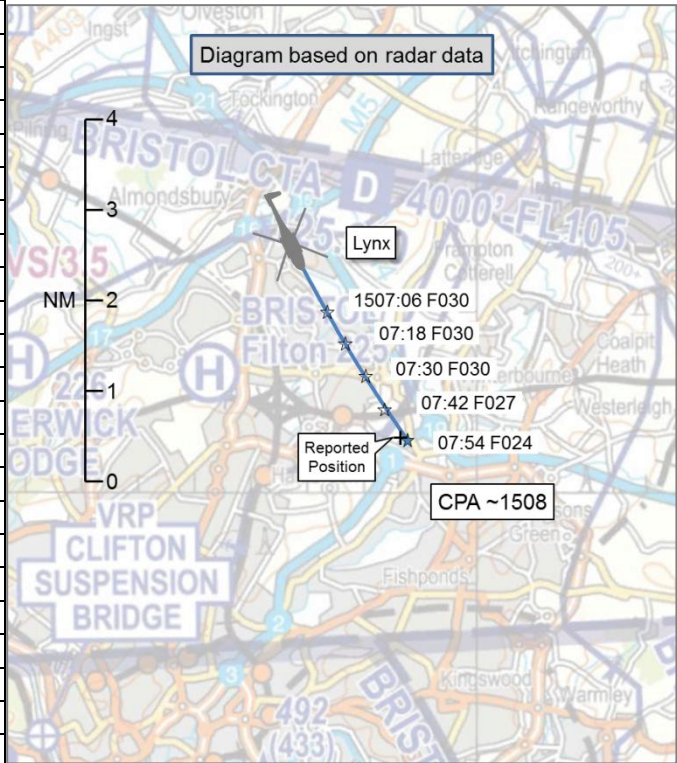


AIRPROX REPORT No 2015054

Date: 25 Apr 2015 Time: 1508Z Position: 5131N 00231W Location: 11nm NE Bristol Airport (Saturday)

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Lynx	Drone
Operator	RN	Unknown
Airspace	London FIR	
Class	G	
Rules	VFR	
Service	Basic	
Provider	Bristol	
Altitude/FL	2500ft	
Transponder	A, C, S	
Reported		
Colours	Grey/Green	
Lighting	NK	
Conditions	VMC	
Visibility	10km	
Altitude/FL	2100ft	
Altimeter	QNH (1005hPa)	
Heading	360°	
Speed	120kt	
ACAS/TAS	Not fitted	
Separation		
Reported	0ft V/40ft H	
Recorded		NK



THE LYNX PILOT reports transiting to RNAS Yeovilton. The aircraft was descending from 2500ft to 1500ft when a small white ‘doughnut shaped’ UAV/drone was observed directly ahead at a range of approximately 100-200m. The pilot conducted an evasive manoeuvre, a right-hand break, and the UAV passed 30-50ft (approximately 1 rotor span) down the left-hand side. The pilot stated that the object appeared to be about 50cm across, with a mass of less than 7kg he estimated, and appeared to remain level without manoeuvring. It was difficult to see against an urban backdrop but a low cockpit workload allowed an effective lookout scan. The pilot also commented that had the UAV not been sighted through effective lookout, and evasive action not been taken, a mid-air collision would have occurred.

He assessed the risk of collision as ‘Very High’.

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

THE BRISTOL CONTROLLER reports the Lynx pilot was in receipt of a Basic Service and declared an Airprox with a UAV whilst outside CAS, about 11nm northeast of Bristol airport.

Factual Background

The weather at Bristol was recorded as follows:

METAR EGGD 251520Z 25008KT 9999 FEW033 BKN045 13/08 Q1005

Analysis and Investigation

UKAB Secretariat

The Air Navigation Order 2009 (as amended), Article 138¹ 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:

‘(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 site² 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 Notice³ 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).

Also, stay well clear of airports and airfields’.

Comments

Navy HQ

Mid-Air Collision between manned aircraft and unmanned aerial systems is in the Navy HQ top 5 risks to life. On this occasion a catastrophic collision was only avoided by the aircrew’s final safety barrier of see and avoid. This type of incident between manned aircraft and unmanned systems are becoming more prevalent and the next incident might not be a near miss but a collision. Current regulations pertaining to the operation of drones are difficult to enforce given the ease with which drones can be purchased; however, it is important that interested UK stakeholders continue to work together to ensure that any risk to manned aerial systems posed by drone operations can be considered ALARP [UKAB Note: As Low As Reasonably Practical].

¹ 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 www.caa.co.uk/uas

³ CAP 1202

Summary

An Airprox was reported when a Lynx and a drone flew into proximity at about 1508 on Saturday 25th April 2015. The Lynx pilot was operating under VFR in VMC in receipt of a Basic Service from Bristol. The drone operator could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Members quickly agreed that the drone had been flown into conflict with the Lynx by being operated in a location from which it should not have been operated, namely over a heavily populated area, and at an altitude above that permitted by regulation. The Board thought that the drone was likely either there because the operator had lost control of it, or was being flown using a First-Person-View or automated control system with attendant lack of lookout capability. It was also agreed that regulation to prevent the operation of drones in such circumstances already existed, and that it was non-compliance with the pertinent regulation which had created the safety risk. Members expressed frustration and concern at the rapidly increasing number of Airprox involving drones, of which the majority involved drone operators apparently conducting their activities either by mistake, in ignorance, or in deliberate contravention of the regulations. In whatever regard, the regulations were both not being adhered to nor being enforced effectively, and members expressed their concern that the situation should not be allowed to continue without action being taken to reduce the prospect of an aircraft being brought down by a 'drone strike'.⁴

Some members felt that it was for the CAA to implement 'better regulation' whilst others felt that sufficient regulation already existed and that it was greater enforcement that was required. In this latter respect, members noted that Airprox 2015049 had generated a recommendation that '*The CAA liaise with the National Police Chiefs' Council to clarify Police response to ATC reports of Airprox involving drones*'. Members were hopeful that this would provide clarity on what the response to drone reports was, and to what extent the Police and CAA kept records for subsequent enforcement of regulation and proactive education/risk reduction. Members opined that this was a similar issue to laser attacks, and should be treated in a similar manner. The Board re-iterated that drone use was quite rightly open to all within the bounds of regulation, but that this included those with no knowledge, or desire to gain knowledge, as to their correct and safe operation. This ubiquity carried with it potentially significant risk, and it was the responsibility of all those involved in regulation and enforcement to mitigate that risk to the appropriate level to help reduce the prospect of collisions.

When assessing the risk, some members felt that the Lynx pilot had simply manoeuvred sufficiently such that he had prevented collision, albeit with safety margins much reduced below the normal. Others felt that the situation had only just stopped short of an actual collision. After some discussion, the Board were persuaded by the Lynx pilot's report, and decided, by a majority, that the separation achieved had been reduced to the minimum and that chance had played a major part in events.

PART C: ASSESSMENT OF CAUSE AND RISK

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

Degree of Risk: A.

⁴ In respect of 'drone strikes' the Board was informed that ongoing research indicated that the density and rigidity of a drone was such that the damage mechanisms in a 'drone strike' were more serious than those in a bird strike. The lack of deformation of a drone during impact was such that it was more likely to damage engines or primary structures, and could penetrate the cockpit with more serious degrees of injury to occupants. This was a particular risk to rotorcraft with large forward-facing glazed areas and where relatively minor damage to rapidly rotating rotorhead or tail rotor components could result in out-of-balance forces sufficient to result in catastrophic failure and loss of control of the aircraft.