

## AIRPROX REPORT No 2010059

Date/Time: 3 Jun 2010 1114Z

Position: 5145N 00148W (8NM W  
Brize Norton - elev 287ft)

Airspace: Brize CTR (Class: D)

Reporting Ac Reported Ac

Type: VC10 PA28

Operator: HQ AIR (Ops) Civ Trg

Alt/FL: 2500ft ↓ 3000ft  
(QFE 1013mb) (N/K)

Weather: VMC VMC CLBC

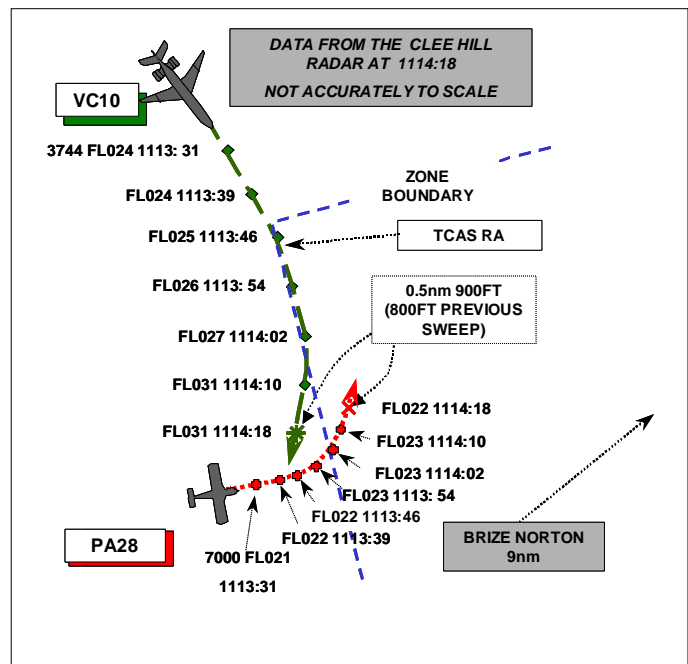
Visibility: 30km 15km

Reported Separation:

250ft Not Known

Recorded Separation:

800ft V 0.5nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE VC10 PILOT** reports that they were returning from an AAR task in receipt of a TS from Brize DIR at a busy stage of the flight, configuring the ac for the approach while 3nm N of the centreline for RW08 at 8nm. They were descending through 2000ft QFE at 250kt and heading 150°, about to initiate a left turn to capture the ILS localizer when they received a TCAS TA then an RA instructing a climb in respect of traffic which they had initially seen on TCAS at 7nm. Following the TA but prior to the RA, he instructed the crew to keep a good lookout due to the number of ac in the area and stopped the descent. ATC simultaneously warned of the contact and they became visual with it at about 3nm, so he initially initiated a gentle evasive right turn. The TCAS RA, however, instructed a climb so they followed it, climbing to 3000ft before getting 'clear of conflict'. The ac was in their 1230 crossing from right to left and, after they had followed the RA, the light ac passed down their left hand side about 300ft below them.

They reported the Airprox to DIR on the freq in use, and assessed the risk as being low.

**THE PA28 PILOT** reports that he was a student pilot [with a 'student' C/S prefix] in a blue and white ac with all lights on, squawking 7000 with Mode C. He was on a VFR cross-country training flight flying at 85kt and contacted Brize Radar for a TS but was instructed to stand-by due to high controller workload. There were several other ac trying to contact Brize and they were also told to stand-by. About 5–8min later he became unsure of his position and was orbiting around Cirencester [15nm W of Brize and outside the CTR]. He was in a high workload situation but was not able to fix his position at this time so he continued on his initial track for a short period and made another radio call to Brize Radar "student C/S unsure of position" and this was at about the same time as he saw a VC10 about 5nm away. The Radar Controller asked him if he was aware he was about to enter Controlled Airspace and he responded that he was not. Then she explained to him that he had to contact another agency (callsign and frequency unreadable) if he wished to enter controlled airspace and this led to some confusion; his position fix request was not answered.

He kept the VC10 in sight and there was a low risk of collision.

UKAB Note (1): Due to a change of procedures and unfamiliar personnel, although aware that an infringement resulting in a TCAS RA had occurred, Brize ATC was not aware that the incident had been reported as an Airprox until well after the event and only requested limited follow-up action.

**HQ Air BM SM** reports that the VC10 pilot's report, the tape transcripts from Brize Norton DIR and LARS and a Clee Hill radar recording were consulted in preparing this report; however there were no controller reports due to late notification of the incident by the unit. In addition, the SUP provided a report; however, this was in regard to the PA28 infringing the Brize CTR, rather than responding to the AIRPROX or the TCAS RA report made by the VC-10 pilot.

The VC10 was recovering to Brize IFR for an ILS to RW08. The PA28 was flown by a solo-student on a VFR Navex routeing from Filton to Wellesbourne, who had become unsure of his position. Based upon the PA28 pilot's reported airspeed and time taken to reach Cirencester after his initial call to LARS, he initially probably called them between 22 and 26nm W of Brize requesting a TS. This call does not appear on the LARS tape transcript and is wholly based upon the PA28 pilot's report. At this point the PA28 was instructed to standby due to the high workload of LARS.

At 1113:11 the PA28 re-contacted LARS stating that he was unsure of his position; at that point he was around 1.2nm from the Brize CTR, with the VC10 4.3nm directly to the N of him. At 1113:15, DIR provided the VC10 with TI regarding the PA28 reporting it as being, "*right one o'clock, 3 miles, crossing right left indicating 300 feet below.*" The TI was not acknowledged by the VC10 therefore it was repeated 15sec later; the PA28 was then on a constant bearing at a range of about 3.4nm.

CAP 774 states that under the terms of a TS, 'Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5nm, in order to give the pilot sufficient time to meet his collision avoidance responsibilities.' In the absence of a report from DIR to the contrary, it is reasonable to argue from their tape transcript her workload was low, with the VC10 probably the only ac on frequency. At that point when there was 5nm separation between the ac there is no recorded interaction between DIR and the VC10 for the previous 1min 31sec; there appears to be no reason for the lack of more timely TI to the VC10, which may have allowed the crew more time to react to the situation. However, in the absence of a report from the DIR, this is supposition.

At 1113:31, the VC10 pilot reported visual with the PA28 with the bearing staying roughly stable and the range reduced to 3nm. JSP 552 235B.105.3 'ATC Procedures in Class D Airspace' states that, 'when providing a radar service to IFR aircraft within Class D airspace, controllers are to give avoiding action if radar derived or other information indicates that a particular unknown aircraft is lost.' Brize ATC has confirmed that an ac recovering for an instrument approach is considered to be IFR, unless the pilot advises that he wishes to operate VFR. However, JSP 552 235B.105.3 also states that controllers are to 'pass TI and, if requested, provide avoiding action.' In this instance, given that the VC10 was in receipt of a TS prior to entering the CTR, that the crew had reported visual with the PA28 prior to entering the CTR, that they were on a self-positioned recovery and that DIR had advised the VC10 that the PA28 was, "*possibly shortly to enter the Zone*", it is reasonable to suggest that the VC10 crew had assumed responsibility for maintaining their own separation against the PA28 and that DIR had fulfilled his obligations within the terms of the service.

At 1113:26, the PA28 re-stated that he was, "*unsure of position, request a position fix.*" At that point, the PA28 was about 0.75nm W of the CTR, with the VC10 3.4nm to the N of the PA28. At 1113:33, LARS informed the PA28 that his position was Brize 280° 10nm and suggested a heading of 300° to remain outside the CTR. At that point the VC10 bears 357° at a range of 3nm. In ATM terms, the wording used by LARS in giving the PA28 pilot his position report was very precise and indicated that she could positively identify the PA28, despite no formal method of identification being used. This suggests that she relied on data from UDF to make the identification, allied with an element of confirmation bias that the ac approaching the CTR from the W (the PA28) would shortly call Brize. This latter argument is supported by the report from the SUP about their attention being brought 'to an ac approaching the Brize CTR from [the] west.' This suggests that at least one of the radar controllers was monitoring the progress of the ac towards the CTR and brought it to the SUP's attention.

At 1113:21 the VC10 levelled with the Mode C indicating 2400ft, then at 1113:46 a climb is indicated, suggesting that the pilot was responding to the reported TCAS climb RA. At the radar sweep beginning at 1113:55, the “gentle evasive turn” reported by the VC-10 is evident on the radar replay. While this does not accord precisely with the timeline reported by the VC10 pilot, the cockpit environment would have been busy and it is understandable that the timeline reported might have been slightly inaccurate.

By the time that the PA28 acknowledged the suggested turn (23sec after LARS passed the instruction at 1113:56), the PA28 was only 0.1nm from the CTR, with the VC10 bearing 356° at a distance of 1.6nm. However, the PA28 pilot read back an incorrect heading of 030°, with the turn visible on radar almost immediately. Seven sec later LARS restated the heading of 300°, a heading that placed the PA28 directly into conflict with the VC10. At no stage did LARS offer any form of TI to the PA28 regarding the VC10.

In their handling of the PA28, LARS demonstrated a poor awareness of the meaning of the “student” prefix to the callsign and the information suggests that her sole focus was to minimise the extent of the infringement of the CTR. The suggested heading of 300° degrees, towards the VC10 is further evidence of this focus and, potentially, of ‘attentional tunnelling’ on the part of LARS such that she was unable to perceive the conflict with the VC10. Further evidence to support an ‘attentional tunnelling’ hypothesis is the presence of the confirmation bias in the identification of the PA28’s position. Therefore, it is reasonable to argue that LARS was focussed on watching the PA28 tracking towards the CTR because of the unit’s history of CTR infringements. Again, without a report from LARS this is supposition based upon the available information.

The SUP should have been best placed to assimilate all of the available information, to perceive the risk of conflict between the VC10 and the PA28 and to have provided pro-active guidance to LARS on her actions. Even after LARS had issued the conflicting heading, although the available time in which to react was relatively short, the SUP should have perceived the inherent risk of collision due to heading of 300° instructed, countermanded the LARS instruction and given a more suitable heading.

A further disappointing aspect of this occurrence is the apparent lack of regard paid to the “student” prefix to the PA28 pilot’s callsign. CAP 413 requires controllers “in so far as is practicable, to make due allowance for the limited experience and ability of student pilots in determining the pace and complexity of instructions and/or information which are subsequently passed.” HQ Air considers that, in this instance due allowance was not given.

While both the VC10 crew and the PA28 pilot became visual with each other and the VC10’s TCAS RA climb resolved the conflict, the occurrence was unnecessarily complicated by the turn instruction issued to the PA28 by LARS.

**HQ AIR (OPS)** concurs with the HQ Air BM SM comments and notes that the adherence to TCAS RA information by the VC10 minimised the risk.

## **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, and reports from the military ATC authority and the VC10 operating authority. Since additional information had become available after the meeting when the incident was first considered and HQ Air BM SM (not represented at that meeting) considered the cause originally agreed to be erroneous the incident was referred back to the Board for further consideration.

[UKAB Note (2): After the first meeting, HQ Air BM SM provided additional information including transcripts of both the LARS and DIR frequencies, which necessitated a review of the incident. Significantly the VC10 pilot reported to DIR that he was climbing in response to a TCAS RA at 1113:58 (20 sec after the ac had entered the CTR). Also LARS requested the PA28 to turn left on to

a heading of 300° at 1113:33 when the ac was 0.5nm to the W of the Zone boundary, heading 080° (directly towards the CTR and instrument approach path); the PA28 pilot read back and turned onto 030° despite the heading being challenged by LARS. Although it is possible that a tight left turn would have prevented the PA28 from entering the CTR, it would not have prevented the conflict or probably the VC10's TCAS RA].

Members observed that this incident had been complicated since it took place on the boundary of the Brize Norton CTR (Class G). The Board concurred HQ Air BM SM's concern regarding the level service afforded to the PA28 student pilot. Although there were slightly differing accounts of events, when he reported that he was uncertain of his position, the PA28 student pilot was given little meaningful assistance by LARS. The radar recording and (limited) transcript confirmed that, although uncertain of his position, at the time of his [first recorded, see Note (2)] call to LARS the PA28 had been outside the CTR and the ac had entered the CTR after the pilot incorrectly took up a track of 030° rather than the 300° suggested by LARS. A military controller Member observed that, although the suggested heading of 300° might just have kept the PA28 out of the CTR, it had not been an appropriate heading to separate it sufficiently from the intended track of VC10. Members observed however, that had the pilot turned onto 300° when suggested (at 1113.33), the VC10's TCAS RA would most likely still have occurred and the incident would still have happened, albeit with slightly different geometry.

[UKAB Note (3): It appears that the PA28 pilot had called LARS stating that he was unsure of his position some time before the start of the Tape transcript; see also HQ Air BM SM report above.]

Experienced military controller Members observed that there had been no apparent dialogue between DIR and LARS to attempt to resolve the conflict and, although well placed to do so, the SUP had not taken charge of the situation and ensured that the respective controllers separated the ac by a suitable horizontal or vertical margin.

The Board discussed the implementation of IFR separation for ac entering Class D airspace and agreed that controllers should attempt to put this in place before ac enter the relevant airspace. In this case however, there was no other IFR traffic from which to separate the VC10, all other pertinent traffic being VFR; therefore only TI was required (and provided, albeit later than optimal). Notwithstanding this, one controller said that at his unit they attempt to separate ac from known contacts 3nm before Zone entry; HQ Air, after the first meeting, pointed out that although this is not mandated, some (other) units consider it good practice.

When considering the part played by the respective pilots, the HQ Air Member opined at the original meeting that the VC10 crew acted correctly on the information before them but, based on the pilot's report, two airline pilot Members thought that he might not have reacted in accordance with recognised TCAS procedures (See UKAB Notes (2) and (4)).

[UKAB Note (4): The VC10 pilot's report provided a short summary of his recollection of events that was open to interpretation. Following the concern that the VC10 pilot might not have complied with recognised TCAS procedures, a copy of the VC10 TCAS procedures was requested from HQ Air and a full TCAS analysis requested from NATS. The TCAS simulation (with down-linked RA data) showed that the VC10 crew complied fully and correctly with the RA 'climb', 'do not descend' and 'clear of conflict' commands. The transcript showed that the RA was reported correctly to DIR but the 'Clear of Conflict', although implied, was not reported. In view of this additional information, the VC10 pilot's report at Part (A) above has been amended slightly to reflect an accurate sequence of events based on the RT transcript and TCAS analysis, which became available after the first Meeting.]

Bearing in mind the additional information at UKAB Note (4), the Board agreed that the VC10 crew had reacted appropriately to the information presented to them and had seen the PA28 at 3nm. That being the case they had not contributed to the cause of the incident. Although the PA28 entered the CTR without clearance, albeit with the knowledge of and in receipt of an indeterminate service from LARS, the TCAS RA was triggered while the PA28 was outside the CTR. A combination of these factors led the Board to determine that the cause of the incident had been a conflict on the boundary

of Class G and Class D airspace. Controller Members opined that although not contributing directly to the cause of the incident, the overall service provided by Brize ATC to both ac had been disappointing. Since the pilots in both aircraft were visual with each other and the VC10 crew reacted correctly to their TCAS RA, the Board concluded that there was no risk of collision.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A conflict on the boundary of the Brize Norton CTR.

Degree of Risk: C.