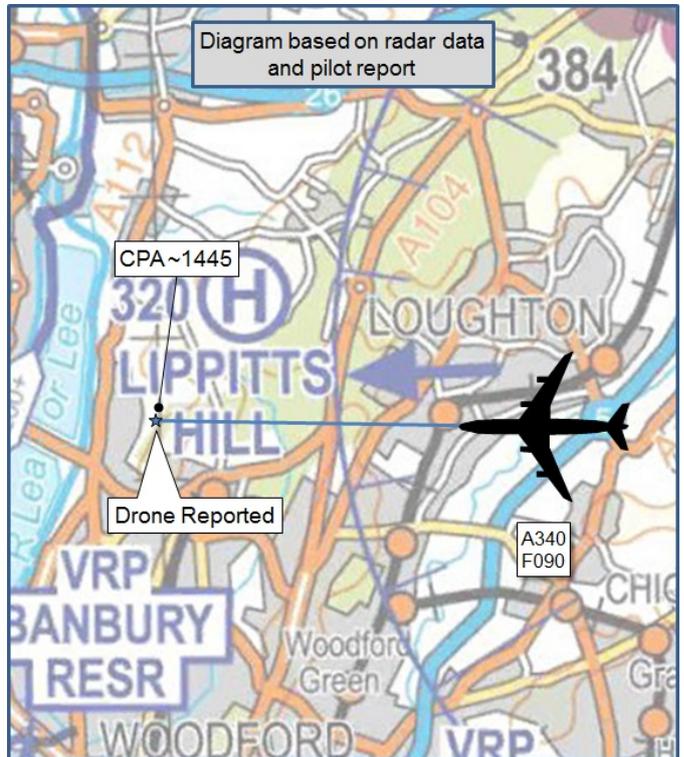


## **AIRPROX REPORT No 2016123**

Date: 28 Jun 2016 Time: 1445Z Position: 5138N 00001E Location: 5nm West of LAM VOR

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

| Recorded          | Aircraft 1         | Aircraft 2 |
|-------------------|--------------------|------------|
| Aircraft          | A340               | Drone      |
| Operator          | CAT                | Unknown    |
| Airspace          | London TMA         | London TMA |
| Class             | A                  | A          |
| Rules             | IFR                | IFR        |
| Service           | Radar Control      | None       |
| Provider          | Swanwick           | N/A        |
| Altitude/FL       | F090               | NK         |
| Transponder       | NK                 | NK         |
| <b>Reported</b>   |                    |            |
| Colours           | White, Red         | Red        |
| Lighting          | NK                 | NK         |
| Conditions        | NK                 |            |
| Visibility        | NK                 |            |
| Altitude/FL       | F090               |            |
| Altimeter         | QNH (1013hPa)      |            |
| Heading           | 270°               |            |
| Speed             | NK                 |            |
| ACAS/TAS          | Unknown            |            |
| Alert             | Unknown            |            |
| <b>Separation</b> |                    |            |
| Reported          | 100-200ft V/50ft H | NK         |
| Recorded          | NK                 |            |



**THE A340 PILOT** reports that he was in descent through F090 when a drone was sighted just below and to the right of the nose of the aircraft. The drone was a multi-copter type and passed about 100-200ft below his aircraft he estimated.

He assessed the risk of collision as 'High'.

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

### **Factual Background**

The weather at Heathrow was recorded as follows:

METAR EGLL 281320Z AUTO 20011KT 160V240 9999 SCT047 20/07 Q1013 NOSIG

### **Analysis and Investigation**

#### **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.'

Article 166, paragraphs 2, 3 and 4 state:

<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>.

'(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).

Additionally, 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).

..., stay well clear of airports and airfields'.

## Summary

An Airprox was reported when an A340 and a drone flew into proximity at 1445 on Tuesday 28<sup>th</sup> June 2016. The A340 pilot was operating under IFR in VMC and in receipt of a Radar Control Service from Swanwick. The drone pilot could not be traced.

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

Information available consisted of a report from the pilot of the A340, radar photographs/video recordings and a report from the air traffic controller involved.

There are no specific ANO regulations limiting the maximum height for the operation of drones that weigh 7kg or less other than if flown using FPV (with a maximum weight of 3.5kg) when 1000ft is the maximum height. Drones weighing between 7kg and 20kg are limited to 400ft unless in accordance with airspace requirements. Notwithstanding, there remains a requirement to 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. CAP 722 gives guidance that, within the UK, visual line of sight (VLOS) operations are normally accepted to mean a maximum distance of 500m [1640ft] horizontally and 400ft [122m] vertically from the Remote Pilot.

Neither are there any specific ANO regulations limiting the operation of drones in controlled airspace if they weigh 7kg or less other than if flown using FPV (with a maximum weight of 3.5kg) when they must not be flown in Class A, C, D or E, or in an ATZ during notified hours, without ATC permission. Drones weighing between 7kg and 20kg must not be flown in Class A, C, D or E, or in an ATZ during notified hours, without ATC permission. CAP722 gives guidance that operators of drones of any weight must avoid and give way to manned aircraft at all times in controlled Airspace or ATZ. CAP722 gives further guidance that, in practical terms, drones of any mass could present a particular hazard when operating near an aerodrome or other landing site due to the presence of manned

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

<sup>3</sup> CAP 1202

aircraft taking off and landing. Therefore, it strongly recommends that contact with the relevant ATS unit is made prior to conducting such a flight.

Notwithstanding the above, all drone operators are also required to observe ANO 2016 Article 94(2) which requires that the person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made, and the ANO 2016 Article 241 requirement not to recklessly or negligently cause or permit an aircraft to endanger any person or property. Allowing that the term 'endanger' might be open to interpretation, drones of any size that are operated in close proximity to airfield approach, pattern of traffic or departure lanes, or above 1000ft agl (i.e. beyond VLOS (visual line of sight) and FPV (first-person-view) heights), can be considered to have endangered any aircraft that come into proximity. In such circumstances, or if other specific regulations have not been complied with as appropriate above, the drone operator will be judged to have caused the Airprox by having flown their drone into conflict with the aircraft.

Members noted that the drone was reported at FL090 and therefore beyond practical VLOS conditions. Also, in flying as it was within Class A airspace without the permission of Swanwick ATC, the Board considered that the drone operator had endangered the A340 and its occupants. Therefore, in assessing the cause, the Board agreed that the drone had been flown into conflict with the A340. Turning to the risk, although the incident did not show on the NATS radars, the Board noted that the pilot had estimated the separation to be 50ft from the aircraft, at about 100-200ft below the aircraft, and that avoiding action had not been taken.. Acknowledging the difficulties in judging separation visually without external references, the Board considered that the pilot's estimate of separation, allied to his overall account of the incident, portrayed a situation where safety had been much reduced below the norm; they therefore determined the risk to be Category B.

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

Cause: The drone was flown into conflict with the A340.

Degree of Risk: B.