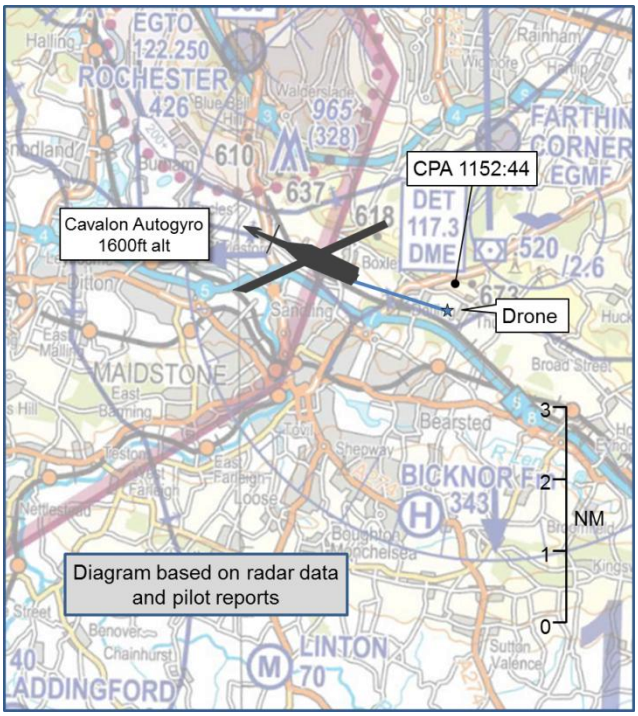
AIRPROX REPORT No 2015086

Date: 17 Jun 2015 Time: 1152Z Position: 5117N 00034E Location: Detling

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cavalon Autogyro	Phantom FPV Flying wing drone
Operator	Civ Trg	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	None	NK
Provider	Rochester	NK
Altitude/FL	1600ft	NK
Transponder	A,C,S	NK
Reported		
Colours	White	Yellow
Lighting	Strobes, Nav lights	NK
Conditions	VMC	NK
Visibility	10km	NK
Altitude/FL	1500ft	NK
Altimeter	QNH (1022hPa)	NK
Heading	South East	NK
Speed	70 kt	NK
ACAS/TAS	TCAS I	NK
Alert	Nil	
Separation		
Reported	0ft V/20m H	NK
Recorded	NK	



THE CAVALON AUTOGYRO PILOT reports that he was on a training flight, the visibility was good and the cloud base was above their cruising height. As they transited over Detling village they encountered a drone at 1500ft. It passed down the left side of the aircraft at a range of 20m. The instructor took control of the aircraft, slowed it down and, having ensured there was no danger to the aircraft, was able to take some photographs. They then continued with the sortie. By looking at the photographs later they were able to identify the drone as a 'Phantom FPV', which has a wing span of 1550mm and a weight of 900g. [UKAB Note: the Phantom FPV is a flying-wing drone rather than a quadcopter]. A member of ground staff at their home base mentioned that there was a model flying club at Thurnham and wondered whether the drone was being flown from there.

He assessed the risk of collision as 'High'.

THE PHANTOM FLYING WING DRONE OPERATOR could not be traced. RAC contacted a number of local model clubs, including Thurnham, who confirmed that the drone was not being operated from there.

Factual Background

The weather at Southend was recorded as:

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METAR EGMC 171150Z 26015KT 230V290 CAVOK 21/13 Q1022
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Analysis and Investigation

UKAB Secretariat

The Air Navigation Order 2009 (as amended), Article 138[1] states:

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

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[2] 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[3] 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[4].

[1] 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.
[2] www.caa.co.uk/uas
[3] CAP 1202
[4] ORSA No. 1108 Small Unmanned Aircraft – First Person View (FPV) Flying available at: http://www.caa.co.uk/docs/33/1108.pdf.

Summary

An Airprox was reported on 17th June 2015 at 1152 between a Cavalon Autogyro and a Phantom FPV drone. The autogyro was flying VFR and VMC at 1500ft when the pilot spotted the drone. They were able to slow down and take pictures of the drone, but unfortunately the drone operator has not been traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilot of the Autogryo and radar photographs/video recordings.

The Board noted, as it had on many previous Airprox involving drones, that nominally the drone should not have been at 1500ft. That being said, they also noted that there was hilly ground in the area of the Airprox that extended up to 670ft at a nearby spot height from which the drone operator may conceivably have been operating. Nevertheless, it was the height of the drone over the ground above which it was flying which was important and this was around 2-400ft depending on the exact location. CAA regulation states that drone operators must maintain direct unaided visual reference to the drone, sufficient to monitor its flight path in relation to other aircraft for the purpose of avoiding collisions. An exemption allows a drone of less than 3.5kgs to be flown up to altitudes of 1000ft using First Person View (FPV). Operators using FPV must have a competent observer to maintain the direct visual reference and to ensure that the drone remains 50m away from other aircraft, vessels or structure. It appeared to the Board that, at best, the drone was being flown right at the top of the 1000ft allowed height, if not above.

In looking at the actions of the Autogyro pilot, the Board noted that he was operating VFR in class G airspace in good visibility and using see-and-avoid as mitigation to prevent mid-air-collision. Unfortunately, the nature and size of the drone made early sighting difficult. He had had no time to take avoiding action, and it was only after the event that he was able to slow down and take some photographs.

The Autogyro pilot was not receiving an air traffic service at the time of the Airprox and, therefore, the police would not have been informed of the incident: as with many of these type of Airprox the drone operator could therefore not be traced. The Board noted that this type of Airprox was on the increase, and 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.

Because the drone was operating either at the top, if not above, the regulatory allowed height for FPV operations, this led the Board to identify the cause of the Airprox as the drone being flown into conflict with the Autogyro. Although there was no radar recording to measure the separation, the Autogyro pilot's report indicated that the drone was only 20m away when they passed, which indicated that separation had been reduced to a minimum, and that chance had played a major part in preventing the collision. They therefore assessed the risk as Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The drone was flown into conflict with the autogyro.

Degree of Risk: A.