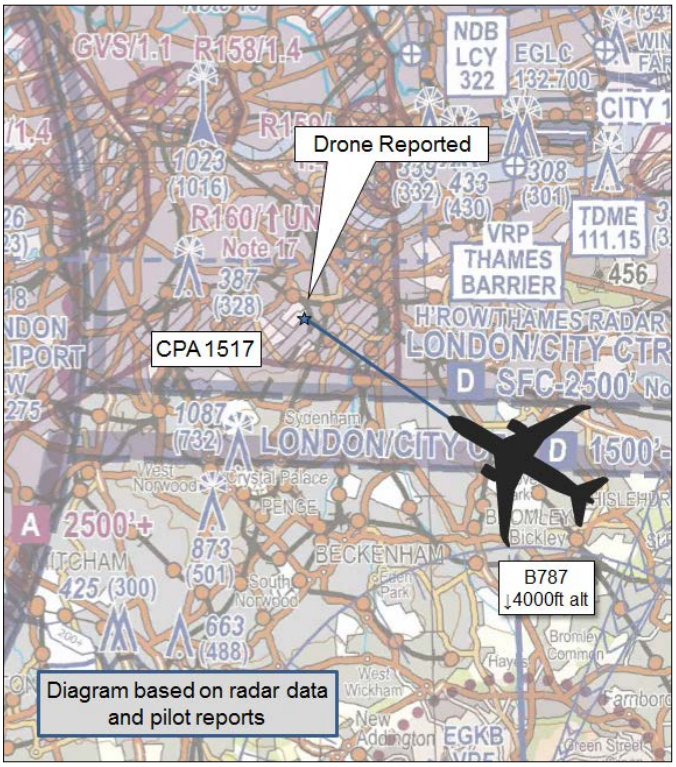
AIRPROX REPORT No 2016263

Date: 11 Dec 2016 Time: 1517Z Position: 5127N 00003W Location: Heathrow

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B787	Drone
Operator	CAT	Unknown
Airspace	LTMA	LTMA
Class	A	A
Rules	IFR	
Service	Radar Control	
Provider	Heathrow Director	
Altitude/FL	4200ft	
Transponder	A, C, S	
Reported		
Colours	Company	White
Lighting	Not reported	
Conditions	Not reported	
Visibility	Not reported	
Altitude/FL	4200ft	
Altimeter	NK	
Heading	Not reported	
Speed	Not reported	
ACAS/TAS	TCAS II	
Alert	Unknown	
Separation		
Reported	100-200m H	
Recorded	NK	



THE B787 PILOT reports that on approach to the OCK VOR a general transmission was made that there was a PIREP of a drone at approx 18nm on the approach to RW27 at Heathrow. They were vectored from OCK onto a downwind leg for RW27 and, whilst turning base leg to intercept the final ILS leg at approx 15nm west of the runway, the drone was spotted by the First Officer. He estimated it was 100m away to the right. It was seen in the 1 o'clock, moving to 2-3 o'clock as they flew by. However, they suspected it was stationary in the space between the RW27L&R approaches. It was a white four-rotor drone and was just below them.

He perceived the severity of the incident as 'Medium'.

THE DRONE OPERATOR could not be traced.

SWANWICK ATSI reports that the B787 was being controlled by the Heathrow FIN controller under Radar Control on approach to RW27L at Heathrow. The pilot did not report the event to ATC either on the FIN controller's frequency or that of Heathrow Air arrivals, therefore the report was filed retrospectively by Swanwick ATSI.

Factual Background

The weather at Heathrow was recorded as follows:

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METAR EGLL 121450Z AUTO 15007KT 080V220 4500 -DZ OVC005 09/08 Q1021 RERA REDZ TEMPO
3000 BKN004
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Analysis and Investigation

UKAB Secretariat

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 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.

A CAA web site[1] 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[2] 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 a B787 and a drone flew into proximity at 1517 on Sunday 11th December 2017. The B787 pilot was operating under IFR and in receipt of a Radar Control Service Service from Swanwick. The drone operator could not be traced.

[1] www.caa.co.uk/uas
[2] CAP 1202

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the B787 pilot, radar photographs/video recordings, and reports from Swanwick ATSI.

Members noted that the drone was operating at an estimated 4200ft and therefore beyond practical VLOS conditions. Also, in flying as they were within Class A airspace without the permission of Swanwick ATC, the Board considered that the drone operator had endangered the B787 and its occupants. Therefore, in assessing the cause, the Board agreed that the drone had been flown into conflict with the B787. Turning to the risk, although the incident did not show on the NATS radars, the Board noted that the pilot had estimated the separation of the drone to be about 100m away. 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 degraded, 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 B787.

Degree of Risk: B.