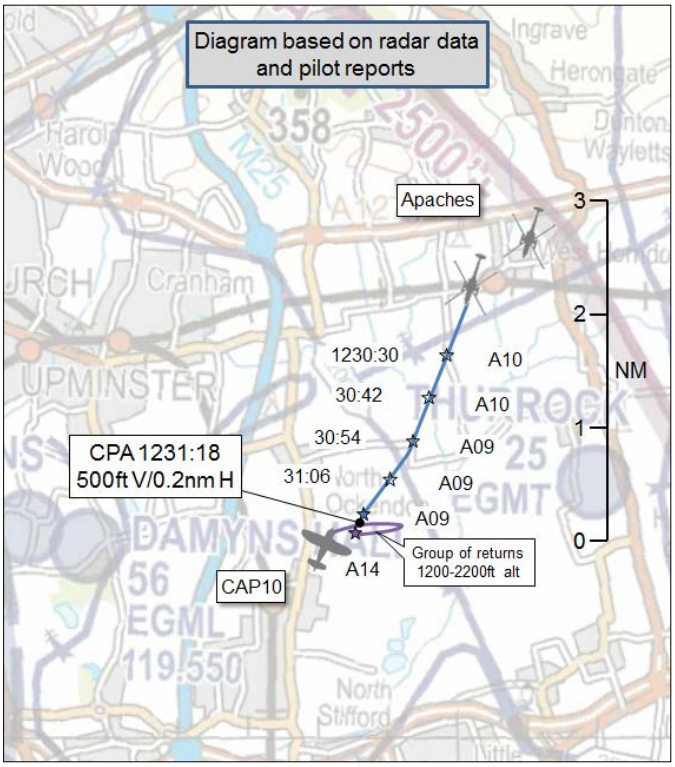
AIRPROX REPORT No 2017154

Date: 12 Jul 2017 Time: 1231Z Position: 5132N 00019E Location: 2.5nm east Damyns Hall

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Apache AH1 x 2	CAP10
Operator	HQ JHC	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Heathrow	N/A
Altitude/FL	900ft	1400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Green	Blue, white
Lighting	Nav, HISL, landing	NK
Conditions	VMC	VMC
Visibility	30km	NK
Altitude/FL	1300ft	1000ft
Altimeter	QNH (1018hPa)	NK
Heading	190°	260°
Speed	120kt	125kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/250m H	500ft V/0m H
Recorded	500ft V/0.2nm H	



THE APACHE PILOT reports leading a pair of Apaches, routing south towards the QE2 bridge prior to joining the 'Heli Lanes'[1]. As the pair routed between Damyns Hall and Thurrock, the Heathrow Radar controller called climbing traffic in the formation's 1 o'clock, with the No2 calling a visual contact simultaneously. The crews saw a light fixed-wing aircraft climb rapidly through their level, initially at a range of about 1nm, from low-right to high-left in front of the formation, roll inverted, track left-to-right across and slightly above the formation, and then dive down in the rear-right quarter, effectively corkscrewing around the Apache pair. Visual contact with the aircraft was lost at that point, though briefly regained by the No2, who reported it clearing away. The Apache pilot stated that Heathrow Radar advised that the aircraft's pilot was not speaking to them, closing an avenue for deconfliction. The aircraft's dynamic manoeuvring made avoiding action extremely difficult, as did the Apache formation's relatively close formation. Avoiding action was initiated, then immediately reversed as the other aircraft's direction of flight changed. Overall the Apache formation maintained a relatively consistent heading and altitude, making only short turns that were invalid as soon as they were initiated. At no point was it clear that the aircraft's pilot had seen the Apache formation. The Apache pilot also noted that during this period the Heathrow Radar controller was attempting to pass clearances in line with the Radar Control Service that had been requested, but due to both Apache pilots attempting avoiding action their readback was delayed and incomplete.

He assessed the risk of collision as 'High'.

THE CAP10 PILOT reports that he was carrying out aerobatics in preparation for the revalidation of his Display Authorization. He had deployed to Damyns Hall aerodrome for this purpose. Damyns Hall has a 'Rule 5 exemption' to permit practice displays but, because he did not intend to fly this practice down to display height, the pilot chose to leave the immediate vicinity of the airfield and

[1] Helicopter Routes in the London CTR and London/City CTR, UK AIP AD 2-EGLL-3-2, dated 18 Sep 2014.

operate in an area 070°/3nm from Damyns Hall, choosing a line feature running approximately 080°/260° as his axis or 'anchor' feature. Manoeuvres were flown individually along, at 90° and at 45° to this axis. The pilot did not recall the precise base-height used, but it was likely to have been 800-1000ft agl. Having cleared the area visually and practiced a number of manoeuvres individually, a practice sequence of linked manoeuvres was flown, which would typically comprise a 'central' manoeuvre followed by a 'turn-round' manoeuvre, followed by another 'central' manoeuvre etc. On completion of a 'central' manoeuvre heading west (either a barrel-roll or hesitation roll the pilot thought), he saw the lead aircraft of a pair of Apache helicopters about to fly underneath and behind him with little horizontal separation but a vertical separation of approximately 500ft. The CAP10 pilot stopped his sequence and flew to keep the 2 helicopters in sight before recovering to Damyns Hall. The CAP10 pilot noted that the helicopters appeared to maintain a straight-and-level flight-path throughout the event. He assessed the collision risk as low to nil, due to the vertical separation.

THE HEATHROW SVFR CONTROLLER reports that a formation pair of Apaches checked in whilst over Essex, requesting to route QE2 Bridge to the Isle of Dogs and then West along H4. He put the formation under a Basic Service. As the formation approached Damyns Hall, he passed Traffic Information on a contact south of them which was outside CAS. His recollection was that the Apache pilot reported visual with the traffic. The Apache pilot subsequently stated that the aircraft appeared to be carrying out aerobatics and asked if the aircraft was on frequency. The controller stated that it was not and that it was outside CAS. The following day the Apache pilot telephoned and stated that he had filed an Airprox, that the aerobatic aircraft had come within 200m of the Apaches, and that in their opinion its pilot had not seen them.

Factual Background

The weather at London City was recorded as follows:

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METAR EGLC 121250Z AUTO 03009KT 340V070 9999 BKN043 19/09 Q1018=
METAR EGLC 121220Z AUTO 02010KT 330V070 9999 BKN037 19/10 Q1017=
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Analysis and Investigation

CAA ATSI

The Apache pilot, who was one of a formation pair, contacted the Heathrow SVFR controller at 1223:35 and requested to route via the Isle of Dogs, then westbound through the London CTR via the published helicopter routes. The controller assigned transponder code 7033 and, at 1224:25, advised the pilot that he was identified and that it would be a Basic Service. The controller requested that the Apache pilot report approaching the Queen Elizabeth Bridge, which was acknowledged. At 1225:24 the CAP10 was first observed on the area radar replay, and was seen to then carry out manoeuvres at various levels between 900-2100ft. The pilot was neither receiving an ATC service nor monitoring a specific ATC frequency. Figure 1 shows the situation at 1228:35 with the Apache formation 6nm north-northeast of the CAP10.

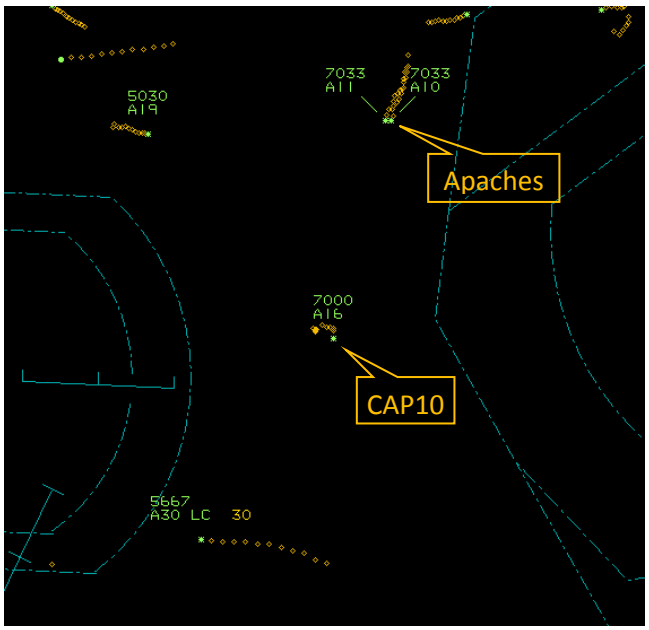


Figure 1 – 1228:35

Up until the point when he passed Traffic Information to the Apache pilot on the CAP10, the controller had been involved in the monitoring and coordination of a helicopter in the vicinity of London City Airport against traffic inbound to that airport.

At 1230:31, the controller passed Traffic Information to the Apache pilot on the CAP10, advising that it was in their 12 o'clock, range of 2nm at 1500ft. (Figure 2).

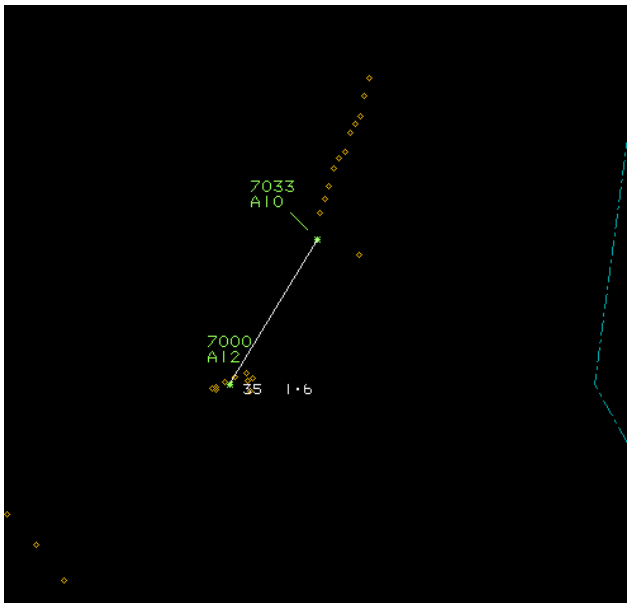


Figure 2 – 1230:31

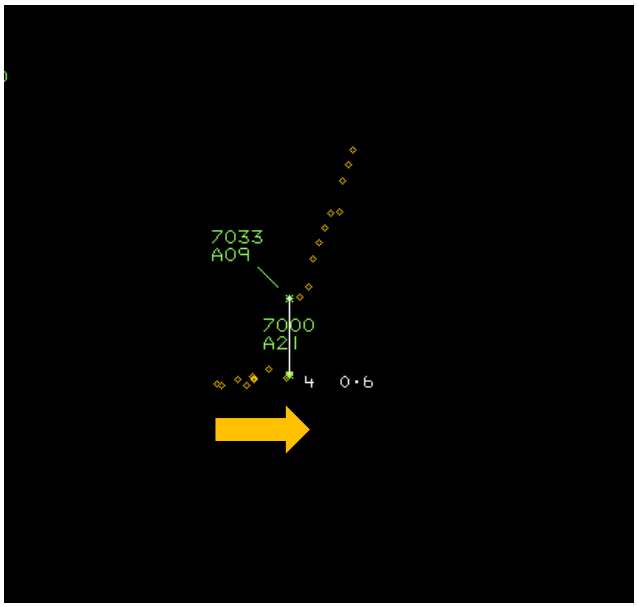


Figure 3 – 1231:01

The Apache pilot acknowledged this information, reported that they were visual with the aircraft and were moving to the east of the aircraft. Figures 3-7 illustrate the situation as it continued to develop, with the direction of flight of the CAP10 indicated on each by a broad arrow or circle when there was no lateral direction of travel.

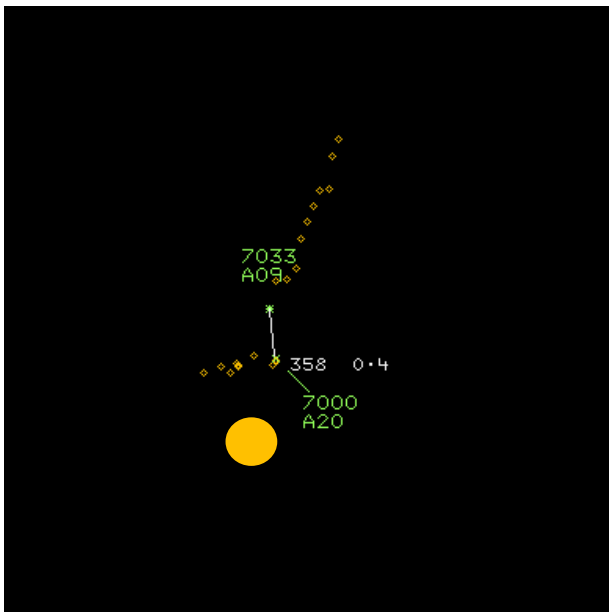


Figure 4 – 1231:05

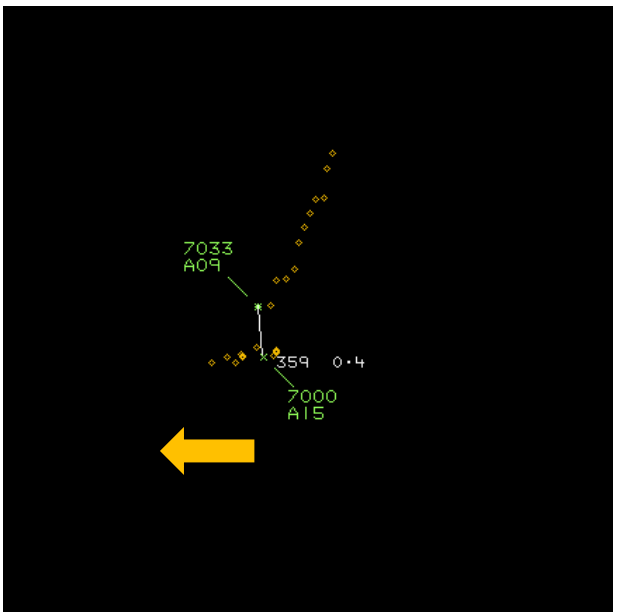


Figure 5 – 1231:08

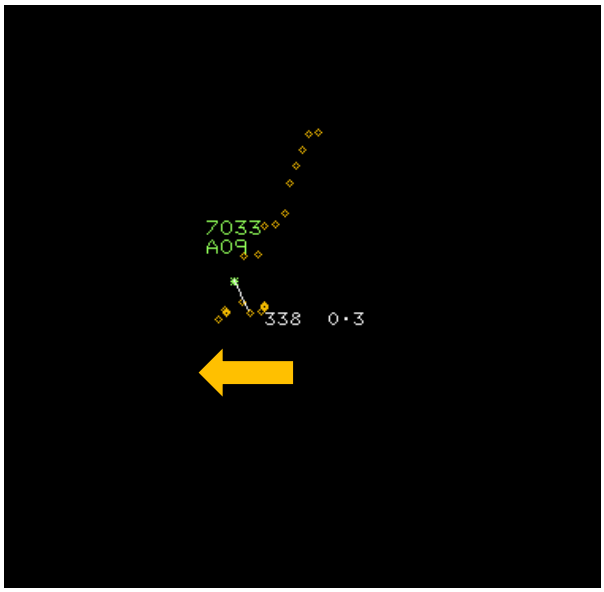


Figure 6 – 1231:13 (CAP10 faded momentarily)

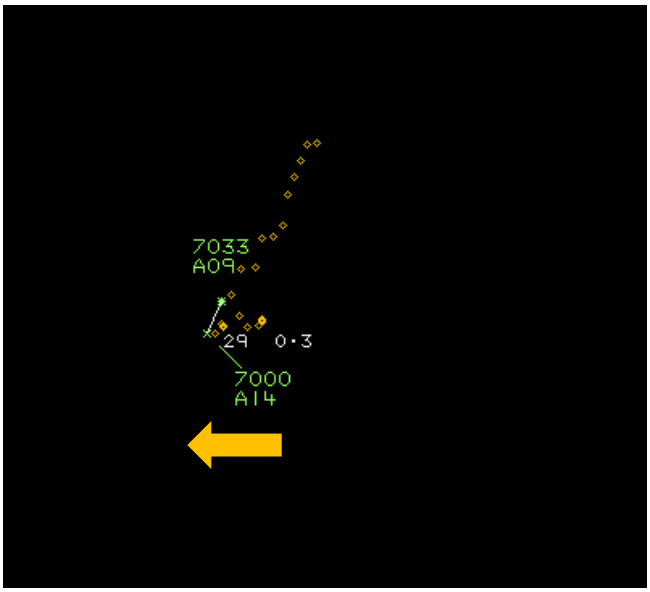


Figure 7 – 1231:16

As both aircraft were operating in Class G airspace the pilots were responsible for their own collision avoidance.

UKAB Secretariat

The Apache and CAP10 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[2].

Comments

JHC

The Apache formation was sensibly set-up to enter Class D airspace and the heli-lanes while being funnelled through the natural choke point of the 2 minor airfields. Good lookout and an appropriate Air Traffic Service aided SA, and resulted in a co-incident sighting and notification of traffic in the 12 – 1 o'clock at a range of 2nm. After the initial avoiding turn to the east it became apparent that the traffic was dynamically manoeuvring to such an extent that a reversal of the avoiding turn to the west did not resolve the potential confliction. Faced with such dynamic manoeuvring, the Apache formation was unable to ascertain whether any further turn, climb or descent would increase separation or indeed actually place them into conflict with the CAP10. The Apache formation actions leading up to the confliction and its actions to resolve them are considered as reasonable and appropriate given the constraints faced. It is judged that the late sighting by the CAP10 pilot, at a point when there was a vertical separation due the particular part of the sequenced manoeuvre he was flying, was down to good fortune and is not indicative of the collision risk that existed. JHC concurs with assessment of the Apache crew in that the risk of collision was high.

Summary

An Airprox was reported when an Apache formation and a CAP10 flew into proximity at 1231 on Wednesday 12th July 2017. Both pilots were operating under VFR in VMC, the Apache pilots in receipt of a Basic Service from Heathrow SVFR and the CAP10 pilot not in receipt of a service.

[2] SERA.3205 Proximity.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate ATC authority.

Members first considered the actions of the Heathrow SVFR controller and commended him for providing Traffic Information to the Apache crews on the CAP10, thereby affording them additional situational awareness whilst only in receipt of a Basic Service.

Turning first to the CAP 10 pilot, members noted that he had commenced a display practice using a line feature to the east of Damyns Hall, orientated approximately 080°/260° and, from radar replay, appeared to be flying linked manoeuvres in the 2 minutes before CPA. Some members questioned whether his choice of location to practice aerobatics was wise, given the constricted nature of the airspace in that area and the resulting bottle-neck to other traffic. Others observed that an appropriate squawk (7004 for aerobatics in this case), would have increased the Heathrow SVFR controller's situational awareness such that the CAP10 pilot's intention to perform aerobatics could have been passed to the Apache crews. Similarly, a service from Farnborough LARS East may have increased the CAP10 pilot's situational awareness. Other members pointed out that whilst these mitigations could help, the space between the London/City and Southend CTRs was sufficient to allow for traffic to pass each other without confliction, and for aircraft to practice aerobatic manoeuvres there also. The alternatives, to transit to the north or south of the Southend CTR, were considered not to be reasonable or even required. Some members felt that it could be argued that low-level aerobatics demanded the full attention of the pilot, and that listening out for R/T calls from potentially conflicting traffic would not be the best course of action when weighing up the likelihood of potential threats to safety. In the event, the CAP10 pilot saw the Apache formation just behind and 500ft below him whereupon he stopped his display practice and manoeuvred to keep the helicopter formation in sight.

The Apache pilot reported that the formation was in the process of obtaining clearance to transit the London 'Heli-lanes' when Traffic Information was passed on the CAP10. This occurred at a separation range of 2nm and the Apache pilot acknowledged the transmission, stated that they were visual with the CAP10 and that the formation would route to the east of the CAP10, a left turn from their track. Radar replay indicated that the formation continued straight ahead and then turned slightly right at a range of about 1nm from the CAP10, probably to counter the CAP10's easterly track at the time. Given that the Apache formation was visual with the CAP10 at 2nm, some members wondered whether the formation could have more positively routed left, away from the manoeuvring aircraft, as the Apache pilot had stated they would do. The military helicopter member felt that the lateral and vertical airspace limitations were such that the Apache crews had little choice other than to maintain their track. Other members disagreed, and felt that it would have been a minor deviation from track to 'box' around the CAP10 to the east.

Given that the Apache crews had been visual with the CAP10 for some 2mins before CPA, and that radar replay indicated that the CAP10 was never lower than 200ft above the formation in the minute before CPA, members could not reconcile the Apache pilot's report that the CAP10 had corkscrewed around the formation. Members agreed that the issue seemed to be one of perception of the incident by the Apache pilot, and agreed that the event was probably best described as the Apache pilot being concerned by the proximity of the CAP10. Turning to the risk, many members felt that the situation represented normal Class G operations and that the occurrence could best be described as category E - normal procedures, safety standards and parameters pertained. However, after some discussion the matter was taken to a vote and it was decided by a narrow majority that the event merited a risk rating of C: the circumstances were such that although there was no risk of collision, aircraft proximity and dynamics were closer than desirable.

Finally, members noted that Damyns Hall was an increasingly busy GA airfield with an exemption for low-level aerobatic display practice and that a 'world-famous' aerobatic club had recently relocated there from Headcorn. The potential to encounter aircraft performing aerobatics in the local area was increasing.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: The Apache pilot was concerned by the proximity of the CAP10.

Degree of Risk: C.

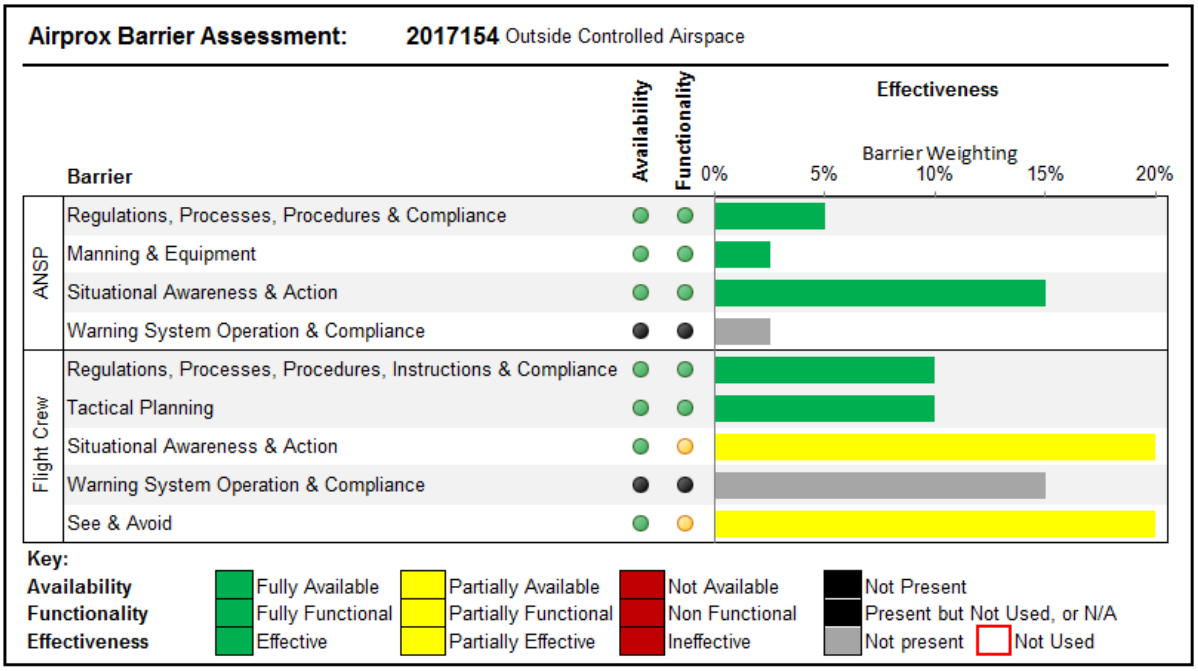
Safety Barrier Assessment[3]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Crew:

Situational Awareness and Action were assessed as **partially effective** because the CAP10 pilot was not aware of the approaching Apache formation and the Apache formation, who had seen the CAP10 at 2nm range, continued to track towards the area within which it was operating.

See and Avoid were assessed as **partially effective** because neither pilot gave way to the other before avoiding action was required.



[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.