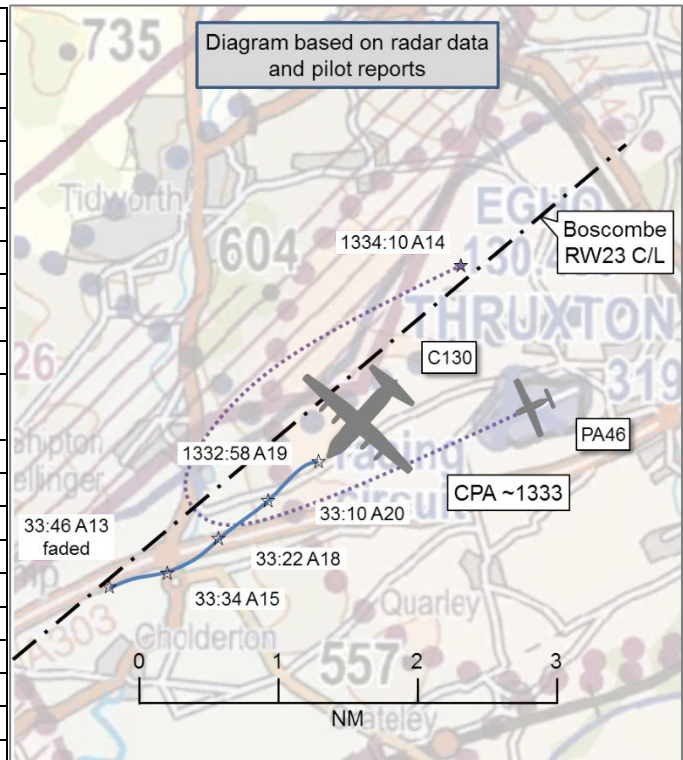


AIRPROX REPORT No 2018232

Date: 23 Aug 2018 Time: 1333Z Position: 5112N 00139W Location: 5nm NE Boscombe Down

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C130	PA46
Operator	HQ Air (Ops)	Civ FW
Airspace	CMATZ	CMATZ
Class	G	G
Rules	IFR	IFR
Service	Deconfliction	AGCS
Provider	Boscombe Down	Thruyton ¹
Altitude/FL	NK	NK
Transponder	A,C,S	A,C,S
Reported		
Colours	Green	White and red stripes
Lighting	White strobes	
Conditions	VMC	VMC
Visibility	10km	10km
Altitude/FL	2000ft	NK
Altimeter	QFE	NK
Heading	235°	NK°
Speed	140kt	190kt
ACAS/TAS	TCAS II	Unknown
Alert	TA	Unknown
Separation		
Reported	~100ft V/1nm H	Not seen
Recorded	Not recorded	



THE BOSCOMBE DOWN TALKDOWN CONTROLLER reports that he was controlling the C130 on a PAR. The C130 was left of centre line at 4.5nm when asked for a gear check; the speech was broken so a subsequent acknowledgement was requested. Gear was called down and at this point a conflictor (previously assumed as Thruyton visual circuit traffic) climbed and turned from left to right, 1nm in front of the C130. He transmitted '*[C130 C/S], traffic 12 o'clock, 1 mile, 100ft below, stop descent now*'. At this point the conflictor was at the same height as the glidepath and crossing left to right across the centreline. The C130 pilot stopped descent, allowing the conflictor to pass underneath. The controller transmitted on the Radar Clearance Line '*4 miles, [C130 C/S], continuing*'. Once the conflictor was clear the talkdown resumed.

He assessed the risk of collision as 'Low'.

THE C130 HERCULES PILOT reports that whilst on a PAR to Boscombe Down RW23 a light-aircraft was seen taking off from Thruyton and climbed left to right in front of their aircraft approximately 100ft lower and 1nm ahead. It was assessed that it would pass in front. A corresponding TCAS TA was observed. During this, the PAR controller called to stop descent which they did. There was no concern of mid-air collision from their perspective. Once the light-aircraft was clear, the approach was continued and the glidepath was recaptured.

He assessed the risk of collision as 'None'.

THE PA46 MALIBU PILOT reports that before departing from Thruyton he went to the Tower to obtain information about his departure. It was his first time at Thruyton. He was advised to call Farnborough

¹ In the process of changing frequency from Thruyton to Farnborough.

as first contact. He took off from RW27 [actually RW25], climbed to 1200ft, and made a right turn. On the downwind leg he called Farnborough and asked them to continue under IFR. His transponder was selected to 7000 and, on seeing this, Farnborough gave him 3000ft as an initial altitude. Because he did not receive an [IFR] clearance he called them again. They reported unable to find his flight-plan. He had filed and knew it was in the system. He called them several times because it was turbulent and his passengers were starting to feel really bad. After 10-15 minutes he finally received his IFR clearance and was issued with a new transponder code. He did not see the C130.

THE BOSCOMBE DOWN SUPERVISOR reports that he was present in the Approach Room. The departing traffic from Thrupton extended west outside their ATZ by another 0.75nm with a C130 on descent inbound on a PAR. Appropriate actions were taken by the PAR controller by calling traffic and levelling-off the C130. The Thrupton traffic turned onto an approximate heading of 040° and flew northeast close to and under the C130. The departing Thrupton traffic then squawked a Farnborough code, never calling Boscombe, maintaining a heading of 040° and did not follow SOPs by turning towards Andover. He called Thrupton and they informed him of the details of the aircraft, which was joining airways to the northeast. The Thrupton Air/Ground Operator reported that he had been visual with the C130 and had relayed the information to his departing traffic.

THE THRUPTON AIR/GROUND OPERATOR reports that the pilot of the PA46 was thoroughly briefed by him personally before departure. The PA46 departed at 1331 on RW25 and maintained the centreline before turning onto an east-northeast heading after approximately 2nm (ATZ Boundary). He advised the pilot about the C130 which was estimated to be 4nm northeast of Thrupton, making an approach to Boscombe Down RW23 just before he left the frequency. The pilot acknowledged the information. The PA46 was observed to be maintaining the usual altitude/level in accordance with the published procedures. The PA46 departed the Thrupton ATZ on an east-northeast heading to a point approximately 3nm north of Andover, remaining clear of the Boscombe Down ILS approach.

Factual Background

The weather at Boscombe Down was recorded as follows:

METAR EGDM 231250Z 30012KT 9999 SCT038 BKN250 20/11 Q1013 BLU NOSIG

Analysis and Investigation

Military ATM

The C130 was on a routine training flight and was conducting a PAR approach to MOD Boscombe Down under a Traffic Service. The PA46 had departed Thrupton and the pilot was attempting to obtain an Air Traffic Service from Farnborough and the activation of their IFR flight plan.

During the final stages of the approach at approximately 5nm, the Boscombe Talkdown controller became aware of a conflicting radar return on their screen which they believed to be Thrupton visual circuit traffic. As the confliction was only evident on one element of the PAR, Traffic Information was passed to the C130 pilot. Approximately 1nm later the conflicting traffic turned in front of the C130, and believing that there was a risk of collision, the Talkdown Controller instructed the C130 pilot to stop descent to ensure that the radar returns did not merge.

The C130 crew reported seeing the PA46 depart Thrupton before turning in front of their aircraft which resulted in them receiving a TCAS TA. Coincident with this, the Boscombe Talkdown controller issued an instruction to stop descent to prevent the radar returns from merging. This action was appropriate and in line with RA 3291(1) which states that when a collision risk is apparent in both PAR elements, the controller should pass advice on a suitable course of action for collision avoidance and that manoeuvres in the vertical plane should normally only result in stopping descent or applying a climb. Notwithstanding this action, the C130 pilot reported visual with the PA46 throughout and did not believe there was a risk of collision.

UKAB Secretariat

The C130 and PA46 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as converging then the PA46 pilot was required to give way to the C130³.

The UK AIP⁴ states the following Thrupton/Boscombe Down/Middle Wallop procedures:

Boscombe Down/Middle Wallop CMATZ

(a) *During Boscombe Down/Middle Wallop CMATZ hours of operation, it is a condition of use of Thrupton aerodrome that the flight procedures set out below are complied with. Information on the CMATZ activity status may be obtained from the A/G station.*

(ii) Departing to north/east/south-east

(1) *Leave the Thrupton ATZ at 1200 ft ALT (Thrupton QNH), or a maximum altitude to remain in VMC, not above 1200 ft ALT. Before climbing above 1200 ft ALT, either free-call Boscombe Zone (126.700 MHz) after leaving the Thrupton ATZ or delay further climb until clear of the CMATZ lateral limits.*

(iii) Departing to west/south-west/north-west

(1) *Prior to departure, notify flight details to Boscombe Down ATC via telephone (01980 663246). After departure, fly the north/east/southeast departure procedure and contact Boscombe Zone when leaving the Thrupton ATZ. Any SSR code allocated should be selected immediately prior to departure. If a westerly routing is approved by Boscombe Zone, and entry to the Thrupton ATZ is required, it must be at or above 1907 ft ALT. If a climb to 1907 ft ALT or a higher level is not possible, ATZ crossing approval is to be requested and obtained prior to ATZ entry.*

Traffic Information was issued to the C130 pilot at 1332:39 (Figure1). The PA46 is not visible on the radar replay, and was only portrayed on the PAR controller's screen, which is not recorded.

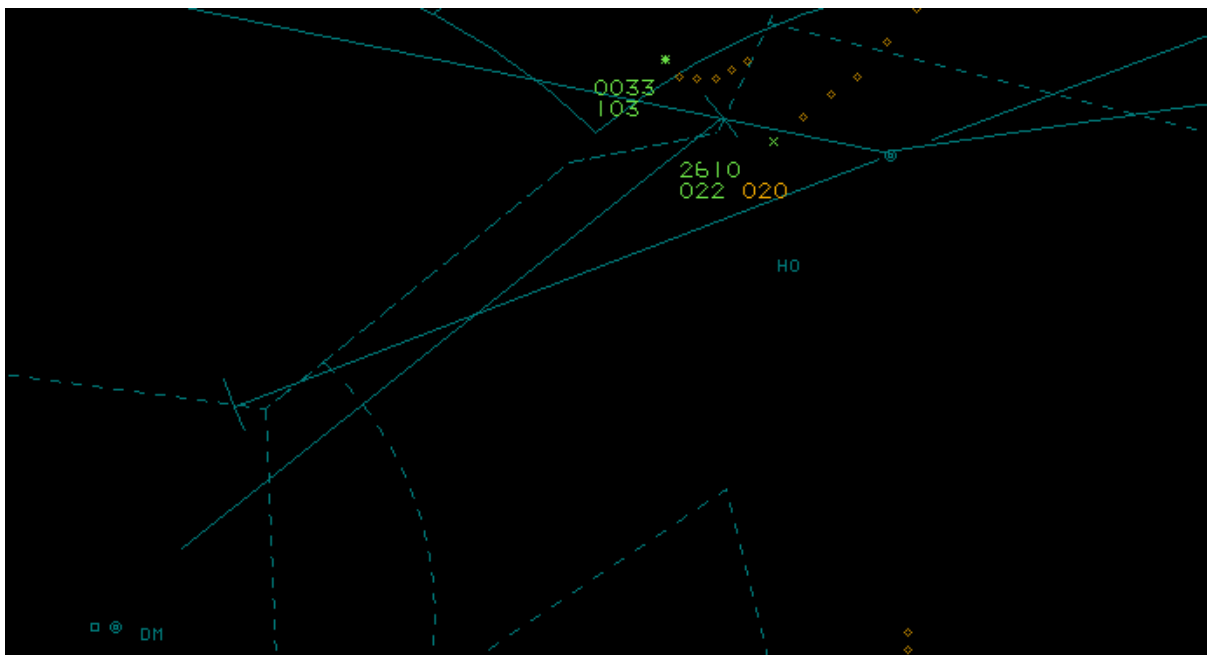


Figure 1 1332:39. C130 squawk 2610.

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c)(2) Converging.

⁴ AD 2.EGHO-6.

Comments

HQ Air Command

Thrupton is situated beneath the north-eastern MATZ stub of Boscombe Down; consequently, agreed procedures exist to maintain adequate separation between aircraft on approach to Boscombe Down RW23 and Thrupton traffic. On this occasion it appears that the PA46 pilot was informed about the 1200ft climb out restriction and that he should call Farnborough as his first contact. However, given his known intention to climb and join airways, it may have been more prudent to suggest contacting Boscombe Down on departure to coordinate with any traffic they might have on approach. It is not clear if the relevance of flight within the CMATZ was expressly mentioned to the PA46 pilot.

Where a procedural barrier failed in this instance, the existence of other barriers prevented a critical erosion of separation. The PA46 appeared on the PAR controller's displays and appropriate instructions were issued; the TCAS on the C130 interacted with the transponder on the PA46, and; the pilot of the C130 was visual with the PA46 from the moment it took off, allowing the C130 pilot to monitor the relative position of that aircraft and take action as required. Although not expressly stated in the report, this is likely the reason why the C130 pilot was comfortable continuing the descent to the extent that controller interjection was required.

This incident again demonstrates the need for a layered defence to mid-air collision. Procedures designed to prevent aircraft coming into proximity are fragile and can fail for many reasons. Thus vigilance and the employment of all other available barriers, at all times, is essential.

Summary

An Airprox was reported when a C130 and a PA46 flew into proximity on the Boscombe Down PAR approach path at 1333hrs on Thursday 23rd August 2018. Both pilots were operating under IFR in VMC. The C130 pilot was in receipt of a PAR Service from Boscombe Down and the PA46 pilot was in the process of changing frequencies from Thrupton to Farnborough.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller and Air/Ground operator concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board first discussed the actions of the PA46 pilot and noted that he had not been to Thrupton previously so he had visited the Tower to obtain a departure briefing from the Air/Ground operator. The Board commended him for this action, although it was not possible to determine what was detailed in the briefing or, more importantly, how much was assimilated by the PA46 pilot. The Air/Ground operator had reported that he had given the PA46 pilot a thorough briefing about his departure, and members surmised that, in accordance with the AIP entry, he probably suggested the PA46 pilot contact Farnborough during departure because they would possibly have his details from his flight plan and would help his climb above 1200ft. Since the Board meeting the Thrupton Air/Ground operator clarified that Thrupton would not notify Farnborough of the aircraft's details and the pilot of the aircraft would have to free-call. This was made clear to the PA46 pilot in his briefing. The Board wondered whether any mention had been made about contacting Boscombe Down, or the need to avoid the Boscombe RW23 approach.

Unfortunately, the PA46's departure routeing was not shown on the radar recording because it was below radar coverage until clear of the area. Notwithstanding, by using the R/T recordings, the Board were able to deduce the PA46's likely track and members held a lengthy discussion about whether the PA46 had left the Thrupton ATZ heading SW before turning to the northeast. After much consideration and measuring of the C130's range from Boscombe when its pilot was informed of the PA46 being 1nm ahead (about 4 to 4.5nm on the PAR), it was decided that the PA46 had travelled outside the Thrupton

ATZ as indicated by its notional track on the diagram on the front page. If this was the case, then the Board thought it would have been preferable for the PA46 pilot to have contacted Boscombe prior to Farnborough. The Board then turned its attention to what the AIP entry actually said in this respect and concluded that, its wording for 'Departing to north/east/south-east' was ambiguous because there was no mention that a departing aircraft had to remain within the Thruxton ATZ or else contact Boscombe; the only stipulation was to maintain an altitude of 1200ft until either contacting Boscombe or being clear of the CMATZ. In other words, as long as the PA46 pilot remained at 1200ft, he was free to route wherever he wished within the CMATZ. The Board then considered whether the PA46 pilot had remained at 1200ft, and concluded that he probably had because when the PA46 subsequently appeared on the radar display sometime after departure it was northwest of Thruxton and then only climbing through 1400ft. Agreeing that it was undesirable that there was such a degree of ambiguity about the operation of aircraft departing from Thruxton, the Board resolved to make a recommendation that Boscombe Down and Thruxton review their LoA.

The Board commended the Thruxton Air/Ground operator for passing Traffic Information about the C130 to the PA46 pilot, but were somewhat mystified that the PA46 pilot had not seen it. Some members wondered whether the PA46 pilot had become task focused on his routing and calls to Farnborough, or had been overly distracted by his passengers who he reported as being unwell.

For his part, the Boscombe Talkdown controller had appropriately instructed the C130 pilot to stop his descent when it became apparent that the radar returns of the two aircraft would possibly merge, and the Board also commended him for his prompt actions in this respect.

The Board then discussed the cause and risk of the Airprox. Because of the ambiguity of the LoA, it was decided that the cause did not relate directly to the PA46 pilot's routing given that he had appeared to comply with the letter, if not the desired outcome of the LoA. Notwithstanding, the PA46 pilot was required to give way to the C130, and had been given Traffic Information about it. Some members felt that the PA46 pilot had therefore flown into conflict with the C130 but others thought that this was somewhat unfair in that he had not seen the C130 and so could therefore not make a judgement about how to avoid it based on only generic Traffic Information. After considerable further discussion, it was agreed that the cause was best described as being a simple non-sighting by the PA46 pilot. As to the risk, although the PA46 had not obtained visual contact with the C130, the C130 pilot had seen the PA46 throughout. Additionally, the Talkdown controller had instructed the C130 pilot to stop his descent and so the Board considered that although safety had been degraded, there had been no risk of a collision and the incident was accordingly assessed as risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	A non-sighting by the PA46 pilot.
<u>Degree of Risk:</u>	C.
<u>Recommendation:</u>	Boscombe Down and Thruxton review their LoA.

Safety Barrier Assessment⁵

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

ANSP:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **partially effective** because the Boscombe and Thruxton LoA was ambiguous.

⁵ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Flight Crew:

Warning System Operation and Compliance were assessed as **partially available** because only the C130 was believed to have been equipped with an electronic warning system.

