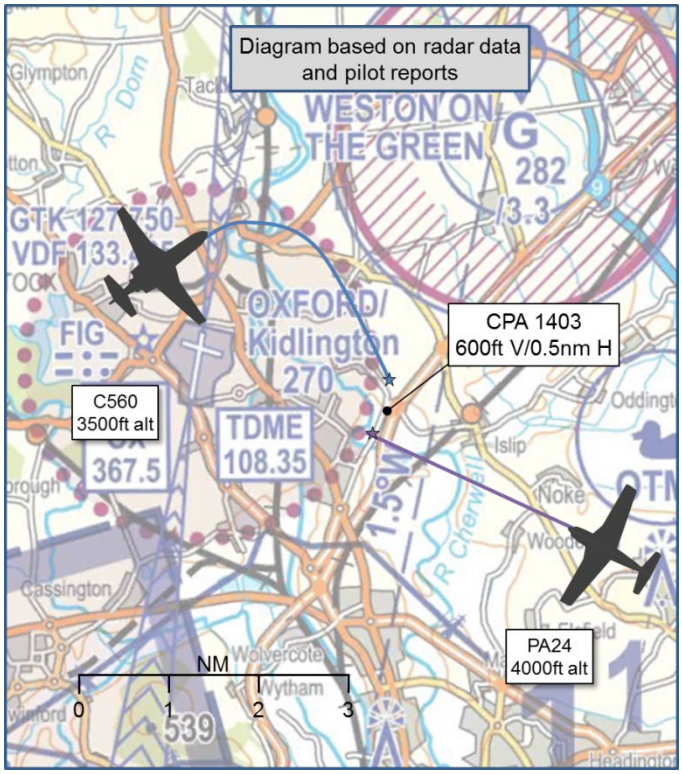
AIRPROX REPORT No 2014197

Date/Time: 28 Sep 2014 1403Z (Saturday)

Position: 5149N 00115W (Oxford NDB hold)

Airspace: Oxford AIAA (*Class*: G)

	Aircraft 1	*Aircraft 2*
Type:	CE 560 XLS	PA24
Operator:	Civ Comm	Civ Pte
Alt/FL:	3500ft QNH (1013hPa)	4000ft NK (1019hPa)
Conditions:	IMC	VMC
Visibility:	3.6km	5nm
Reported Separation:	400ft V/3nm H	500ft V/NK H
Recorded Separation:	600ft V/0.5nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CE560 PILOT reports flying a white and grey aircraft with all lights illuminated and transponder selected on with Modes 3A, C and S. The aircraft was fitted with TCAS I. He was receiving a Procedural Service from Oxford and had been cleared to join the Oxford hold at 3500ft. After the second hold, on the outbound leg, he received a TCAS traffic alert and then, shortly afterwards, an RA "monitor vertical speed". He was flying partly IMC, and therefore couldn't see the conflicting traffic, but could see it on his TCAS display, which indicated 400ft separation.

He assessed the risk of collision as 'Medium'.

THE PA24 PILOT reports flying a red, black and white aircraft with strobe lights illuminated and transponder selected on with Modes 3A, C and S. The aircraft was not fitted with an ACAS. He was routing back to his home airfield and flying at 4000ft. He called Oxford Approach for a Basic Service, and recalled that he requested a transit through their overhead at 4000ft. This was acknowledged by Oxford, he thought, and he was told that they had no radar and to report in the Oxford overhead, which he did. The visibility was good, and he could see the airfield as he passed overhead. There was no further communication until he was called by Oxford when he was about 2-3 miles SE Enstone to say that a Citation had received a TCAS alert at 3500ft. The pilot reports that he did not see the other aircraft, and was not aware of its position until he had passed overhead Oxford and heard a very poor transmission from another aircraft; Oxford ATC had not given him Traffic Information. When the controller notified him of the TCAS alert, the controller also stated that he thought the PA24 was at 7000ft as notified on initial contact. The PA24 pilot confirmed he was at 4000ft, and there was no further contact until he left the frequency.

He assessed the risk of collision as 'None'.

THE OXFORD ADC/APC CONTROLLER reports that he had just taken over the position with one aircraft outbound on the NDB to ILS procedure just leaving 3500ft, and the CE560 in the hold at 5000ft. At 1401z the PA24 called for a Basic Service and overflight. The controller believed the pilot reported his level as 7000ft, so he instructed the CE560 to descend to 3500ft in the hold. He didn't pass Traffic Information because, based on their reported heights, he didn't think they would affect each other. At 1405z the CE560 reported a TCAS RA, the controller promptly asked the PA24 pilot to report his position and height. He reported in the overhead at 4000ft. The CE560 pilot asked for

further descent, which was approved and then continued with the approach; the CE560 pilot stated that he didn't see the other aircraft but that his TCAS indicated that it passed 400ft above him.

Factual Background

The weather at Oxford was reported as

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METAR EGTK 281350z 17004kt 140v210 9999 SCT036 BKN043 22/15 QNH1019
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Analysis and Investigation

CAA ATSI

The CE560 was operating an IFR flight inbound to Oxford and was in receipt of a Procedural Service from Oxford Approach. The PA24 was operating a VFR flight and was in receipt of a Basic Service from Oxford Approach on the same frequency. The Oxford controller was providing a combined Aerodrome and Approach control service without the aid of surveillance equipment. The controller had been in position for 4 minutes and reported workload as moderate. Radar was not available due to staffing. The CAA ATSI had access to Oxford RTF and area radar recording together with written reports from the Aerodrome controller and the pilots of both aircraft.

At 1353:10 the CE560 contacted Oxford Approach and a Procedural Service was agreed. The CE560 was number two in instrument traffic and the CE560 was cleared to the OX (NDB) hold at 6000ft on QNH 1019. At 1354:45 the CE560 reported taking up the hold at the OX (NDB) at 6000ft and at 1357:30 was cleared to descend to 5000ft.

At 1400:00 the controller took over the combined control position and at 1400:40 the CE560 was cleared to descend to 3500ft on QNH 1019. At 1401:03 the PA24 contacted Oxford Approach. The controller initially responded to the number one aircraft established on the ILS and then replied to the PA24:

ATC *"(PA24) c/s no radar available Basic Service only QNH one zero one niner pass your message"*

PA24 *"Er roger copied er five (PA24 c/s) is er a single comanche ….I've got er about seven miles to run to your overhead at seven thousand feet and er request Basic Service (PA24 c/s)"*

ATC *"(PA24 c/s) roger Basic Service for conspicuity squawk four five two zero next report in the Oxford overhead"*

PA24 *"Four five two zero and er wilco overhead (PA24 c/s)".*

At 1402:30 the controller cleared the CE560 for the procedure:

ATC *"(CE560 c/s) I'm visual with the inbound traffic now so next time over the Oscar Xray cleared for the one nine NDB to ILS approach report beacon outbound"*

CE560 *"Next time over the Oscar Xray we are cleared for the ILS approach one nine call you beacon inbound (CE560 c/s)".*

Shortly afterwards at 1403:43 the following RTF exchange occurred:

CE560 *"Er T-(CE560 c/s) RA"*

ATC *"(CE560 c/s) roger are you visual with the aircraft at all"*

CE560 *"Negative"*

ATC *"Roger"*

CE560 *"We are clear of conflict resuming back to altitude er came within four hundred feet"*

ATC *"Er (CE560 c/s) roger"*

ATC "*Er (PA24 c/s) can you report your altitude again"*

PA24 *"(PA24 c/s) yeah just overhead now at er four thousand feet on one zero er one niner"*

ATC *"(PA24 c/s) roger I believe you said you were at er seven thousand feet but understand you're at four thousand feet just going through the overhead"*

PA24 *"Affirm sorry about er I thought I said four thousand feet (PA24 c/s)"*

ATC *"(PA24 c/s) roger traffic er just had a ?????"*

CE560 "Er less than five hundred feet from our altitude can we start our descent now to avoid him again"

ATC *"(CE560 c/s) roger descent as required report beacon outbound"*

CE560 *"Call you beacon outbound descending now (CE560 c/s)"*

The two aircraft continued without further incident. The controller's written report indicated that the CE560 was in the hold at 5000ft when the PA24 contacted Oxford Approach reporting at 7000ft. The controller indicated that he had then descended the CE560 to 3500ft in the hold and based upon their levels did not believe that Traffic Information between the two was required. The CE560 pilot's written report indicated that he was flying partly IMC and received a TCAS TA followed by an RA and estimated the closest distance as 3nm horizontally and 400ft vertically. Neither pilot had a visual sighting of the other.

At 1401:03 the PA24 was 8nm southeast of the OX(NDB) indicating an altitude of 4100ft. The CE560 is shown descending from 5000ft and turning back towards OX(NDB) – Figure 1.

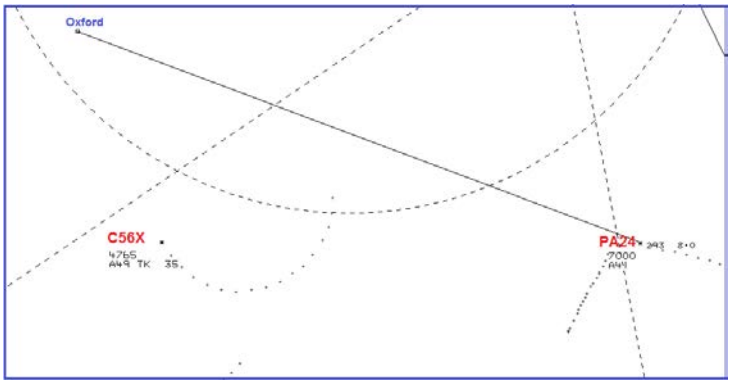

Figure 1 – Swanwick MRT at 1401:03 (C56X = CE560)

At 1402:26 the CE560 turned right at the OX at an altitude of 3500ft . At 1403:32 the CE560 was outbound in the hold at 3500ft. The PA24 was in the CE560's 12 o'clock position at a range of 1.3nm – Figure 2.

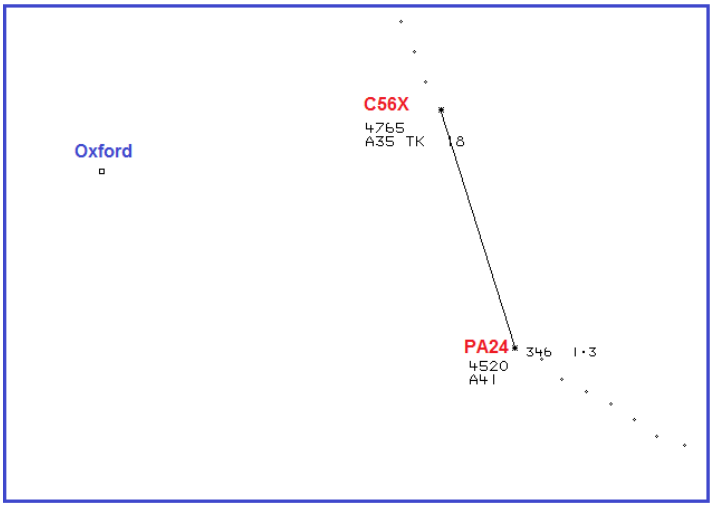

Figure 2 – Swanwick MRT at 1403:32 (C56X = CE560)

At 1403:43 the CE560 pilot reported a TCAS RA – Figure 3.

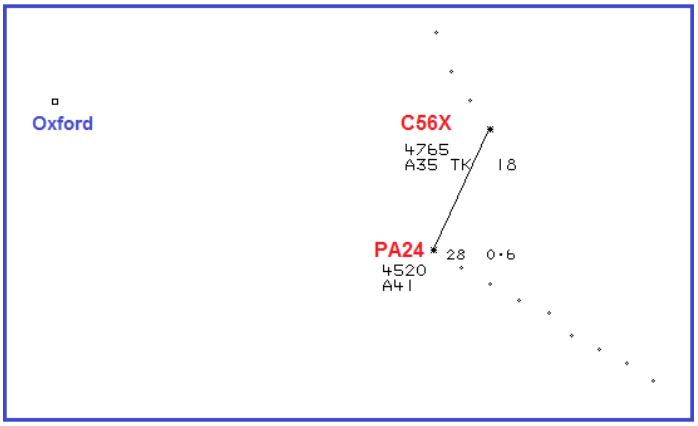

Figure 3 – Swanwick MRT at 1403:43 (C56X = CE560)

The next update of the radar at 1403:47 showed the two aircraft passing abeam at a range of 0.5nm and a vertical distance of 600ft – Figure 4.

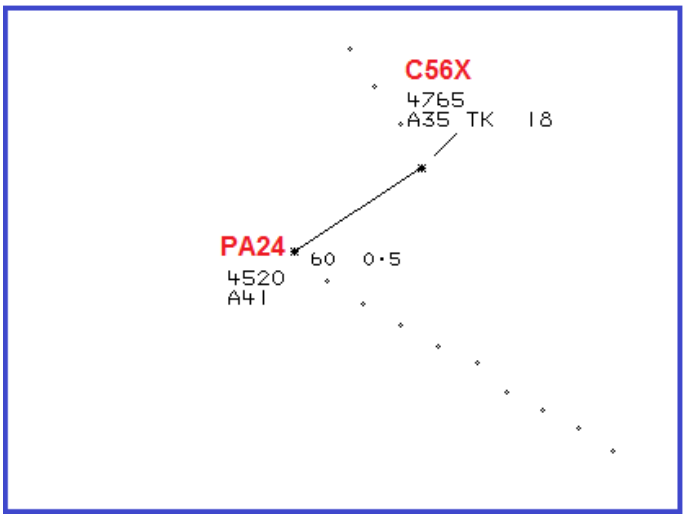

Figure 4 – Swanwick MRT at 1403:47 (C56X = CE560)

The CE560 was in receipt of a Procedural Service 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[1]. A controller shall provide traffic information, if it is considered that a confliction may exist, on aircraft being provided with a Basic Service[2].

However, RTF recordings clearly show the on initial contact the PA24 pilot had mistakenly reported at 7 miles at 7000ft when in fact the PA24 had been at 4000ft. CAA ATSI consider that the pilot having assessed his range as 7 miles, very likely made a mental slip by transmitting 7000ft instead of 4000ft. As a result the controller did not consider that traffic information was necessary and believed that the PA24 was 3500ft above the CE560.

The PA24 was VFR and no agreement or traffic information had been passed to ensure that the PA24 pilot was maintaining his level and there was nothing in effect to stop the PA24 from

[1] CAP774, Chapter 5, Paragraph 5.1
[2] CAP774, Chapter 5, Paragraph 5.5

descending even if he had been at 7000ft. Some general traffic information about aircraft holding (albeit at a lower level) may have served to aid the PA24 pilot's situational awareness and may have prompted him to clarify his level. However, controllers shall limit the occasions on which they make such agreements to those where it is clear that a confliction exists, and only when controller workload permits[3].

The controller based his judgement on the PA24's pilot incorrect level report and considered that no confliction existed. As a result the two aircraft came into proximity in the vicinity of the OX(NDB) holding pattern, within Class G airspace where both pilot's are ultimately responsible for collision avoidance. The minimum recorded separation at CPA was 0.5nm and 600ft.

UKAB Secretariat

Both pilots shared an equal responsibility for collision avoidance and for not flying into such proximity as to create a danger of collision[4]. The geometry of the two aircraft was converging, therefore the PA24 pilot was required to give way[5].

Summary

An Airprox was reported on 28th September 2014 between a CE560 and a PA24, both in Class G airspace. The CE560 was in the Oxford hold in the descent to 3500ft, receiving a Procedural Service from Oxford. The PA24 was overflying Oxford at 4000ft receiving a Basic Service from Oxford. The PA24 had initially reported at 7000ft and so the Oxford controller did not perceive there to be a problem, and did not give Traffic Information to either pilot. The CE560 received a TCAS RA to monitor vertical speed against the PA24.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

The Board first looked at the actions of the CE560 pilot. He was partly IMC, was receiving a Procedural Service from Oxford, and flying in accordance with the instructions given by ATC. His TCAS provided him with the necessary warnings and, although he didn't see the conflicting PA24, the preventative TCAS RA provided the two aircraft with 600ft separation. Turning to the PA24 pilot , the Board noted that he had made an unintentional error when initially calling ATC, and agreed with the ATSI report that this was probably because he had reported being 7nm from Oxford in the same transmission and had therefore inadvertently transposed the number 7 for a number 4. Once he had established contact with Oxford ATC, the Board noted that Oxford ATC had not read back his reported height to him so there was no indicator that ATC believed him to be at a different level until after the incident. Ultimately, the PA24 pilot was VMC and had flown in accordance with what he believed was his ATC clearance.

The Board then looked at the actions of the Oxford controller. The pilot of the PA24 clearly stated his height (incorrectly) but it was unfortunate that, on this day, Oxford were not using their radar because the associated SSR height read-out might have alerted the controller to the pilot's error. Some of the ATC Board members wondered whether the controller should have queried the pilot's height anyway because pilots would not normally be expected to fly at '7000ft' given that this would be above the Transition Altitude and would normally be expressed as a cruising flight level. However, those Board members who were experienced in controlling in the LARS capacity quickly informed the Board that GA pilots frequently report such altitudes, and the reality of the day-to-day task is one of dealing with inexperienced and foreign pilots who may well not understand the nuances of Transition Altitude.

[3] CAP774, Chapter 5, Paragraph 5.12
[4] Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).
[5] Ibid., Rule 9 (Converging).

Nevertheless, they opined that the Oxford ATC controller might usefully have read back the PA24 pilot's height to him when it was first reported, and that this would then have alerted them both to the error. The Board then discussed the issue of whether the controller should have given Traffic Information to the two pilots; again, if he had done so then the PA24 pilot may have realised his error. However, they considered that, based on the information that he had, it was not unreasonable that the controller did not pass Traffic Information when believing the two aircraft had 3500ft height separation.

There followed a long discussion about the cause and risk of the Airprox. Because the actually achieved vertical separation (600ft) was deemed to be more than standard separation in Class G airspace, the Board opined that even had the controller known the PA24's correct altitude he might well only have given Traffic Information anyway rather than attempt to provide any further separation. Therefore, the Board agreed that the cause of the Airprox report had simply been a TCAS sighting report. However, they considered it contributory that the PA24 pilot had reported the wrong altitude, which meant that the Oxford controller was not cued to provide Traffic Information to the C560 pilot who, in turn, might then have been able to avoid the TCAS warning. Given the separation achieved, the risk was determined to be Category E, normal safety standards had applied.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A TCAS sighting report.

Contributory Factor: The PA24 pilot reported the wrong altitude and therefore the Oxford controller was not cued to provide Traffic Information to the C560 pilot.

Degree of Risk: E.

ERC Score[6]: 10.

[6] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.