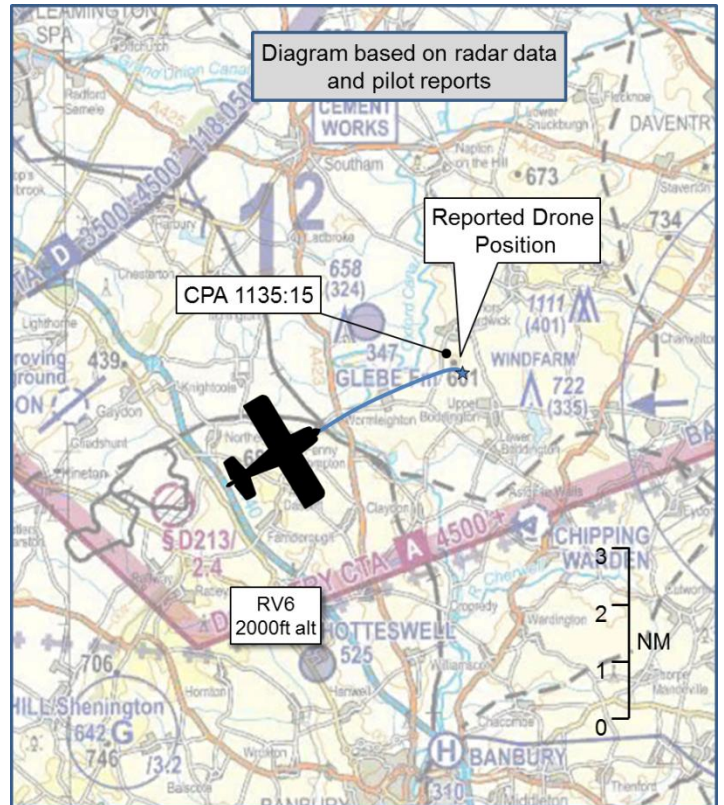


**AIRPROX REPORT No 2015084**

Date: 30 May 2015 Time: 1135Z Position: 5210N 00114W Location: Byfield, Northampton (Saturday)

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Vans RV6	Drone
Operator	Civ Pte	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	None	NK
Provider	Sywell	NK
Altitude/FL	NK	NK
Transponder	Mode A	NK
Reported		
Colours	White, Red	Red, yellow
Lighting	Anti-colls	Nil
Conditions	VMC	NK
Visibility	50nm	NK
Altitude/FL	2000ft	NK
Altimeter	QNH (1013hPa)	NK
Heading	063°	NK
Speed	150kt	NK
ACAS/TAS	Not fitted	NK
Alert	Nil	N/A
Separation		
Reported	0ft V/50ft H	NK
Recorded	NK	



**THE RV6 PILOT** reports that he had just switched to a listening watch on the Sywell frequency when he saw the red and yellow, 3-rotor drone. He reported that it was the type that can be easily bought in shops and not a commercial surveillance type vehicle. He took evasive action and the drone passed down the side of the aircraft and under its left wing.

**THE DRONE OPERATOR could not be traced.**

**Factual Background**

The weather at Cranfield was reported as:

METAR EGTC 301120Z 28009KT 240V320 9999 FEW045 14/04 Q1014

**UKAB Secretariat**

The Air Navigation Order 2009 (as amended), Article 138<sup>1</sup> states:

‘A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.’

<sup>1</sup> Article 253 of the ANO details which Articles apply to small unmanned aircraft. Article 255 defines ‘small unmanned aircraft’. The ANO is available to view at <http://www.legislation.gov.uk>.

Article 166, paragraphs 2, 3 and 4 state:

(2) The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.

(3) The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.

(4) The person in charge of a small unmanned aircraft which has a mass of more than 7kg excluding its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight must not fly the aircraft

(a) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;

(b) within an aerodrome traffic zone ...; or

(c) at a height of more than 400 feet above the surface unless it is flying in airspace described in sub-paragraph (a) or (b) and in accordance with the requirements for that airspace.

A CAA web site<sup>2</sup> provides information and guidance associated with the operation of Unmanned Aircraft Systems (UASs) and Unmanned Aerial Vehicles (UAVs).

The CAA has published a UAV Safety Notice<sup>3</sup> which states the responsibilities for flying unmanned aircraft. This includes:

'You are responsible for avoiding collisions with other people or objects - including aircraft.

Do not fly your unmanned aircraft in any way that could endanger people or property.

It is illegal to fly your unmanned aircraft over a congested area (streets, towns and cities).

Also, stay well clear of airports and airfields.'

In addition, the CAA has published guidance regarding First Person View (FPV) drone operations which limit this activity to drones of less than 3.5kg take-off mass, and to not more than 1000ft<sup>4</sup>.

## Summary

An Airprox was reported on 30<sup>th</sup> May 2015 at 1135 between a Vans RV6 and a drone. The RV6 pilot was flying VFR in VMC at 2000ft and was listening out on the Sywell frequency. He saw the drone pass down the left-hand-side of his aircraft 50ft away. The drone could not be seen on the NATS radars and the operator could not be traced.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from the pilots of the Vans RV6 and radar photographs/video recordings.

The Vans RV6 pilot was flying VFR at 2000ft and not receiving a radar service. It was unlikely that a drone would have been detected by the radar anyway, and the pilot managed to spot the drone, albeit at a late stage, and take some avoiding action. The Board were aware of the existence of 3 rotored drones, albeit normally used by hobbyists rather than commercial operators, and were also told about 'hexacopters' which have 3 arms and 6 rotors. However, given that the pilot thought the drone was like the type normally bought in shops, they thought it likely that this indicated that the drone was at the same level as the RV6 (2000ft) giving the pilot the impression of just 3 rotors.

<sup>2</sup> [www.caa.co.uk/uas](http://www.caa.co.uk/uas)

<sup>3</sup> CAP 1202

<sup>4</sup> ORSA No. 1108 Small Unmanned Aircraft – First Person View (FPV) Flying available at: <http://www.caa.co.uk/docs/33/1108.pdf>.

This led the Board to discuss the height at which the drone was operating. Even allowing for the fact that the ground was up to 6-700ft amsl in the area, the Board noted that the drone operator should not have been operating the vehicle at an altitude of 2000ft. The Board had previously been informed by representatives from ARPAS-UK<sup>5</sup> that it was unlikely that an operator could effectively control a drone at this altitude through direct visual contact alone, and that therefore it was probably being flown under First Person View (FPV). Providing the drone was below 3.5kgs, CAA regulation allows drones to be flown under FPV at heights of less than 1000ft (but also requires that operators have a competent observer present to assist with detecting and avoiding other aircraft). The Board thought that, although it might just be possible for an observer to be able to see a drone at a height of 1300-1400ft, it would be impractical to judge separation from other aircraft with any degree of accuracy (drone operators were also required to keep 50m away from any third parties, including other aircraft). Flying drones above 1000ft was, in any case, contrary to existing CAA regulations; the issue being whether this had been done knowingly or unknowingly. The Board also acknowledged the difficulty in policing and enforcing the regulations; unfortunately, the short battery life of drones means that, with a typical flying time of approximately 15 minutes, it is difficult for the police to respond and catch drone operators flouting the regulations. As in previous drone Airprox, the Board once again noted that a combination of technical solutions (such as geo-fencing), registration of drones, and education of drone operators was, in their opinion, key to reducing this type of Airprox.

When discussing the cause of the Airprox the Board quickly agreed that, because the drone was being operated at an altitude it should not have been, the reported drone was flown into conflict with the RV6. Although there was no radar data to measure the exact separation, the Board thought it was clear from the pilot's report that this was a fairly close encounter, and they assessed the risk as Category B, safety margins had been much reduced below the norm, but not quite to the point where separation had been reduced to the minimum.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The reported drone was flown into conflict with the RV6.

Degree of Risk: B.

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<sup>5</sup> Association of Remotely Piloted Aircraft Systems-UK.