Airprox report number 2019046

Summary of Airprox Information from UKAB

Date: 24 Mar 19 Time: 1813 Position: 5139N 00122E 25nm E Southend Altitude: FL090
Aircraft: EMB170 (CAT)

The EMB170 pilot reports having just levelled off when the FO saw an object directly ahead of them. The Captain looked out and saw a dark object with red areas that passed above them at high speed, which the FO identified as a drone. The incident was reported to ATC.

Reported Separation: 150ft V/0m H　　　　　　　　*Reported Risk of Collision: Medium*

UKAB Cause/Risk Statement

Cause: The drone was being flown above the maximum permitted height of 400ft and in controlled airspace such that it was endangering other aircraft at that location. The Board agreed that the incident was therefore best described as the drone was flown into conflict with the EMB170.

Risk: The Board considered that the pilot's overall account of the incident portrayed a situation where providence had played a major part in the incident and/or a definite risk of collision had existed.

Airprox Reality Check Analysis

Analysis of this airprox produced a score of -70 using the Airprox Reality Check system[1].

Altitude	F	9000-11999ft	-40
Location	C	>5 miles offshore	-10
Photo evidence	C	No photo evidence	0
Eyewitness reports	B	From aircraft pilot(s) only	0
ID of drone & aircraft	B	Drone and operator not identified	0
Electronic evidence	B	Electronic evidence showing aircraft only/ None	0
Description of drone	A	Description is something unlike a multi-rotor drone	-20
Light levels	A	Daytime	0
Weather	A	No precipitation	0
Wind Speed	A	<15mph at ground level	0
Geozone	A	Not within a Geozone	0
		Score	-70

Analysis

The reported location is more than 20km from the nearest land. The reported altitude is 9,000ft. A drone could not possibly fly to this location and altitude given the constraints of battery density/ mass.

ADS-B Analysis
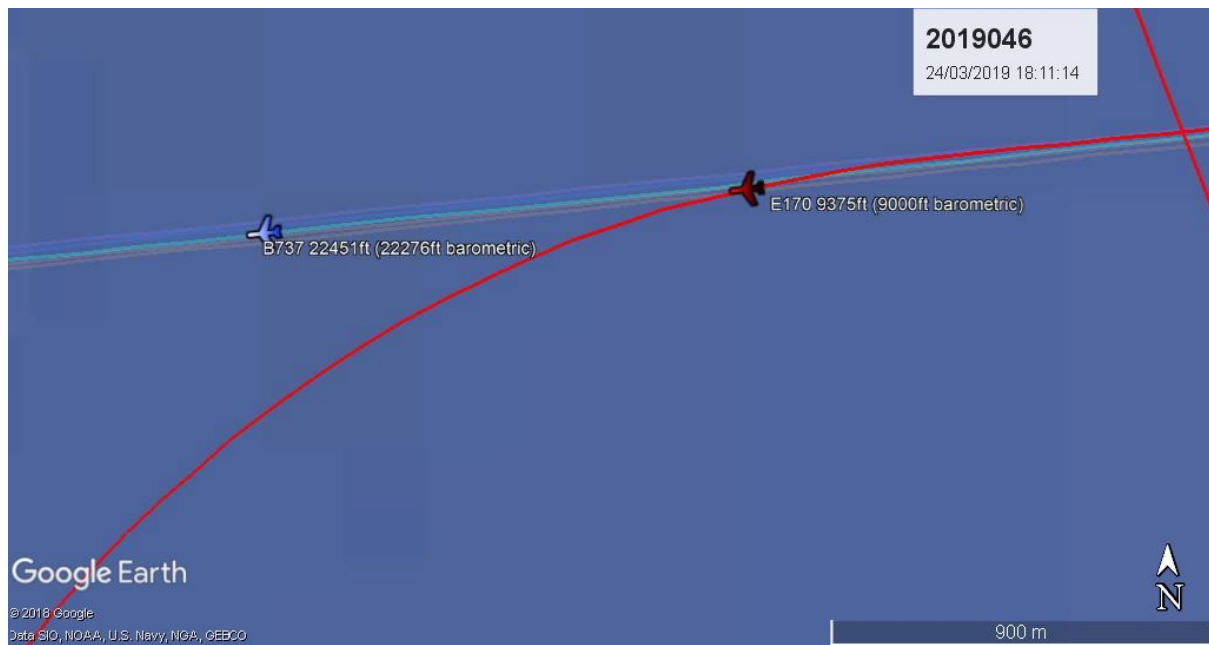
EMB170: red aircraft with red track
B737: blue aircraft with light blue track

The B737 ahead and above - a 'dark object with red areas'?

ADS-B data shows that at 18:10:49 a Boeing 737-700 aircraft passed 13,450ft directly above the reporting EMB170 on the same heading of 264 degrees and gently descending.

The EMB170 was flying at 199 knots. The B737 was flying at 287 knots, approximately 88 knots (101mph) faster.

At 18:11:14 the B737 would have become visible at the top of the EMB170 windscreen when the EMB170 levelled off from its descent (raised the nose) at 9,375ft GPS (9,000ft barometric). At this point the B737 was approximately 1km ahead and 13,000ft above, giving a slant range of approximately 4,087 metres. The fuselage length, and wingspan, of a B737-700 are both 34 metres, which means it would have appeared to be the same size as a typical 33cm diameter drone viewed from 40 metres (130ft) away. The B737 in question has red engine nacelles.

The EMB170 then turned on to a Southerly heading.

Airprox Reality Check Conclusion

The distance from shore and the altitude make it impossible for a drone to have been involved due to the limitations of battery density/ mass.

The B737 identified from ADS-B data fits the pilot's description in terms of location, altitude, time, stage of flight ("just levelled off"), relative bearing, colours, and estimated relative height (had it been drone sized).

ARC considered the likelihood of a drone (which also had red areas on its underside) also being at the location and relative position at precisely the same moment, and dismissed this as highly unlikely.

ARC concluded that this was almost certainly a sighting of the B737 above and was therefore not an airprox. There was no risk of collision and no drone was involved.

About Airprox Reality Check

Airprox reports featuring unmanned aircraft are almost always pure eyewitness accounts, which are notoriously unreliable[2]. Airprox Reality Check analyses airprox data using its 'Reality Check System' to evaluate the likelihood of the event actually having involved a multirotor drone.

Airprox Reality Check believes that airprox data relating to drones should be an accurate and reliable indicator of the actual number of times drones come into proximity to manned aircraft, and is committed to achieving that goal.

References

[1] = The Airprox Reality Check system is explained here: https://www.airproxrealitycheck.org/reality-check-system/
[2] = There are several studies regarding eyewitness reports in the studies section on our website: https://www.airproxrealitycheck.org/studies/
ADS-B data sourced from The OpenSky Network: http://www.opensky-network.org