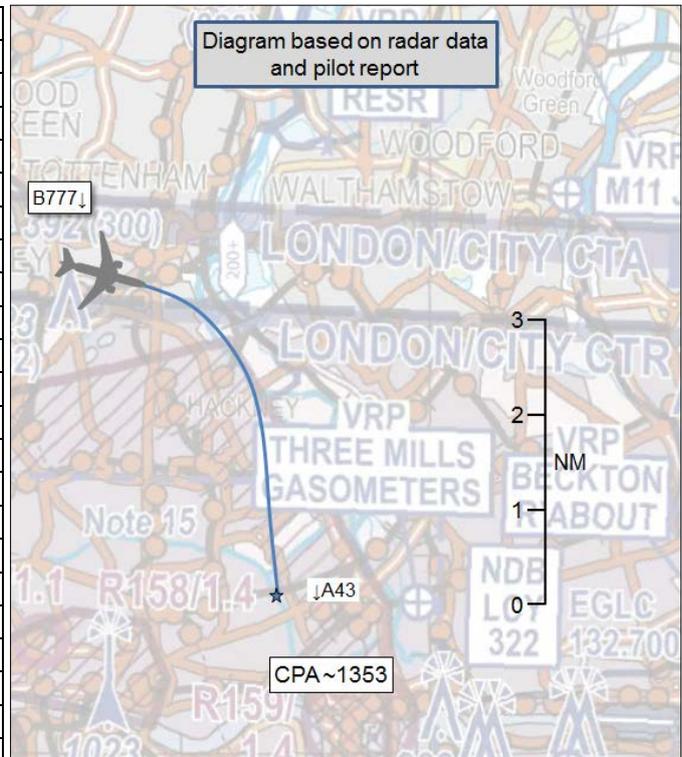


AIRPROX REPORT No 2016247

Date: 20 Nov 2016 Time: 1353Z Position: 5132N 00002W Location: 16nm ENE Heathrow

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B777	Drone
Operator	CAT	Unknown
Airspace	London TMA	London TMA
Class	A	A
Rules	IFR	
Service	Radar Control	
Provider	Swanwick	
Altitude/FL	4300ft	
Transponder	A, C, S	
Reported		Not reported
Colours	Company	
Lighting	All on	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	4300ft	
Altimeter	QNH (NR hPa)	
Heading	180°	
Speed	210kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	0ft V/0.5nm H	
Recorded	NK	



THE B777 PILOT reports being on approach to Heathrow, just past the BNN hold, when a large white drone, about 2m across and with 4 ‘prongs’, was seen in the right 1 o’clock position and then to pass down the right hand side at no more than 0.5nm from the aircraft.

He assessed the risk of collision as ‘Medium’.

THE DRONE OPERATOR: The drone operator could not be traced.

THE SWANWICK CONTROLLER reports being advised on handover that there had been two drone sightings 15 minutes earlier, about 2 miles west of London City Airport between 4,500ft and 5,500ft. Warnings and sighting information was being broadcast to pilots. Shortly after sitting down at his consol, the pilot sightings began again. Multiple pilots reported sighting a drone or ‘something’. One description was that it was 5ft across. The contact was changing altitude and position, but essentially appeared to be slowing, climbing and moving in the general wind direction. Aircraft were vectored to ensure separation from the last reported contact and position updates broadcast to pilots. One report had the object as close as 50m to the aircraft. Subsequently a message was received from an aircraft on the ground that the pilot thought it was balloons.

Factual Background

The weather at London/City was recorded as follows:

METAR EGLC 201350Z 25013KT 9999 BKN014 07/04 Q0992=

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 site¹ provides information and guidance associated with the operation of Unmanned Aircraft Systems (UASs) and Unmanned Aerial Vehicles (UAVs) and CAP722 (UAS Operations in UK Airspace) provides comprehensive guidance.

Summary

An Airprox was reported when a B777 and a drone flew into proximity at about 1353 on Sunday 20th November 2016. The B777 pilot was operating under IFR in VMC in receipt of a Radar Control Service from Heathrow Director. The drone operator could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the B777 pilot, radar photographs/video recordings and a report from the air traffic controller involved.

Members agreed that although range estimation could be problematic when estimating separation from drones, the pilot's description of the object was such that there was no doubt as to the object's identity as a drone. The Board also agreed that the drone was being operated beyond visual line of

¹ dronesafe.uk

sight and, as such, had been flown into conflict with the B777. When it came to assessing the risk, although the incident did not show on the NATS radars, members felt that the drone may have been closer than the estimated 0.5nm. 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, although the aircraft were in proximity, there was not a risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The drone was flown into conflict with the B777.

Degree of Risk: C.