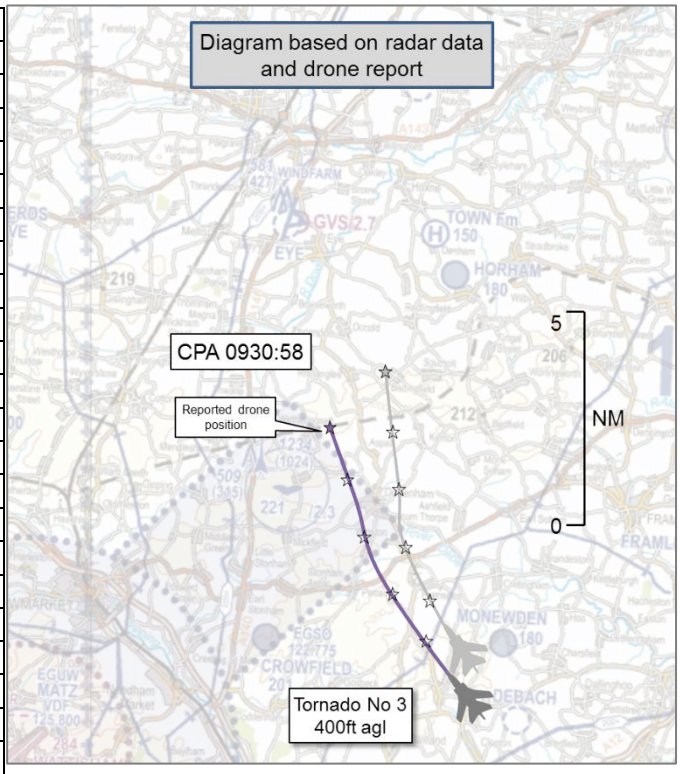
AIRPROX REPORT No 2018160

Date: 04 Jul 2018 Time: 0930Z Position: 5215N 00109E Location: 10nm NE Wattisham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Drone	Tornado
Operator	Civ UAS	HQ Air (Ops)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	N/A	Wattisham
Altitude/FL	NK	~400ft agl
Transponder	N/A	A, C, S
Reported		
Colours	Red, black	Grey
Lighting	Green, red LEDs	NK
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	328ft	400ft
Altimeter	agl	agl
Heading	180°	340°
Speed	8m/s (16kt)	450kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	None
Separation		
Reported	~25ft V/~250m H	Not seen
Recorded	NK	



THE DRONE OPERATOR reports carrying out an agricultural survey. Whilst the drone was heading south on a return leg, a Tornado passed from behind at high speed over the same field, heading north. The drone was put into a rapid descent, by which time the Tornado had passed the field.

He assessed the risk of collision as 'High'.

THE TORNADO PILOT reports he was No 3 of a 3-ship formation completing the low-level portion of the sortie in LFAs 5 and 10 of the UK Low Flying System. At the time of the reported Airprox, No 3 was the most westerly aircraft of the formation as they routed north-northwest past the eastern side of the Wattisham Airfield MATZ; the formation was in 2-way communication with Wattisham ATC. The formation was following the planned route, which had been entered on CADS, were on their planned timeline, and were also utilising the LL-Common R/T frequency to make other users aware of their location. There was no NOTAM evident in the area of the reported Airprox for drone activity; the closest notified UAS activity was at Honington. No element of the formation had any awareness of the drone activity associated with this reported Airprox.

THE WATTISHAM CONTROLLER reports that the Tornado formation were in receipt of a Basic Service and that no mention was made of an Airprox before the formation changed frequency.

Factual Background

The weather at Wattisham was recorded as follows:

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METAR EGUW 040950Z 08004KT CAVOK 19/09 Q1016 BLU NOSIG=
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Analysis and Investigation

UKAB Secretariat

The drone 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].

Comments

HQ Air Command

The Tornado crews had planned the mission in accordance with current procedures and had employed where possible all available barriers to MAC. The route had been entered onto CADS and there was no indication of drone activity in that area. The crews were also in receipt of an Air Traffic Service (ATS) – albeit a Basic Service – from Wattisham, though at the transit altitude of the Tornados it is unlikely that a surveillance-based ATS would be available. TCAS II is fitted to the Tornado but this barrier was also denied as the drone was not equipped with anything that could interact with the TCAS II. The only remaining viable barrier was lookout; the Tornado crews state that they did not see a drone in the location reported but thankfully the drone pilot saw the approaching Tornados and took appropriate action to increase separation by commanding the drone to descend.

The drone was operating some 10 miles on the extended centreline to a military airfield. Whilst not obliged to do so, a call to Wattisham informing the unit of the drone pilot's intended activity may have permitted this information to be passed to the transiting aircraft crews. Drones are particularly difficult to see, especially when looking from above as visual acquisition will be hindered by the background. The drone pilot is to be commended for his prompt action in descending his drone once he detected the presence of the Tornados.

Summary

An Airprox was reported when a drone and a Tornado flew into proximity at 0930hrs on Wednesday 4th July 2018. Both pilots were operating under VFR in VMC, the Tornado pilot in receipt of a Basic Service from Wattisham.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the drone operator and the Tornado pilot and radar photographs/video recordings.

Members first discussed the location of the drone pilot's operation and, although noting that he was operating entirely within regulations by being at 400ft and 10nm from Wattisham, agreed with the HQ Air Command comment that he could usefully have notified the Wattisham controller of his intentions. Members discussed how a drone operator might be made aware of such considerations and, noting the discussions from previous Airprox 2018069 where the Board thought that commercial drone operators at least should use a VFR chart during their flight planning and drone operating process, members commented that had he done so in this instance the chart would have clearly shown the drone operator his location in relation to the Wattisham extended centreline. The Board also commented that non-commercial drone operators could also use the Drone Assist App which would give similar information and warnings to aid their planning and operations.

Members then discussed the suitability of using a NOTAM for warning of drone activity and were informed by a CAA advisor that a NOTAM would not be issued in such circumstances because it did not constitute unusual aerial activity. Whilst the Board understood the rationale for such a policy, the fact remained that military low-flying aircraft did not currently have a mechanism whereby the crews

[1] SERA.3205 Proximity.

could increase their SA on the location and duration of specific drone operations. Unlike civilian aircraft, for which mid-air collision was mitigated to a large extent by the 400ft maximum height rule for drones and the 500ft minimum height rule for aircraft, military low-flying brought fast-moving aircraft down to the same operating altitudes as drones. That, coupled with the lack of aural or visual warning available to drone pilots in order to take timely avoiding action, and the low probability of sighting a drone from a fast-moving aircraft, resulted, in the Board's opinion, in a significant and largely unmitigated safety risk. Reflecting on the relative values of NOTAMs, PINS and CANP notifications, the Board therefore resolved to recommend that, 'HQ Air Command pursue the use of a system for notification of commercial drone operations to pilots operating in the UK Low Flying System'.

Turning to the incident itself, members agreed that the drone operator had sought to deconflict his aircraft from the Tornado at the first available opportunity, but that the Tornado's approach was so rapid that he had had little time to do so. Consequently, the Board agreed that the cause of the Airprox was a conflict in Class G resolved by the drone operator, but that safety had been much reduced below the norm.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G resolved by the drone operator.

Degree of Risk: B.

Recommendations: HQ Air Command pursue the use of a system for notification of commercial drone operations to pilots operating in the UK Low Flying System.

Safety Barrier Assessment[2]

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

ANSP:

Situational Awareness and Action were assessed as **ineffective** because the Wattisham controller was not aware of and could not detect the drone activity.

Flight Crew:

Tactical Planning was assessed as **partially effective** because the drone operator could usefully have contacted Wattisham.

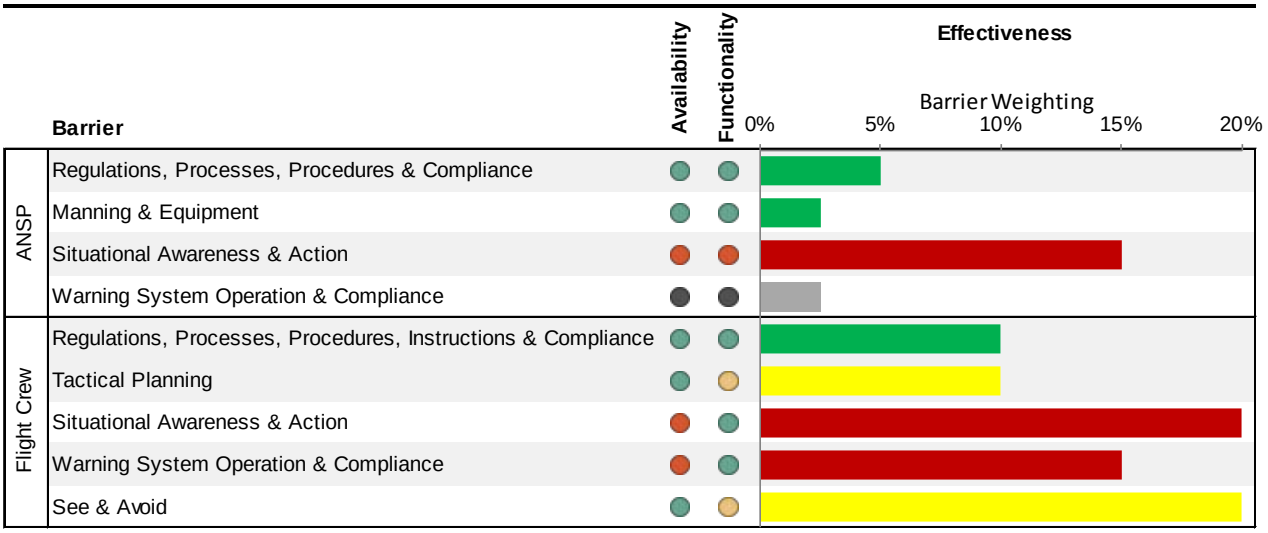
Situational Awareness and Action were assessed as **ineffective** because the Tornado crew was not aware of the drone at all and the drone operator was only aware of the Tornado as it passed in proximity.

Warning System Operation and Compliance were assessed as **ineffective** because the drone operator did not have a warning system and the Tornado TCAS could not detect the drone.

See and Avoid were assessed as **partially effective** because the drone operator detected the approaching Tornado in time to take action, albeit later than desirable.

[2] 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: **2018160** 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