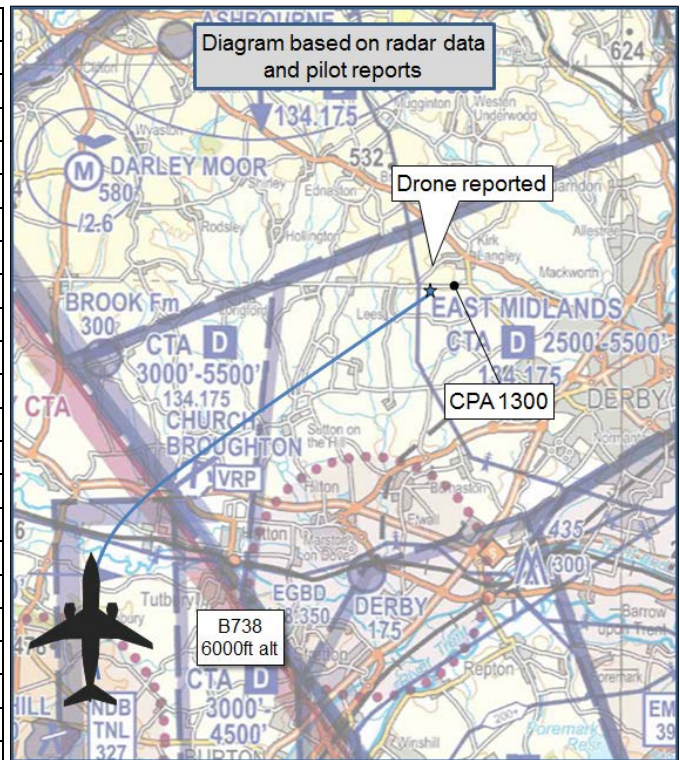


AIRPROX REPORT No 2016213

Date: 01 Oct 2016 Time: 1300Z Position: 5256N 00134W Location: N Derby

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B737	Drone
Operator	CAT	Unknown
Airspace	DTY CTA	DTY CTA
Class	A	A
Rules	IFR	
Service	Radar Control	
Provider	East Midlands	
Altitude/FL	5900ft	
Transponder	A, C, S	
Reported		
Colours	Company	Red, Black
Lighting	Strobes, Nav,	
Conditions	VMC	
Visibility	10km	
Altitude/FL	6000ft	
Altimeter	QNH (1004hPa)	
Heading	050°	
Speed	215kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	0ft V/30m H	
Recorded	NK	



THE B737 PILOT reports that they were in the holding pattern at East midlands, cockpit workload was high because the runway was flooded and so a possible diversion was being planned. The first Officer was the PF and the Captain was head down working out contaminated runway landing calculations. Upon looking up, the drone was spotted by both pilots almost instantaneously, it was red and black in colour and between 50-100cm in size. However, due to the close proximity there was no time to take avoiding action. The drone passed down the left-hand-side of the aircraft at the same level and approximately 30m from the wing. ATC were immediately informed.

He assessed the risk of collision as ‘High’.

The drone operator could not be traced.

THE EAST MIDLANDS CONTROLLER reports that he was vectoring the B737 at 6000ft for weather avoidance, there were various severe weather cells and the runway had become flooded, consequently many aircraft were electing not to land. During this time the pilot reported a drone, or a breakaway balloon, pass down the Captain’s side of the aircraft 20-50ft away. The local police were informed.

He perceived the severity of the incident as ‘Low’.

Factual Background

The weather at East Midlands was recorded as follows:

METAR EGNX 011250Z VRB05KT 3500 RA BKN015 12/09 Q1004=
 METAR EGNX 011320Z 28008KT 6000 TSRA SCT013 BKN024 09/09 Q1004 RETS RERA=

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).

Additionally, the CAA has published a UAV Safety Notice² 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 B737 and a drone flew into proximity at 1300 on Saturday 1st October 2016. The B737 pilot was operating under IFR in VMC, and in receipt of a Radar Control Service from East Midlands. 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 reports from the B737 pilot, radar photographs/video recordings, and a report from the air traffic controller involved.

Board members agreed that the drone had been operated at an altitude that was beyond direct unaided line-of-sight (which was not permitted under current regulation without explicit CAA permission), and that it had therefore been flown into conflict with the B737. Acknowledging the difficulties in judging separation visually without external references, the Board considered that the pilot's estimate of separation, only 30m away, allied to his overall account of the incident, together with the fact that there had not been enough time to take avoiding action, portrayed a situation where a collision had only been narrowly avoided and chance had played a major part. They therefore determined the risk to be Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The drone was flown into conflict with the B737.

Degree of Risk: A.