) phraseology:

'The following phraseology should be used for all aircraft carrying out IAPs:
When an aircraft has been cleared for an IAP and has reported "commencing the procedure" there is **NO** need to add *"descend / further descent with the Procedure"*. The onus is on the

pilot to descend as having already been cleared for the IAP, further descent has been authorised. If there is a need to restrict descent this should be stated **BEFORE** issuing a clearance for the IAP e.g. *“Not below Alt3600 until advised, Cleared IAP Rw, report xxx”* and stated **AGAIN** once the pilot has reported “commencing the procedure” *“Not below Alt3600, Report xxx”* (if required). **PLEASE ENSURE THAT THE CORRECT READ-BACK IS RECEIVED AT ALL TIMES’.**

The MATS Part 1, Section 1, Paragraph 6, defines a Procedural Service:

‘A Procedural Service is an ATS where, in addition to the provisions of a Basic Service, the controller provides vertical, lateral, longitudinal and time instructions, which if complied with, shall achieve deconfliction minima against other aircraft participating in the Procedural Service. A controller shall provide deconfliction instructions by allocating levels, radials, tracks, and time restrictions, or use pilot position reports, aimed at achieving a planned deconfliction minima from other aircraft to which the controller is providing a Procedural Service in Class F/G airspace’. On this occasion, the controller was intending to use the vertical minima, 1000ft.

The mentor believed that his trainee had instructed the BE200 to maintain 4000ft until advised whilst positioning for the direct VOR arrival to RW13. This would have ensured that the requisite 1000ft vertical separation, when both flights were receiving a PS, would have been provided between the subject flights. However, this instruction was not passed. The pilot was cleared for the VOR DME procedure with no restriction. This meant that the BE200 could descend on the procedure to 1800ft towards WIK and, thereby, into conflict with the JS41. Although the trainee was making the transmissions up to that point, it is assessed that the mentor must bear responsibility for the Airprox, for not ensuring that the correct instruction was issued by his trainee.

Apart from receiving an altitude report from the pilot of the BE200, after he had descended to 1800ft, ATC had no means of realising the situation between the 2 ac. It would appear that the potential conflict between the two flights was resolved following the TCAS observations received by the JS41.

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.

Controller Members agreed that the phraseology used by the Wick APP trainee, which went unchallenged by his mentor, had not restricted the BE200 to maintain 4000ft as intended. The instruction passed by APP had in fact cleared the BE200 to 4000ft and then continue with the direct arrival procedure which placed the BE200 into conflict with the departing JS41 causing the Airprox. Furthermore, the trainee/mentor team did not challenge the BE200 pilot's read back, which did not include any mention of the altitude restriction. Thereafter the APP team were unaware that the BE200 was descending to 1800ft until the JS41 crew challenged the BE200's level from the information displayed on TCAS. This had elicited the BE200's actual level from its pilot, which triggered the APP mentor to take control and instruct the flight to climb expeditiously, and then to restrict the JS41's climb and pass TI. CAT Members commended the good SA and actions taken by the JS41 crew. After informing ATC of the deteriorating situation and then levelling off at 1000ft whilst monitoring the BE200's flightpath as it commenced a climb out of conflict, the Board were in no doubt the JS41 crew had quickly and effectively removed any risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: APP cleared the BE200 into conflict with the JS41.

Degree of Risk: C.