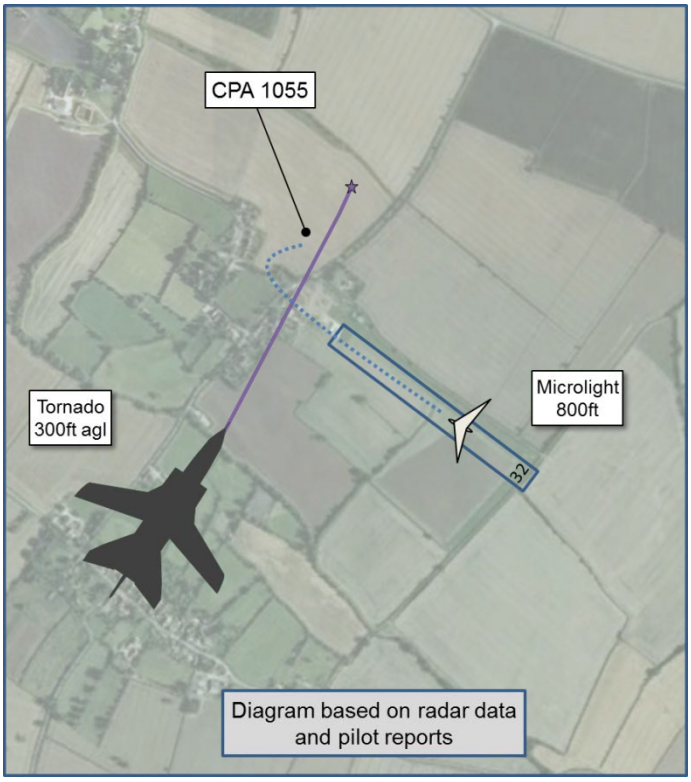
AIRPROX REPORT No 2015175

Date: 2 Oct 2015 Time: 1055Z Position: 5316N 00052W Location: Headon Airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Blade Microlight	Tornado
Operator	Civ Pte	HQ Air (Ops)
Airspace	Lincs AIAA	LFA 11
Class	G	G
Rules	VFR	VFR
Service	AGCS	None
Provider	Headon	N/A
Altitude/FL	NK	400ft
Transponder	Not fitted	A, C, S
Reported		
Colours	Green, Yellow	Grey
Lighting	Strobe	Strobes, Nav lights.
Conditions	VMC	VMC
Visibility	25km	10km
Altitude/FL	800ft	300ft agl
Altimeter	QNH (1028hPa)	Rad Alt
Heading	030°	030°
Speed	55kt	420kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	None
Separation		
Reported	300ft V/0m H	Not seen
Recorded	N/K	



THE MICROLIGHT PILOT reports that whilst turning right to position downwind for RW32 at Headon airfield, an RAF Tornado overflew the airfield at 500ft, passing below his aircraft and slightly to the right. There was no time to take avoiding action.

He assessed the risk of collision as 'High'.

THE TORNADO PILOT reports that they were informed of the Airprox a week after the event. They did not see the microlight at the time of the incident and subsequent review of their Head Up Display (HUD) and Forward Looking Infra-Red (FLIR) did not give a 'thermal cue' in the HUD to the pilot. He noted that although the aircraft was fitted with TCAS, there had been no indications, the most likely reason being that the microlight was not transponder equipped.

He assessed the risk of collision as 'Low'.

Factual Background

The weather at Cranwell was recorded as follows:

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METAR EGYD 021050Z 12005KT 9999 FEW018 SCT022 14/10 Q1027 WHT TEMPO FEW022 BLU=
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Analysis and Investigation

Military ATM

The Tornado was returning to base at low-level. The following RT conversation took place between the Cranwell Approach controller and the Tornado lead:

From	To	Speech	Time
Tornado	APP	Cranwell its [Tornado C/S] currently south-west of the field 10 miles and routing west up north towards Humberside, single Tornado do you have any traffic low level in that area?	10.51.14
APP	Tornado	[Tornado C/S] I have nothing known, just one motor glider operating north of Syerston no height information and the other tracks I have are well above you.	10.51.26
Tornado	APP	[Tornado C/S] that's copied, we're at Belvoir Castle tracking north	10.51.35
APP	Tornado	[Tornado C/S] Squawk Ident	10.51.37
APP	Tornado	[Tornado C/S] you're identified Basic Service and your current track I've no known traffic to effect	10.52.34
Tornado	APP	[Tornado C/S] copied.	10.52.40
Tornado	APP	[Tornado C/S] on route to the north low level.	10.54.49

The Radar Analysis Cell estimated that the Closest Point of Approach was at 1055:32.

The Cranwell controller supplied a Basic Service to the Tornado and had given generic Traffic Information following a position report. In the UK LFS the Tornado was unlikely to receive a Traffic Service due to the radar coverage. The controller was able to identify the Tornado briefly and confirm that there was 'no known traffic to affect' at 1052:34; the CPA was 3 minutes later and it is highly unlikely that the microlight would have provided a return on the Cranwell radar.

UKAB Secretariat

The microlight 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].

Occurrence Investigation

The unit involved conducted an Occurrence Safety Investigation (OSI) and noted that the co-ordinates given in the Mil AIP UKLFHB places the airfield approx. 0.5nm NNW of the depicted location, which contributed to the Tornado flying closer to the airfield than the pilot planned (Figure 1, the pilot's planned route with the site as annotated and the actual position of the microlight site shown in red). The OSI also considered a number of other factors, including: the suitability for low-level routing in the particular portion of the UK Low Flying System (LFS), the benefits of electronic conspicuity for GA, the importance of NOTAM'd and correctly plotted activity, a review of lookout procedures and a potential introduction of a VHF LL common frequency across the entire country. The incident was widely promulgated throughout the fast-jet community.

[1] SERA.3205 Proximity.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

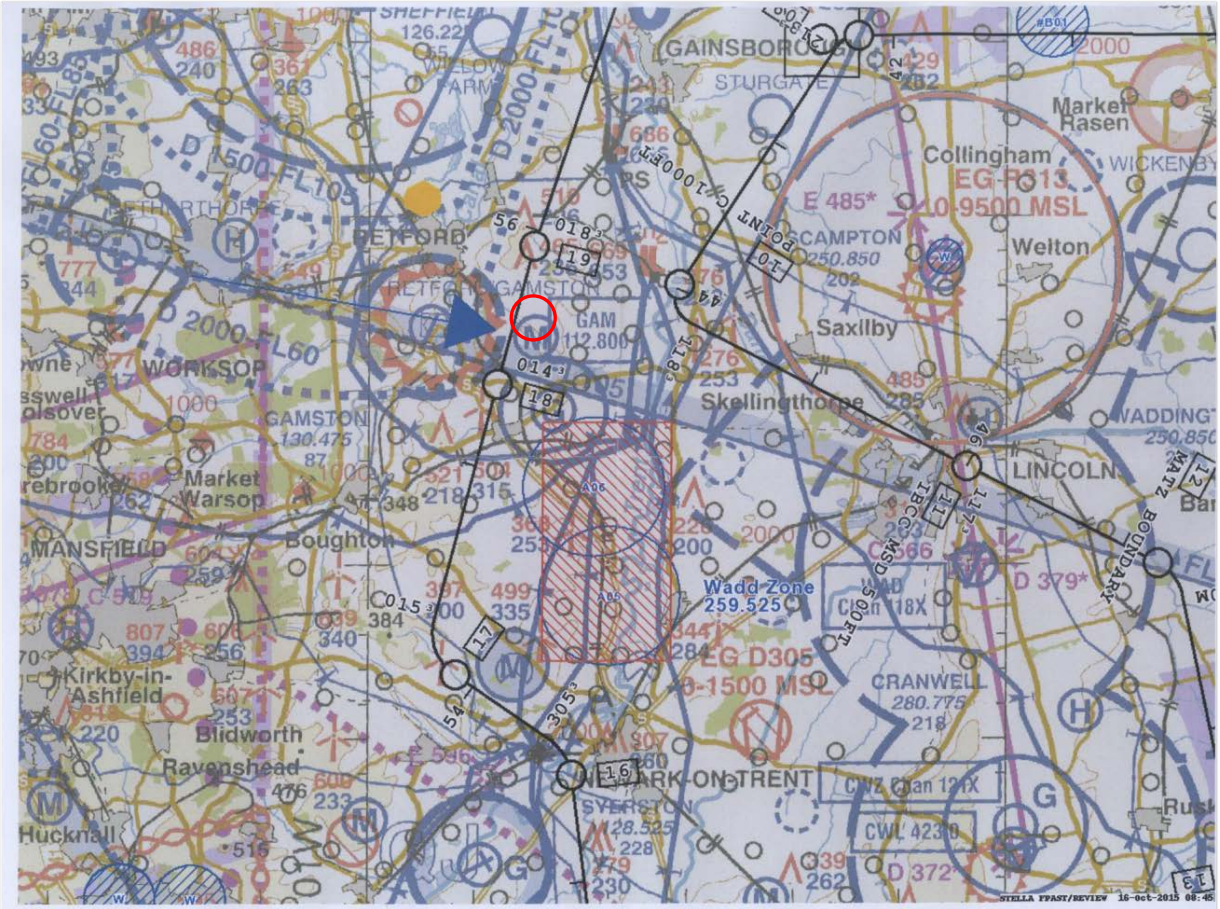

Figure 1

Comments

HQ Air Command

This incident demonstrates not only how difficult it is to spot a small microlight-sized aircraft when flying at low-level, but also how important it is to remain vigilant during all phases of flight – here it was the microlight pilot that saw the Tornado (albeit too late to take any avoiding action). Much was identified in the investigation that has now been addressed, including the discovery that the position of Headon Microlight Site given in the UKMLFHB and depicted on the UK military low flying charts is in error by approximately 1/2nm. Particular emphasis has been placed on strengthening multiple barriers to MAC: the VHF Low-level common frequency trial is ongoing in Scotland and robust evidence of its benefits is required if this is to become a reality across the whole of the UK; lookout training is under constant review and assessment and is now included in the synthetic environment where practicable; a review of the UK Low Flying System is underway and is due to report towards the latter half of 2016; the RAF Safety Centre has engaged with GASCo and asked that they advertise, through their publications and any other methods they deem appropriate, the benefits of additional conspicuity aids such as IFF – any activity that the CAA could undertake in this regard would be much appreciated. This incident has been widely publicised amongst military crews, highlighting the considerations of undertaking low level flying training in congested Class G airspace and also reinforcing the requirement to stay clear of the pattern of traffic formed at an aerodrome – no matter how 'minor' the aerodrome is.

Summary

An Airprox was reported when a microlight and a Tornado flew into proximity at 1055 on Friday 2nd October 2015. Both pilots were operating under VFR in VMC. Neither pilot was receiving an ATS; the

Tornado pilot had recently left the Cranwell frequency and descended to low-level, and the microlight pilot was in the Headon circuit listening out on the air-to-ground frequency.

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 and reports from the appropriate ATC and operating authorities.

The Board noted that the RAF had already conducted a thorough and detailed unit safety inquiry that had covered many salient points, identified remedial actions, and was being used as a learning tool within the fast-jet community. Without wishing to go over this old ground again, the Board felt that although he had been entitled to fly where he had in the Low Flying System (LFS), the Tornado pilot would probably have been better placed to have remained at height until further north due to the myriad of small airfields and avoidances in that particular area. Essentially, the Tornado pilot was threading the gap very finely between these airfields and, although his planned routing would have taken him clear of Headon airfield had it been marked on the charts correctly, he had left very little margin for error and would have been wiser to have allow himself much more room to manoeuvre. On an associated note, the military members informed the Board that a review of the LFS was currently being undertaken and, whilst its findings were not yet known, it will assess whether certain parts of the LFS were becoming too congested. The Board were also heartened to hear from the military low-flying representative that the military charts were being amended to place Headon in the correct position, and that a full quality assurance review of all other entries was being undertaken.

The Board noted that the Tornado aircraft had TCAS fitted but, because the microlight did not have a transponder, it was not visible to the system. Whilst recognising that battery life and weight were important issues for light aircraft such as this, Board members were aware of the growing availability of low-cost, portable transponders and wished to highlight to pilots their benefit. The CAA advisor informed the Board that a CAA Electronic Conspicuity Working Group report was about to be published on this issue, and that it was hoped this would provide guidance and recommendations to inform pilots of the importance of electronic conspicuity and associated options .

Turning to the cause and risk of the incident, the Board noted that the Tornado pilot did not see the microlight at all, and that a review after the event also did not show it in his head-up display video (although the narrow field of view of a head-up display can mean that if the geometry was not conducive then the other aircraft could very easily have been outside the field of view). In the absence also of any comprehensive radar recordings of the incident, members therefore had to rely on the assessment of separation made in the microlight pilot's report. In doing so, they recognised that he was no doubt surprised, and perhaps startled, by the sudden appearance of the Tornado, and that this may have affected his perception when he stated in his report that he had no time to take any avoiding action. Nevertheless, when discussing the cause of the Airprox the Board quickly agreed that it was a non-sighting by the Tornado pilot and effectively a non-sighting by the microlight pilot that had led to the incident. Given the likely high closure rate, and the fact that the microlight pilot assessed that the Tornado flew just 300ft or so beneath him, when assessing the risk the Board thought that chance had played a major part and that this was a Category A event.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A non-sighting by the Tornado pilot and effectively a non-sighting by the microlight pilot.

Degree of Risk: A.