

AIRPROX REPORT No 2013102

Date/Time: 14 Jul 2013 1752Z (Sunday)

Position: 51 44N 001 24W
(6.7nm SE of Brize Norton)

Airspace: Brize Norton CTR (*Class:* D)

1st Ac **2nd Ac**

Type: Falcon 900 Beech 76

Operator: Foreign Mil Civ Pte

Alt/FL: 2800ft 2400ft
NK (1023hPa) QNH (NR hPa)

Weather: VMC CAVOK VMC CAVOK

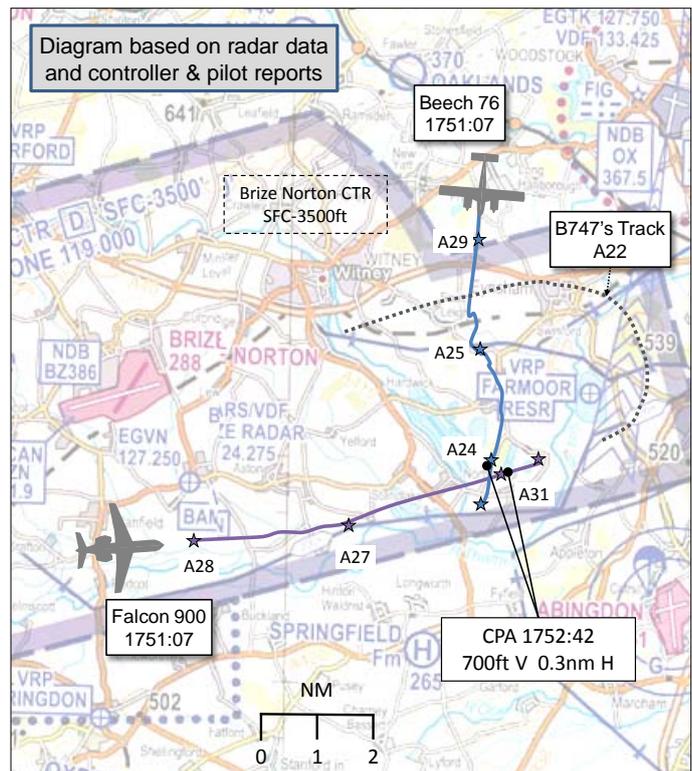
Visibility: >10km >10km

Reported Separation:

200ft V/0.5nm H NR V/NR H

Recorded Separation:

700ft V/0.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE FALCON 900 PILOT reports flying IFR, in VMC, level at 2800ft (1023hPa, he recalls), heading 085°, at 220kt, with navigation lights, strobe lights, red anti-collision lights and landing lights turned on, under a Deconfliction Service from Brize Norton ATC. He received Traffic Information on the Beech 76 and then saw it in straight-and-level flight. He subsequently received, and followed a TCAS RA against the Beech 76; he assessed the minimum separation achieved as 0.5nm horizontally and 200ft vertically.

THE BEECH 76 PILOT reports heading 190° at 130kt, cruising at 3500ft amsl, VFR in VMC, with transponder modes 3/A, C and S turned on. He was receiving a Basic Service from Birmingham ATC until he approached Banbury, where he elected to change frequency to Brize Norton LARS¹ on 124.275MHz; however he was unable to raise Brize Norton ATC on the published LARS frequency. As the Beech 76 approached the Brize Norton CTR, the pilot-side door came open, distracting the pilot; he managed to get the door to latch at the bottom but the top latch would not secure. By this time the aircraft was overhead the Brize Norton CTR, but the pilot reports that he was still unable to contact Brize Norton LARS on the radio. The pilot then noticed a B747 in his left, 11 o'clock, around 7nm away, at around the same altitude, turning left towards him. He initiated a left turn and a descent to 2400ft to remain clear of the B747, whilst attempting to keep it in sight through the pilot-side window; during the descent the pilot reports inadvertently entering the Brize Norton CTR but he recalls focussing on avoiding, and remaining visual with, the B747. When he saw the B747 start descending, he believed that it must be on the ILS and so he turned right, to track 90° away from the B747's track, before resuming his south-easterly heading at 2400ft, achieving an estimated minimum separation distance from the B747 of 5nm. He recalls placing 'many blind calls' to Brize Norton, in the hope that the B747 would also be able to hear him, and he then contacted Farnborough LARS for a Basic Service.

The Beech 76 Pilot subsequently telephoned Brize Norton ATC and reports that he had previously believed that the Brize Norton CTR was a MATZ rather than Class D controlled airspace. In his report he acknowledged his error but suggested that Brize Norton Zone controllers on 119.000MHz

¹ Lower Airspace Radar Service

should also listen out on 124.275MHz when the LARS is closed. He opined that, if this was possible, then it may help pilots who have mistakenly selected the wrong frequency.

He assessed the risk of collision with the B747 as 'None' but does not report seeing the Falcon 900.

THE BRIZE NORTON DIRECTOR reports her workload as 'Low' with 'Medium-to-Low' task difficulty whilst controlling two visiting aircraft (the B747 and the Falcon 900), both inbound to RW26. She saw the Beech 76, squawking Mode 3/A 7000, with a Mode C indication of 024, entering the Brize Norton CTR from around 2nm West of the Oxford Kidlington ATZ; it was tracking South to route approximately 6nm East of Brize Norton. The B747, which was level at 2300ft QNH, had been given a heading of 290° to intercept the ILS, and Traffic Information on the Beech 76 was passed to its crew. As the conflict progressed, the Director issued an avoiding action right turn to the B747 crew; they reported visual with the Beech 76 and confirmed they were happy to continue with their approach. The Falcon 900 was downwind in the radar pattern at 2800ft QNH; the Director observed the Beech 76, now indicating a Mode C of FL023, continuing south approximately 6nm ahead of the Falcon. He passed Traffic Information on the Beech 76 to the Falcon crew who responded that they could see the traffic and continued their approach. Shortly afterwards the Falcon 900 crew reported that they were following a TCAS RA against the Beech 76 and they climbed 200ft.

He perceived the severity of the incident as 'High'.

THE BRIZE NORTON ATCO I/C² reports operating in the Aerodrome Control position and observing the Airprox on the Hi-Brite³ display. As soon as it was apparent that the Beech 76 was going to enter the CTR he instructed the Director to issue avoiding action to the B747 crew; the B747 crew reported 'visual' and continued with the ILS approach. The ATCO I/C saw the Beech 76's track 'deviate slightly and turn behind the B747'. Shortly afterwards the B747 crew contacted the ATCO I/C and his attention was then focussed on their approach.

The pilot of the Beech 76 telephoned the ATCO I/C after landing to discuss the Airprox. The controller recalls that the pilot had mistaken the CTR (Class D airspace) for a MATZ (Class G airspace) and apologised; he also recalls that the pilot said he had been in visual contact with both the B747 and the Falcon 900.

Factual Background

The Brize Norton CTR exists from SFC to 3500ft AMSL; Brize Norton Zone, freq 119.000MHz, is available for Zone transits.⁴ Pilots wishing to enter the Brize Norton CTR must observe the normal procedure for joining Controlled Airspace and should make their request for entry 15nm or 5mins flying time (whichever is earlier) from the CTR Boundary. Pilots should make their request for Control Zone entry to BRIZE ZONE.⁵

Brize Norton LARS is available within a 60nm radius of Brize Norton from 0900Z to 1700Z in winter, one hour earlier in the summer.⁶

Brize Norton CTR information is also published as follows:

'Brize Norton Class D CTZ active H24, remain outside unless a positive clearance obtained on 119.0'⁷

'BRIZE NORTON CTR [D] SFC-3500' BRIZE ZONE 119.000'⁸

² Air Traffic Controller in-charge

³ Hi-Brite is a non-calibrated display showing the radar picture. It helps improve the Aerodrome Controller's situational awareness but cannot be used for controlling aircraft.

⁴ UK AIP ENR 2.1

⁵ UK AIP ENR 2.1.1.1.1

⁶ UK AIP ENR 1.6.3.6

⁷ Flight Information Publication, En-Route Supplement, British Isles & North Atlantic

⁸ Topographical Air Chart of the United Kingdom, 1:250,000, Sheets 7 & 8, Edn 9 (2013)

The Brize Norton weather at 1750 was:

METAR EGVN 141750Z 35007KT CAVOK 27/15 Q1022 BLU NOSIG

Analysis and Investigation

Military ATM

Given the date and time, Brize Norton ATC was operating with its normal shift manning of a Director and an Aerodrome Controller; the Aerodrome Controller was also operating as the ATCO I/C of the shift.

The incident was relatively complicated in that it involved an infringement of the Brize Norton CTR by the Beech 76 and a subsequent conflict between that aircraft and 2 aircraft, operating IFR, being vectored inbound to Brize Norton. This report deals solely with the reported Airprox between the Falcon 900 and the Beech 76.

The incident sequence commenced at 1751:07 as the Beech 76 entered the Brize Norton CTR without clearance from, and not in communication with, Brize Norton ATC. Figure 1 depicts the incident geometry at this point; SSR Mode 3A 4413 is the Falcon 900, SSR Mode 3A 7000 is the Beech 76 and SSR Mode 3A 7742 is an unrelated B747 also inbound to Brize Norton. Twenty-six secs previously, Director had issued a closing heading for the ILS to the B747, warning them of the presence of the Beech 76 outside the CTR. The Aerodrome Controller, who was the ATCO I/C of the shift monitoring the situation on the Hi-Brite display within the VCR, advised Director via the radar clearance line "if it [the Beech 76] comes in, avoid it." Shortly after, the Beech 76 entered the CTR and Director issued avoiding action to the B747.

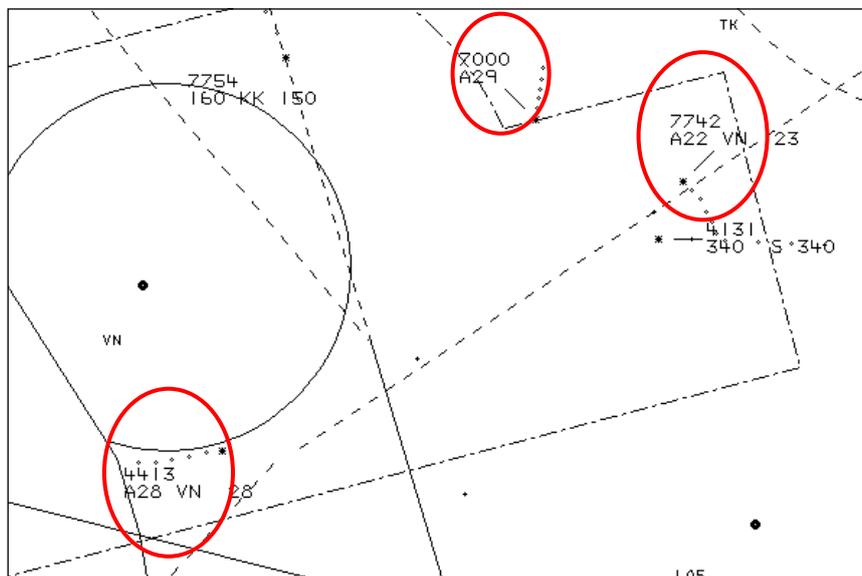


Figure 1: Incident Geometry at 1751:07.

After the conflict between the unrelated B747 and the Beech 76 was resolved, Director instructed the Falcon 900, at 1751:26, to "turn left heading 0-7-5. Traffic north-east, 5 miles, tracking south, indicating 300 feet below." The Falcon 900's pilot read back the control instruction and advised that they were "looking for traffic 5 miles north-east." Figure 2 depicts the incident geometry at the point that Director passed this Traffic Information. A vector of 075° is a standard downwind heading in use at Brize Norton to parallel the southern edge of the CTR.

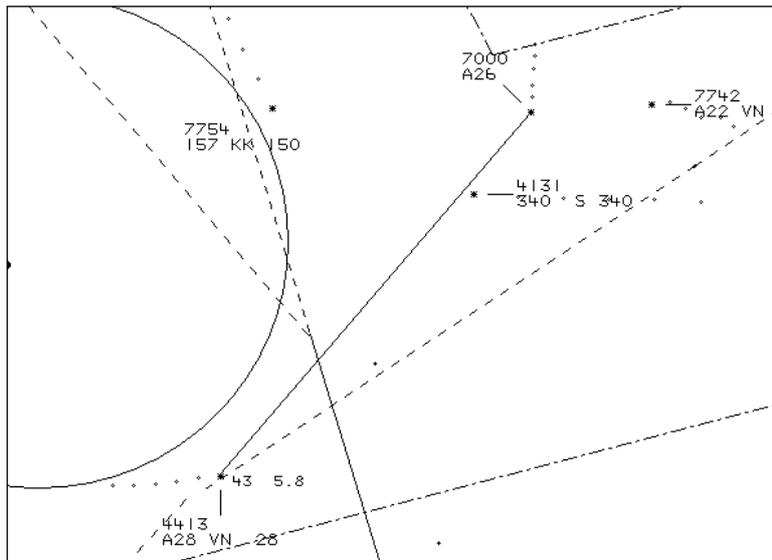


Figure 2: Incident Geometry at 1751:26.

Annex C to MMATM Chapter 11 states that:

‘Class D airspace is a known traffic environment in which aircraft require an ATC clearance to fly. In this context, an unknown aircraft is defined as a radar return which cannot be associated with an aircraft known by the radar controller either through direct communication or co-ordination. When providing a radar service to IFR aircraft within Class D airspace, controllers should...Give avoiding action if radar derived or other information indicates that a particular unknown aircraft is lost or has experienced radio failure...When taking lateral avoiding action, the controller should achieve standard lateral separation of 5nm whenever possible’.

Director was then involved in an exchange of R/T with the unrelated B747 until 1752:03, when they updated the Traffic Information on the Beech 76 to the Falcon 900, advising them “previously reported traffic now 11 o'clock, 4 miles, crossing left-right, indicating 100 feet below.” In reply, the Falcon 900 pilot advised Director that they were “visual with traffic.” Figure 3 depicts the incident geometry at this point.

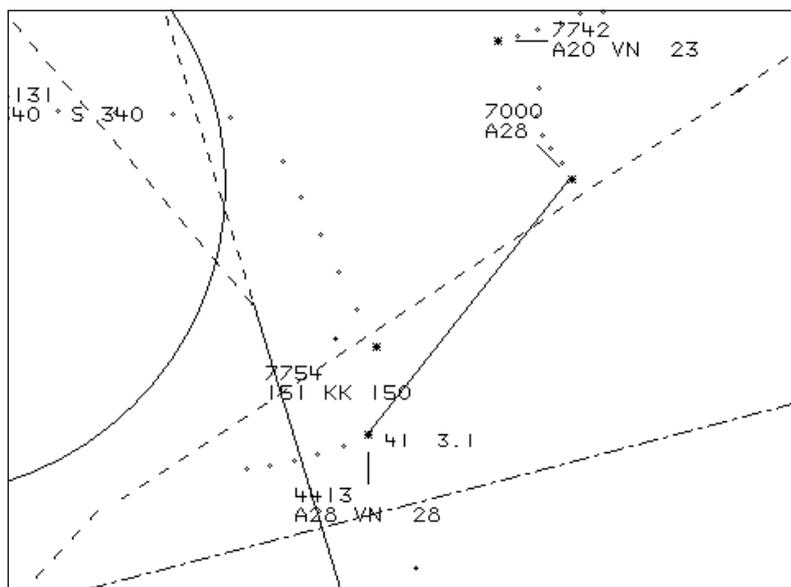


Figure 3: Incident Geometry at 1752:03.

Director acknowledged that the Falcon 900 was visual and then instructed them “cockpit checks, report complete.” Immediately, at 1752:17, the Falcon 900 pilot advised Director that they were

responding to a TCAS RA, and then reported at 1752:48 that they were “clear of conflict, remaining at 2300 feet.” The CPA occurred between sweeps of the radar replay at 1752:40, as the Beech 76 passed 0.3 nm North-North-West of the Falcon 900, indicating 700 ft below; figure 4 depicts the incident geometry at 1752:42.

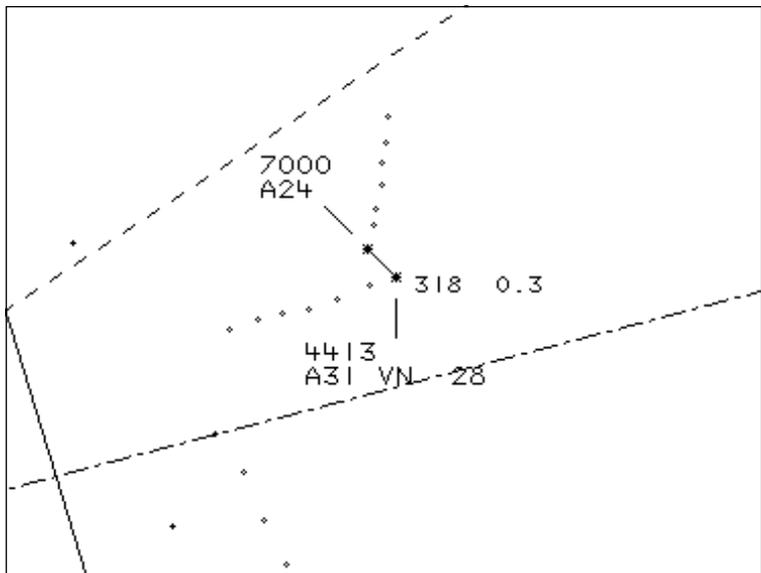


Figure 4: Incident Geometry at 1752:42.

The Beech 76 pilot’s report into the Airprox only relates to their sighting and avoidance of the unrelated B747, they do not report having sighted the Falcon 900. That said, the Brize Norton ATCO IC relates in their report that when they subsequently discussed the incident with the Beech 76 pilot, he ‘stated that he and his co-pilot were visual with both the B747 and the Falcon 900’. The Beech 76 pilot also states in his report that he was distracted prior to entering the Brize Norton CTR by the pilot side door opening in-flight and having to re-secure it; however the Brize Norton ATCO IC made no mention in their report of the Beech 76 pilot having explained to him about this distraction. When the Brize Norton ATCO IC was subsequently asked whether the Beech 76 pilot had mentioned on the phone about the door opening in flight, they confirmed that he did not. However, this distraction does not explain their belief that Brize Norton had a MATZ, nor why they had attempted to contact Brize Norton LARS to transit through the area. Brize Norton LARS is available within a 60nm radius of Brize Norton from 0900 to 1700 in winter, one hour earlier in the summer; the CPA occurred at 1752:40. On this basis, it is clear that the Beech 76 had infringed the Brize Norton CTR as a result of the pilot’s inadequate knowledge of the airspace in which they were operating. That notwithstanding, the ATM aspects of this incident require further examination.

From Director’s perspective the Beech 76 was unknown traffic and, given that it had infringed the Brize Norton CTR, it was reasonable for them to have assumed that the aircraft was lost. Consequently, rather than providing Traffic Information at 1751:26, Director should have immediately provided avoiding action to the Falcon 900 against the Beech 76. Unfortunately, this issue was not highlighted at the time by the Unit and, when asked subsequently about this Airprox, Director could recall little of the event and was thus unable to explain why they had not issued avoiding action. One hypothesis introduced by the unit was that following the B747 crew’s report that they were visual with the Beech 76, Director convinced themselves that the Beech 76 had assumed ‘known traffic status’ and thus they could treat the aircraft as a standard VFR transit and apply this status to the confliction with the Falcon 900. However, whilst a credible hypothesis, it is conjecture that is not based on the controller’s recall of the events which were nominal. Although the Aerodrome Controller was in a position to assist Director with the warning that they passed at 1751:05, they understandably then de-selected Director’s freq in preparation for controlling the B747, believing that Director would also provide the Falcon 900 with avoiding action. Consequently, the opportunity was lost for Brize Norton ATC to affect the incident outcome, other than to assist the Falcon 900 crew in visually acquiring the Beech 76. That said,

in terms of the Airprox itself, there was no risk of collision. The Falcon 900's pilot reported visual with the Beech 76 with approx 3nm lateral separation and did not request avoiding action, which was an option open to them as an IFR flight within CAS; the conflict was subsequently resolved by the Falcon 900 pilot's response to the TCAS RA.

Following this incident, SATCO Brize Norton reviewed the controller training package relating to the provision of an ATS to aircraft operating within the Brize Norton CTR. Whilst the review determined that the training package was 'fit for purpose' this incident will be incorporated into that package as well as additional safety promotion materials to highlight the hazard posed by aircraft infringing the CTR.

Summary

This Airprox occurred 6.9nm East-South-East of RAF Brize Norton, within the CTR, at 1752:40 on Sunday 14 Jul 13, between a Falcon 900 and a Beech 76. The Falcon 900 was operating IFR and recovering to Brize Norton for an ILS approach, in receipt of an ATS from Brize Norton Director. The Beech 76 was operating VFR and was not in receipt of an ATS nor talking to Brize Norton ATC.

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 began by discussing the actions of the Falcon 900 crew as it appeared that they had had visual contact with the Beech 76 but had still allowed themselves to fly close enough to cause a TCAS RA. It was noted that, as the Falcon 900 crew were flying IFR, and that they had not been informed that the Beech 76 had entered the CTR without clearance, they would have expected it to be VFR traffic, which is obliged to avoid IFR traffic in Class D airspace. Several pilot members informed the Board that it can be very difficult to judge if a conflicting aircraft is likely to cause a TCAS RA, so it was likely that the Falcon 900 crew were comfortable with the separation but the relative movement of the two aircraft had led to the RA, which they were obliged to follow.

The discussion then turned to the actions of the Beech 76 pilot. The Board agreed that the issue of his door coming open would have proved a significant distraction but, nonetheless, all members were clear that the pilot had displayed very poor understanding of the status of the Brize Norton CTR and had not planned well enough to enable him to transit this busy airspace safely. It was noted that the correct frequency for requesting CTR crossing is clearly published in the relevant maps and documents. The Board discussed the Beech 76 pilot's suggestion that Brize Norton ATC should continuously monitor the LARS frequency in case pilots select the wrong frequency; it was agreed that, whilst this might be a good practice when the controllers have the capacity, obliging them to monitor additional frequencies when they are busy on the correct published frequencies could create unnecessary distractions and make the management of the communication equipment more complicated.

There was considerable debate over the actions of the Brize Norton Director; some members believed that, on observing the unknown aircraft entering or about to enter the CTR, the controller could have immediately nipped the incident in the bud by simply selecting all available frequencies (including the LARS frequency) and transmitting blind that the pilot of the unknown aircraft should contact them on 119.0. Other members believed that the controller would not have had time to try calling the aircraft as it approached the CTR. Irrespective, the ATC members were clear that, once the Beech 76 had entered the CTR, all the controller's efforts should have been focussed on ensuring the aircraft under his control remained separated from the Beech 76 which, at that point, was an unknown aircraft that had entered controlled airspace without a clearance. Whilst the Falcon pilot had reported 'visual' with the Beech 76, the Director had a clear responsibility to offer the Falcon pilot avoiding action, or obtain positive confirmation that he was happy to continue taking responsibility for separation from the Beech 76. The Board noted that the B747 crew had reported visual and 'happy

to continue' against the Beech 76, and that some Members opined that the Director may have been reassured by their call and mistakenly treated the Beech 76 as 'known' traffic.

The Board discussed the cause of the Airprox. The Beech 76 pilot was clearly not prepared well enough for a transit through the CTR, and had the additional distraction of the door latch problem. The Director should have given the Falcon crew avoiding action to achieve the correct Class D airspace separation minima against the Beech 76, or confirmed that they were happy to take their own separation against it. The Board concluded that these were both contributory factors but that the primary cause was that the Beech 76 pilot had entered the CTR without clearance and had flown into conflict with the Falcon. The Board was not certain that the Beech 76 pilot had seen the Falcon 900, but the Falcon crew had certainly seen the Beech early on and the TCAS operated correctly and effectively; consequently it was agreed that effective and timely actions had been taken, and that the degree of risk was C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Beech 76 pilot entered the Brize Norton CTR without clearance and flew into conflict with the Falcon 900.

Contributory Factor(s):

1. Insufficient planning by the Beech pilot.
2. Brize Norton ATC did not comply with Class D separation minima against unknown traffic.

Degree of Risk: C

ERC Score⁹: 10

⁹ 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.