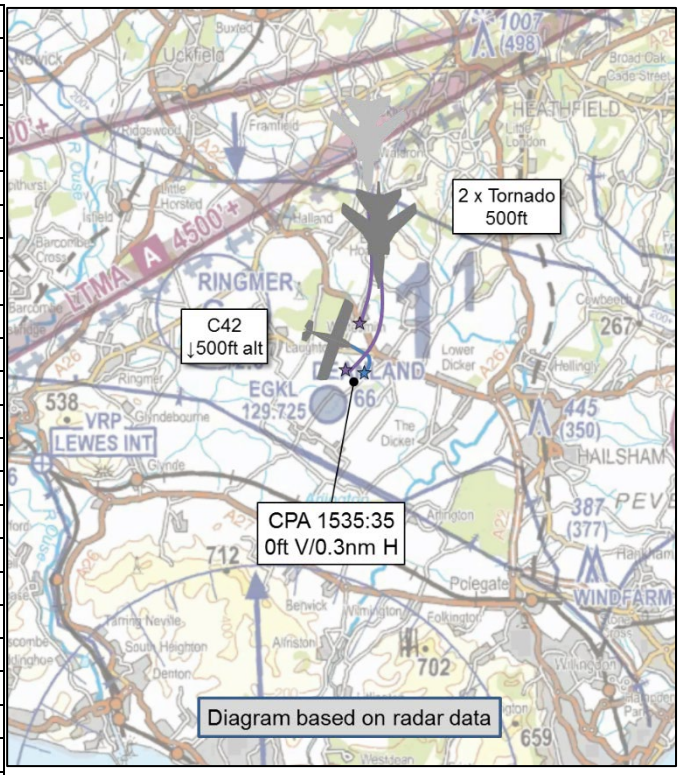
AIRPROX REPORT No 2018267

Date: 26 Sep 2018 Time: 1535Z Position: 5053N 00010E Location: Deanland

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	Tornado
Operator	Civ FW	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Provider		
Altitude/FL	500ft	500ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, Red	Grey
Lighting	Strobe	
Conditions	VMC	VMC
Visibility	30km	
Altitude/FL	300ft	800ft
Altimeter	QNH (1035hPa)	NK
Heading	240°	south
Speed	55kt	NK
ACAS/TAS	Not fitted	TCAS I
Alert	N/A	Information
Separation		
Reported	0ft V/250m H	'below'/1nm H
Recorded	0ft V/0.3nm H	



THE C42 PILOT reports that he was on final approach to land at Deanland and had been making blind-calls on the frequency. He heard a jet roar and knew that it was close even before he could see it, so he rocked his wings to attract attention. A second or two later he saw a jet fly past at 45° from his right-hand-side and at the same height. He estimated the jet missed him by 250m and the wake turbulence caused his aircraft to drop noticeably, so that he had to apply a large amount of power in order to regain the height.

He assessed the risk of collision as 'High'.

THE TORNADO PILOT reports that he was in a formation of two aircraft conducting a low-level sortie through LFA18. After approaching Ringmer glider site from the east, the formation turned south to coast out west of Eastbourne. During this turn the WSO called a pop-up contact on the TCAS approximately 4nm away, south and co-height. Almost simultaneously the No2 called the same traffic. The turn was continued onto south due to the proximity of Ringmer and, on roll-out, whilst the pilot looked for the traffic the WSO told the pilot to 'come right' to avoid the traffic based on the TCAS contact. Having done so both the pilot and the WSO gained visual contact with the traffic and climbed to increase the separation. During this manoeuvre the No1 flew directly over Deanland at 800ft with the No2 skirting down its south-eastern edge at 1600ft. Both Tornado pilots were now visual with the traffic which was passing below and approximately 1nm to the east of the formation. Having utilised the TCAS to avoid and ultimately gain visual contact with the traffic, neither crew considered the event to be an Airprox.

He assessed the risk of collision as 'Low'.

Factual Background

The weather at Shoreham was recorded as follows:

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METAR EGKA 261520Z 20007KT CAVOK 18/11 Q1032=
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Analysis and Investigation

UKAB Secretariat

Figures 1-4 are a series of screen shots taken from the NATS radar. At 1535:23 (Figure 1) the Tornados (squawking 1731 and 7001) are 1.3nm north of the C42 (squawking 7000). At 1535:31 (Figure 2), the No1 Tornado is indicating 500ft, as is the C42, and the separation is 0.5nm. CPA occurs at 1535:35 (Figure 3) when the separation is 0.3nm between the No1 Tornado and the C42. The next radar sweep (Figure 4), shows that the Tornado has climbed, as described in his report, and is indicting 900ft.

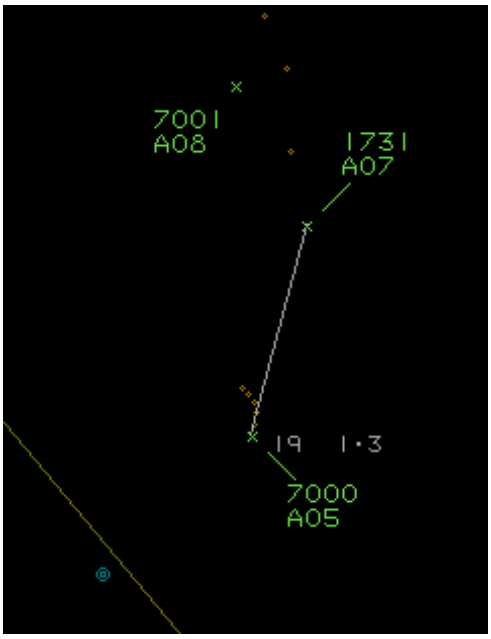


Figure 1: 1535:23

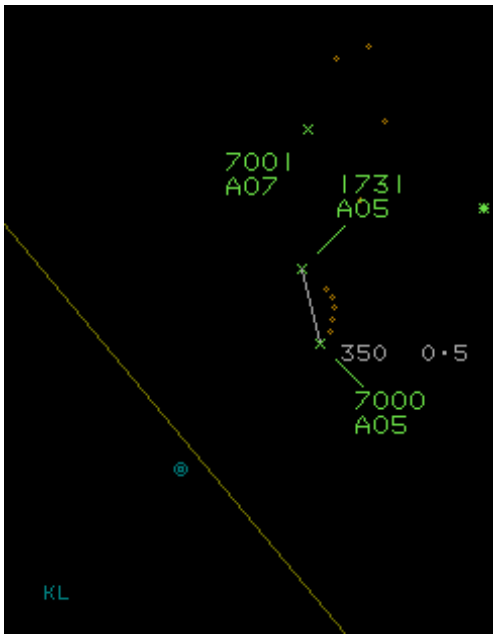


Figure 2: 1535:31

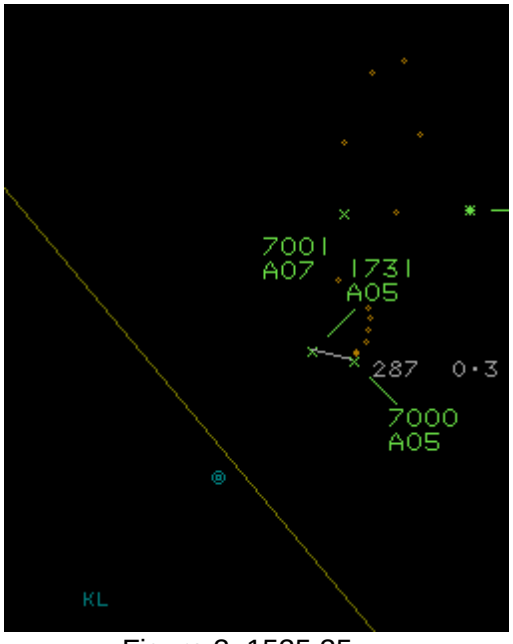


Figure 3: 1535:35

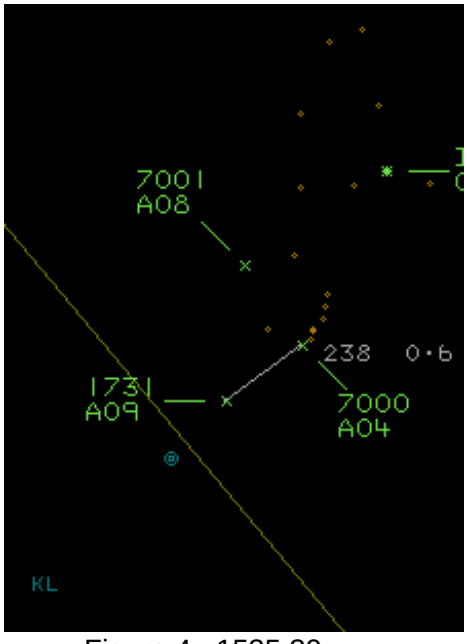


Figure 4: 1535:39

The C42 and Tornado pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[2].

Comments

HQ Air Command

The Tornado crews had planned the mission and submitted it to CADS, but since this system is not available to all users of Class G airspace – specifically the C42 in this encounter – the 'plan-to-avoid' barrier was ineffective. Equally, the ATS barrier was not employed due to the operating heights and location of the aircraft involved. However, The C42 was equipped with a transponder and was squawking and the Tornados are equipped with TCAS, which interacted with the C42's transponder. This cued the Tornado crews to the presence of another aircraft in the vicinity and action was immediately taken to attempt to increase separation from the perceived location of the TCAS contact. Clearly, there will be inaccuracies in range and bearing of the TCAS contact in such a dynamic environment and it is normal procedure for Tornado crews to act on the best information that they have at the time. In the process of avoiding the traffic indicated on the TCAS, the formation leader overflew the minor aerodrome at approximately circuit height. Whilst less than ideal, avoidance of the 'known' threat of the TCAS contact was the priority.

Deanland has no specific 'protection' as a minor aerodrome and, though the ICF is printed on the civilian aeronautical chart, it is not shown on the military 1:500,000 low flying chart but is available in the UK Military Low Flying Handbook (UKMLFHB). Given the dynamic and unplanned nature of the Tornados routing whilst avoiding the TCAS contact, it is unreasonable to expect the Tornado crews to note frequencies of en-route – or near-route – minor aerodromes from the UKMLFHB. However, it is also reasonable to expect that ICF information contained within the UKMLFHB be replicated on the military series charts; the RAF Safety Centre will engage with No1 AIDU in this regard.

Summary

An Airprox was reported when a C42 and a pair of Tornados flew into proximity at 1535hrs on Wednesday 26th September 2018. Both pilots were operating under VFR in VMC, neither were receiving an ATS, the C42 pilot was in the Deanland visual circuit and the Tornados were operating low-level.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots and radar photographs/video recordings.

The Board first looked at the actions of the C42 pilot. He was operating in the Deanland visual circuit and making blind-calls on the frequency. He heard, and then saw, the Tornados as they flew from behind and members agreed that he could not have been expected to see them any earlier. The Board noted that his transponder had triggered the TCAS in the Tornados, which at least alerted the Tornado crews to his presence, and this had undoubtedly resulted in them seeing the C42, demonstrating the benefits of electronic conspicuity.

For their part, the Board noted that the Tornado crews had booked into the LFS and had checked CADS for conflicting traffic. However, because the majority of GA does not have access to CADS, this would not have given them details of most GA traffic. Acknowledging that the Tornados were too low for an ATS, members noted that they were reliant upon their TCAS and see-and-avoid to provide

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 15.

warning of any traffic in the vicinity. Having therefore received a TCAS alert (the C42), some members wondered why they had still turned towards it and maintained their low-level altitude, Accepting that TCAS azimuth indications cannot be relied upon, members with military fast-jet experience opined that they could at least have raised their altitude in the knowledge that there was a specific threat (and minor airfield) to their south. Alternatively, although acknowledging that they needed to turn to avoid Ringmer gliding site, they could also have chosen a more south-westerly heading to keep clear of both Ringmer and the TCAS contact at Deanland. As it was, the Tornado crews continued towards the TCAS contact until they became visual; at their operating speed this gave them precious little time to visually acquire and then avoid the C42. Although Deanland did not have the protection of an ATZ, members noted that the airfield was marked on the military charts, although they accepted the HQ Air Command comment regarding the lack of an ICF on the military charts. Although the Board agreed that it was not feasible to suggest that fast-jet pilots call the ICF of every minor airfield that they pass, they accepted that the presence of an ICF on the charts might alert crews to the busier airfields, although there were other ways of indicating this more overtly they felt. In the end, the Board noted that the Tornado crews did see the C42, and that the lead pilot had climbed to increase separation. Whilst the radar screenshot indicated this climb as being after CPA, members believed that this was probably due to a lag in the radar and that the climb probably had made a material difference to the separation between the Tornado and the C42.

In determining the cause of the Airprox the Board agreed that because information on the C42 had been available on TCAS, the lead Tornado pilot had flown into conflict with the C42. With regard to the risk, members noted that the Tornado pilot had been visual with the C42 before CPA and they debated whether this had been at sufficient range to allow timely and effective action, or whether the visual acquisition had been close enough to consider the Tornado pilot's manoeuvre as emergency avoiding action. In the end the former view prevailed and, although safety had been reduced, the Board assessed that the manoeuvre had been timely and effective; risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The lead Tornado flew into conflict with the C42.

Degree of Risk: C.

Safety Barrier Assessment[3]

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

Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **ineffective** because the No1 Tornado crew flew through the Deanland pattern of traffic.

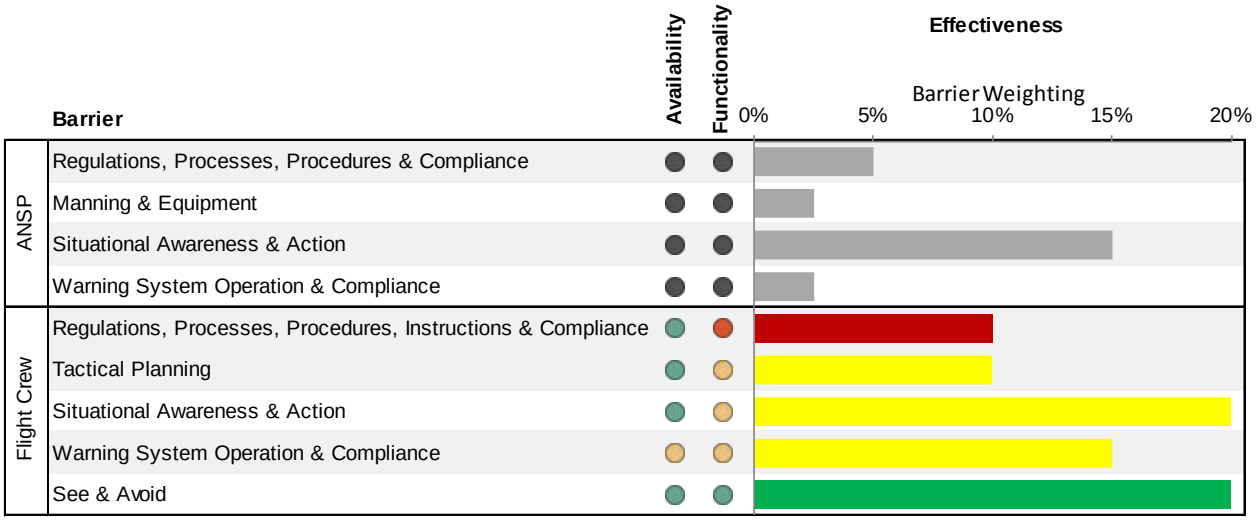
Tactical Planning was assessed as **partially effective** because although they were aware of its presence, the Tornado crews didn't sufficiently avoid Deanland.

Situational Awareness and Action were assessed as **partially effective** because the Tornado crews didn't sufficiently act on the information they had from the TCAS.

Warning System Operation and Compliance were assessed as **partially effective** because the Tornado crews had information on the C42 from their TCAS but did not fully resolve the conflict before flying too close to it.

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

Airprox Barrier Assessment: **2018267** - Outside Controlled Airspace



Key:

Availability	Fully Available	Partially Available	Not Available	Not Present
Functionality	Fully Functional	Partially Functional	Non Functional	Present but Not Used, or N/A
Effectiveness	Effective	Partially Effective	Ineffective	Not present / Not Used