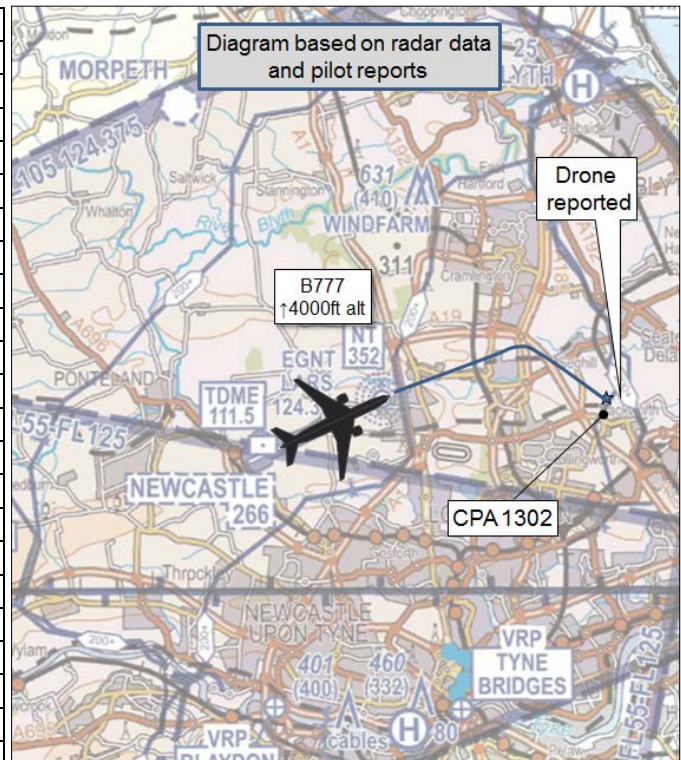


AIRPROX REPORT No 2016189

Date: 27 Aug 2016 Time: 1302Z Position: 5503N 00132W Location: 4nm NE Newcastle

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B777	Drone
Operator	CAT	
Airspace	Newcastle CTA	Newcastle CTA
Class	D	
Rules	IFR	
Service	Radar Control	
Provider	Newcastle	
Altitude/FL	4000ft	
Transponder	A, C, S	
Reported		
Colours	Company	Black
Lighting		
Conditions	NK	
Visibility		
Altitude/FL	4000ft	
Altimeter	QNH (1018hPa)	
Heading	070°	
Speed	180kt	
ACAS/TAS	TCAS I	
Alert	Unknown	
Separation		
Reported	100ft V	
Recorded		NK



THE B777 PILOT reports that they were climbing through 4000ft and retracting the flaps, when the crew noticed an object which they first thought was a large black bird. Upon closing on the object it was identified as a drone, it was too late to avoid it and the drone passed under the nose slightly to the left of centre, extremely close, with a maximum of 100ft separation.

The drone operator could not be traced.

THE NEWCASTLE CONTROLLER reports that at 1304 the crew of the B777 reported that they had seen a drone on departure from RW07 when passing 4000ft. They reported that they had flown over it with 100-200ft vertical separation. The drone was reported as black, but no estimate on size was given. The time of the event was 1302, subsequent departures were informed, but there were no other sightings. The police were also informed. A replay of the radar does show a small primary return in the proximity of the B777, which may or may not have been the drone.

Factual Background

The weather at Newcastle was recorded as follows:

METAR EGNT 271250Z 14005KT 050V190 9999 SCT035 19/12 Q1018=

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.

At the time of the incident the CAA had published Drone Aware¹ 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'.

However, a new joint CAA/NATS web site² now 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 1302 on Saturday 27th August 2016. The B777 pilot was operating under IFR, and in receipt of a Radar Control Service from Newcastle. The drone operator could not be traced.

¹ CAP 1202

² dronesafe.uk

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Members agreed that in flying at 4000ft the drone had been operated at an altitude above that allowed by regulation by probably not being in direct unaided line of sight and, if using FPV, above 1000ft. It was therefore agreed that the drone had been flown into conflict with the B777. 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 B777.

Degree of Risk: B.