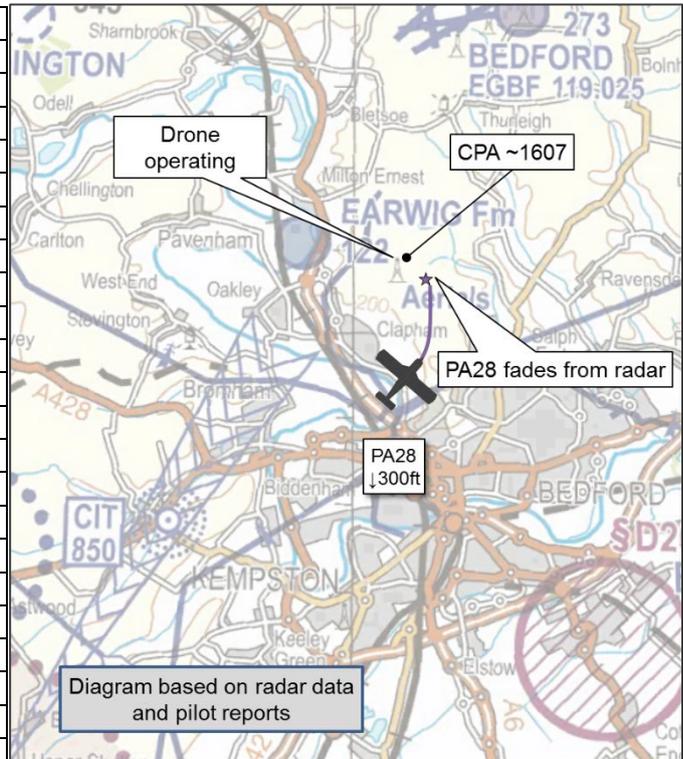


AIRPROX REPORT No 2018294

Date: 29 Oct 2018 Time: 1607Z Position: 5211N 00029W Location: 4nm N Bedford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Drone	PA28
Operator	Civ UAS	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Unknown
Provider		
Altitude/FL		
Transponder	Not fitted	A, C, S
Reported		
Colours	Black	
Lighting	LEDs	
Conditions	VMC	VMC
Visibility	>10km	
Altitude/FL	540ft	
Altimeter	QFE	
Heading	360°	
Speed	10kt	
ACAS/TAS	Not fitted	Unknown
Separation		
Reported	~500ft V/ ~500m H	NR
Recorded		NK



THE DRONE OPERATOR reports that he was conducting development flights of a 20kg Multi-rotor drone under EVLOS conditions at the former RAF site Twinwood Farm in accordance with Permissions issued by the CAA. A condition of the EVLOS permissions was the use of a NOTAM (1000ft agl/3km radius) which was initially issued in August 2018 and subsequently reissued on 26th October 2018 and valid to 31 December 2018. The drone was nearing the completion a sequence of 350m long ‘plough pattern’ legs at a constant height of 165m/540ft agl to test the capability of a camera payload.

The drone operator first noted the PA28’s presence to the SSE of his position at a height he estimated to be approximately 50-100ft, on what appeared to be a landing approach to the road/track he was standing on with his video operator. He alerted the payload operator, who was located 100m to his SSE, to the presence of this aircraft and noted that the aircraft’s configuration indicated that the PA28 was attempting to land on the road/track. The payload operator attempted to signal his presence to the PA28 pilot by waving his hands above his head, at which point he was

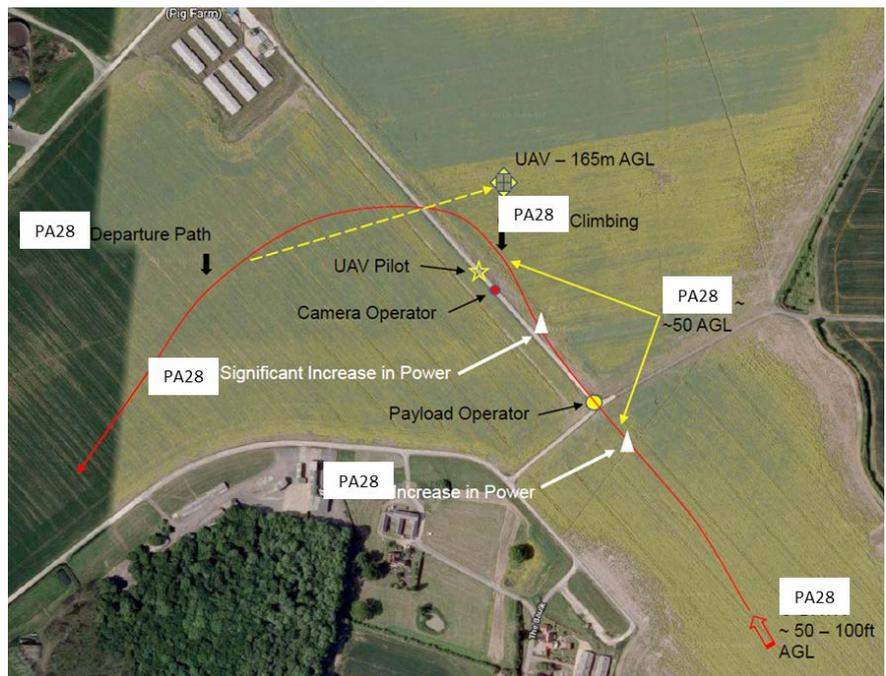


Figure 1

in the direct approach path and estimated that at this stage the PA28 was less than 45ft almost directly overhead his position. The drone operator continued to signal to the PA28 pilot the presence of the drone which was now above and just ahead of the aircraft. An abrupt increase in engine power was heard, and the PA28 appeared to take evasive action before climbing in a left-hand turn and departing to the southwest. The drone operator did not take any avoiding action due to the critical close proximity but instead decided to maintain the drone's station to minimise the chance of a collision. Figure 1 is the drone operator's diagram of the Airprox.

He assessed the risk of collision as 'High'.

THE PA28 PILOT chose not to file a report. However, in conversation with the UKAB secretariat he reported that he had been demonstrating a PFL when he saw the drone and drone operators, so he went around.

Factual Background

The weather at Cranfield was recorded as follows:

METAR EGTC 291550Z 02008KT 9999 FEW029 06/03 Q1004=

The following NOTAM was issued on behalf of the drone operator:

H5989/18: Unmanned flight will take place

EGTT/QWULW/IV/B0/W/000/013/5211N00030W002

UAS OPR EXTENDED VISUAL LINE OF SIGHT WI 2NM RADIUS OF
521044N 0002955W (CLAPHAM, BEDFORDSHIRE) MAX HGT 1000FT AGL. FOR
INFO 07801 368609 OR 07930 744028. 2018-08-0465/AS2

LOWER: Surface

UPPER: 1,300 Feet AMSL

FROM: 29 Oct 2018 09:00 GMT

TO: 31 Dec 2018 17:30 GMT

SCHEDULE: MON-FRI 0900-1730

UKAB Secretariat

The drone operator and PA28 pilot shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹.

Summary

An Airprox was reported when a drone and a PA28 flew into proximity at around 1607hrs on Monday 29th October 2018 at the former RAF Twinwood Farm. The drone was operating at 540ft, with CAA permission, and a NOTAM had been issued. The PA28 pilot was operating VFR, in VMC; it was not known whether he was in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the drone operator, and radar photographs/video recordings.

The Board first looked at the actions of the drone operator and noted that he was operating at 540ft with CAA permission, had issued a NOTAM, and could have expected that pilots would be aware of the activity. However, the Board highlighted that a NOTAM does not give the user sole rights to the

¹ SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

airspace, and other pilots are permitted to fly within the confines of a NOTAM, which is there to act as a warning about unusual activity. The drone operator's report indicated that, having observed the PA28 apparently making an approach to the disused airfield, the drone operator could see that the drone was not in direct conflict with the aircraft and that keeping it in position was the best form of avoiding action. Noting that the various drone operators on the track had maintained their position and were waving at the PA28 pilot to get his attention, some members commented that a better course of action would have been to move out of the way just in case the PA28 pilot had had a real emergency and was trying to land his aircraft.

Turning to the PA28, the Board acknowledged that there are frequently numerous NOTAMS giving details about drone operations, which can be overwhelming, but they nevertheless thought that the PA28 pilot should reasonably have known about this NOTAM which had been in force for some months. Members thought it likely that he was in the habit of using that road/track for teaching PFLs and, in probably being unaware of the NOTAM, was taken by surprise to see the drone team operating on it. Noting that he was conducting a PFL with a student, some members wondered whether it was normal practice to go so low during PFLs and were told by the GA members that, provided they did not fly closer than 500ft to any person, vessel, vehicle or structure², there was a lot of benefit to the student to go as low as possible, even touching down if permission was granted from the landowner.

In determining the cause of the Airprox, the Board quickly agreed that the PA28 pilot had flown through a promulgated and active NOTAM and into conflict with the drone. However, in assessing the risk of collision, the Board could not be certain how low the PA28 had flown before going around, and it was possible that, being startled by its approach, the drone operator might have thought that the PA28 was lower than it actually was. Members also emphasised that an Airprox was an incident between aircraft and it was not a matter for the Board to assess how close the PA28 had come to the drone operators. Some members thought there was insufficient information with which to come to a conclusion as to the risk of collision (Category D). However, others argued that there was, and that because the drone operator had assessed that the separation between the PA28 and the drone was sufficient to simply elect to keep the drone in position, although safety had been degraded there had been no risk of collision. In the end, the latter view prevailed and the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot flew through a promulgated and active NOTAM and into conflict with the drone.

Degree of Risk: C.

Safety Barrier Assessment³

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 PA28 made a low approach to the track which the drone operators were occupying and thereby not remaining 500ft clear of persons, vessels, vehicles or structures.

Tactical Planning was assessed as **ineffective** because the PA28 pilot did not make allowances for the NOTAM detailing the drone activity at the former RAF Twinwoods Farm site.

² ORS4 No 1174 – SEAR Exceptions to the minimum height requirements

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

Situational Awareness and Action were assessed as **ineffective** because the PA28 did not use the situational awareness gained from the NOTAM about the drone activity.

