

ASSESSMENT SUMMARY SHEET FOR UKAB MEETING ON 19 May 2010

Total: 15

Risk A: 1

Risk B: 3

Risk C: 10

Withheld 1

<u>No</u>	<u>Reporting</u>	<u>Reported</u>	<u>Airspace</u>	<u>Cause</u>	<u>Risk</u>
2009-079	B777-300 (CAT)	C525 (CIV)	A	Withheld until release of AAIB report	
2009-114	Sikorsky S92A (CIV)	BE200 (CIV)	D	Inaccurate TI passed to the BE200 crew. The BE200 crew did not follow the company procedures notified to ATC and did not notify Sumburgh Radar of their actual intentions.	C
2009-115	AC114 (CIV)	PA28 (CIV)	G	A non-sighting by the PA28 pilot and a late sighting by AC114 pilot.	B
2009-129	DHC-8 (CAT)	PA28 (CIV)	G	Sighting Report.	C
2009-131	AW109E (A) (MIL)	AW109E (B) (MIL)	G	A conflict in IMC in Class G airspace on the Northolt Standard Arrival and Departure Routes.	C
2009-139	Sikorsky SK76 (CAT)	PA32 (CIV)	G	Sighting Report	C
2009-144	BE200 (CIV)	TBM700 (CIV)	G	The TBM700 pilot climbed above his assigned altitude and into conflict with the BE200.	C
2009-150	Chinook (MIL)	Chipmunk (CIV)	G	While conducting aerobatics near the Odiham ATZ, the Chipmunk pilot flew into conflict with the Chinook, which he did not see.	C
2009-152	R44 (CIV)	BN2 Islander (N/K)	G	The Islander flew close enough to the R44 to cause its crew concern.	C
2009-153	Hawk TMK2 (MIL)	Untraced Helicopter (N/K)	G	A presumed non-sighting by the helicopter pilot and a late sighting by the Hawk crew.	B

2009-156	BH06 (CIV)	PA28 (CIV)	G	Sighting Report.	C
2009-158	King Air (MIL)	Grob Tutor (MIL)	G	Incorrect TI led to a conflict between the King Air and Tutor on final approach.	B
2009-159	Tornado GR4 (MIL)	Tornado GR4 (MIL)	G	Effectively non-sightings by both crews.	A
2009-160	Squirrel (MIL)	Chinook (MIL)	G	The Squirrel pilot was unable to see the Chinook until a late stage.	C
2010-009	FK70 (CAT)	Tucano (MIL)	G	Controller perceived conflict.	C

IRPROX REPORT No 2009-114

Date/Time: 25 Sep 0809

Position: 5952N 00117W (1nm S of SUM VOR - elev 24ft)

Airspace: Sumburgh ATZ/CTR (Class: D)

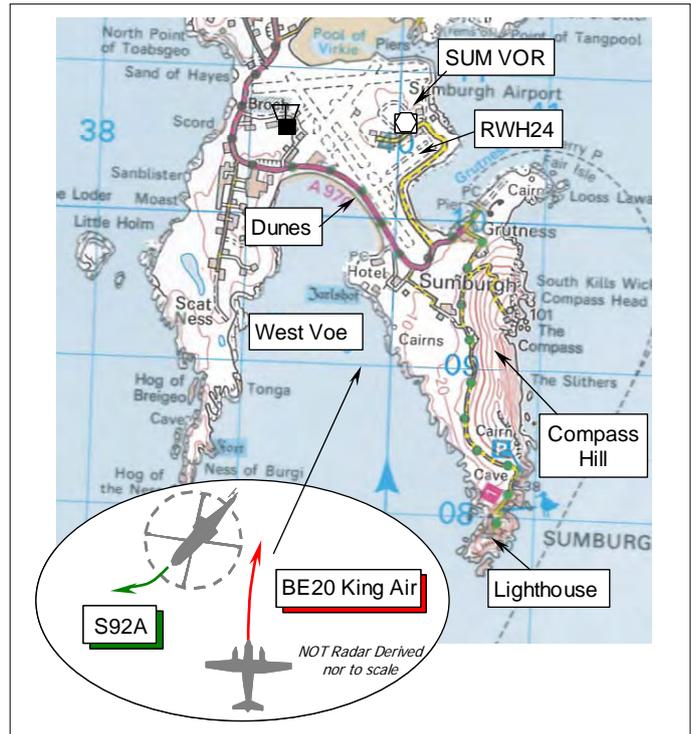
	<u>Reporting Ac</u>	<u>Reporting Ac</u>
<u>Type:</u>	Sikorsky S92A	BE200
<u>Operator:</u>	Civ Comm	Civ Comm
<u>Alt/FL:</u>	350ft QNH (1012mb)	900ft QNH (1012mb)
<u>Weather:</u>	VMC	VMC
<u>Visibility:</u>	5nm	10+km

Reported Separation:

300ft V/100m H 400ft V/50m H

Recorded Separation:

300ft V/0-14nm [~260m] H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SIKORSKY S92A (S92) HELICOPTER PILOT reports he was operating VFR in VMC some 400ft below cloud with an in-flight visibility of 5nm, executing a full winch run-out in the vicinity of Sumburgh Airport and in communication with Sumburgh TOWER on 118.25MHz. The allocated squawk of A2630 was selected with Mode C; Mode S and TCAS are fitted. His helicopter has a red & white livery; HISLs and the twin landing lamps were on. The helicopter was crewed with 2 pilots and 1 crewman.

ATC informed them of an ac executing a cloud break flying inbound on the Sumburgh VOR 010 radial with the intention of breaking R to fly E of the airport when visual with the surface. In the hover at 350ft QNH (1012mb), heading 240°, just outside the airport boundary about 1nm S of the SUM VOR with a forward speed of 25kt, another ac had been seen on TCAS at a range of 8nm. Their next sighting was visually in their 9 o'clock at ½nm - higher - flying towards them with a 'high' risk of a collision. To avoid the other ac he descended forward and R as the BE200 passed 100m away and 300ft above his helicopter in a descent.

THE BEECH BE200 PILOT reports he was conducting an Air Ambulance flight from Aberdeen to Lerwick/Tingwall and in receipt of a RCS from Sumburgh RADAR on 131.3MHz. The allocated code of A5013 was selected with Mode C; TCAS I and Mode S are fitted. His ac has a black & silver livery and the wingtip HISLs were on.

Due to poor weather over Shetland – the Sumburgh ATIS at 0750 UTC reported 240/20G30 9km – DZ Few 900 SCT 1500 BKN 2200 +13/+12 QNH1012 - his intentions were to carry out the published Sumburgh VOR/DME 010° to aerodrome approach (MDA 800ft) to break cloud and then proceed VFR to Lerwick via the E coast of Shetland.

During the approach they were informed by Sumburgh RADAR that a helicopter - the S92 - would be operating at low-level in the vicinity of the airport. Just after breaking cloud at about 1000ft amsl heading 010° at 160kt about 1½ nm S of the SUM VOR, whilst establishing his aeroplane in level flight at 900ft QNH (1012mb), both he and his co-pilot became aware of the S92 ahead and below

flying slowly in a level R turn. The S92 was first seen directly ahead about 400ft below his aeroplane but as their flight paths were already diverging at this point, he initiated a slight right turn to increase the rate of divergence. He estimated the minimum separation was 400ft vertically and 50m horizontally and assessed the Risk as 'medium'. He added that his workload was high whilst transitioning to VFR flight at the end of an IFR non-precision approach.

He spoke to the RADAR controller after landing to discuss the incident and subsequently elected to file an Airprox.

THE SUMBURGH AERODROME CONTROLLER (ADC) reports that the S92 had been booked out for winching in West Voe under VFR, a location that is frequently used for winching at very low level (50–100ft); the crew then started up and taxied out to RW Heli-24 (RWH24). RADAR called on the landline to advise that an EC225 was holding in an orbit 10nm S of the airport to allow a BE200 in ahead on an aerodrome approach, before it flew on towards Tingwall. He anticipated that the EC225 would land on Heli-24, so he told the S92 crew that it would be helpful if they could operate N of the extended centreline of RWH24 or further out to the W. The S92 crew replied that was copied.

RADAR phoned to inform him that the BE200 was now 10nm S on a cloud break, to break-off up the E coast and that they had passed TI to the BE200 crew about the S92, which RADAR did not believe would be a problem. He agreed that it wouldn't be an issue as the S92 would be operating very low-level VFR in West Voe. At that point the S92 was just crossing over the sand dunes, so he told RADAR that they would be able to see the helicopter on radar, albeit temporarily, as it crossed the dunes. Just as he was finishing his call to RADAR, the S92 crew called to say they would like to operate S of the RWH24 centre-line towards the lighthouse, if they were able, and queried traffic 7nm to the S. He had not had a chance to tell the S92 crew about the BE200 before this call and so advised them again about the previously mentioned EC225 holding about 10nm S, and that the traffic at 7nm that the S92 pilot was referring to was the BE200 on the cloud break that would be routeing up the E coast VFR. The S92 pilot replied he had an ac on TCAS about 6nm away at 2000ft. The ADC said that he thought that it was the BE200 as the EC225 was still orbiting VFR to let the BE200 in ahead, so he reiterated that the BE200 would be routeing up the E Coast to Tingwall VFR.

RADAR then called to inform him that the EC225 was leaving its orbit 8nm S of the airport and switching across to the TOWER frequency inbound direct to the airport; the RADAR controller thought the EC225 crew said to join on a L base-leg for RWH24. He then saw the BE200 appear over Compass Hill heading NE, possibly at about 500ft ALT, routeing through the overhead and up the E coast. At this point the S92 was heading into the SW'ly wind at about 300ft amsl.

The EC225 subsequently landed on RWH24. He thought the S92 had been in position to hold off to allow the EC225 traffic to land on RWH24, and so he thanked the S92 crew for their help and advised there was no further traffic. Believing that the S92 would continue further to the N, closer to the beach to carry out his winching, but the pilot reported he was complete and wished to land on RWH24.

Later, having spoken to the S92 pilots, they said that when they booked out they had told the Air Traffic Services Assistant (ATSA) that they would be doing a winch run-out in West Voe, operating at 300-400ft ALT. This information had not been passed on to him as the ADC and he had assumed they would be carrying out their usual low-level winching operations. For their part, the S92 crew thought the ADC would have known what they were planning and that there was no need to reiterate their flight details over the RT.

THE SUMBURGH RADAR CONTROLLER reported that he was mentoring a trainee at the time of the incident. The BE200 was approaching Sumburgh from the S to fly the VOR/DME010 procedure to break-off up the E coast of the Shetland Isles towards its destination of Lerwick/Tingwall. As the BE200 reached about 12nm S of Sumburgh airport, the Sumburgh ADC requested a departure for the S92, of which RADAR had no details, to lift to West Voe to the W (sic) of the airport not above 300ft, VFR. After considering this against the BE200, knowing the position and level he thought the helicopter would be at in relation to the route/level he believed the BE200 flight would take, he

approved the S92's departure. Just preceding this approval of the S92's flight, his trainee had passed details of the BE200 to the ADC and explained the BE200 pilot's intentions. His trainee elected to keep the BE200 on their RADAR frequency and passed traffic information to the BE200 crew about the S92 helicopter to the West of the airport.

Another helicopter [the EC225] had to be held to enable the BE200 to descend on the instrument procedure. Whilst he and his trainee were discussing the merits of how that confliction was solved and concentrating on that, they did not see that the S92 had moved into a conflicting position with the BE200. The BE200 reported visual (with the surface, he believed) and continued to fly overhead Sumburgh and up the E coast. The 'normal' routeing would have taken the BE200 to the E of, and around, the high ground to the SE of Sumburgh airport, rather than routing overhead the airport. The weather was such that this could have been possible as it is a regular flight/procedure. When he handed over the position to the next controller, the BE200 was clear and to the N of the Class D CTR and at no time did the crew mention a confliction with the S92.

Subsequently the BE200 Captain reported to the next controller that the S92 had been close and that he would telephone when he was on the ground. The BE200 Captain called and asked him to advise the ADC that the S92 was higher than expected, with 'no blame on RADAR', and just to 'pass on the message to TOWER'. This confliction should not have happened as the S92 should have always been to the West of Sumburgh, at such a level that would put terrain between the helicopter and the BE200, with a minimum of 500ft separation if the BE200 crew descended to their minima and the S92 went to its maximum cleared altitude. Furthermore, the normal route for the BE200 would have kept it clear, and even taking into account its actual route, it still should not have crossed paths with the helicopter.

ATSI reports that the BE200 was operating an ambulance flight to Lerwick/Tingwall, an aerodrome situated 19nm N of Sumburgh Airport. It was carrying out a cloud break procedure to Sumburgh Airport before continuing visually to Lerwick/Tingwall. The flight was under the control of the Sumburgh RADAR Controller, situated at Aberdeen. The S92 was on a local flight, operating VFR on the Sumburgh TOWER frequency. The Sumburgh ADC described his workload as light; the Sumburgh RADAR Controller considered his workload as moderate. At the time, he was monitoring a trainee, who was approaching Certificate of Competence standard.

The BE200 was carrying out a Direct Arrival Approach VOR/DME to Sumburgh, preparatory to the cloud break. The final approach track (FAT) for this approach is 010° to the Sumburgh (SUM) VOR.

The Sumburgh 0750 weather was: 24020G30kt; 9000; DZ FEW009; SCT015; BKN 022; 13/12; Q1012. Shetland RPS 1003.

At 0730, the S92 pilot's unit telephoned Sumburgh ATC to pass details about a local flight. The call was answered by the ATSA; the S92 crew's intentions were to carry out a 'winch run-out' sortie, departing at about 0800UTC. The S92 would be operating in West Voe, up to 300-400ft ALT. West Voe is situated S of the airport boundary. The ATSA produced a fps for the flight but did not annotate its intended altitude or type of operation. A 'winch run-out' is a reasonably common evolution performed at Sumburgh, whereby up to 300ft of winch cable, with a weight at the end, is let out from the helicopter. The ADC commented that helicopters often carry out practice winching flights, which take place at very low level i.e. about 50-100ft. With no other information annotated on the S92's fps the controller assumed, when the S92 crew requested to start at 0757, that this was what the S92 crew wished to carry out.

The Sumburgh ADC was aware that the S92 crew wished to operate over West Voe but no details about its flight were passed on the frequency at the time or, subsequently, as it taxied. Some 5min later the S92 was cleared to taxi, via RW15, to line up on RWH24. At 0804, whilst the S92 was taxiing, the Sumburgh RADAR Controller telephoned the ADC to pass details about an EC225 helicopter, which was orbiting 10nm S of the airport, to allow the BE200 to proceed ahead to Tingwall. This was the first time that the Sumburgh ADC was aware of the BE200's flight. The Sumburgh ADC then took the opportunity to inform RADAR about the S92. RADAR was advised that

it would be departing RWH24, to operate at 'very low level' in West Voe. Because the trainee RADAR controller seemed to be unsure of this location, the Sumburgh ADC explained it, initially, as being W of RW15 and then added that it was SW. Although the RADAR trainee may have been unsure of its location, his mentor confirmed he was aware of West Voe, as he had previously held a validation at Sumburgh Airport. It was decided by the trainee that the S92 would remain on the TOWER frequency.

The S92 crew's local clearance was issued at 0805: *"after departure you can operate in West Voe maintain VFR Squawk 2-6-3-0"*. The pilot read back the clearance and squawk correctly. A2630 is an Aberdeen squawk, allocated to Sumburgh APPROACH/RADAR. Prior to departure, the pilot of the S92 was informed about the EC225 by the ADC, *"just to let you know I will shortly have helicopter traffic inbound to Heli 2-4 so if you could either be kind of north of the extended centreline of 2-4 or a bit further out to the west that would be helpful"*. The pilot reported copying the information and was cleared, at 0806:10, for take off from Heli-24.

Sumburgh RADAR telephoned the Sumburgh ADC, at 0807, to update the details on the BE200. The ac was reported as 10nm S of the airport carrying out a cloud break, to break off to the E coast. [UKAB Note (1): When asked just after 0801:00 by RADAR for their intentions, the BE200 crew replied *"descend er cloud break procedure and then hopefully to route the east coast er Tingwall [C/S]"*. The RADAR Controller said that, although not anticipating an issue, he would advise the BE200 about the S92. The ADC commented that, as the S92 was climbing to cross the sand dunes (situated just at the western end of RWH24) at the moment, it might show up on the RADAR Controller's display, albeit temporarily, higher than expected. The ADC stated his belief that it would be operating 'just to the west of the field locally'. Shortly after this telephone call had finished, the pilot of the S92 transmitted, *"we'll go south of the centreline if we may towards the lighthouse and that traffic is it about 7 miles away from the south"*. (The lighthouse is situated at the southern most part of the Mainland Island i.e. at the SE end of West Voe.) The ADC replied, *"The last I was told he was holding at 10 miles out possibly if you can seeat about 7 miles is a..Beech 2 Hundred on the cloud break he's gonna route up the East coast VFR"*. The pilot responded *"Okay just TCAS we've got 6 miles away at 2 thousand feet"*. The controller explained, *"Yeah I think that'll be the [BE200] the [EC225] was just orbiting VFR to let the [BE200] go ahead he's routeing up the east coast VFR to Tingwall is the [BE200]"*. After the pilot had acknowledged the message, "Okay", no further comments were made on the frequency by the controller, or the pilot of the S92, about the proximity of the BE200. The ADC did not register that the S92 was operating higher than he anticipated. Additionally, the controller believed that the BE200 would be routeing on its company cloud break procedure (see below), which would route it to the E of West Voe and, consequently, away from the S92. The view from the VCR towards West Voe is restricted by a large chimney, which is part of the buildings around the Tower. The controller, not expecting the BE200 to route towards the airport, had not made a conscious effort to sight the ac behind the chimney. Of more concern to the controller was the position of the EC225, which might, subsequently, present a conflict with the S92. The controller first sighted the BE200 after it had passed the S92. By then it was heading NE, over land to the SE of the airport. Although the Sumburgh Area Radar head is situated on a hill overlooking the airport, the VCR is not equipped with an Aerodrome Traffic Monitor (ATM).

The BE200 crew established communication with Sumburgh RADAR at 0800, reporting passing FL150, descending to FL110. The pilot was informed that the flight was identified and was being provided with a DS. At the controller's request, the pilot of the BE200 stated his transit intentions to Tingwall; *"Descend cloud break procedure and then hopefully to route the east coast [to] Tingwall"*. The flight was instructed to descend to 3000ft, on its present heading of 005°. Shortly afterwards, the inbound EC225 crew was instructed to orbit not above 1000ft, to allow the BE200 to proceed ahead. At 0803:42, as the BE200 entered the Sumburgh CTA (Class D airspace) the pilot was informed *"Radar Control Service descend to altitude 2 Thousand 1 Hundred feet and report established on the 1-9-0 radial for the cloud break procedure"*. The pilot read back the service and the cleared altitude correctly, adding, *"we are now at this time established on the 1-9-0 radial"*. Traffic information was passed to the BE200 and the EC225 about each other's flight.

At about the time the pilot of the S92 reported on the TOWER frequency wishing to route towards the lighthouse, the RADAR Controller cleared the BE200 crew for the cloud break procedure, *“to break off East coast report when visual”*. The pilot was passed information about the S92 at 0807:30, *“traffic information there’ll be a...helicopter Sikorsky 92 working low level just to the west of the field with the TOWER”*. He reported copying the information. No further transmissions were made by the BE200 until 0808:58, when the pilot reported, *“happy to continue visually we’re routeing East coast”*. The radar photograph, timed at 0809:08, shows the S92, at 400ft, in the BE200’s 12 o’clock, 1.5nm away. The latter aircraft is descending through 1000ft. Thereafter, the BE200 continues to track N towards the S92, descending to 700ft. The RADAR Mentor commented that he had not watched the progress of the BE200 as he had been busy discussing the traffic situation, which had recently occurred between the BE200 and the EC225, with his trainee. He agreed that the conflict, between the subject flights, would have shown on his radar display but, at the time, he did not believe that the two ac would come close to each other. No further RTF contact was made with the BE200 until the radar service was terminated and it was transferred to Tingwall at 0814, which was just after the position had been handed over to another controller. The closest point of approach between the two ac - 0.14nm/300ft - occurred at 0809:39. The BE200 passed virtually overhead the S92 at a distance of 0.9nm, on bearing 189°, from the SUM VOR i.e. both flights were within the Sumburgh CTR/ATZ.

The Airprox occurred within Class D airspace. The MATS Part 1, Section 1, Chapter 2, Page 1, states the Minimum Services to be provided by ATC Units for Class D airspace:

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

On this occasion, traffic information was passed to both flights. However, the information did not reflect correctly the operation of the 2 ac, as the two controllers concerned were not aware of the correct intentions of the other ac. The S92 crew was informed the BE200 would be routeing up the East Coast, after the cloud break, rather than overhead the airport as actually occurred. The BE200 was advised that the S92 was operating low-level to the W of the airport, when it was actually to the S, up to 400ft.

The BE200 pilots’ Company Operations Manual, as supplied to Sumburgh Airport ATC, concerning cloud breaks to Tingwall states:

‘Flight Plans are routed via Sumburgh airfield, where RAD, ILS and VOR are available. The most expeditious method is to descend with Sumburgh Radar to MSA 2100ft and, if necessary, continue descent with the VOR/DME010° Cloud-Break. Transit from IFR let down at Sumburgh requires a minimum visibility of 5km and an 1100ft cloud-base along the defined routes as depicted (a map is included). When transiting the Sumburgh CTR (Class D) the IAS must be 135kts when the visibility is 5km. During cruise the appropriate route and FMS waypoints must be carefully input and cross-checked. It is vital that a thorough briefing takes place checking the FMS route against available charts. The published VOR/DME 010° cloudbreak has MDA at 820ft at SUM VOR. This must not be used. **The Company VFR routes commence at an MDA SUM190°/3.5D at 1000ft min.**’ The initial routeing from SUM 190°/3.5 is to ‘route to SUM035°/20. This routeing passes the VRP MOUSA [8nm NNE of the airport] and turns to the NW passing the island of NOSS [about 19nm NNE of the airport]’.

The route tracks NE, passing just to the S of the Mainland, in the vicinity of the lighthouse mentioned previously. It does not show it entering West Voe. It is understood that the BE200 did not carry out this company procedure as the flight was being operated by a back-up ac, which was not equipped with suitable navigation equipment.

The Sumburgh Radar Mentor stated that, if he had been operating without a trainee, he would probably have transferred the BE200 to the TOWER frequency. This, he believed, would have allowed the ADC to pass the relevant traffic information. However, his trainee decided to keep the BE200 on the RADAR frequency and he did not challenge this plan. Following this incident, a Safety

Notice was issued by Aberdeen ATC, stating that it was 'good practice' to transfer traffic to the Sumburgh TOWER frequency if it was considered necessary to issue traffic information to flights in or close to the cct. This notice was replaced by a Temporary Operating Instruction (TOI 45/09), which stated: 'Sumburgh RADAR will transfer to Sumburgh ADC any inbound or overflying traffic which is likely to conflict with traffic which Sumburgh ADC is working. The exception to this is when, after co-ordination, it is agreed that the more appropriate resolution is for both aircraft to be on the Sumburgh Radar frequency. In this instance, ADC will transfer their aircraft to Sumburgh Radar'.

The MATS Part 1 requires traffic information to be issued to IFR/VFR flights within Class D airspace. On this occasion, both the Sumburgh ADC and RADAR Controllers passed what they believed to be the correct information. However, for a number of reasons, but mainly due to incorrect assumptions by both controllers, this information was inaccurate. Initially, the Sumburgh ATSA, having been advised of the S92's flight details, did not pass this information to the ADC. The latter then made an erroneous assumption about the proposed operation of the helicopter. Subsequently, the ADC and the RADAR Controllers assumed that the two flights would not conflict as the BE200 would carry out the 'normal' company procedure and route away from the airport. Consequently, neither the Sumburgh ADC, nor the RADAR Controllers, monitored the progress of the two ac and were not aware of the potential confliction.

The provision of an ATM in the Sumburgh VCR would have assisted the ADC in monitoring the progress of the BE200 when it was hidden behind the chimney, and establishing that the S92 was flying higher than expected.

UKAB Note (2): The radar recording provided to ATSI utilised a recording system not available to the UKAB. However, radar photographs of the final moments of the encounter were provided, which showed that minimum vertical separation was 300ft as the BE200, indicating 700ft Mode C (1013mb), passed just to the E of the S92 indicating 400ft Mode C (1013mb) at 0809:39. The next frame shows that the S92 had descended to 300ft Mode C (1013mb) after the BE200 drew astern maintaining 700ft Mode C (1013mb).

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

This was a very complex Airprox, which had its roots in a number of assumptions made by those involved. Consequently, there were some salutary lessons for all concerned within this close quarters encounter within the Sumburgh ATZ/CTR. No separation is mandated in Class D CAS between IFR and VFR flights. ATC discharges its responsibility to prevent collisions between known traffic in Class D airspace by passing TI. VFR flights are then required to avoid IFR flights; IFR flights may request traffic avoidance. In this Airprox the BE200 was under IFR and the S92 VFR. Both the Sumburgh ADC and RADAR controllers passed what they believed to be the correct information about their respective ac. However, as a result of incorrect assumptions by both controllers, the TI given was inaccurate.

The catalyst to this Airprox lay in the transfer of information within the Control Tower at Sumburgh Airport where the ATSA had not made plain to the ADC the details of the S92 flight, as notified by the company to ATC. The FPS did not specify a 'winch run-out' or the planned ALT of 300-400ft. The ADC did not check the flight details with the S92 crew over the RT when they taxied out and the helicopter crew did not volunteer the information. As it turned out the ADC assumed the S92 would be operating at 50-100ft amsl, and advised Sumburgh RADAR to this effect during the initial co-ordination call. It was also unfortunate that fate also played a hand here when the S92 crew legitimately decided to operate in an area not easily visible to the controller where, ATSI had reported, the chimney partially obscured the view from the VCR to the S. Therefore, it seemed to the Members that the ADC was not able to monitor the S92 visually. Controller Members were

concerned that the VCR was not provided with an ATM, especially with radar data being readily available, so the Board was reassured to learn from the ATSI Advisor that its fitment was being considered.

RADAR was told by the ADC that the helicopter would be departing RWH24, to operate at 'very low level' in West Voe. Although the ADC had attempted to explain to the trainee RADAR controller the location of West Voe it was evident that the Mentor was also confused over its position relative to the airport and therefore the operating location of the S92. The Mentor's account made reference to a request from the ADC for the S92 to lift to West Voe 'to the W of the airport' not above 300ft. The inlet of West Voe is plainly immediately S of the airport, moreover, no reference was made to any actual operating altitude by the ADC. It seemed to the Board that if RADAR believed that the S92 would be operating to the W of the airport at very low-level then it was understandable they would not perceive any confliction with the BE200. Furthermore, it was evident from the ATSI report that both the ADC and the RADAR controllers assumed that the BE200 crew would follow their standard company procedures (notified to ATC) that would have them follow the VOR/DME 010° before breaking off to the E before entering West Voe. However, it was evident, after the event, that the BE200 crew did not intend to do that. When RADAR advised the ADC about the BE200 inbound from the S on a 'cloud-break', the ADC had passed TI to the S92 crew who were left with the impression that the BE200 would fly E of the airport. Meanwhile the BE200 crew was told that the S92 would be operating low-level to the W of the airport and thus there was no reason for the BE200 crew to believe that any avoiding action might be required against it. It was plain that the TI given to the respective pilots did not correctly reflect what the 2 crews were doing as the controllers concerned were not aware of their actual intentions. If the BE200 crew had been aware that the S92 was actually operating to the S, up to 400ft amsl, this might have affected his decision to follow, unbeknownst to RADAR, the VOR/DME 010° aerodrome approach all the way direct to the SUM VOR. Therefore, the Board concluded that the inaccurate TI passed to the BE200 crew was the first part of the Cause.

The S92 crew was informed the BE200 would be routeing up the East Coast, after the cloud break, rather than overhead the airport as actually occurred so they had little reason to perceive the BE200 would fly in close proximity. Neither the Sumburgh ADC, nor the RADAR Controllers, monitored the progress of the two ac and were not aware of the potential confliction until after the event. Controller Members agreed that it would have been preferable to switch the BE200 to TOWER to fly through the cct area. Indeed, the Sumburgh Radar Mentor stated that, if he had been operating without a trainee, he would probably have transferred the BE200 to the TOWER frequency. The Board was reassured that a TOI had been issued giving further guidance to controllers on this topic.

CAT Pilot Members were concerned that assumptions were made both by RADAR and the BE200 about what procedure would be followed. A Member familiar with operations in this locale emphasised that the Company VFR routes commenced from a point at 190° SUM 3.5D at a minimum of 1000ft. He stressed that the company procedure specifically prohibited flight below this minima to the promulgated MDA of 820ft at the SUM VOR, whereas the GA member added that it was clear from the radar photographs that the BE200 crew descended to 700ft Mode C (1013mb) - broadly 670ft QNH (1012mb), after achieving VMC below. Notwithstanding the tolerances applicable to Mode C of +/-200ft, the GA pilot Member pointed out this was somewhat below the specified company minima of 1000ft QNH. Furthermore, the subsequent routeing from 190° SUM 3.5D is direct to 035° SUM 20D, thereby skirting West Voe and flying E of the Lighthouse and the SE'ly headland of Sumburgh Head. It was understandable that if the ADC and the RADAR Controllers perceived that the BE200 crew would follow this the 'normal company procedure' and route away from the airport that no confliction would ensue. However, on this occasion it seemed an alternative ac was being used which might not have had a FMS that would have permitted the BE200 crew to utilise this route and so they followed the VOR/DME 010° aerodrome approach toward the VOR, but had not specified to RADAR that they would be doing so. It was unfortunate, that the BE200 crew had not specified their intentions more precisely to RADAR, which if they had, might have made the controllers more circumspect. Consequently the Board concluded that the other part of the Cause was that the BE200 crew did not follow the company procedures notified to ATC and did not notify Sumburgh RADAR of their actual intentions for the 'cloud break'.

Whilst it was not feasible to replicate exactly what RADAR's display showed, and the controllers would have been operating on a different scale than that used for the replay, the recording of the Sumburgh Radar plainly showed the Airprox. However, the Mentor was distracted by a teaching point, had not continued to track the aeroplane or the developing conflict with the very slow moving helicopter. No action was taken by RADAR under the RCS provided to the BE200 crew to provide any warning or effect avoiding action against the S92, which was clearly indicating 400ft Mode C (1013mb) on the recording, some 300ft below the BE200 at the CPA, as the aeroplane closed rapidly from the S. ATSI reports the BE200 was hidden behind the chimney, so the ADC was not cognisant of the twin approaching from the S or that the S92 was flying higher than expected. Therefore, as none of the controllers were aware of the situation they took no action to forestall the subsequent close quarters situation as it unfolded. The winch run-out probably focused all the S92 crews' attention, as it seemed that after the TCAS provided a warning at a range of 8nm, the BE200 was not spotted visually until it had closed to ½nm off their port beam. Once seen the helicopter crew descended forward and R as the BE200 passed astern. Given that they were told the helicopter was to the W of the airport, the BE200 crew might have been somewhat surprised when they broke out of the base of cloud at 1000ft and were confronted with the S92. From the BE200 pilot's perspective he reports sighting the helicopter 1½nm directly ahead, some 400ft below his aeroplane, and in a R turn on a diverging flight path. This suggested to some that the BE200 crew might have seen the helicopter after the S92 crew had initiated their avoiding action. Notwithstanding this discrepancy in the 2 crew's range estimates, it was clear that the helicopter crew had spotted the BE200 in time to take action and all the BE200 pilot needed to do was make a slight right turn to increase the rate of divergence. With this geometry it seemed likely that the BE200 was always going to pass astern of the S92 and the radar recording evinced 300ft of vertical separation – exactly what the S92 pilot had estimated. Weighing all these factors for relevance at length, the Members agreed unanimously that no Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: (1) Inaccurate TI passed to the BE200 crew.
(2) The BE200 crew did not follow the company procedures notified to ATC and did not notify Sumburgh RADAR of their actual intentions.

Degree of Risk: C.

AIRPROX REPORT No 2009-115

Date/Time: 25 Sep 1315

Position: 5128N 00113W (1nm SE CPT)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: AC114 PA28

Operator: Civ Pte Civ Club

Alt/FL: 3000ft (RPS) 2000-4000ft (QNH)

Weather: VMC CLBC VMC NK

Visibility: 10km NR

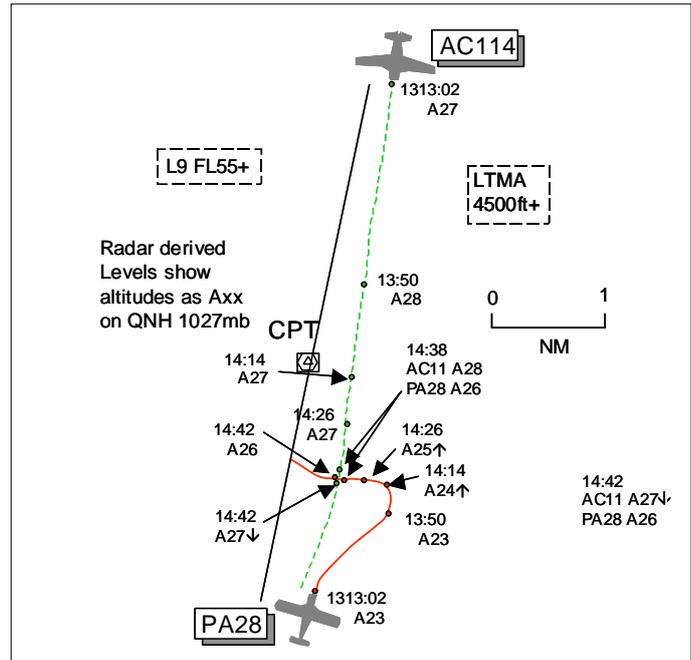
Reported Separation:

20m V/50m H Not seen

Recorded Separation:

100ft V*/<0.1nm H

*see UKAB Note (1)



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE AC114 PILOT reports flying with 2 other experienced pilots enroute to Jersey VFR via CPT and SAM and in receipt of a BS from Brize Norton on 124.27MHz, squawking an assigned code with Modes S and C; PCAS was fitted but was u/s. The visibility was 10km flying 2000ft below cloud in VMC and the ac was coloured grey/black/white. Just S of CPT and anticipating a change of frequency to Farnborough Radar he was happy to stay with Brize, as there was often a radio black-spot with Farnborough in the area. A good lookout was being kept as this was a busy area and he had minutes earlier diverted to avoid a glider operating close to CPT. Heading 192° at 3000ft Cotswold RPS, he thought, and 130kt he first saw a white coloured PA28 when it appeared directly in front 100m away crossing L to R at 90° to his track at the same level. He took immediate avoiding action, a high negative g bunt into a dive; the PA28 pilot took no action, although legally required to do so, and was probably unaware of the incident. He estimated separation at CPA was 20m vertically and 50m horizontally, assessing the risk as high. He immediately informed Brize of the incident and was advised that he was under a BS. He believed that the PA28 had probably been on a constant bearing within the blind arc produced by the A pillar which is rather wide and probably covers a 15° arc. Later he telephoned Brize and was told that the radar had shown the subject ac within 200ft of each other.

Since the changes in ATSOCAAS were introduced he believed that obtaining and sustaining a TS has become very difficult which he thought was having a negative effect on safety. This comment was not directed at Brize with this incident but as a result of his experience flying a number of sorties under the new regime.

THE PA28 PILOT reports flying VFR on a dual general handling training sortie with a student. He was unaware of being involved in an Airprox until contacted after tracing action. He had been operating in the CPT area between 2000ft and 4000ft QNH under a BS service from Farnborough Radar on 125.25MHz, squawking 0461 with Mode C. The Wx was VMC and the ac was coloured white/blue and strobe lights switched on. He had not seen the other ac at all.

THE BRIZE LARS CONTROLLER reports taking over the position at approximately 1300 and being aware from the large number of pre-noted flights that he could expect to be busy should all the flights require a service at the same time. The AC114 was on frequency when he took over and the

workload increased from moderate to high as he was working a number of flights under a TS in complex situations and high traffic density. The AC114 pilot reported coming close to another ac in the CPT area when his workload was very high. The flight was under a BS so he did not actively search for any conflicting tracks but looked occasionally at the subject ac's radar return to keep track identification and to ensure that it did not infringe CAS. Immediately prior to the Airprox being reported, he did not see any conflicting traffic as his attention was focussed on other higher priority tasks associated with traffic under a radar service.

DAATM reports that the LARS controller's reported workload of moderate to high is supported by the tape transcript and the ATC Supervisor's report.

The AC114 flight first made contact with LARS on frequency 124.275MHz at 1255:54. At 1256:14 the pilot passed, *"Er c/s is an AC11 out of Coventry inbound Jersey er climbing to two thousand five hundred feet squawking 7000 and routeing er overhead Oxford er to Compton"*. This was acknowledged by LARS some 4sec later, *"c/s roger what type of service do you require?"* At 1256:20 the pilot responded, *"Er basic service"*. This was acknowledged by LARS, *"c/s basic service Cotswold QNH 1024 squawk 3716"*. The pilot acknowledged the squawk and pressure. LARS then passed TI at 1257:17, *"c/s traffic in your vicinity south two miles tracking south no height information"*. The TI was repeated with no acknowledgement from the pilot despite 4 further radio checks. Contact was regained at 1301:43 when the pilot acknowledged a new Cotswold QNH of 1023mb. LARS then negotiated a clearance for the AC114 through the Oxford overhead. At 1308:59 the AC114 pilot was advised, *"c/s transit Benson MATZ approved"*. The pilot questioned the requirement to call Benson but the LARS controller invited the flight to stay with LARS. LARS was informed on RT of the incident at 1315:09, *"Er we've just had a close encounter with a Cherokee um there was no warning"*. LARS replied, *"c/s basic service I'm working (garbled) hard"*. The AC114 pilot transferred to the Southampton frequency at 1316:35. Throughout the period LARS had 9 speaking units on frequency and provided a TS to 4 ac and a BS to 5 whilst also making liaison calls to Benson, Oxford and LACC.

The AC114 pilot requested a BS and the controller initially had the capacity to provide TI under the BS when a definite risk of collision was evident although the initial passing of TI may have led the AC114 pilot to believe he was receiving TS. However, the pilot still remained responsible for his own collision avoidance, the LARS controller operated iaw CAP776.

UKAB Note (1): The radar replay using the London Heathrow 23cm radar clearly captured both ac as the AC114 transits S through the CPT area. At 1314:02 the AC114 is 2.6nm NNE of CPT tracking 190°, GS 130kt and indicating altitude 2700ft on London QNH 1027mb (2580ft RPS 1023mb) with the PA28 in its 12 o'clock range 4.7nm in a R turn passing through 010° level at altitude 2300ft QNH. The AC114 continues on a steady track as the PA28 rolls out on a NE'ly heading, GS 60kt. At 1313:50 the PA28 is seen to commence a L turn in the AC114's 1130 position range 2.1nm. By 1314:14 separation has reduced to 1nm with the PA28 turning through 280° indicating a climb through 2400ft. Twelve seconds later with lateral separation at 0.5nm the PA28 is seen at 2500ft QNH steadying on a W'ly track and on a line of constant bearing. The CPA occurs between 2 sweeps. The sweep before at 1314:38 shows separation at 0.1nm as the PA28, now level at 2600ft QNH, is about to cross just ahead of the AC114 which is showing altitude 2800ft. The next sweep 4 sec later shows the subject ac having crossed, the PA28 still showing level at 2600ft with the AC114 <0.1nm to its SE and now indicating 2700ft. This geometry, with the PA28 200ft below the AC114, does not accord with the AC114 pilot's report of both ac being at the same level, with his avoiding action bunt to pass just below the PA28, however, Mode C height readout tolerance is ±200ft.

ATSI comments that at 1252:30, the PA28 flight made its first call on the Farnborough LARS W frequency. The pilot reported *"...a PA28 from White Waltham to White Waltham general handling to the west of Reading currently approaching Reading at two thousand feet on one zero two seven request Basic Service"*. The Farnborough LARS W controller issued the flight a squawk, 0461, confirmed a BS and provided the Farnborough QNH 1027mb, which was read back correctly. No further communication with the flight occurred until 1326:30, when the pilot requested to transfer to White Waltham, frequency 122.6MHz. The flight was instructed to squawk 7000 and the frequency

change acknowledged at 1327. At no point while the flight was on the Farnborough frequency did the pilot report being involved in an incident. It was not until over 2 weeks later that the PA28 was revealed to be the reported ac. By this time, the Farnborough controller concerned could not recall the flight and consequently, did not raise a report.

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.

With this incident occurring in Class G airspace, both pilots were responsible for maintaining their own separation from other ac through 'see and avoid'. Both flights were under a BS from ATSU's, the PA28 from Farnborough and the AC114 from Brize LARS. The AC114 flight had earlier been passed radar-derived TI when LARS was not so busy but when the Airprox occurred, the Brize controller did not see the confliction owing to higher priority tasks. Nor did the Farnborough controller. Members were acutely aware of the possible blurring of services, which could lead to pilots under a BS working a radar equipped ATSU believing that they may be getting a 'better' service than they actually are. The PA28 had been manoeuvring immediately prior to Airprox, initially tracking NE'ly before turning W'ly and commencing a climb to cross the AC114's projected track, only being on a line of constant bearing for some 25sec before the CPA. The AC114 pilot had the opportunity to see the PA28 ahead and below for some time but he only saw it late as it crossed in front from L to R having climbed to a similar altitude. Similarly, there was an equal opportunity for the PA28 instructor to see the approaching AC114 when he visually cleared the airspace into which he was turning and climbing. Under the Rules of the Air, the PA28 pilot should have given way; however, this was not possible owing his non-sighting of the conflicting AC114.

Turning to risk, it was fortunate the AC114 pilot saw the PA28, albeit late, and took robust avoiding action, bunting his ac to pass just behind and below it. The Board agreed that this action had been enough to remove the actual risk of collision but that safety had not been assured during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Non-sighting by PA28 pilot and late sighting by AC114 pilot.

Degree of Risk: B.

AIRPROX REPORT No 2009-129

Date/Time: 8 Oct 1333

Position: 5028N 00410W (3.5nm NW Plymouth - elev 476ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: DHC-8 PA28

Operator: CAT Civ Trg

Alt/FL: 2800ft↓ NR
(QNH 1018mb) (QNH)

Weather: VMC CAVOK VMC NR

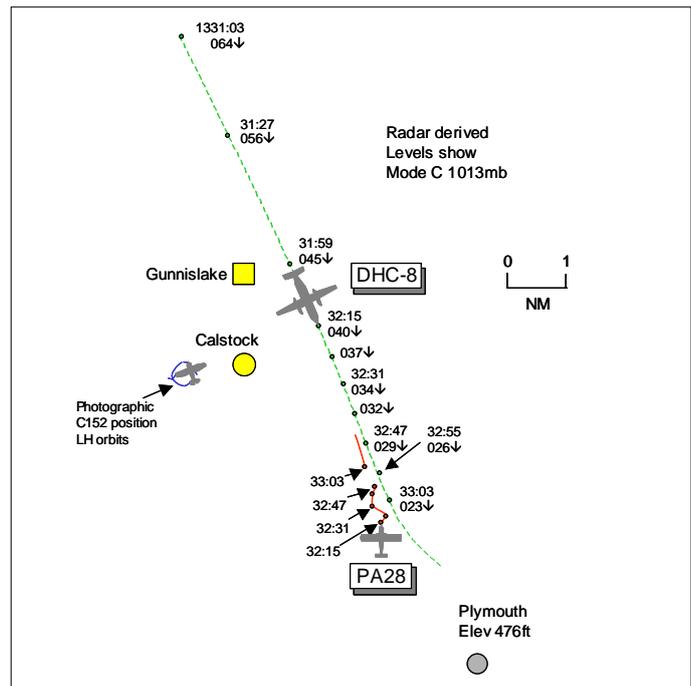
Visibility: 40km NR

Reported Separation:

400-1000ft V 500-1000ft V
200m H NR H

Recorded Separation:

c0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DHC-8 PILOT reports inbound to Plymouth IFR and in receipt of an ATS from Plymouth, squawking with Modes S and C. The visibility was 40km in CAVOK VMC and they were descending heading 140° at 180kt into a downwind RH cct for RW31 when the Airprox occurred close to Calstock [6nm NW Plymouth]. The RT was very busy at the time with Tower and Approach split. There were several TCAS contacts in the area ahead all showing more than 1000ft below their level. ATC gave TI on an ac, a C152, in the Gunnislake area [7nm NW of Plymouth] which was not seen visually at the time. Whilst descending through 2800ft QNH 1018mb and trying to locate 2 other ac visually to their E, he, the Capt and PNF, saw a PA28 coloured navy/white pass down their RHS, to the W of their track, about 200m away and between 400ft and 1000ft below their level on a reciprocal heading. Following a conversation with ATC after landing, they believed the ac in question was not working their unit but was receiving a service from Plymouth Military. He assessed the risk as high.

THE PA28 PILOT reports, 4-5 months post incident (See UKAB Note 1), departing from Plymouth on a dual training sortie VFR and in communication with Plymouth on 118.15MHz, she thought, and squawking 7000 with Mode C, she thought. In the climb out RW31 heading NW'ly at 80kt when lowering the nose in the climb to check for traffic, she became aware of a DHC-8 in their 2 o'clock high. Owing to the time delay, she could not be accurate with the horizontal separation but estimated the DHC-8 was 500-1000ft above and that it was not necessary to take any avoiding action. She had not been made aware by ATC of the inbound DHC-8 traffic. She assessed the risk as none.

UKAB Note (1): The ac identified by Plymouth ATC as being involved in the Airprox were the DHC-8, a C152 and a different PA28 (AC3), which departed Plymouth 2min ahead of the subject PA28. However, during the course of the investigation it became apparent that another ac was involved and eventually the subject PA28 was identified as being the reported ac. This had led to the extensive delay in contacting the reported ac's pilot to complete a CA1094.

THE PLYMOUTH APPROACH CONTROLLER reports a C152 was orbiting in the vicinity of Gunnislake on a photographic survey and a PA28 was departing RW31 on a local flight to the N under a BS. The DHC-8 was inbound from the NW under a PS for a visual approach to join downwind RH for RW31. All TI was passed and acknowledged, he thought. The DHC-8 was transferred to Tower on 118.15MHz for cct integration but almost 1min later the pilot called on his

frequency for TI on ATZ traffic. He reminded the pilot of the traffic which he had previously mentioned [a helicopter] and requested that he contact the Tower for a second time. Later the DHC-8 pilot telephoned to report being in close proximity to the photographic C152, he thought.

The Plymouth METAR was EGHD 1320Z 04007KT CAVOK 16/07 Q1018=

ATSI reports that the Airprox occurred in Class G airspace, just over 3nm NW of Plymouth Airport i.e. outside the ATZ (circle radius 2nm from centre of RW13/31). The weather was CAVOK. Plymouth Airport ATC is not equipped with any surveillance equipment.

The PA28 was outbound from Plymouth VFR, to operate on a general handling flight to the N of the airport. The flight was cleared for take off, from RW31, at 1328:44. Once airborne, its pilot was informed about helicopter traffic in the vicinity of the airport and was transferred to the Approach frequency at 1330:51. The radar recordings show the DHC-8, which was inbound on an IFR flight, 12nm NNW of the airport, descending through FL67, at the time. It was not in contact with Plymouth Approach, although it had contacted the frequency about 15min earlier to obtain the Wx. It had passed an estimate of O/H the airport at around 1332.

The DHC-8 flight, after release, established communication with Plymouth Approach at 1331 i.e. shortly after the subject PA28 had been transferred to the frequency (although it had not yet called). The pilot of the DHC-8 reported *"...with you visual at ten miles we're on your Three Three Five radial descending Flight Level Four Five requesting further for a visual approach"*. The controller replied *"DHC-8 c/s cleared visual approach Runway Three One QNH One Zero One Eight which side would you like to join"*. The pilot requested a RH join (1331:30) and was cleared *"...roger then join and report downwind right report er in fact traffic for you we have a Cessna in the Gunnislake area One Thousand Five Hundred feet a S a Twin Squirrel helicopter and I shall put it at One Thousand feet and he's same direction as your self shortly passing er north abeam and er a Cherokee's just recently departed routeing off to the north initially"*. (The Cherokee was the subject ac.) The pilot replied (1332:00) *"...we're look out for them and er join right hand then for er three one"* and following the controller's request for his range, he reported at 5nm. The flight was then transferred to the Tower frequency. Shortly afterwards (1332:30), the PA28 flight contacted the frequency (just over 1.5min after being transferred, albeit the approach frequency was busy in the period). Although its transmission was simultaneous with that of another flight, resulting in its c/s being cut out, the recording confirms the pilot stating *"????? er departing to the northeast with the Dash Eight in sight"*. The controller confirmed that the message did come from the PA28 flight and added *"I was just about to get round to you thank you very much"*. In the event, the DHC-8 had not transferred to the Tower frequency at the time, as just over 1min later, the pilot reported sighting the helicopter and asked if that was the only traffic to his L. This was confirmed, the controller adding that the helicopter was operating on a low level task. The DHC-8 pilot confirmed changing to the Tower frequency. No comment was made by the DHC-8 pilot, on either frequency, about the close proximity of the PA28.

Although the DHC-8 had not requested the type of ATC service required, it was being provided with a PS. This is in accordance with the procedures stated in the MATS Part 1, Section 1, Chapter 11, Paragraph 2.7.1: *'Controllers at approved ATC Units that do not have surveillance equipment available will routinely apply a Procedural Service to aircraft carrying out IFR holding, approach and/or departure procedures'*. Paragraph 6 states the procedures for a PS. Paragraph 6.5.1 states: *'The controller shall provide traffic information, if it is considered that a confliction may exist, on aircraft being provided with a Basic Service and those where traffic information has been passed by another ATS unit; however, there is no requirement for deconfliction advice to be passed, and the pilot is wholly responsible for collision avoidance'*. The PA28 was between frequencies, at the time, although it had been provided with a BS initially. MATS Part 1, Section 1, Chapter 11, Paragraph 3.5.1 states for a BS: *'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'*.

The APP passed TI to the pilot of the DHC-8 about the PA28, albeit in a message concerning 2 other ac. The PA28 pilot was not informed about the DHC-8, although she did report sighting it on her first call on the Approach frequency.

UKAB Note (2): The Berrington radar recording at 1331:03 shows the DHC-8 11.5nm NNW of Plymouth tracking 155° descending through FL064 (6550ft QNH 1018mb) with the photographic C152 in a LH orbit 2nm SW of Gunnislake squawking 7000 with NMC. The DHC-8 continues on a steady track passing 2nm NE of the C152 at 1332:15 whilst descending through FL040 (4150ft QNH) as a primary only return first appears, believed to be the subject PA28, 2.8nm NW of Plymouth tracking NW'ly and 3-4nm ahead of the DHC-8. The PA28 return exhibits track jitter for just over 30sec until it fades from radar, the last return at 1332:47 places the PA28 just R of the DHC-8's 12 o'clock range 0.8nm, which is descending through FL029 (3050ft QNH). The next sweep 8sec later, which is believed to be the CPA, the DHC-8 is seen passing FL026 (2750ft QNH) before the PA28 reappears on the next sweep at 1333:03, 0.7nm to the NW of the DHC-8 descending through FL023 (2450ft QNH). The PA28 continues on a steady NNW'ly track thereafter and no squawk is observed for the remainder of the radar recording – 7min post Airprox. Owing to the track jitter and radar fade shown by the primary only return of the PA28, it is difficult to measure accurately the lateral separation at the CPA but it is estimated to be in the region of 0.1-0.2nm.

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.

With this incident occurring in Class G airspace, both crews were responsible for their own separation from other traffic under see and avoid. The DHC-8 crew were aware of several ac in the area from their TCAS display; however they were 'surprised' when they saw the PA28 pass down their RHS, as it was not showing on TCAS. The PA28 instructor believed the ac's transponder was on with 7000 code selected with Mode C but, for whatever reason, no SSR responses were received by the recorded radar ground interrogator. The DHC-8 flight was under a PS from Plymouth and had been informed of the subject outbound PA28, albeit in a lengthy transmission which included TI on 2 other ac, but this TI was apparently not assimilated; ATC were not under any obligation to pass deconfliction advice against the VFR traffic. The PA28 flight had not been informed of the inbound DHC-8 but the instructor saw the airliner during the climb out phase after lowering the ac's nose to check for traffic and she informed the controller. Members agreed that both crews had fulfilled their responsibilities and that this Airprox was the result of the IFR DHC-8 pilot sighting the departing VFR PA28. Both crews reported similar separation distances, broadly in line with those that would be afforded under the Quadrantal rule in Class G airspace. These visual sightings when combined with the separation that pertained were enough to allow the Board to conclude that any risk of collision had been removed during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Sighting report.

Degree of Risk: C.

AIRPROX REPORT No 2009-131

Date/Time: 5 Oct 1041

Position: 5144N 00007W (1nm SW of BPK VOR)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: AW109E (A) AW109E (B)

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

Alt/FL: 2400ft 2400ft
QNH (1009mb) QNH (1009mb)

Weather: IMC In Cloud IMC In Cloud

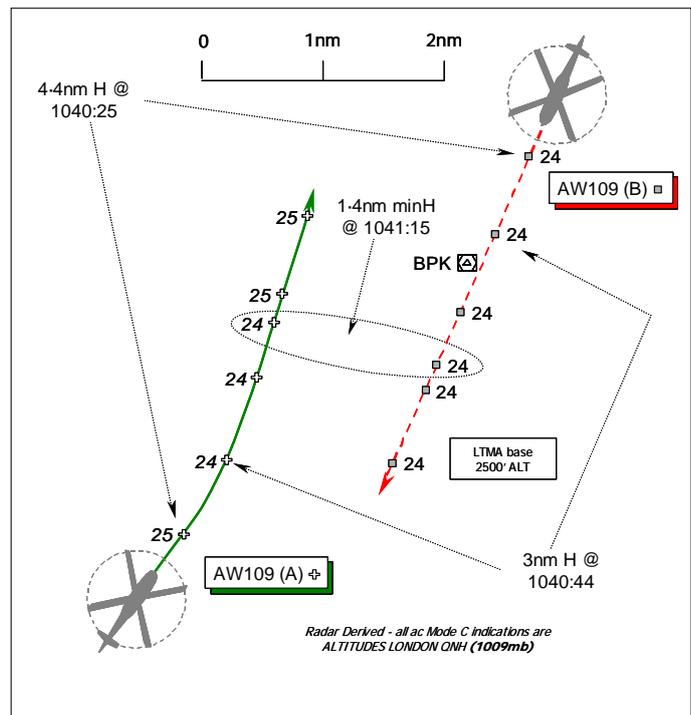
Visibility: NR NR

Reported Separation:

Nil V/<1nm H Nil V/1nm H

Recorded Separation:

Nil V @ 1.4nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CAPTAIN OF AGUSTA/WESTLAND AW109 (A), the PNF, reports he had departed from Northolt under IFR northbound for Digby on the 'Charlie' departure route. His helicopter has a white and red livery and the landing and taxiing lights plus the red HISLS were all on; Mode S and TCAS I are fitted.

Flying in a level cruise at 2400ft London QNH (1009mb), IMC in cloud, during the radar handover process they were advised by Northolt APPROACH of a contact in their 10 o'clock at 5nm crossing from L – R at the same altitude. After switching to Luton RADAR on 129.55MHz, still under a TS, they heard RADAR advise another flight of the position of their helicopter. Approaching a position 220° BPK VOR 2nm [heading about 040°] at 140kt, the pilot of the other ac acknowledged the controller's transmission stating that he was 2nm from BPK. The pilot of AW 109 (A) recognised the callsign of the other helicopter, realised it was a similar type on a training flight inbound to Northolt and knew that the training syllabus required them to fly a Charlie STAR. As the Charlie SID and Charlie STAR follow reciprocal tracks and he was now within 2nm of the BPK, to avoid the other helicopter he instructed the PF to commence a turn to the N thereby deviating off the route. The other helicopter - A109 (B) - was seen on TCAS 3nm away, before it passed less than 1nm down their starboard side at the same altitude with TCAS enunciating Traffic Alerts. Both the PF and the passenger in the cabin - also a service helicopter pilot - expressed their concern at this situation. He assessed the Risk as 'very high'.

THE PILOT OF AGUSTA/WESTLAND AW109 (B), a QHI, reports he was conducting an instrument training flight from Shawbury to Northolt under IFR in IMC in cloud, following the published non-airways arrival. His helicopter is coloured grey and Dayglo orange; the HISLS were on. Mode S and TCAS I are fitted. He was in receipt of a TS from Luton RADAR on 129.55MHz, which was the best service available from them, squawking the allocated code with Mode C. Heading 205° in a level cruise at 2400ft London QNH at 140kt, they were advised by RADAR of opposite direction traffic departing Northolt, which was known to be following a reciprocal routeing. The reported traffic was first shown on their TCAS I display about 5nm ahead and the relative movement of the other ac – A109 (A) - was assessed. It looked likely that it was going to pass down the port side of his helicopter and that no action would be needed. However, the other helicopter turned onto N, before it passed down their starboard side at a range of about 1nm with a 'high' Risk of collision.

He explained that, although the two helicopters passed close to one another, each crew was aware of the other's presence because of the availability of a TCAS I 'warning'. It was very fortunate that both the ac involved were TCAS I equipped as the controllers were unable to provide a DS due to workload. Apart from the initial notification of opposite direction traffic no avoidance information was given.

ATSI reports that the Airprox occurred in Class G airspace 1nm SW of BPK VOR between the two A109 helicopters operating IFR; A109 (A) outbound and A109 (B) inbound using the Northolt non-airways instrument 'Charlie' route specified in the UK AIP. This requires flights to contact Luton RADAR on 129.550MHz when clear of the London CTR and aircraft are expected to fly at an altitude of 2400ft London QNH. LTC advise that Luton RADAR was only able to provide a TS due to the Luton Operational requirements.

The 1050UTC London (Luton) METAR: 07006KT 6000 RA SCT007 OVC011.

The crew of A109 (B) established two-way contact with RADAR and at 1027:55 advised, *"...Augusta 1-0-9 out of Shawbury IFR to Northolt..presently to..west of Barkway by 15 miles leaving flight level 3-5 for 2 thousand 4 hundred feet your yankee is copied 1-0-0-9 is set squawking 7 thousand and requesting a de-confliction service..."*. RADAR replied *"...for de-confliction service contact Farnborough RADAR on 1-3-2 decimal 8"*. The crew of A109 (B) replied *"...we're looking to join the..Charlie arrival into..Northolt"*. RADAR then advised A109 (B) *"..roger squawk 4-6-7-0 but it will only be a Traffic Service I'm afraid under my control"*. The A109 (B) pilot advised *"..that's fine"*. Luton then identified the ac *"....you're identified 10 miles to the.. westnorthwest of BARKWAY you're under a Traffic Service outside controlled airspace [London] QNH 1-0-0-9 millibars"*. This was acknowledged by the crew of A109 (B) and RADAR confirmed it was a standard 'Charlie' arrival into Northolt. The crew of A109 (B) reported level at 2400ft London QNH at 1031:50.

Northolt APPROACH had pre-noted the outbound A109 (A) to Luton RADAR previously and a squawk of A4671 allocated. At 1032:55, RADAR passed the inbound details of A109 (B) to Northolt APPROACH and an inbound squawk of A0260 was allocated.

At 1037:40, Northolt APPROACH called RADAR with a handover on the outbound A109 (A) *"... Brookmans Park south west by 9 miles tracking north squawking 4-6-7-1...climbing 2 thousand 4 hundred feet QNH 1-0-0-9 Traffic Service"*. The identity and transfer of control was agreed. During the same telephone conversation Luton RADAR gave Northolt a radar handover on A109 (B), *"...currently squawking 4-6-7-0 position 5 miles northnortheast of BROOKMANS PARK he's level at 2 thousand 4 hundred feet on 1-0-0-9 millibars Traffic Service standard Charlie arrival"*. The identity and transfer of control was agreed between the two units.

At 1039:05, the crew of A109 (A) called Luton RADAR who responded *"...identified on handover from Northolt you're under a traffic service you've got opposite direction traffic an Augusta 1-0-9 he's er in your 12 o'clock at about 8 miles tracking Brookman's Park 2 thousand 4 hundred feet"*. The allocated squawk of A0260 was passed to A109 (B) at 1039:30 and RADAR included traffic information about A109 (A), *"...the opposite direction traffic for you is an Augusta 1-0-9 2 thousand 4 hundred feet..just right of your 12 o'clock at about 6 miles opposite direction"*. The crew of A109 (B) responded *"looking..."*. At 1040:24, the crew of A109 (A) requested from RADAR, *"...if you're happy direct Barkway it'll give us ?? separation on your opposite direction traffic"*. RADAR approved A109 (A)'s request, *"...that's no problem the traffic now just right of your 12 o'clock at 2 miles 2 thousand 4 hundred feet just about overhead BROOKMANS PARK now"* and the crew responded *"....traffic copied"*. RADAR then passed an update at 1040:40 to the crew of A109 (B), *"...that's the [C/S A109 (A)] just turning..slightly left now towards Barkway he's just off your right side 2 miles 2 thousand 4 hundred feet will pass down your right side on current track"*. The crew of A109 (B) replied *"roger we have him on TCAS..."*. RADAR then instructed the crew of A109 (B) to contact Northolt on 126.450MHz [which was acknowledged at 1041:00]. Radar recordings show that just after 1040:25, A109 (A) altered course to the L, direct to BARKWAY, and as the 2 ac passed abeam at 1041:15, minimum horizontal separation was 1.4nm.

Luton RADAR continued to provide a TS to A109 (A) until at 1102:00, the ATS was changed to a BS and the crew elected to switch to their en-route frequency.

MATS Pt1, Ch11, pg 5 4.1.1, states that:

“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.”

HQ AIR (OPS) comments that both ac were operating with a TS and were made aware of each other. Local knowledge and a good level of awareness allowed the outbound ac crew assimilate the significance of the inbound traffic call and take appropriate avoiding action as required by operations under a TS.

HQ AIR (TRG) comments that the pilot of A109(B) opted to remain with Luton RADAR and accept a TS rather than call Farnborough for a DS. During the transfer of aircraft between Northolt APPROACH and Luton RADAR height coordination was not discussed which may have reduced the risk of this incident. The ‘Charlie’ STAR and departure procedures put aircraft on reciprocal tracks at the same altitude, which increases the chances of this type of Airprox occurring. Fortunately, both ac were fitted with TCAS and both crews were given good TI by ATC, which enabled the crew of A109 (A) to take positive avoiding action much reducing the risk of an actual collision.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

It was evident that the use of Standard Arrival & Departure routes by ac inbound and outbound to Northolt, did not imply that separation was automatically provided between IFR flights. However, to many Board Members it seemed anomalous that the ‘Charlie’ routes had been designed to follow the same track, to and from the BPK VOR, and at the same altitude for both inbound and outbound traffic from Northolt. A military controller Member who is familiar with this airspace briefed the Board that the procedures had been reviewed with the aim of providing separated inbound and outbound routes. However, the limited Class G airspace below the London TMA and around the Class D CAS associated with Luton and Stansted together with the profusion of GA airfield ATZs did not facilitate alternative routes. This surprised some Board Members who recognised the inherent potential for conflicts between ac following the prescribed non-airways routes, such as occurred here. A civilian controller Member stressed that IFR arrival & departure procedures via airways were available for those that choose to follow them, where standard IFR separation would intrinsically be afforded to such flights. However, it might not be feasible for some military flights to fly airways routes and the diverse nature of the tasks undertaken might preclude strict compliance with airways procedures. The question of the expediency of the ‘Charlie’ route was discussed at length and the problem here was plainly for those pilots wishing to operate in IMC outside CAS who were required to follow a promulgated route in Class G airspace where ATC did not seem able to provide a DS.

Whilst the controller would have been unaware they were operating in cloud at the time, the Board was concerned that Luton RADAR seemed reluctant to afford a DS to these IFR flights, which would have ensured safe separation between the two ac. Whilst the applicable LARS unit – Farnborough - might have been able to offer a DS, the P-i-C of A109 (B) accepted a TS; however, at that stage he would have been unaware of the outbound A109 (A). The provision of an ATS to Northolt traffic by LTC is agreed and contained in the Luton RADAR MATS Pt II. The ATSI report explained that Luton RADAR was only able to provide a TS due to the ‘Luton Operational requirements’ at the time; the ATSI Advisor explained further to the Members that Luton RADAR is not a LARS unit and its priority

is to provide a service to Luton traffic inside CAS. Decisions on the level of service to other traffic are made by the controllers on the basis of workload and traffic density at the time, and the combination of these factors mostly probably prevented the controller from offering a DS. The Board was also briefed that Northolt ATC will provide a DS along the route when requested, to both inbound and outbound traffic to the N of the BPK VOR. As a review into procedures had already been undertaken, the Board accepted that the Station had explored and discounted all practical alternatives to the current routeings and procedures. Furthermore, as the Board had been assured that a DS was available from Northolt ATC itself, on balance, the Board was not minded to make a Safety Recommendation. Nevertheless, some military Members were of the view that something more should be done to provide 'procedural' de-confliction on these routes.

Whilst a TS may be provided to either IFR or VFR flights, its function is to enable pilots operating in VMC to see and avoid other ac - it remains the pilot's responsibility to effect suitable separation. Here the pilots involved had exploited the TCAS 1 fitted to their helicopters to assist their mental air picture and, whilst it had undoubtedly proved its worth, pilot members emphasised that TCAS1 is not as inherently accurate in azimuth as it is in range or the vertical plane.

From the comprehensive accounts provided it was clear that the Captain of A109 (A) had quickly recognised what A109 (B) was doing from the TI provided by Northolt APP and by hearing the crew on the RT after he had switched to Luton RADAR. Controller Members stressed that the Luton RADAR controller had provided a good service here, exceeding the normal bounds of a TS. He had provided accurate and pertinent TI to assist both pilots gain a sound appreciation of the situation and this had been updated by the controller to ensure that the pilots knew exactly where the other helicopter was in relation to their own, before A109 (B) was switched to Northolt. The Captain of A109 (A) demonstrated good SA by electing to turn off the route and not press on in IMC all the way to the BPK, and thereby afford the opposite direction traffic a wider berth. Whilst the separation of 1.4nm was still less than half what might be expected if operating under a DS from a terminal ATSU, the pilot of A109 (B), also flying in cloud but with the other helicopter displayed to him on TCAS and in the knowledge that A109 (A) had altered course and was passing clear down his starboard side, did not initiate any avoiding action himself. The Board concluded, therefore, that this Airprox had resulted from a conflict in IMC in Class G airspace on the Northolt Standard Arrival and Departure Routes, but at these distances no risk of a collision had existed in the circumstances conscientiously reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in IMC in Class G airspace on the Northolt Standard Arrival and Departure Routes

Degree of Risk: C.

AIRPROX REPORT No 2009-139

Date/Time: 30 Oct 1544

Position: 5359N 00006W (3nm S of OTR VOR)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Sikorsky SK76 PA32

Operator: CAT Civ Pte

Alt/FL: 3000ft 3000ft
QNH (1021mb) QNH (1012mb)

Weather: VMC VMC

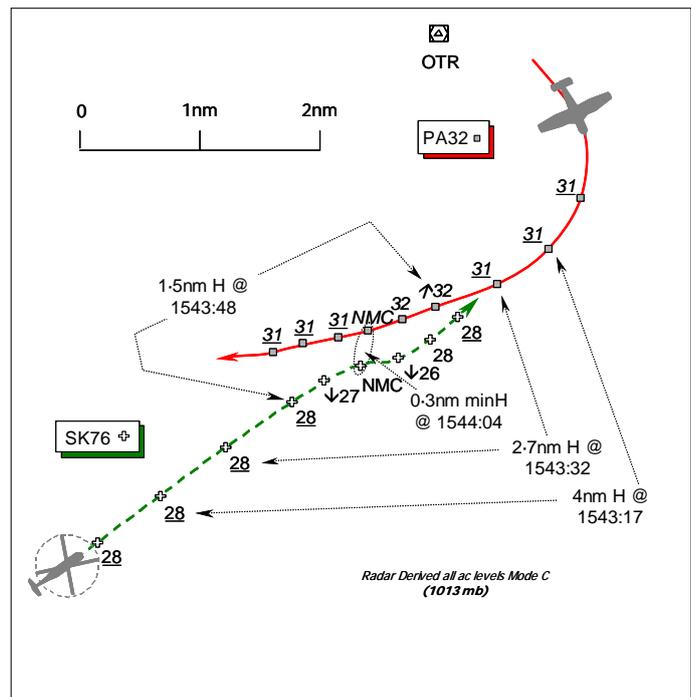
Visibility: 6km 1nm

Reported Separation:

300ft V/100m H 400ft V/500m H

Recorded Separation:

0.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SIKORSKY SK76 HELICOPTER PILOT reports that he was outbound from Humberside to the Minerva oil platform under VFR, below cloud in VMC, whilst in receipt of a TS from Humberside RADAR on 119.125MHz. The helicopter has a red, white & blue livery; the HISLs and forward facing searchlight were all on. The allocated squawk was selected with Mode C; TCAS is not fitted.

Approaching the S Bank of the Humber River on a heading of 060° at 140kt, in a level cruise at 3000ft QNH (1021mb), ATC advised them of traffic at the OTTRINGHAM (OTR) VOR, which would be turning NW at a similar altitude. They spotted the low-wing single-engine ac [the PA32] about 7nm away in a gentle turn, reported visual to RADAR, then kept an eye on it as it turned from an easterly direction and then towards them. The other ac's turn was shallower than expected and they realised that the ac was now flying a reciprocal heading towards them. He asked ATC for an update on the other ac's intentions but the closing speed was too great to wait for a reply, so to avoid the PA32 they banked sharply to the R and descended 300ft. The PA32 passed 100m to port about 300ft above them with a 'high' Risk of a collision.

He added that ATC said afterwards that because they were under a TS they were not allowed to give them updated information about the other ac. Because he was 'visual' at one point, the controller seemed to think he should not call the traffic again because of 'the rules'.

He stressed that he does not blame ATC or anyone. He does question whether under a TS 'the rules' put pressure on ATC to keep quiet unless they are 100% certain ac would otherwise collide.

In the MOR first rendered, the SK76 pilot commented that the previous Radar Information Service would have been more helpful in suggesting a possible confliction but under the new Traffic Service the ATC provider will keep quiet.

THE PIPER PA32 PILOT reports that he was operating VFR, in VMC 'on top', some 500ft above and 1nm clear of cloud. He had departed Sherburn-in-Elmet for a private strip near Finningley and was in receipt of a BS from Humberside RADAR on 119.125MHz, squawking the allocated code with Mode C; TCAS is not fitted. Flying level at 3000ft BARNSELY RPS (1012mb) at 150kt, he had just completed a R turn over the OTR VOR onto a heading 265°. The SK76 helicopter was first seen off the port side and passed some 500m to port and 400ft below his ac. No avoiding action was

necessary and he assessed the Risk as 'low'. His PA32 is coloured white, with blue and brown stripes and the HISL was on.

THE HUMBERSIDE APR reports that the SK76 helicopter was en-route offshore under a TS when the pilot was advised of traffic ahead of him at a similar level – the PA32; the pilot reported visual with the ac. As both ac came into closer proximity, the SK76 pilot asked what the PA32 was doing and was informed that it was turning towards the NW. The PA32 pilot was informed about the helicopter and he reported visual with it. The SK76 pilot then advised that he had to take avoiding action by descending 300ft and he would be filing an Airprox.

The Humberside METAR for 1550UTC was: 14008 5000 HZ FEW035 14/11 Q1021.

ATSI reports that the PA32 pilot established communication with Humberside APPROACH (RADAR) at 1532 and was assigned a squawk of A4270. The pilot reported *“out of Sherburn routeing out to OTTRINGHAM turning at OTTRINGHAM and then back into a private site Finningley”*. Relative to Humberside Airport, OTTRINGHAM is situated approximately 12nm to the NE and the private strip at Finningley village (near Doncaster Sheffield Airport) is about 24nm to the WSW. The pilot requested a BS at 3000ft, to which the controller agreed. The BARNSELEY RPS (1012mb) was passed and the PA32 pilot was requested to report turning at OTTRINGHAM.

Some 7min later, the pilot of the SK76, which was outbound from Humberside on a VFR flight to the Minerva Rig, (situated over 40nm NE of the airport) made his initial call on the frequency. He reported *“just passing 2 thousand feet for 3 thousand feet 1-0-2-1”*. The helicopter pilot was informed his SK76 was identified (it was squawking 0241, an Anglia squawk), that he would be provided with a TS and advised the HUMBER RPS was 1017mb. The pilot read-back the ATS and RPS correctly. (ATSI Note: There is a local agreement between Humberside ATC and the helicopter company for the provision of a TS for these flights. He was then advised he could set course on a direct track to the Minerva Rig.)

At 1542, the PA32 pilot reported *“OTTRINGHAM and in the turn”*. Shortly afterwards, at 1543:00, the controller issued TI to the SK76 *“there is traffic manoeuvring just through your 12 o'clock range of 4 miles similar level to yourself it's just commencing a right turn towards the Ottringham VOR”*. The SK76 pilot reported visual with the traffic. The radar photograph, timed at 1543:00, shows the helicopter tracking NE, maintaining FL28. The PA32, at FL31, is turning right, just over 1.5nm SE of OTR, onto a reciprocal track, at a range of 5-7nm. The PA32 was informed *“there is traffic to the southwest of you range of 3 and a half miles now similar level it's a helicopter has you in sight”*.

Shortly afterwards, the SK76 pilot asked *“Er RADAR ????? [what] is this aircraft doing [C/S]”*. The controller responded *“He should be turning on to a northwesterly heading”*. He then asked the PA32 *“confirm you're gonna turn northwest or continue on the track the helicopter's er just to the south of you by half a mile”*. The PA32 pilot reported visual with the helicopter at 1544:00. Thereafter, the pilot of the SK76 commented that he had to take a hard right avoiding action turn, descending 300ft. After the event, discussion took place between the controller and the pilot of the SK76, about the intentions of the PA32. The controller stated *“he was manoeuvring at Ottringham and then turning onto a westerly heading routeing back towards Finningley”*. He continued *“..he told me he was turning at OTTRINGHAM and at OTTRINGHAM he's turning back onto a westerly heading”*. The controller believed that the PA32 pilot intended setting course to Finningley from overhead the OTR VOR. Consequently, when he observed it in a wide right turn after the pilot had reported at OTR, he believed the ac was turning back to the beacon, before setting course. This explains why he, initially, informed the SK76 that the traffic was turning right towards OTR and, subsequently, that it should be turning on to a NW heading.

In accordance with the TS being provided to the SK76, TI was issued about the PA32, albeit its pilot may have been misled about the intended routeing of the PA32. Both pilots reported visual with the other ac.

The radar recordings show that when the distance between the aircraft had reduced to 1.5nm, the PA32 and the SK76 were at FL28 and FL32 respectively. By now the PA32, still in the SK76's 12 o'clock position, had commenced a gentle R turn. This turn continued and at a range of 0.9nm, the SK76 was at FL27 and the PA32 at FL32. The PA32 passed 0.3nm N of the SK76, which had also commenced a R turn, but at this time the SSR Mode C returns of the subject ac were not displayed. Just after passing each other, when the range between them was 0.5nm, the PA32 was at FL31 and the SK76 at FL26.

The SK76 pilot commented in his CAA 1601 MOR: 'The previous Radar Information Service would have been more helpful in suggesting a possible conflict but under the new Traffic Service the ATC provider will keep quiet.'

RIS was defined as 'an air traffic radar service in which the controller shall inform the pilot of the bearing, distance and, if known, the level of the conflicting traffic. No avoiding action shall be offered. The pilot is wholly responsible for maintaining separation from other aircraft, whether or not the controller has passed traffic information'.

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

In the circumstances of this Airprox, the required traffic information should have been the same, whichever service was being provided.

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 a report from the appropriate ATC authority.

It was evident to the Board that this Airprox had stemmed from Humberside APR's confusion over the intentions of the PA32 pilot. The SK76 crew was not on frequency when the PA32 pilot initially reported to the APR that he would be "*..turning at OTTRINGHAM..back into a private site Finningley*". It was some 7min later that the SK76 crew called the APR for a TS. When the PA32 pilot subsequently reported turning at the OTR, the controller passed TI to the SK76 crew about the PA32, "*..traffic manoeuvring just through your 12 o'clock range of 4 miles similar level to yourself it's just commencing a right turn towards the OTTRINGHAM VOR*". Thus the SK76 crew were under the false impression that the PA32 would continue its right turn to the OTR, whereas it was actually routing direct to Finningley to the WSW. Controller Members emphasised that the PA32 pilot had done exactly what he said he was going to do to, but it was easy to see why the SK76 crew, expecting the PA32 to continue towards the Ottringham VOR and fly clear to the L of their intended track, was perplexed. Hence the SK76 crew's subsequent query as to what the PA32 was doing and the confusion evident when the APR reinforced the perception that the PA32 pilot was doing something unexpected by adding that "*he should be turning on to a north-westerly heading*". Although the APR might have slightly underestimated the separation between the aircraft when he first passed TI (4nm) to the SK76 – the radar recording reveals that the two ac were over 5nm apart - the SK76 pilot had acquired the PA32 at a range of about 7nm; he reported this to the APR and kept the PA32 in sight as they maintained their NE'y course. Having been given TI and told that the PA32 was manoeuvring, experienced pilot Members confirmed that under the TS, having sighted the other ac at range, despite being misled about the intended routing of the PA32, the SK76 crew had a responsibility to avoid the other ac and maintain appropriate separation against it.

The PA32 pilot was operating legitimately under VFR in the 'open FIR' where he had equal responsibility for avoiding other ac. Although there was no requirement under the provisions of a BS

for the APR to pass TI to the PA32 pilot he had conscientiously warned the PA32 pilot about the helicopter approaching from the SW, adding that the SK76 crew had his ac in sight. When the PA32 pilot reported he had sighted the SK76 to port and below his aeroplane, it was moments before the CPA and after the APR passed a further warning about the helicopter. It was evident that the PA32 pilot did not take any avoiding action himself. A pilot Member pointed out that the SK76 had reported flying below cloud in VMC, whereas the PA32 pilot said he was VMC 'on top', some 500ft above cloud. The reported Humberside weather gave FEW at 3500ft, which might have been a factor here in the relatively late sighting by the PA32 pilot.

Taking all these factors into account, it seemed that the SK76 crew had been surprised by the unexpected close quarter's situation, but had taken robust action to increase the separation by descending and turning R off their track. Having seen the PA34 and descended as they passed 0.3nm abeam one another, the SK76 crew's descent had subsequently increased the separation to about 500ft below the PA32. Nonetheless, the radar recording showed that the two ac were always separated by a minimum of 300ft as they approached each other. Consequently, the Board concluded that this Airprox was the result of a sighting of another VFR flight in Class G airspace. In the Board's view, having sighted the PA32 and decided to increase the separation, the helicopter pilot had fulfilled his responsibilities entirely and that no Risk of a collision had existed in these circumstances.

Turning to the SK76 pilot's comments relating to the old RIS and the newer TS that had replaced it, ATSI's explanation had shown that there is no significant difference in the definition of either ATS. Under both forms of ATS, once the pilot had been passed TI by the controller, it was the pilot's responsibility to ask for an update. Moreover, in the application of either service, the 'rules' did not constrain the controller from issuing a warning about other traffic that might constitute a hazard if it was considered necessary, as indeed the APR had done here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Sighting Report.

Degree of Risk: C.

AIRPROX REPORT No 2009-144

Date/Time: 6 Nov 1749 NIGHT

Position: 5049N 00020W (2nm SW Shoreham - elev 7ft)

Airspace: LFIR (Class: G)

Reporting Ac Reported Ac

Type: BE200 TBM700

Operator: Civ Comm Civ Pte

Alt/FL: 3200ft 3000ft↑
(QNH 997mb) (QNH)

Weather: IMC KLWD IMC KLWD

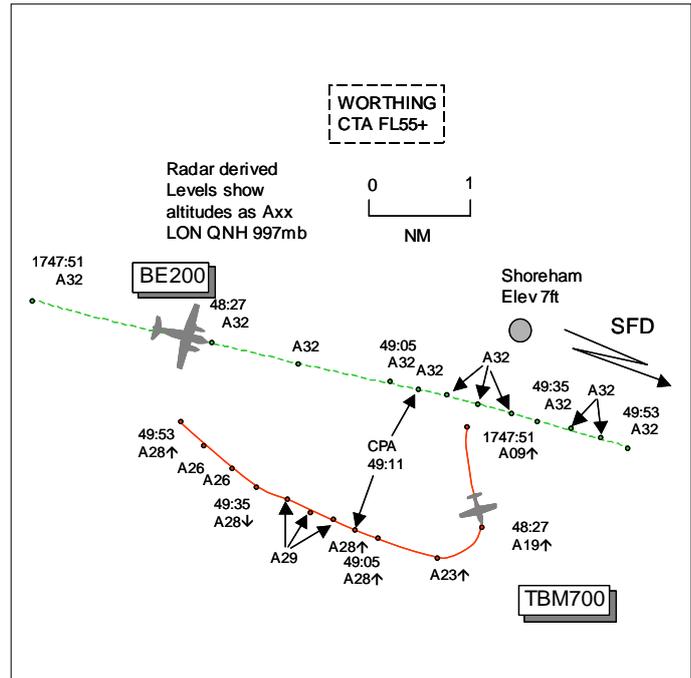
Visibility: NR NR

Reported Separation:

NK 500ft V/700m H

Recorded Separation:

400ft V/1.6nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BE200 PILOT reports approaching Shoreham from the W, descending to leave CAS E of SAM and being given a handover to Shoreham Approach on 123.15MHz. He was IFR and in receipt of a PS from Shoreham Approach, squawking 7000 with Modes S and C. He was instructed to descend, maintain and report level at 3200ft; at the time he was routing direct to SHM and expecting a hold and procedure. Then he was told to establish inbound to SFD VOR and report the radial. He turned R about 10° and informed Approach that he was established on the SFD 285R inbound heading 105° at 160kt and maintaining 3200ft. He was told to maintain for coordination with departing traffic and to expect this level until E of Shoreham. The A/P was engaged with the Flight Director in HDG and ALT HOLD Mode with 3200ft in the pre-select window. He was aware of the departing TBM700 flight being instructed to climb and maintain 2200ft due to traffic and heard its pilot report established on the 280R from SFD. The controller later asked the TBM700 pilot to confirm his altitude to which the pilot replied, *'I'm sorry we seem to have gone through we are now at 3200ft'*. The controller informed the TBM700 pilot that he had bust his assigned altitude and asked him his range from SFD; the controller then asked for the BE200's range, which he thought was 23D. He was then informed about the level bust and that a risk of collision existed. At the time he was about 4nm W of Shoreham in cloud at night so he did not sight the other ac. He was not aware of the relative position of the TBM and he didn't know what corrective action had been taken, if any, by its pilot so he was unable to take evasive action. The TBM pilot asked if he should climb or return to 2200ft and was told he might as well climb to FL50 now as he had passed the traffic. The controller informed the TBM pilot that he would be filing for the 'level bust' and the flight was then transferred to London. Neither the controller nor TBM pilot mentioned an Airprox. He was then cleared back to the beacon for the approach and was asked for any information he had from TCAS; he informed ATC that the ac was not TCAS equipped. He assessed the risk as medium.

THE TBM700 PILOT reports outbound from Shoreham IFR and in communication with Shoreham Approach on 123.15MHz squawking 3266 with Modes S and C; TCAS I was fitted. After line-up on RW20 at Shoreham ATC gave a new clearance, amending departure from direct GWC at FL50 to intercept the SFD 268R, he thought [actually 280R] at altitude 2200ft; this occurred the last second before departure roll. The Flight Director was set for the revised clearance and an immediate take-off commenced without discussion between pilots. (The co-pilot was in all respects his senior being a qualified instructor/examiner with over 20000hr). Soon after take-off the radial began to move and he commenced a R turn to complete the intercept. At this point the co-pilot told him to stop the turn and

continue RW heading until on the radial. He immediately turned the ac onto RW heading, which was inconsistent with the FLT DIR indications but he followed the co-pilot instructions, which subsequently included 'continue the climb'. His concern at this time was adjusting the navigation instruments and engaging the A/P and when range 5nm QDR200° SHM they turned R. However at 3000ft and 140kt he queried with the co-pilot if he was happy they were above 2200ft and he said 'call Shoreham'. At that moment Shoreham requested their height, which he gave as 3000ft, he thought. He was aware there were other ac in the area inbound to Shoreham on an IFR plan and that his co-pilot had in front of him the MFD, which was selected to traffic. The co-pilot later told him that the other traffic was seen on TCAS at 8nm and that it passed 700m away and 500ft above; at the time they were in cloud and rain with no visibility in the open FIR. In retrospect, as pilots they should have discussed and agreed their understanding of the very late clearance; had there been a difference they could have clarified it with ATC. He assessed the risk as none.

THE SHOREHAM ADC/APP reports the incident occurred 3nm SW of Shoreham with both ac under a PS. The TBM700 flight was cleared to 2200ft on the SFD 280R outbound towards GWC whilst the BE200 was cleared at 3200ft inbound SFD 285R. The TBM700 pilot reported at 3600ft, he thought, when he believed the ac was very close to the BE200, about 3nm SW of SHM.

ATSI reports that the Airprox occurred at 1749 UTC, 3nm SW of Shoreham Airport in Class G airspace. Both flights were operating IFR and in receipt of a PS from Shoreham ATC operating a combined Aerodrome and Approach control service on frequency 123.150MHz with RW20 in use. Approach aids are situated on the airfield and include VDF, the SHM(L) NDB and the SRH DME. Shoreham Approach also utilised the SFD VOR/DME situated 16.5 nm E of the airfield.

METAR EGKA 061750Z 21019G29KT 5000 RA SCT007 BKN011 OVC017 11/11 Q0998.

The TBM700 was given start and taxi clearance and at 1740 ATC passed departure instructions, "*.....after departure right turnout on track Golf Whiskey Charlie climb flight level five zero to remain outside of controlled airspace squawk three two six six and when instructed contact London Control one three three decimal one seven five*". The TBM700 pilot read back the clearance correctly and requested clarification of the requirement to climb outside CAS. The controller confirmed this and the aircraft, now holding at GOLF, was instructed to call ready for departure.

Shoreham MATS Pt2, Section 4, Page 4, Para 6 states: '*Aircraft inbound to Shoreham are normally cleared to leave CAS in the descent for the SHM NDB. There will not necessarily be any prior co-ordination or even notification of an IFR inbound.....*'. There was no prior coordination from London Control and at 1743:05 the BE200 flight called Shoreham Approach "*...er passing six thousand feet descending two thousand two hundred we've got er twenty two point five miles to run*". Its pilot passed an estimate for Shoreham of 1748 and ATC requested clarification of the passing level and range before passing the new QNH 998mb.

There now existed a conflict between the inbound BE200 and outbound TBM700 waiting at the holding point. The controller elected to utilise the SFD VOR/DME and provide 1000ft vertical separation between the two ac. At 1744:00, ATC instructed the BE200 aircraft to, "*...descend initially to altitude three thousand two hundred feet and er report reaching*"; this was correctly read back by the pilot. The TBM700 flight was then instructed to line up RW20 and was passed the new QNH of 998mb. At 1744:35 ATC requested the BE200 flight, "*.....separation can you establish on a radial to Seaford and report that radial please*". The BE200 pilot reported established on the SFD 285 inbound radial with a reported range from SFD of 28nm. At 1745:10 the TBM700 was lined up RW20 and ATC advised, "*.....revised clearance after departure climb to altitude two thousand two hundred feet and establish on the er outbound Seaford two eight zero radial*". This was acknowledged with, "*understand two thousand two hundred and outbound Seaford which radial please*". The controller repeated the radial of 280 which was correctly readback. At 1746:00 the TBM700 was cleared for take off, "*.....report reaching two thousand two hundred feet the wind two one zero degrees one seven clear take off.*" Shortly afterwards, at 1746:30, the BE200 reported level at 3200ft.

At 1748:30, after a request from ATC, the TBM700 pilot reported established on the SFD 280 radial at range 17nm from SFD and the BE20 reported at 18miles from SFD. At 1749:05 the controller asked the TBM700 pilot to, *"TBM700 c/s report your level"* and the pilot replied, *"unfortunately we seem to be er we've gone through to three two"*. It is believed that the pilot of the TBM700 is referring to FL32 which converts to altitude 2795ft (27ft per mb QNH 998mb). Radar recordings show the 2 ac passing 1-6nm abeam each other 1749:11 with the BE200 maintaining altitude 3200ft and the TBM700 passing altitude 2800ft in the climb. Vertical separation did not exist.

MATS PT2, Section 1, Chapter 3, Para 4, states: *'Essential traffic is traffic which is separated for any period by less than the specified standard separation. It is normally passed in situations when ATS surveillance systems are not available. Essential traffic information passed to an aircraft shall include:*

- a) Direction of flight of conflicting aircraft;*
- b) Type of conflicting aircraft;*
- c) Cruising level of conflicting aircraft and ETA for the reporting point, or for aircraft passing through the level of another with less than the normal separation; the ETA for the reporting point nearest to where the aircraft will cross levels; and*
- d) Any alternative clearance'.*

The controller responded, *"Roger essential traffic information opposite direction King Air passing through your level three thousand two hundred"*. The pilot of the TBM700 reported *"understood we're descending"*. ATC then passed TI to the BE200 just before 1749:30, *"BE200 c/s essential traffic information similar position T B M seven hundred level bust er three thousand two hundred"*. The TBM700 was asked to transmit for DF and at 1749:52 the controller advised the TBM700 pilot, *".....I believe you are clear of that traffic and continuing the climb to five zero will probably benefit you now"*, and the pilot replies, *"Thank you we got him on TCAS"*. At this point radar recordings show that the 2 ac have passed abeam, with the BE200 positioned to the SSE of Shoreham at altitude 3200ft and the TBM700 to the SW of Shoreham at altitude 2600ft at a distance of 4.1nm and increasing. The controller then descends the BE200 to 2200ft and instructs the flight to continue on the radial for the moment.

At 1750:32 ATC requested the TBM700 pilot to, *"....report your passing level"*. The pilot advises *"er we're on er five thousand feet now"*. At this point the vertical separation has been re-established and the controller transfers the TBM700 to London Control and gives the BE200 clearance to return to the SHM for an NDB DME approach for RW20. ATC asks the pilot of the BE200 for any information that may have been derived from TCAS to which the pilot reports, *"er negative TCAS...."*.

The MATS Part1 Section 1, Chapter 11, Page10, Para 6.1 6.1.1 states that: *'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.'*

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.

Pilot Members expressed concern with respect to CRM within the TBM700 cockpit. It was unclear whether this was a single pilot or 2 crew operation or who was the commander of the flight. Members agreed that a crew brief should have taken place before taking off after receiving a revised ATC clearance immediately before rolling – experienced CAT Members advised that pilots generally feel an imperative to roll immediately after taxiing into position on the runway, but a short hold there rarely causes undue difficulty for other traffic or ATC. This would have ensured that the new outbound track, based on a SFD radial, and the stop-off altitude were correctly understood by both pilots. As it

was, the PF, whilst concentrating on the NAV intercept element, then allowed himself to be 'directed' by the co-pilot during a critical phase, immediately after departure when 'after take-off checks' are carried out whilst in IMC. This led to the TBM700 pilot climbing above his assigned altitude and into conflict with the BE200, which caused the Airprox.

As the late clearance aspect had sowed the seed for the Airprox, a pilot Member wondered whether there should be a 'standing agreement' between London TC and Shoreham whereby inbound traffic leaving CAS descends to an intermediate level (FL50) which would allow the use of FL40 for outbound traffic. Although this was thought to be good in principle, under the present arrangement there is the flexibility for Shoreham to manipulate the traffic situation, which is very much dependant on updated ETAs from the inbound ac and the controller not knowing how much time the departing flight needs before being ready for take-off. The consensus of opinion was that the ADC/APP had been as expeditious as possible, he had not delayed either flight unnecessarily and that the existing arrangement was adequate, subject to pilots complying with their ATC clearances.

Members commended the 'defensive' technique utilised by the ADC/APP when he placed the subject ac on different radials separated by 5° when he endeavoured to provide PS in this non-radar environment. This had effectively built in some lateral separation as well as the intended vertical separation from his assigned altitudes. The BE200 pilot was undoubtedly concerned when he heard the TBM700 pilot reporting his 'level-bust', knowing that the ac was in his immediate vicinity but being unable to see it owing to IMC. Correlating this transmission to the radar recording, it certainly appeared that the TBM700 pilot was making reference to FL32 (about 2800ft QNH) and not altitude 3200ft. Following his receipt of essential TI, the TBM700 pilot reported descending, which is borne out by the radar as the ac peaks at altitude 2900ft before descending quickly to 2600ft. Unbeknown to the BE200 pilot, his ac was displayed on the TBM700's MFD (TCAS) and was seen to pass to the N in the opposite direction 500ft above. Although this had had the potential to be a serious incident, the actions taken by the ADC/APP and the TBM700 pilot when combined with actual geometry of the encounter that pertained, were enough to persuade the Board that although deconfliction minima had been breached (<1000ft vertical separation), any risk of collision had been quickly and effectively removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The TBM700 pilot climbed above his assigned altitude and into conflict with the BE200.

Degree of Risk: C.

AIRPROX REPORT No 2009-150

Date/Time: 1 Dec 1335

Position: 5113N 00053W (3.4nm
SSE Odiham - elev 405ft)

Airspace: Odiham MATZ (Class: G)

Reporting Ac Reported Ac

Type: Chinook Chipmunk

Operator: HQ JHC Civ Club

Alt/FL: 1000ft NR
(QFE 997mb) (NR)

Weather: VMC VMC

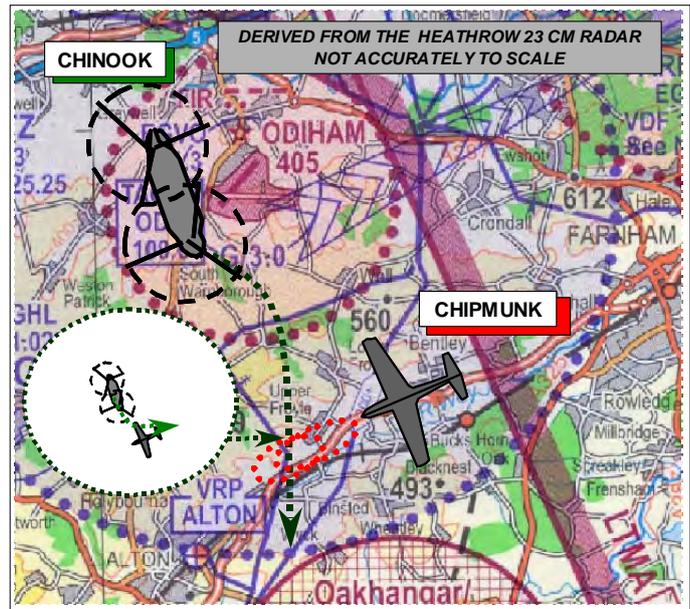
Visibility: >10km 10km

Reported Separation:

50ft V/500m H Not Seen

Recorded Separation:

NR V/ 0 H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CHINOOK PILOT reports that RAF Odiham uses a gate system to aid traffic flow in and out of the airfield and these areas are very busy with departing and recovering traffic. At the precise time the cockpit crew was in a high workload situation flying a VFR climb-out towards the Southern Gate from Odiham, squawking as directed with Mode C switched off [see UKAB Note (1)] in receipt of a BS from Odiham TWR but about to change to APP, when they saw a Chipmunk ac $\frac{1}{2}$ nm ahead and slightly above them. They broke left and reported the incident immediately to TWR and by telephone to Farnborough on landing. If the ac in question had not been seen, a collision could have occurred. He assessed the risk as being high.

The Chipmunk was a civilian ac and was flying aerobatics in close proximity to a very busy airfield which he considers poor airmanship.

UKAB Note (1): The Odiham FOB states at 380.102.3:

'In order to expedite traffic and to enable ATC to determine separation between IFR and VFR traffic, all rotary ac equipped with IFF are to squawk Mode 3/A 3647 and no mode C when operating within the MATZ at or below 1000ft QFE and Mode 3/A 3646 with mode C when outside and within LFA1B'.

UKAB Note (2): The Odiham S arrival departure sector - 'Gate' is the arc 120°–180° effectively from ATZ boundary to the MATZ boundary.

THE CHIPMUNK PILOT reports flying an instructional flight in good VMC performing basic aerobatics. [Although he reported that his Mode C was switched on, it was not seen on the radar recordings]. Farnborough was giving a 'Basic Radar Service'. Aerobatics at between 2000/3000ft were flown by the club CFI/Examiner using the A31 line feature N/E of Alton and S of the Odiham ATZ. The other ac was not seen.

DAATM reports that Odiham RT and landline transcripts were not available due to a power outage in the equipment room that caused an unserviceable data recorder.

About 20min before the incident at 1315 Farnborough passed TI on the manoeuvring Chipmunk to Odiham APP as *'manoeuvring in the block 2500 -3000ft FBO QNH'*. The Odiham ADC passed TI on the Chipmunk derived from the Hi-Brite as, *"Traffic South of ODI 4 nm manoeuvring"*. The ADC's recollection was that about 2nm separation existed between the Chinook and the Chipmunk and the Chinook pilot reported visual shortly afterwards but continued to track towards the Chipmunk. The radar recording clearly captured the incident but no Mode C was evident [from either ac]; the Chipmunk was squawking 0421 and the Chinook 3647.

The radar recording at 1334:07 showed the Chipmunk tracking ENE separated by 1.3nm from the Chinook which was tracking S. At 1334:27 the Chipmunk had reversed direction and was tracking WSW on a track closing towards the Chinook, which had turned onto a SSE track. At 1334.43 the Chinook turned further E onto an ESE track as the separation closed to 0.2 nm and then 0.1 nm with both ac on reciprocal tracks of East and West respectively.

The ATS provided by military controllers to ac operating in the visual circuit is not defined; however, ac are considered to be under a BS. The Chipmunk was in receipt of a BS from Farnborough and was operating outside of the Odiham ATZ, the dimensions of which are 2nm radius centred on the mid point of the RW up to 2000ft above airfield elevation, active H24. The TI passed by Farnborough was considered to be for information only and did not constitute nor was it considered as co-ordination. The Odiham ADC observed the Chipmunk manoeuvring on the Hi-Brite and passed accurate lateral TI, which enabled the Chinook pilot to acquire the Chipmunk visually.

ATSI reports that the Airprox occurred in Class "G" airspace to the NE of Alton, which is 5nm S of Odiham and lies on the Southern edge of the Odiham MATZ.

The Chipmunk departed Farnborough under VFR at 1316 displaying a Farnborough squawk of 0421 without Mode C reporting and was identified on departure at 1318:05 by Farnborough Radar who provided BS. On initial contact Farnborough Radar provided general TI and shortly afterwards the Chipmunk reported passing one thousand eight hundred for two thousand five hundred feet for operation in the Alton area. At 1321:25 the Chipmunk pilot reported *"..... three miles east of Alton and er request climb er to three thousand feet for operation between three thousand five hundred and two thousand feet aerobatics over"*. A MoU exists between Farnborough and RAF Odiham for the purpose of defining procedures between the two units and para 3.10 states:

MATZ Crossing Aircraft, 'all Military aircraft require clearance to transit Odiham MATZ, even when under the control of Farnborough. Civilian aircraft are to be instructed by Farnborough to avoid the Odiham ATZ (2nm and 2000ft Odiham QFE/2500ft Farnborough QNH) unless otherwise cleared by Odiham ATC.'

At this point radar recordings show the Chipmunk crossing the Odiham MATZ and passing 3.6nm SE of Odiham. The Chipmunk was instructed to remain outside controlled airspace and Farnborough provided additional TI at 1322:30 and again at 1324:30 *".....there's multiple contacts now operating in your area including traffic just to the east of Alton by one mile northbound at two thousand feet"*.

At 1325:10 radar recordings show the Chipmunk had commenced manoeuvring 3.9nm SE Odiham and at this point RAF Odiham ATC contacted Farnborough Radar and requested the intentions of the Chipmunk. Farnborough reported that RAF Odiham were advised that the Chipmunk intended to carry out aerobatics in a block between 2500ft and 3500ft and these levels were also recorded on the flight progress strip. This is at variance with the level of 2000ft to 3500ft reported on RT by the Chipmunk pilot and the controller's recollection of events on the day is vague. RT recordings show that the Farnborough controller was then occupied with the primary task of vectoring inbound traffic for left hand pattern ILS for RWY24 and at 1330:05 he asked the Chipmunk *".....for coordination are you able to main no fur-maintain no further east than your present position to accomodate traffic inbound for runway two four"* and in response the Chipmunk replied *"Affirm"*. The Chipmunk continued manoeuvring between 3.9nm and 5nm SSE of Odiham.

At 1332:06 radar recording show an aircraft 0.5nm W of RAF Odiham displaying an RAF Odiham squawk of 3647 without Mode C. The Farnborough MATS Pt2 Chapter 5, Para 5.2.1 – 8 states, 'Any aircraft observed within 5nm of Odiham, inside the MATZ, squawking 3647 (Callsign converts to "M") and no Mode C is deemed to be not above 1500ft Farnborough QNH'.

The radar recording shows the ac squawking 3647 tracking SSE and converging with the Chipmunk. At 1334:43 both ac are 3.8nm SSE of RAF Odiham and within close proximity of each other with neither aircraft displaying Mode C data. The Chipmunk Pilot did not make any report over the RT regarding the close proximity of another ac and it was only after the Chinook had landed that RAF Odiham advised Farnborough that a Chinook pilot had reported an Airprox; as a consequence the controller was not advised of the Airprox until after returning from leave and his recollection of events was vague.

A Basic Service is described in MATS Part 1, Section 1, Chapter 11, Page 4, Para 3.5.1 and 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'.

The Farnborough controller complied with the conditions described in MATS Part 1 for the provision of a BS.

HQ JHC comments that airspace regulations (Odiham FOB and the MoU) in this area are such that vertical separation of approximately 1000ft should be maintained. It is clear that this was not the case, despite the fact that the height of the Chipmunk at the time of the Airprox is unknown.

The report highlights that the TI on the Chipmunk that was passed to Odiham APP (manoeuvring in the block 2500-3000 ft FBO QNH) was flawed, as the pilot had requested "climb for operation between three thousand five hundred and two thousand feet aerobatics". The order of the height band request (from the highest height to lowest height) was incorrect and this information was not passed to the Chinook. Additionally, as the Chipmunk had requested to manoeuvre down to 2000ft QNH and the Chinook was at 1000ft QFE, planned separation would have been reduced to about 500ft.

In addition, while there was nothing preventing the Chipmunk pilot from performing aerobatics in that particular area it appears to be poor judgement that he chose to do so.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board was shown a detailed sequence of radar photographs leading up to the CPA that showed the event as described by ATSI above. The Chipmunk can be seen heading ENE away from the Chinook when the ac are separated by 1.0nm and the Chipmunk is in the Chinook's 10 o'clock. It then reverses course on to WSW and the Chinook can be seen turning left to pass behind it. However, the Chipmunk turns right 30°, which put the respective tracks directly in conflict. Although frustrating in that it did not permit any verification/clarification of the disparate reported

altitudes/vertical separation, Members accepted that the Chinook was complying with the local SOPs by switching his Mode C off for his VFR departure and the SOP is imposed for a sound reason; they could not explain however, why the Chipmunk's Mode C was not displayed.

While Members recognised that airspace suitable for flying aerobatics close to Farnborough is scarce due to the constraints of the local CAS, they agreed unanimously that flying aerobatics in the (albeit unpublished) departure lane and inside the MATZ of a very busy military airfield is ill advised. One GA Member observed that, since it is well known that the Class G airspace in that vicinity is constrained and very busy, pilots should conduct an even more thorough lookout than usual; another observed that, although probably lower than the Chipmunk and well camouflaged against an agricultural background, the Chinook is a large ac and should have been visible to the Chipmunk pilots had they conducted a thorough clearance of the airspace in which they were operating. An instructor Member also pointed out that when instructing/examining, pilots have divided responsibilities between their essentially 'heads-in' instructional tasks and maintaining a 'safety' lookout; allocating time to and correctly prioritising these tasks, particularly when the workload is high, is most important and in some cases lookout can be neglected. Members agreed that had the Chipmunk instructor been aware of Odiham procedures he would probably not have chosen to operate in that area, despite the A31 road providing a good and easily visible ground datum. Further, had the Chipmunk pilot called Odiham on the RT advising them of his intentions, this would have been relayed to the Chinook crew more clearly and allowed them to take appropriate avoidance. That being the case, they encouraged the Ops staff at Odiham to inform local airfields and clubs of their procedures and traffic patterns.

Although the Chipmunk pilot had informed Farnborough LARS that he was flying aerobatics, the position and the alt band (albeit later changed) this information was lost in the communication chain and did not reach the ADC or therefore the Chinook crew. Notwithstanding that these procedures did not work, the Chinook crew was given TI by the ADC on his own initiative based on the 'Hi Brite' where he saw an unidentified, manoeuvring contact in potential conflict with his departure traffic. This enabled the Chinook pilot to see the Chipmunk about one mile away..

Despite the factors above, both ac were operating in Class G airspace where they had an equal and shared responsibility to see and avoid other ac. In the later stage of the conflict the Chipmunk had the Chinook on its right and, under the Rules of the Air (Rule 9 (3)), should have given way to it but since neither Chipmunk pilot saw it, they could not. The Chinook pilot on the other hand saw the Chipmunk turning back towards him and (based on the radar) tried to turn behind it, but this was counteracted by the Chipmunk turning further towards the Chinook. The radar verified that there was no lateral separation but did not show what vertical separation existed; although the Chinook pilot reported 50ft, Members thought that, since by that stage the Chipmunk had been behind the Chinook, the actual separation had most likely been somewhat larger and that any risk of collision had been removed.

Members were concerned the Chipmunk pilot, the CFI, described the ATC service he was receiving from Farnborough LARS as a "Basic Radar Service" implying that he expected to be given radar derived traffic information. While on occasion Controllers may do so if they have the capacity, they are under no obligation to provide traffic information when providing a BS. Pilots who wish radar derived traffic information or avoidance should request either a TS (Traffic Service) or a DS (Deconfliction Service).

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: While conducting aerobatics near the Odiham ATZ, the Chipmunk pilot flew into conflict with the Chinook, which he did not see.

Degree of Risk: C.

UKAB Note (1): An analysis of the Heathrow 23cm radar (and others) showed the incident clearly. The Islander approaches the CPA tracking E, at a constant alt of 2000ft and squawking 0263 (Northolt), while the R44 tracks 060° squawking 5030 (Farnborough LARS) with its alt indicating around 2000ft. The R44 alt, however, does show a descent from 2100ft to 1900ft over the 4 sweeps (16 sec) leading up to the CPA when it passes (just) ahead of the Islander. The ac maintain the same relative bearing for well over one min leading up to the CPA.

UKAB Note (2): The incident took place in Class G airspace outside the London TMA. Despite being on a heading directed by Northolt APP to maintain separation on the two ac ahead in the pattern and in receipt of a TS, under the Rules of the Air (Rule 9 (3)) the Islander, having the R44 on its right was required to give way to it.

ATSI reports that this incident occurred in Class G airspace 4nm NW of Denham Airfield.

The R44 helicopter was airborne under VFR and had departed from Denham establishing contact with Farnborough Radar at 1616:00, requesting a TS and reporting 3nm N of Denham heading NE at 2000ft on a local flight towards BPK then BKY. At 1616:28 Farnborough Radar instructed the R44 to select a Farnborough squawk of 5030 and passed the London QNH of 1000mb.

At 1616:36 before the R44 helicopter was positively identified, the Controller observed traffic displaying an RAF Northolt squawk of 0263 approximately 1.5nm from the position given by the R44 helicopter. The Farnborough controller's recollection was that TI was passed using the phrase "Traffic believed to be you has" however the RT transcript shows that the Controller passed the following message, "... traffic beneath you is traffic in your half past nine range of one mile left to right same altitude", the pilot acknowledged with "Roger...".

Shortly afterwards at 1616:56 Farnborough radar identify the R44 and pass further TI, ".....you are identified one and a half miles northeast of Saint Giles under a traffic service and you still have that traffic in your ni-nine o'clock now quarter of a mile"; 5sec later the pilot responds "Traffic service and we're visual with it..." and then at 1617:16 he reported, "...we were visual with the traffic we've had to descend to avoid it it's an Islander I don't have any details of the registration but I'd like to file an Airprox". The R44 pilot reported maintaining 1800ft and radar recordings show the other ac tracking E and displaying the RAF Northolt squawk of 0263 with Mode C showing an alt of 2000ft.

Farnborough advise the pilot of the R44 helicopter "...have spoken to Northolt who were working the traffic and er I have the details if you wish to file". (Northolt confirmed to Farnborough that the other traffic was an Islander squawking 0263).

At 1621 the pilot of the R44 advised that he did not wish to file a report but the following day he changed his decision.

A TS is described in MATS Part 1, Section 1, Chapter 11, Page 5 and 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 Farnborough controller complied with the conditions described in MATS Part 1 for the provision of a TS.

HQ AIR ATM SM reports that Northolt APP was vectoring an Islander, under a TS in Class G airspace clear of the Denham ATZ, for an approach to RW25. The position had been band-boxed with DIR and the controller had been on the console for two hours and was working four ac; however, prior to the Islander coming on frequency another controller took the DIR responsibilities to enhance

APP capacity. The Islander pilot checked in at 1609:46 and, although no service was requested, a TS was applied and the pilot did not question it. At 1616:09 APP called traffic as, "C/S traffic right 1 o'clock 3nm crossing right to left, indicating 100ft below and climbing", although the Heathrow radar recording showed that it displayed 200ft height difference. At 1616:19 (40 sec before the CPA when the ac were 2.3nm apart) the pilot reported "in sight" and the controller then passed TI on another ac, a Griffin, ahead in the radar pattern but the pilot reported (after the CPA and the ac had crossed) that the only contact he had was passing down his right-hand side and behind (not the R44 but possibly the Griffin). The Islander pilot then converted to a visual recovery at 1621:16 and called TWR.

The Islander was under a TS and was given TI on an ac that had appeared at 3nm near Denham and climbing towards it on a converging heading. Given the task being conducted and the closing speeds of the contacts, there was sufficient time for the pilot to acquire the ac visually, seek avoidance/further TI if required or formulate his own avoiding action iaw the rules governing a TS. Due to the pilot's response to the initial TI (he then called traffic in sight) the controller did not offer any update.

It is considered that Northolt ATC acted correctly and in accordance with stipulated procedures for a TS and therefore they did not contribute to this Airprox.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board determined that, despite some nuances, this was straightforward encounter in Class G airspace where both pilots had an equal responsibility to see and avoid other ac in accordance with the Rules of the Air. Under Rule 9 (3) the Islander, having the R44 on its right was required to give way to it. The Islander pilot was first made aware of the R44 from his TCAS (subsequently displaying a TA only) and by the TI passed by Northolt ATC; he maintained visual contact with it as it crossed ahead of him, considering there to be no risk. The R44 captain having a poorer view of the event, was more concerned and elected, correctly in the Board's view, to descend, thereby also adding vertical separation.

While Members agreed that there had been no risk of collision, the proximity of the Islander (about 200m) to the R44 had undoubtedly caused its crew concern.

Members agreed that it is always good practice to take visible avoidance, rather than making a speed alteration or electing to 'stand on' as the latter both provide the other pilot with no positive indication that his ac has been seen, thus engendering a degree of apprehension.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Islander flew close enough to the R44 to cause its crew concern.

Degree of Risk: C.

AIRPROX REPORT No 2009-153

Date/Time: 10 Dec 1511

Position: 5309N 00324W (2nm
W Ruthin)

Airspace: UKDLFS/LONFIR(Class: G)

Reporting Ac Reported Ac

Type: Hawk TMK2 Untraced Helicopter

Operator: HQ AIR (TRG) NK

Alt/FL: 455ft agl NK

Weather: VMC CAVOK NK

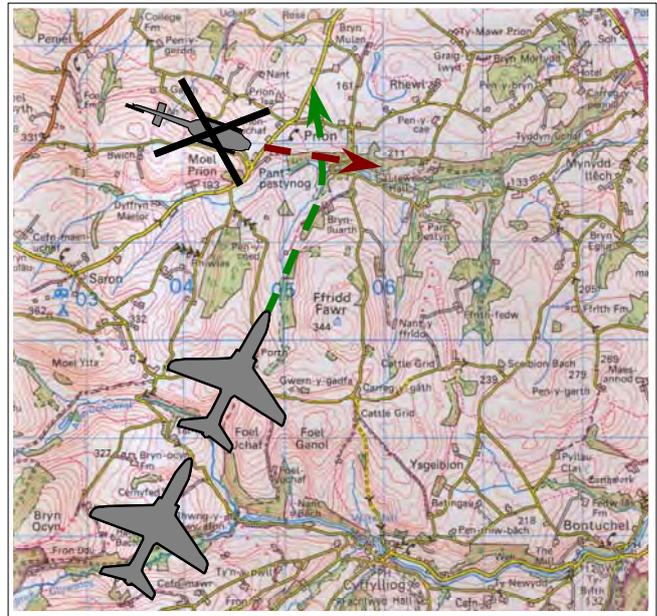
Visibility: >30km NK

Reported Separation:

50-100ft V/100-200m H NK

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE HAWK TMK2 PILOT reports flying solo, leading a pair of ac on a low-level training sortie in LFA7 in excellent weather. They were squawking 7001 with Modes C and S and all lights, including the nose light, were switched on. While heading 020°, out of sun, at 450kt and about 450ft agl a red, black and white twin-engine civilian helicopter was seen in the left 11 o'clock slightly low and about 1-200m away. The sighting was too late to take effective avoiding action to reduce the collision risk other than a slight climb and wing waggle. TCAS was fitted but no warning was given. He did not assess the risk.

THE HAWK UNIT comments that the Hawk crews were not aware of any other ac operating in LFA 7. The Hawk TMK2 was fitted with a serviceable TCAS 2, but both ac were operating at low level and neither the presence nor position of the helicopter was detected, even in the avoidance manoeuvre after clear line-of-sight had been established.

UKAB Note (1): Despite extensive radar and procedural tracing action the helicopter involved could not be identified.

UKAB Note (2): The incident shows on the recording of the St Annes radar. The helicopter shows intermittently, squawking 7000 with a Mode C level of FL004, tracking about 110° towards the CPA, while the Hawks, flying in about 1nm trail, approach tracking 025°, lead indicating FL008 descending. When the ac are about 0.5nm apart, with the helicopter (last showing FL004) is in lead Hawk's 11 o'clock, the latter now indicating FL007, it turns about 10° to the left to pass close behind the helicopter; as they pass both ac's Mode C drops out.

HQ AIR (TRG) comments that due to TCAS limitations detection of other ac whilst low flying cannot be guaranteed. It is important that users of TCAS equipped ac in the UKDLFS continue to use lookout as the primary means of detecting other ac. Although the Lead Hawk pilot saw the helicopter late, he managed to initiate avoiding action but the lack of reaction or report from the helicopter pilot, it can only be assumed that he did not see the Hawk or considered it not to be an Airprox.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the Hawk formation lead pilot, a radar recording and a report from the Hawk operating authority.

When analysing the separation achieved the Board noted the rolling terrain, which had precluded early acquisition of the helicopter by the Hawk crew. Also since the Hawks were flying in (long) line astern formation the crew of the number 2 ac were not in a position to assist with the lookout to the front sector. Bearing in mind the close proximity of the Hawk, Members were surprised that the helicopter pilot had apparently not been aware of it, even though it was approaching from 'up-sun', and also reported the incident.

Members also unanimously agreed that the helicopter pilot had been unwise to chose to fly in a busy and promulgated low flying area, at an alt regularly used by military fast jet ac to meet their training objectives.

Although unanimously agreeing the cause, Members were undecided as to the degree of risk; exactly half considering that there had been an actual risk of collision. The Chairman however, decided that, since there had been some (albeit small) extant separation and that the Hawk pilot's manoeuvre, although late, had not been too late to be effective, the combination had removed any actual risk of collision; due to the lateness of the sighting, however, normal safety standards had been eroded.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A presumed non-sighting by the helicopter pilot and a late sighting by the Hawk crews.

Degree of Risk: B.

AIRPROX REPORT No 2009-156

Date/Time: 17 Dec 1526

Position: 5254N 00106W (1.25nm SW
Nottingham - elev 138ft)

Airspace: ATZ (Class: G)

Reporting Ac Reported Ac

Type: BH06 PA28

Operator: Civ Comm Civ Trg

Alt/FL: 1000ft 700ft↓
(QFE) (QFE)

Weather: VMC CLBC VMC NR

Visibility: >10km 10km

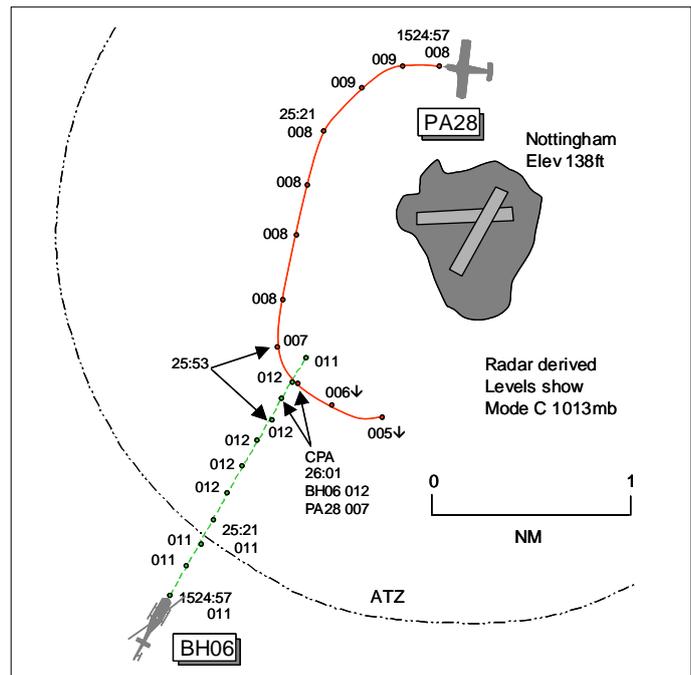
Reported Separation:

50ft V/60m H 150ft V/0.5nm H

Recorded Separation:

500ft V*/0.1nm H

* see UKAB Note (5)



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BH06 PILOT reports flying a pipeline survey through the Nottingham ATZ and in communication with Nottingham Radio on 134.875MHz, squawking 0036 with Modes S and C; TCAS 1 was fitted. The visibility was >10km flying 5000ft below cloud in VMC and the helicopter was coloured silver/black with nav, landing and strobe lights all switched on. At approximately 1520 he contacted Nottingham A/G to request flying through the ATZ from S to N, then around the airfield boundary in a clockwise direction and then out to the N; this inspection is carried out fortnightly. Whilst height and speed can be adjusted without affecting the survey, the ac's track must be maintained. At the time he was at 1000ft QFE and was informed that the RW in use was 03 with a LH cct and that there was cct traffic. He looked out for this traffic and heard A/G warn the cct traffic of his intentions. Once within the ATZ heading 360° at 90kt he saw the cct traffic about 2nm away, and stated so on the RT, flying downwind N to S on his LH side to the W of the airfield at about 800-950ft. Later the cct traffic, a white coloured low-wing single-engine ac, turned L across the front of his helicopter by 60m, appearing to be slightly lower by about 50ft; a TA was triggered. If he had turned his helicopter R at this point the confliction would still have been there so he climbed to avoid a collision. About 1min later he told the A/G operator what had happened and stated that he thought the other ac's pilot had probably not seen him. The other pilot stated that he had seen his helicopter, whilst flying at cct height, and that the course of action taken by him in his helicopter had been wrong. He told Nottingham Radio that he would telephone later after landing. He spoke to the other pilot, an instructor, who told him that his cct had been at 800ft downwind and that after being warned of his flightpath he had seen his helicopter but it was within his cct. He could not understand why the other pilot had made it worse by turning L, after seeing the confliction, when a R turn to avoid was in order. They agreed to disagree as to who was in error and he elected to file an Airprox so that lessons could be learnt from the incident. The other pilot could have easily extended the downwind leg before turning base but it appeared that he had reached the point on the ground where a base leg turn is normally commenced and had, regardless of the situation, turned at that point. As the Wx was VMC, his visual sighting and climb had avoided a collision/near miss.

THE PA28 PILOT reports flying a dual training sortie from Nottingham VFR and in communication with Nottingham Radio on 134.875MHz squawking 7000 with Mode C. The visibility was 10km in VMC and the ac was coloured blue/white with strobe lights switched on. On first sighting of the

helicopter about 1.5nm away his ac was on the downwind leg for RW03 LH cct at 800ft QFE. The helicopter was flying in the opposite direction, about 50ft higher heading about 040-045°. As the helicopter was at a safe distance in front, he told his student pilot, PF, to continue the standard cct and to turn L onto base leg and to start descending. When heading 120° at 85kt, the helicopter passed about 0.5nm behind and 150ft above, as he had descended to approx 700ft. He assessed the risk as none.

THE BH06 HEAD OF FLIGHT OPERATIONS reports this incident highlights the need to remain vigilant even when pilots have good visual contact as the human factor element can lead to poor decision-making. This incident will be disseminated to all of the operational staff and discussed at the next Flight Safety Meeting. This will remind pilots of the vigilance required on pipeline inspections as it potentially brings their helicopters into conflict with cct traffic at a number of locations.

UKAB Note (1): Met Office archive data provided the nearest METAR East Midlands (10nm SW of Nottingham) as EGNX 171520Z 36014KT 9999 FEW030 01/M03 Q1014=

UKAB Note (2): The UK AIP at ENR AD 2-EGBN-1-5 Para 2.22 Flight Procedures states '*Circuit height 800ft QFE*'.

UKAB Note (3): The Rules of the Air Regulations Rule 12 Flight in the vicinity of an aerodrome states '*(1) Subject to paragraph (2), a flying machine, glider or airship flying in the vicinity of what the commander of the aircraft knows, or ought reasonably know, to be an aerodrome shall; (a) conform to the pattern of traffic formed by other aircraft intending to land at that aerodrome or keep clear of the airspace in which the pattern is formed; and (b) make all turns to the left unless ground signals otherwise indicate. (2) Paragraph (1) shall not apply if the air traffic control unit at that aerodrome otherwise authorises.*'

UKAB Note (4): Rule 45 Flight within aerodrome traffic zones states during the notified hours of watch of the air/ground radio station Para (5) '*...the commander shall obtain information from the air/ground communication service to enable the flight to be conducted safely within the zone.*' Para (6) states '*The commander of an aircraft flying within the aerodrome traffic zone of an aerodrome shall; (a) cause a continuous watch to be maintained on the appropriate radio frequency notified for communications at the aerodrome; or (b) if this is not possible, cause a watch to be kept for such instructions as may be issued by visual means; and (c) if the aircraft is fitted with means of communication by radio with the ground, communicate his position and height to theair/ground communication service at the aerodrome on entering the zone and immediately prior to leaving it.*

UKAB Note (5): Analysis of the Claxby and Clee Hill radar recordings at 1524:57 shows the BH06 2.3nm SW of Nottingham tracking 030° and squawking 0036 (pipeline conspicuity code) at unverified FL011 (1130ft QNH 1014mb or 992ft QFE). At this time a 7000 squawk is seen, believed to be the PA28, 0.8nm N of Nottingham tracking 290° crosswind for RW03 and indicating unverified FL008 (830ft QNH or 692ft QFE). The PA28 then commences a L turn downwind and momentarily climbs 100ft on Mode C for 2 sweeps before steadying downwind at 1525:21 at FL008 (830ft QNH or 692ft QFE) with the BH06 in its 12 o'clock, range 2.1nm, flying in the opposite direction at FL011 (1130ft QNH or 992ft QFE) having just entered the ATZ. The ac continue to close on steady converging tracks, the BH06 now at FL012 (1230ft QNH or 1092ft QFE). As separation reduces to 0.4nm at 1525:53, the PA28 is seen to commence a L turn onto base leg and descend, indicating FL007 (730ft QNH or 592ft QFE), placing the PA28 in the BH06's 11 o'clock on a crossing track from L to R; vertical separation showing 500ft. The CPA occurs on the next sweep at 1526:01 with the PA28 at FL007 (730ft QNH) just R of the BH06's 12 o'clock range 0.1nm tracking SE'ly having just crossed ahead, the helicopter still indicating FL012 (1230ft QNH). The subject ac thereafter diverge rapidly, the PA28 descending as the BH06 crosses behind it. Vertical separation shown by the recorded radar (500ft) does not reflect that reported by both pilots, however Mode C tolerance is ±200ft.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Members were disappointed that this cct incident appeared to have occurred because of a lack of flexibility/understanding/cooperation, particularly when both pilots had seen each other in good time but were intent on continuing with their tasks to hand. Under the terms of the Air Navigation Order, a helicopter flying on a pipeline inspection is not afforded any priority over cct traffic, and should comply with the Rules of the Air Rule 12 and 45. The PA28 flight had already established the cct pattern and the helicopter pilot should have conformed to that pattern or kept clear of the airspace. Notwithstanding this, the BH06 pilot had broadcast his intentions and had entered the ATZ at 1000ft, and so was arguably 200ft above the cct traffic, which is flown at 800ft. A better option, alluded to by the BH06 pilot, would have been for him to climb higher or to descend in order to afford all cct traffic greater vertical separation depending on the position of the cct traffic relative to the helicopter's desired track. As it was, the BH06 pilot elected to climb slightly as the PA28 turned to pass ahead; the PA28 pilot monitored the helicopter's progress and continued with his normal cct pattern. The recorded radar shows the incident clearly, the geometry confirming that described by both pilots, although Mode C does indicate more vertical separation pertained than reported. In the end the Board were minded to conclude that the BH06 pilot had eventually fulfilled his responsibilities, climbing above the cct traffic, and that this Airprox had been a sighting report where any risk of collision had been removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Sighting report.

Degree of Risk: C.

AIRPROX REPORT No 2009-158

Date/Time: 30 Nov 1544

Position: 5301N 00029W (1½nm final to RW01 at Cranwell Cct - elev 218ft)

Airspace: Cranwell MATZ/ATZ (*Class: G*)

Reporting Ac Reported Ac

Type: King Air Grob Tutor

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

Alt/FL: 500ft 500ft
QFE (997mb) QFE (997mb)

Weather: VMC VMC

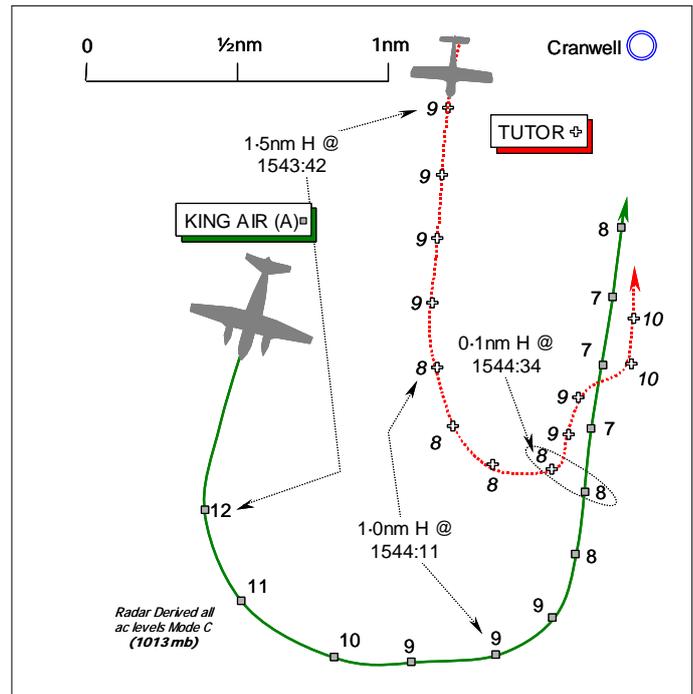
Visibility: 10km+ 10km

Reported Separation:

50ft V/20m H 100ft V/50m H

Recorded Separation:

Nil V/<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PILOT OF KING AIR (A) reports that after joining from Waddington, he was operating VFR in the LH cct to RW01 at Cranwell during a local instructional sortie and in communication with TOWER (TWR) on 125.05MHz. SSR was switched to standby with Modes C & S off he thought [it was switched off after the Airprox occurred]. The ac has a white and blue colour scheme; HISLs and the landing lamp were on.

His King Air was No2 on Final behind another King Air [King Air (B)] whose intentions were to land. Descending through 500ft QFE (997mb) turning L onto 011° at 130kt, the crew saw a Grob Tutor, 50ft above his ac, closing from the L in a LH descending turn as if it were on a finals turn. He initiated a 'go around' and they informed ATC that they would fly down RW01 at 500ft QFE to avoid the Tutor off their left wing. Once clear of the Tutor they turned Downwind and landed without further incident. Minimum separation was 50ft vertically, 20m horizontally and he assessed the Risk as 'high'. An Airprox was reported to TOWER on RT.

THE GROB TUTOR PILOT, a QFI, reports he was recovering to Cranwell under VFR following an instructor training sortie. He was the PF from the RHS. His original intention was to join for a 'Run-in and Break', so he positioned at Initials for RW01 at 500ft QFE (997mb). On contacting TWR on 125.05MHz, it was apparent that the cct was busy so he elected to continue at 500ft, but complete a normal join at 80kt. As he was turning onto the liveside, there was a series of transmissions on RT between a King Air pilot and TWR regarding the intentions of a foreign air force twin, which was also joining the cct. The TWR controller, who also appeared to be operating the GROUND frequency, thought it was joining on the Deadside, but both the Tutor pilot and the King Air (B) pilot had noted that the pilot of the foreign twin intended to join on L Base. This RT traffic caused him to delay his Downwind call, and in response, TWR informed him that there were 2 ahead in the cct. Both he and his student identified these as the foreign twin on short Final and a King Air [King Air (B)], which had just begun its Final turn. They also noted a further King Air 2-3nm S of the airfield, which they assumed was positioning to join the cct. He commenced a level Final turn in the normal position for a Tutor, which he assessed would provide ample spacing on the King Air [King Air (B)] ahead. After approximately 1/3 of the turn, well before commencing a descent to intercept the normal approach path, he noted a King Air [King Air (A)] approximately 100ft below him on what appeared to be a straight-in approach. Unable to make a call on the RT due to frequency congestion, he elected to

go-around. He then flew behind and above the King Air and repositioned onto the Deadside before flying a normal cct to land. Estimating the minimum separation to be 100ft vertically/50m horizontally he believes that the significant level of RT traffic and non-standard phraseology during the incident led to a reduction in the SA of all concerned. He assessed the Risk as 'low'.

THE CRANWELL COMBINED TOWER & GROUND CONTROLLER (TWR) reports that he took over the TWR position just after 1500 and shortly afterwards band-boxed the GROUND (GND) frequency as well. After a steady stream of arrivals and a couple of departures, King Air (B) joined the LH cct for RW01 followed in quick succession by the foreign twin-jet, the Grob Tutor and the King Air (A). At this point he called for a GND controller as flights were still calling on the GND frequency. King Air (B) called for a low level cct, making him, he thought, the first ac downwind; the foreign twin then called for a Downwind join, to position for initials. The King Air (A) crew then called for a downwind join followed by the Grob Tutor crew calling extending behind the King Air low level [King Air (B)]. He checked the position of the foreign twin and in his mind at the time the order downwind was, King Air (B), King Air (A), and the Grob Tutor with the foreign twin downwind flying towards Initials. However, King Air (B) pilot said he could extend for the foreign twin on Final, to which he replied that the foreign twin was not on Final but flying out to Initials. King Air (B) was then given a 'continue' for another ac taking off, but still on the runway. At this point he missed a few calls due to 2 or 3 ac all stepping on each other. The foreign twin pilot then made a short Finals call, so he cleared him to land and informed the pilot of King Air (B) that he was now No2 in the cct; the Grob Tutor called Downwind and was told 2 ahead – but it should have been 3 including the King Air (A). The pilot of King Air (B) then said he was going around, whereupon King Air (A) called Final and was given a 'continue'. There were more stepped-on transmissions, before he then gave King Air (A) 'clear to land 1 on [the foreign twin]', to which the pilot replied that he was going around for the Tutor turning in ahead of him within 50ft. The Grob Tutor pilot then also called going around. He assessed his workload as 'high'.

HQ AIR CMD ATM SAFETY MANAGEMENT reports that the Cranwell TWR controller was also operating the GND position bandboxed with TWR. At 1540:28, the crew of King Air (A) reported to Cranwell TWR on 125-05MHz that they were joining the visual cct from Waddington [N of Cranwell], with information 'Tango'. TWR responded "[King Air (A) C/S]..TOWER join tango correct 1 in"; the '1 in' mentioned was King Air (B). At the same time a visiting foreign twin-jet, which had been switched to TWR by RADAR, was approaching the Downwind leg but had not yet checked in on the RT. The crew of the foreign twin called TWR at 1540:41, and reported "*beginning of downwind*", whereupon TWR 'lined-up' another ac. TWR called the crew of the foreign twin at 1540:54, "[foreign twin C/S] Cranwell TOWER, join runway 0-1 left hand QFE 9-9-6 millibars 1 in", this was incorrect as at this time there were 2 ac in the cct [King Air (B) ahead of King Air (A)].

At 1541:10, the crew of the subject Grob Tutor called TWR to join the cct, and the controller responded "[Tutor C/S] TOWER join runway 0-1 left hand QFE 9-9-7 millibars [the new value] 1 in, 1 joining". This cct state was again transmitted incorrectly, as the foreign twin, King Air (B) and the subject King Air would all be considered within the visual cct. At this point TWR asked for a GRD controller to reduce the workload created by the bandboxed TWR and GRD operating frequencies. [At 1541:36, the Grob Tutor crew called "????(possibly initials) for the Break"] and moments later another flight was cleared for take-off; 2sec later, at 1541:45, the pilot of King Air (B) requested a "low-level" cct. However, at 1541:47 TWR transmitted to the Tutor crew, "..1 cross wind 1 on for departure, surface wind 3-3-0 14, break, [King Air (B) C/S] low level approved". The Tutor crew reported positioning behind the King Air low-level at 1542:03. Between 1542 and 1544 there are several transmissions that are either clipped or unclear, possibly due to dual transmissions; however, from those transmissions that are clear, it appears that TWR believed that the foreign twin was flying to Initials. [UKAB Note (1): However, at 1542:14, with the foreign twin steady on a downwind heading the transcript notes the foreign twin crew reporting "*just ???? turning downwind to turn baseleg*", which was acknowledged by TWR. Although the crew of King Air (A) had earlier requested a downwind join that was approved this was repeated at 1542:22, when King Air (A) crew advised "[C/S] to join downwind", whereupon TWR advised that there was "*1 ahead*".] At 1542:57, the crew of King Air (B) transmitted "*..we are happy to extend slightly for the [foreign twin C/S] on finals*". To which TWR responded "*..he's actually going around for Initials he's not in (sic) finals*", whereupon the crew of King Air (B) reported at 1543:04, "*ok, he's at low-level and we're turning left finals gear*

down". At this point King Air (B) was instructed to 'continue'. At 1543:14, the crew of King Air (B) advised "*I'm not convinced, he's going in....on finals*"; although the transmission is clipped it is clear the crew of King Air (B) was concerned about the intentions of the foreign twin. TWR informed the crew of King Air (B) at 1543:18, to 'continue' and that the foreign twin "*..is now ahead*", whereupon [without any 'final' call apparent on the transcript] the foreign twin was cleared to land. At 1543:31, the Grob Tutor crew reported "*late downwind low land*"; TWR reported 2 ahead, but in reality as King Air (A), late downwind, had been placed on a 'continue' at 1543:40, with King Air (B) already turned onto final on a 'continue' and the foreign twin now cleared to land, there were 3 ahead. Assuming that TWR still believed that the foreign twin was still going to initials, King Air (A) was one of the two reported by TWR to be ahead also on a continue. The crew of King Air (B) then reported going around at 1543:44. At 1544:37, the crew of King Air (A) reported to TWR, "*got [a] Tutor by me, just on the left, at 5 hundred feet*". At 1544:52, TWR cleared King Air (A) to "*..land 1 on*"; however, the crew then reported "*going around for the Tutor on my left hand side, 50 feet*". The Tutor pilot then also reported that he had initiated a go-around. The radar recording shows the Tutor had carried out a short cct and turned inside King Air (A).

SATCO reports the incident happened during a busy period of mixed type ac recovering to the aerodrome; furthermore there was a lack of available manpower due to sickness. The TWR controller had a high workload, which was further increased by the visiting foreign twin whose crew seemed to be unfamiliar with local procedures. The initial cct state passed by TWR was inaccurate which would have decreased the pilots overall SA. The Tutor crew conducted a low-level cct which, the radar recording shows, was shorter than those flown by the other ac and that it cut in front of King Air (A). When the Tutor crew reported late Downwind and were incorrectly told by TWR that there were 2 ahead [instead of 3]; this might have contributed to the Tutor crew turning in early for the runway. Notwithstanding the lack of accurate TI, military pilots are expected to maintain good lookout in the visual cct. Air Cmd BM Safety Management considers that a high workload and inaccurate TI combined with incomplete pilot SA led to this confliction in the Cranwell visual cct.

Air Cmd BM Safety Management recommended that controllers should be re briefed on the importance of accurate TI to ac arriving into the visual cct. Best practice remains to have GRD available during busy recovery periods; alternatively, during periods of constrained manpower, recoveries could be restricted - this has already been discussed at unit level. Squadrons should be briefed on the importance of maintaining a good look out especially approaching Final.

UKAB Note (1): The Claxby Radar recording shows King Air (A) approaching Cranwell from the N as the Grob Tutor approaches from the S. The Tutor over flies the aerodrome indicating 1000ft Mode C (1013mb) - about 520ft QFE (997mb) - and turns crosswind at 1543:00, as the King Air joins the cct downwind indicating 1400ft (1013mb) – about 920ft QFE (997mb) – 1nm W of the Tutor. King Air (A) overhauls the Tutor downwind and follows the pattern established by the preceding ac – the foreign twin - that turns L inbound at 2½nm from the aerodrome and possibly King Air (B), which is not evident on the recording at all but No2 to the foreign twin. King Air (A) turns onto a short base-leg at 1543:42, with the Tutor 1.5nm away at 7 o'clock some 300ft below. The Tutor is just behind King Air (A)'s port wing and 1nm distant as King Air (A) turns onto final, now descending from 900ft (1013mb) – about 420ft QFE; meanwhile the Tutor has descended to 800ft (1013mb). King Air (A) steadies on finals just before the foreign twin lands; King Air (B), which is perceived to be following on final, is not shown. At 1½ nm final at 1544:34, King Air (A) indicates 800ft Mode C – the same level as the Tutor, which has turned inside and closed from the L to a range of 0.1nm. King Air (A) then overhauls the Tutor leaving the latter to port and descends 100ft as the Tutor climbs to 900ft giving 200ft vertical separation at the closest point horizontally. The Tutor then draws astern of King Air (A) and flies to starboard and thus into the deadside as both ac go around.

HQ AIR (TRG) comments that this Airprox occurred when 4 ac were joining the Cranwell visual cct in a relatively short timescale. This Airprox has a combination of factors that included missed or misunderstood RT calls combined with some inaccurate TI and crews visually misidentifying other ac. During the downwind leg the Tutor crew had the opportunity to see the King Air (A) who was ahead. Unfortunately, once the Tutor had turned finals it was belly up to King Air (A) and the opportunity to see it was much reduced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Whilst the controller had elected to combine TWR and GND when he took over, it was evident that the local traffic situation later changed considerably in a very short period. The RT transcript revealed that the number of ac in the cct grew from 1 to 4 in the space of 40 sec, including, significantly, the visiting foreign twin-jet, plus one for departure. It seemed plain to the Board that TWR had been unable to cope when his workload rapidly increased but a military controller Member was concerned over the supervisory aspects of this Airprox. If no further manpower was available to man GND, then in his opinion, the ATC Supervisor should have rallied to TWR's assistance, even if it was just to look over the controller's shoulder and help him spot the position of ac in the cct. In this Member's view a breakdown of Supervision had occurred within ATC that contributed to the way events unfolded.

The presence of a visiting foreign ac in the cct, with a crew unfamiliar with local and national procedures, was a complicating factor and undoubtedly added to TWR's workload. On this aspect, Members said the foreign-twin's join could have been handled better and it was evident that there was confusion in the TWR controller's mind over how the foreign crew was positioning their ac in the pattern and the sequence for landing. This was a salutary lesson as to what not to allow in the cct; military controller Members opined that it was usually far simpler to 'take charge' of the visitor and feed it into the radar pattern for a radar straight-in or for a PAR to land. By applying more positive control ATC could 'drive' the visiting crew around the sky and the onus would then be on other local cct traffic to stay clear of the unfamiliar visitor. Here it was evident that TWR believed that the foreign twin was flying out to Initial before turning inbound; it seemed this must have been from prior liaison with Radar – but it was not at all clear to the Members why TWR thought this was so. As it was the crew of the foreign twin had not made their intentions plain at the outset when they called TWR, so the controller should have attempted to clarify exactly what they were doing. Believing that the visitor was flying out to Initial might have been the reason that it was not included in the cct state passed to other ac, which was always one less than it should have been if, as it transpired, the foreign-twin had joined the cct on a long LH downwind and ended up ahead of King Air (B) in the sequence to land.

It seemed plain that TWR had not realised that the foreign-twin had turned onto final ahead of King Air (B) until the latter's pilot queried what the foreign twin was doing. Whereas TWR's workload was undoubtedly high, it was the confusion over this foreign twin that had been the catalyst to this Airprox. The controller seemed to miss a lot of calls, which Members believed was indicative of a heavily overloaded controller, but the clue should have been when the crew of the foreign twin reported *"..downwind to turn baseleg"*. Members perceived that King Air (B) had been baulked in the cct by the foreign twin whose crew had evidently flown an expanded cct the radar recording showing that the foreign twin had flown out to a range of 2½nm before turning onto final. This excessively large cct was also a factor in this Airprox and military pilot Members stressed that the cct should not extend downwind in this manner. It was an 'old chestnut', but nonetheless worth repeating here: ccts should not be extended downwind – it was better airmanship to 'go-around' at cct height from the point at which a normal final turn would commence, rather than fly out, as here, to the ATZ boundary. The Grob Tutor pilot's account had noted that he saw a King Air 2-3nm S of the airfield, which he assumed, was positioning to join. With no other traffic visible on the radar recording it seemed probable to the Members that this was indeed King Air (A) - which the Tutor crew was supposed to be following in the cct – and had been 1nm to the W when they were cross-wind. It seemed that King Air (A) had followed the pattern formed by King Air (B) - although this ac was not evident on the radar recording probably because the SSR was 'off' in the cct. However, as King Air (A) was so far downwind with the cct state passed by TWR as only 2 in, which the Tutor crew could probably see were ahead – the foreign-twin followed by King Air (B) – King Air (A) was discounted as another ac

positioning to join rather than being ahead in the cct. Having discounted it as a factor, the Grob Tutor crew turned inside King Air (A) leading to the close encounter at 1½nm on final. The Board agreed the incorrect cct state transmitted to all the ac involved was fundamental to this Airprox. The Board agreed that the Cause of this Airprox was incorrect TI led to a conflict between the King Air and Tutor on final approach.

During their Final turn, the Grob crew would have been focused on the aerodrome and cct traffic they had been told to follow to their L, belly up and unaware that they were about to baulk King Air (A), which was closing rapidly from the starboard side. Although the crew of King Air (A) should have been aware of the Grob in the cct from the crew's RT calls, again, it was probably not apparent from the cct state given. Furthermore, whilst flying on the downwind leg the Tutor was astern of them; nevertheless, the Tutor was evidently there to be seen when they turned base and onto final. It was unclear to the Members why the crew of King Air (A) had not spotted the Grob earlier; it was on the inside of their L turn onto final but it was not until it flew in to their field of view 50ft above them that they saw the Grob and took prompt action. It seemed to the Members that both the Grob crew and the crew of King Air (A) probably saw each other at about the same point and the latter initiated a go-around followed by the Grob Tutor crew also breaking-off their approach and flying into the Deadside astern of King Air (A). The combined actions of both crews thereby forestalled a collision. Nevertheless, with vertical separation reported to be 50ft by the King Air crew and the radar recording showing both ac at the same level on Mode C closing to a range of less than 0.1nm – 200yd – it was evidently a close quarters situation with little time to react. The Members agreed unanimously that in these circumstances the safety of the ac involved had been compromised.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Incorrect TI led to a conflict between the King Air and Tutor on final approach.

Degree of Risk: B.

AIRPROX REPORT No 2009-159

Date/Time: 10 Dec 0952

Position: 5252N 00003E
(Holbeach Range area)

Airspace: Wash AIAA (Class: G)

Reporting Ac Reported Ac

Type: Tornado GR4 (A) Tornado GR4 (B)

Operator: HQ AIR (OPS) HQ AIR (OPS)

Alt/FL: 11300ft 11400ft
(QFE 1026mb) (QNH 999mb)

Weather: VMC CAVOK VMC CAVOK

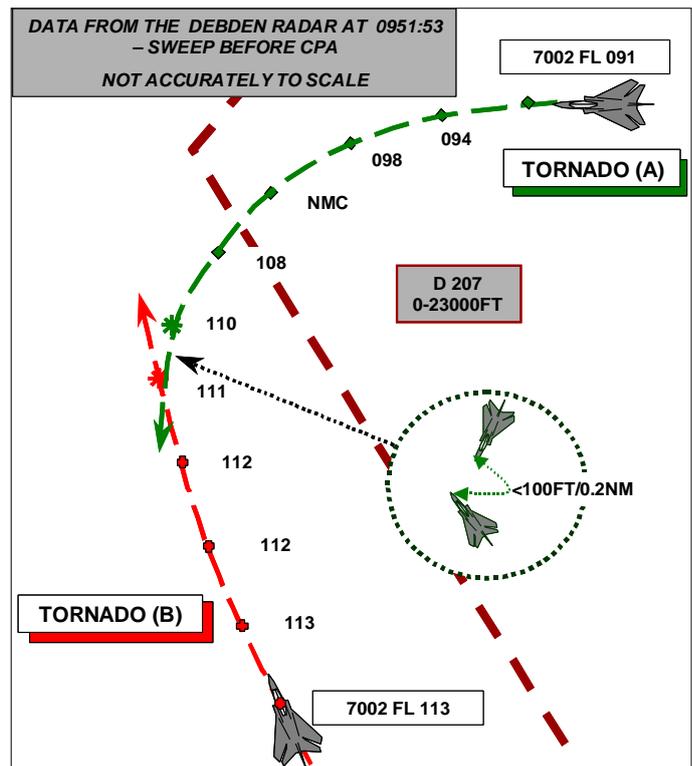
Visibility: 30km >10km

Reported Separation:

50ft V/300ft H 0ft V/500ft H

Recorded Separation:

<100ft V/0.2nm H (between
sweeps)



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO GR4 (A) PILOT reports that during a range profile, while leading a pair of ac, at Holbeach AWR he was established in a left hand 'Close Air Support wheel', positioning for 30° strafe on Target 2 and in contact with Holbeach primary frequency while squawking 7002 with Mode C. At 0952 the ac was passing 11300ft (on the range QFE) in a climb to 12000ft, flying at 330kts, turning through a heading of 206° for 319° while the Weapon System Operator (WSO) was tracking the strafe panel on the Thermal Imaging and Laser Designator (TIALD) pod and the pilot was looking into the turn at the panels and the general target/range area. On looking forward to check their height and speed the pilot immediately saw another Tornado GR4 crossing from left to right though the HUD and at the same height 300ft away; the WSO confirmed the estimate of 300ft. He continued the turn after momentarily dropping the right wing to confirm the other ac was well clear. He assessed the risk as very high and reported the incident, which took place about 1½ nm to the W of the D207 boundary, to Sqn Ops. The remainder of the sortie was completed without further incident.

After landing and upon returning to Sqn HQ, they viewed the ac video, which clearly shows another Tornado GR4, straight and level, in the HUD field of view, about 50ft high and very close to the lead ac. The ac involved was traced to another unit.

THE TORNADO GR4 (B) PILOT reports that they attempted to enter Holbeach range to conduct work towards a strafe trial. On check-in with the range, it was discovered that the range had apparently been double booked and was occupied by other users, so they left the range area, maintaining clear of the restricted airspace (approx 3-4nm to the W) and entered a gradual, wings level descent prior to entering the LFS. Since they were in sight of the ground in good weather conditions, they elected to leave the Holbeach frequency and descend VFR, squawking 7000 [actually 7002] with Mode C while heading 335° at 370kt.

During the descent another Tornado GR4 was seen 500ft away, at the same height, passing down their right hand side, in a left hand turn. They thought that it had been conducting weaponry profiles that took it slightly outside the restricted airspace of the AWR (D207).

They considered that their sighting of the conflicting ac was late but, apart from the initial surprise, it caused no other reason for concern; no avoiding action was required and they assessed the risk as medium.

TORNADO (B) Station commented that the decision to file an Airprox, or not, was a matter of judgement; in this case OC Ops Wing reviewed the incident and was content that the UKAB had sufficient information to investigate it thoroughly without further Station input.

HQ AIR (AWR) reports that Tornado (A) flight was operating in their booked slot up to 1015. The crew of Tornado (B) may have been under the impression that they had an earlier booking but they were, in fact, booked from 1015 to 1030, with another user booked from 1030 onwards. It is not clear where the confusion over the booking arose, but HQ AIR (AWR) is content that the booking system used does not permit double-bookings.

The duty RSO reported that Tornado (B) informed him that he would hold to the W of the Range to await a call-in. Tornado (A)'s last firing pass was recorded at 1014 and the formation departed the Range shortly afterwards. Tornado (B)'s first pass over Target 1 was at 1021 and his last at 1035 as the following traffic was a few minutes late. (Range times are over-target times and not times for arriving/departing range airspace).

UKAB Note (1): An analysis of the Cromer, Debden and Claxby radars was conducted and they all show the incident clearly as depicted above. Although the primary and secondary responses correspond, some transposition of Mode C data was required to complete the diagram. The CPA was 1.0nm outside the boundary of D 207.

HQ AIR (OPS) comments did not comment.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Although Tornado (A) was conducting a weaponry profile at Holbeach Range, the pattern being flown took the ac outside the boundary of the Range Danger Area (D207) and the incident occurred in unregulated Class G airspace where the 'see and avoid' principle pertains. The Board noted that the crew were conducting a very high workload exercise with both crew members concentrating on their respective tasks, but Members agreed that the crew retained the obligation to conduct a thorough lookout. Indeed, in many respects the dynamic nature of the profile being flown required an even more vigilant lookout than would be the case when flying a more predictable flightpath.

Notwithstanding that they had expected to enter the Range, Members agreed that the crew of Tornado (B) had been unwise to execute their descent to low level so close to the boundary of the Range Danger Area, despite that it was in Class G airspace. It was suggested that they might not have expected to encounter an ac to be exiting the Range in their position or alt, but the HQ Air Member informed the Board that they were an experienced (trials) crew who would have been familiar with most of the Holbeach weaponry patterns; furthermore on seeing the other Tornado they were immediately aware that it was Range traffic.

Members agreed that neither crew had seen the opposing ac in time to take any avoiding action. Noting that the actual CPA took place between radar sweeps, Members also agreed that the horizontal miss-distance had probably been slightly less than the 0.2nm (360m) indicated above, as the ac passed at about the same alt one climbing and one descending. It was unfortunate that Tornado (A) HUD/HDD video was not available to the Board to verify the actual miss-distance, but Members unanimously agreed that it had been close.

Although by happenstance the flightpaths of the two ac were such that they were not in actual conflict, since neither crew saw the opposing ac in time to take any avoiding action, Members agreed unanimously that there had been a risk of collision.

There was considerable discussion as to whether it is desirable to have Range Danger Areas large enough to contain ac flight profiles, such as already exists at Tain Range, rather than just the weapon release profiles as in most other ranges. Opinion was mixed, as this would necessarily mean larger Danger Areas. On the other hand, high energy, high workload manoeuvring such as being flown by Tornado (A) pair would be segregated from routine traffic. The DAP Advisor informed the Board that a Danger Area review was ongoing; Members accepted that this would probably address the issue and agreed not to make any specific recommendation.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Effectively non-sightings by both crews.

Degree of Risk: A.

AIRPROX REPORT No 2009-160

Date/Time: 3 Dec 1845

Position: 5107N 00146W (2nm
S Boscombe Down)

Airspace: Boscombe ATZ (Class: G)

Reporting Ac Reported Ac

Type: Squirrel Chinook

Operator: HQ AAC HQ JHC

Alt/FL: 450ft 500ft
(QFE NK) (NK)

Weather: VMC CAVOK VMC CAVOK

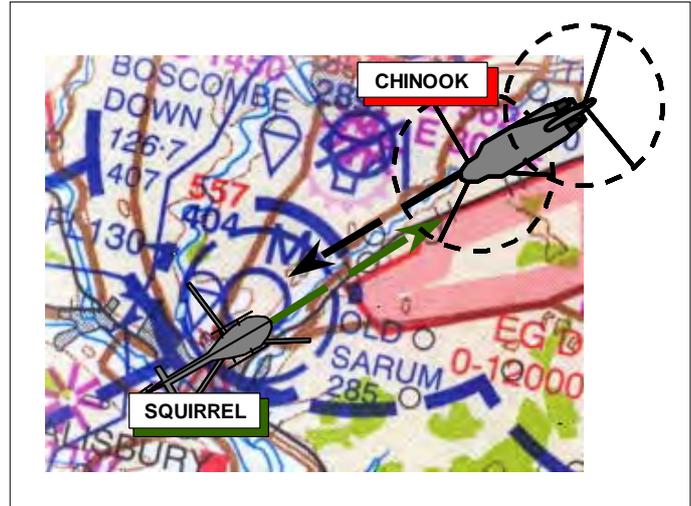
Visibility: 15-20km NK

Reported Separation:

200m H ~500m H

Recorded Separation:

Not Recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SQUIRREL PILOT reports that he was the instructor on a single ship Night Vision Device (NVD) training sortie with all lights switched on. They were returning to Middle Wallop along the Wilton to Grateley low-level route, heading 060° at 90kt, under a BS from Boscombe Down for the MATZ transit, when Boscombe passed TI on a Chinook that was flying in the opposite direction transiting along the Andover to Wilton railway. He initially thought he could see the Chinook but it proved to be another ac further along the route. It was difficult to see any ac due to background cultural lighting and the Chinook did not appear to display standard or 'Black Light' strobes. The ac was finally spotted by the student, ½nm ahead and he then saw it 500m ahead flying in the opposite direction at the same height.

He then called the Chinook crew on the RAF Boscombe Down Zone Frequency to confirm that their strobes were switched on and the strobes became visible. He turned right by 10° and the Chinook passed down their port side about 200m away at the same height.

On landing he called Boscombe who said that the Chinook's call to them was quite late, almost S abeam the field.

They continued the sortie without further incident, assessing the risk as being medium/high.

UKAB Note (1): The incident was initially reported as an incident (DFSOR) rather than an Airprox; however, following discussion with DARS the pilot decided to submit an Airprox. Unfortunately, the paper Airprox Report went missing in the post, which resulted in some delay in requesting the Chinook report. However, the Secretariat contacted the Squirrel pilot and sufficient information was passed by telephone to conduct a full investigation. The Boscombe Down RT tapes, however, had been returned to use so no transcript was available.

THE CHINOOK PILOT reports (3 Months after the event due to the delay explained above) that he was the centre-seat captain of an Chinook based at RAF Odiham on an OCU training mission for 2 pilots and 2 crewmen; TCAS was not fitted. They were flying in good weather, squawking as directed with Mode C and had strobes and nav lights switched on. The sortie comprised of a transit to multiple locations covering all aspects taught to the students up to that stage of training.

Having completed NVD Circuits at Barton Stacey they transited via Grateley [Low Level Route] to Deptford Down for further landings. They established communications with Boscombe Down and a BS was agreed. During this phase a Squirrel helicopter passed down their port side. The ac had been identified early and suitable clearance (his diagram showed ~500m) was awarded for the transit. Once passed, the Squirrel declared that he had not been visual with their ac and it was confirmed on the RT that the ac lighting was checked and confirmed on. They assessed the risk as being low and no further action was taken.

UKAB Note (2): The incident took place below recorded radar cover.

UKAB Note (3): The Boscombe Down FOB contains the regulations for the Wilton to Grateley Low Level Route. The pertinent section (Order 14 Para 2) is as follows:

'2. Wilton to Grateley when Boscombe Down ATC is Open. When Boscombe Down ATC is open the terms and conditions for this route are as follows:

- a. When joining from the east, pilots should aim to join the route at the Grateley VRP whenever possible.
- b. Pilots are to call Boscombe Zone on frequency 126.7MHz for clearance to transit along the route. If Boscombe Zone is busy then a call stating 'callsign, holding at Grateley/Wilton for low level route' should be made.
- c. Helicopters will fly not above 500ft Boscombe QFE and will squawk SSR Mode 3/A 2657 (with Mode C if fitted) along the route. Light ac may use the route at 600ft Boscombe QFE.
- d. Controllers at Boscombe Down may assume that the radar contact on the low-level route is not above 600ft Boscombe QFE and is thus known traffic.
- e. Helicopters may retain the 2657 squawk between Grateley and Middle Wallop provided that they remain not above 500ft Boscombe QFE, or equivalent.'

HQ AAC comments that the Squirrel pilot complied with the appropriate procedures while transiting the Wilton-Grateley Low Level Route. The Chinook late call "S abeam the field" was not 'quite late' but far too late (See regulation b. above). Further, the Chinook external lighting at the time remains questionable.

The procedure for returning RT tapes to use that were probably known to include information on a possible incident should be reviewed by the MAA.

HQ JHC comments were provided after the Board meeting and were there for not available to Members. HQ JHC observed that the discrepancy between the accounts of each crew regarding both the distance between the ac and the status of the Chinook lighting means that it is difficult to determine the cause. Having been passed TI on a Chinook that they subsequently failed to identify early, it is disappointing that the crew of the Squirrel did not take avoiding action sooner, given that they reported on the R/T that they were visual before taking avoiding action, noting that they would have been limited in the avoiding options available laterally due to the proximity of a Danger Area.

It is not clear from the report whether the crew of the Chinook were operating in accordance with Order 14 Para 2 (b) as their report does not state when they managed to establish communications. However, the Squirrel pilot reports that the controller was aware that the Chinook call to them was late. As the reports conflict on the status of the Chinook lighting it is not possible to ascertain whether this affected the outcome.

In summary, the confliction of flightpaths was resolved by the Chinook but not to the satisfaction of the Squirrel crew. The Chinook crew were possibly late in calling Boscombe, which may have contributed to the late identification by the Squirrel. The Squirrel crew themselves had an opportunity

to ensure that the risk of collision was reduced still further by making an early alteration to heading or height before they made the R/T call when they had identified the Chinook. It is probable that if earlier avoiding action had been taken, the risk of collision and subsequent Airprox would have been avoided altogether.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac and reports from the appropriate operating authorities.

The Board noted that this was an unusual incident involving 2 military ac operating VFR at night using NVDs. The Board was fortunate to have 2 helicopter pilots, one Member and one Advisor, with significant NVG/NVD experience to provide some background. The term NVD is a generic descriptor covering NVGs and aircraft sensors. In this Airprox all the pilots had been operating on NVGs, which provide a limited field of view and can be affected adversely by background cultural lighting.

Members also noted the procedures for using the Grately Low Level Corridor, which should, and in this case did, ensure that users are informed about other traffic. While Members accepted that the Chinook crew had made the appropriate RT call, since there was no RT transcript they could not determine whether it had been made at the optimum time or late. A Member with extensive experience of Grately Corridor observed that Chinook RT calls were often later than optimum because of frequency congestion combined with the relatively higher speed of Chinook ac. It was also noted that both ac were 'framed' in a background of cultural lighting from Salisbury and Andover respectively making the discrimination of both difficult. Another experienced NVG user informed Members that even in good 'light' conditions, distance perception is very difficult and estimates are frequently inaccurate.

With no additional information Members could not determine whether or not the Chinook lights had been on prior to the call by the Squirrel pilot, but they agreed that they had been on after the call. The Board was informed that the lighting selections would be different if ac were operating as singletons or in formations. A singleton ac operating outside the SPTA would be expected to display as a minimum the (upper) strobe and nav lights. Inside the SPTA 'visible' lights could be switched off depending on the area and profile being flown; good practice is to make a positive lighting check when leaving any Training Area.

Notwithstanding the factors above, both ac were operating in under VFR in Class G airspace where see and avoid pertains; the Squirrel crew did not, possibly because of its lighting regime, see the Chinook until later than optimum, but the Chinook crew saw the Squirrel and avoided it by a margin they considered safe. The Board accepted that the Chinook crew's acquisition of the Squirrel was early, that they had maintained visual contact with it and that their estimate of separation was reasonably accurate; they were, therefore, persuaded that there had not been a collision risk.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Squirrel pilot was unable to see the Chinook until a late stage.

Degree of Risk: C.

AIRPROX REPORT No 2010009

Date/Time: 4 Mar 1626

Position: 5414N 00148W
(4nm E GASKO)

Airspace: Scottish FIR (Class: G)

Reporter: Durham Radar

Ac 1 Ac 2
Type: FK70 Tucano

Operator: CAT HQ AIR (TRG)

Alt/FL: 3500ft 2500ft
(QNH 1028mb) (RPS 1026mb)

Weather: NR VMC CAVOK

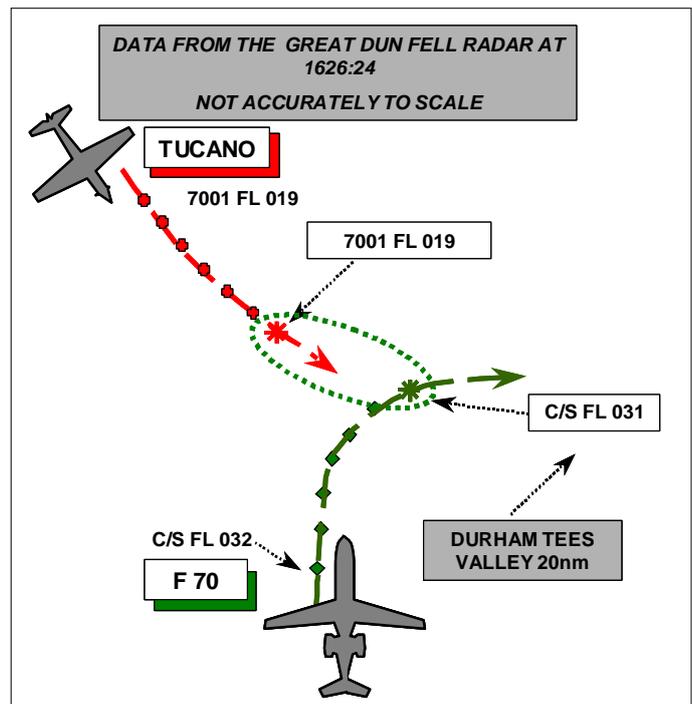
Visibility: NR 30km

Reported Separation:

1200ft V/1nm H NR

Recorded Separation:

1200ft V/2.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DURHAM TEES VALLEY RADAR CONTROLLER reports that at about 1523, he descended an FK70, heading 350° inbound for an ILS approach to RW05, to 3500ft on the QNH of 1028mb. The Supervisor previously noted on radar a 7001 squawk, S of Warcop and NW of GASKO, tracking SE indicating 2500ft so he (the controller) turned the FK70 on to 005° to tighten it up towards the FAT and still achieve separation. Shortly after, the SSR of the ac previously squawking 7001 disappeared but he continued tracking the primary contact until it 'partially faded' from radar about 20nm W of the airfield. The blip then re-appeared 3nm NE of GASKO shortly followed by an SSR return. At that time it was 6nm NE of the FK70, indicating 2500ft, the latter descending through 4500ft for 3500ft. Although the FK70 had already reported visual with the airfield, he called the traffic adding "if not sighted turn right heading 090 degrees". Soon after as the FK70 was passing 4100ft, he requested the pilot to level at the first opportunity and he responded, "level at 3500ft". The turn was made but it was immediately clear to him that separation was being eroded, so he issued an avoiding action turn onto 120° believing the 7001 to be manoeuvring and instructed the FK70 to climb to 4500ft to achieve some extra vertical separation albeit not the full 3000ft. When he saw the 7001 contact pass about 1nm behind the FK70 and 1000ft below, he turned it on to 360° and descended it to 3000ft.

After establishing the FK70 onto the localiser, he observed the 7001 change to a 4576 squawk, which is allocated to RAF Linton-on-Ouse. After being relieved from duty, he telephoned the Supervisor at Linton and established the identity of the Tucano.

After landing, the FK70 pilot telephoned and said they could see the contact on TCAS but not visually and he accepted the explanation of the avoiding action. The controller asked if he would be filing an Airprox report and he said he would not.

Later the Tucano pilot telephoned to say he was operating legitimately in Class G airspace and enquired as to why an Airprox was being filed and he (the controller) explained that it was due to separation being eroded. The Tucano pilot also stated that he was visual with the FK70 continuously and he estimated from his TCAS that they passed 2nm behind the FK70.

THE FK70 PILOT reports that he did not consider the event an Airprox. He was at about 20nm to run to Durham Tees Valley on a radar vector to intercept RW05 localiser, level at 3500ft when ATC gave TI on a pop up contact and a right turn onto heading 090°. He then saw the traffic on his TCAS 1500ft below just as he was told to “turn right heading 120° and climb to 4000ft”. The TCAS showed that the traffic had levelled at 2500ft, as they turned away and climbed to 4000ft. He did not see the other ac or receive any TCAS warning but estimated (from TCAS) that its at its closest it was 1200ft below and about 1nm away.

ATC said that they would file an Airprox report and that it was probably a military ac.

THE TUCANO PILOT reports that he was returning from a singleton low-level training sortie, squawking 7001 in a black ac with TCAS 1 fitted. The weather was good and he was heading 120° at 240kt in Class G airspace to the NW of Linton on Ouse having climbed out of the LFS to 2500ft RPS when he saw a large civilian twin jet ac about 2nm ahead and around 1000ft to 2000ft above them. It was heading N and then banked away to the NE and, as they watched it, the range indicated about 1.2nm on the TCAS. They were visual with the ac at all times and he perceived no collision risk at any time.

After he landed he was contacted by the ATC Supervisor at Linton who told him that Durham were filing an Airprox with an ac on recovery. He contacted the Durham Tees Valley Supervisor, who he believed was the controller of the ac at the time and asked why he had been filed against when he was in Class G airspace with significant horizontal and vertical separation. The Supervisor explained that he had the Tucano’s squawk on radar and saw that it was level at 2500ft heading towards Linton and then the Squawk was lost. The Supervisor then told him he descended the inbound ac to 3500ft and the Tucano’s squawk reappeared causing the FK70 to get a TCAS warning.

ATSI reports that the Airprox occurred at 1626:24, 4nm E of GASKO in Class G airspace below Airway P18. (GASKO is a reporting point on P18 and positioned 25nm to the SW of Durham Tees Valley (DTV) Airport). The base of Class A CAS in the vicinity of GASKO is FL125.

The DTV METAR was: EGNV 1620 33003kt 9999 FEW026 07/M01 Q1028

The FK70 was released to DTV in CAS maintaining FL140 en-route for GASKO and in receipt of a RCS. Durham Radar instructed the FK70 to continue on heading 335° and gave a descent to FL90 for vectors for an ILS approach to RW 05. At 1622:32 he gave further descent to an altitude of 3500ft, QNH 1028mb and, as the FK70 left the base of P18, he advised, “...leaving controlled airspace deconfliction service”. The FK70 was then instructed to turn right onto a heading of 350° to provide separation in the descent from known VFR traffic, squawking 7051, that had reported at 4600ft on QNH 1028mb and tracking SE.

Durham Radar then observed an unknown contact squawking 7001, indicating A2500, to the S of Warcop Danger Area and tracking SE. At 1624:30, in order to achieve separation from this unknown traffic and also tighten up the approach, Radar instructed the FK70 to turn right heading 005°. The radar recordings show the unknown contact indicating FL017 (A2100ft), 15nm NW of the FK70 and then subsequently fading from radar. At that point the FK70 pilot reported the field in sight but Radar advised that they will continue to vector the aircraft due to the known VFR traffic at 4600ft, “...just clearing the centreline southbound”.

MATS Pt1, Ch 11, Page 8, Para 5.6.3 states that:

‘The deconfliction minima against uncoordinated traffic are:

- 5nm laterally (subject to surveillance capability and CAA approval); or
- 3000 ft vertically and, unless the SSR code indicates that the Mode C data has been verified, the surveillance returns, however presented, should not merge.’

At 1625:30 the unknown contact reappeared 7.5nm NW of the FK70, indicating FL016 (A2000) tracking SE and converging so in an attempt to achieve the deconfliction minima the controller passed TI, "...pop up traffic left ten o'clock range seven miles manoeuvring indicating altitude two thousand feet if not sighted turn right heading zero nine zero degrees" and the FK70 pilot responded "er right heading zero nine zero it's not in sight...". Radar then advised, "okay it's now moving slowly southbound at the moment indicating 2300ft stop descent at the earliest possible level". The FK70 pilot reported levelling off at 3500ft and at 1625:47 Radar gave, "Roger avoiding action turn right heading 120 degrees that traffic now northwest of you three miles tracking southbound indicating 2300ft". At that point the radar recording shows the distance between the ac to be 5.6nm. The FK70 was then instructed to climb to an altitude of 4500ft.

At 1626:35 Durham Radar instructed the FK70 pilot to turn left onto N and advised, "Previously called traffic passing behind you by one mile south eastbound indicating two thousand six hundred feet." Radar recordings show the unknown traffic indicating FL021 (A2500) passing 2.3nm behind the FK70 that had commenced the climb passing FL032 (A3600).

At 1627 the Durham Radar advised the FK70 "...clear of traffic descend to altitude 3000ft". The FK70 is then given vectors for a normal approach to the ILS RWY05.

It was later established that the unknown contact was a Tucano returning to RAF Linton-on-Ouse after a low level sortie.

MATS PT1, Chapter 11, Page 7, Para 5.1.1 states:

'A Deconfliction Service is a surveillance based ATS where, in addition to the provisions of a Basic Service, the controller provides specific surveillance derived traffic information and issues headings and/or levels aimed at achieving planned deconfliction minima, or for positioning and/or sequencing. However, the avoidance of other traffic is ultimately the pilot's responsibility'.

And Para 5.6.5 states:

'High controller workload or RTF loading may reduce the ability of the controller to pass deconfliction advice and the timeliness of such information. Furthermore, unknown aircraft may make unpredictable or high-energy manoeuvres. Consequently, it is recognized that controllers cannot guarantee to achieve these deconfliction minima; however, they shall apply all reasonable endeavours. The pilot shall inform the controller if he elects not to act on the controller's deconfliction advice. The pilot then accepts responsibility for initiating any subsequent collision avoidance against that particular conflicting aircraft. However, the controller is not prevented from passing further information in relation to the conflicting traffic, if in his opinion it continues to constitute a definite hazard'.

HQ AIR (TRG) comments that the crews of the ac involved did not consider this incident an Airprox. This seems to be perceived a loss of separation by the controller but after examination of the facts there was no reduction of safety or increased risk of a collision.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board noted that neither pilot considered this to be an Airprox, but since the Controller had submitted an Airprox Report, a full investigation was conducted iaw normal procedures.

In providing a DS in Class G airspace, the Durham Radar controller was required to attempt to achieve 5nm/3000ft separation between the inbound FK70 against unknown contacts. It appeared to the Members that he had done this to the best of his ability but the track/alt of the Tucano was such that this was not going to be possible. However, his actions were, in the view of specialist controllers, entirely reasonable and appropriate.

The Board noted that both pilots were aware of and visual with the other ac at an early stage and were content that their flightpaths would not conflict. Both ac were TCAS equipped (the Tucano albeit TCAS1) and neither ac received a TCAS warning. That being the case the Board agreed that there had been no confliction and therefore no associated risk or reduction in normal safety parameters.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Controller perceived conflict.

Degree of Risk: C.