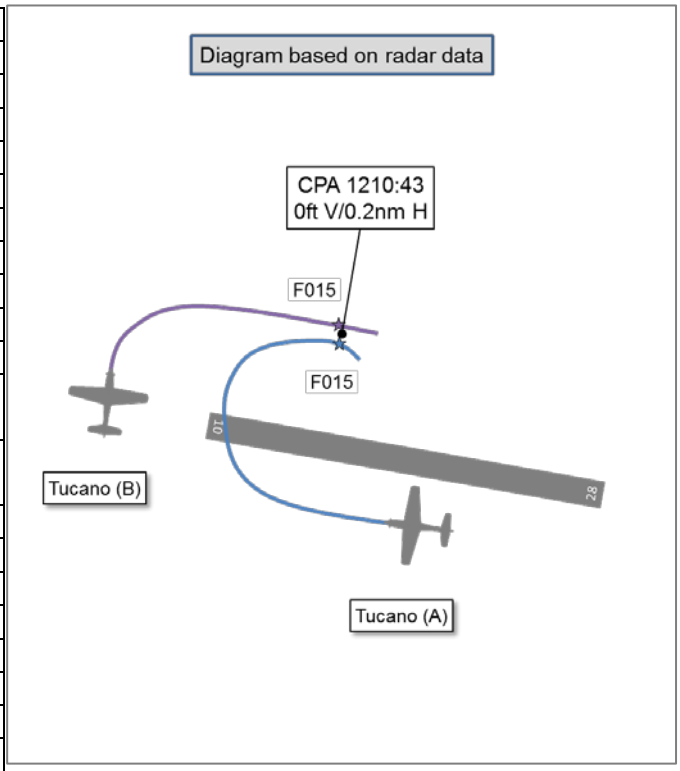
AIRPROX REPORT No 2018016

Date: 01 Feb 2018 Time: 1211Z Position: 5403N 00115W Location: Linton-on Ouse-airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tucano(A)	Tucano(B)
Operator	HQ Air (Trg)	HQ Air (Trg)
Airspace	Linton ATZ	Linton ATZ
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Aerodrome
Provider	Linton	Linton
Altitude/FL	1500ft	1400ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Black, yellow wing flashes	Black, yellow wing flashes
Lighting	HISLs, nav, landing	HISLs, nav, landing
Conditions	VMC	VMC
Visibility	20km	NK
Altitude/FL	1000ft	NK
Altimeter	QFE (0997hPa)	QFE (0997hPa)
Heading	085°	NK
Speed	170kt	NK
ACAS/TAS	TCAS I	TCAS I
Alert	None	None
Separation		
Reported	Nil V/100-150m H	NK
Recorded	0ft V/0.2nm H	



THE TUCANO(A) PILOT reports that he was routing via initials at 1000ft to join the visual circuit. He was aware of, and most concerned by, another Tucano joining via the same method ahead. He lost visual with that traffic (but which he knew was now deadside) as he flew through initials and, because he was distracted looking for it, he called 'late initials' at 2.6nm (as opposed to 3.5nm). He had already decelerated to avoid catching up the one ahead and was content with the deconfliction at this point. He believed he heard ATC respond to his 'initial' call with 'one aircraft on final and one deadside,' both of which he gained visual with. Believing that there was no other traffic to affect, he turned downwind and was asked by ATC if he was visual with the aircraft downwind. He stated that he was visual with one late downwind. ATC informed him of a Tucano to his left-hand side and, when he rolled wings level, he saw it at the 8 o'clock position beginning a turn away. He estimated the range to be 100-150m, slowly converging on a collision track. He broke upwards, climbed to 2000ft, then joined via the overhead and landed from his next approach. He could not recollect hearing a TCAS alert prior to the Airprox. He was aware of one ahead at the same level on TCAS (presumed to be the deadside traffic) and one below and right (presumed to be the one on final). He was not aware of any other TCAS contacts leading up the Airprox. It was only the ATC call of additional traffic downwind that gave him sufficient situational awareness to avoid getting any closer to the other Tucano. Having spoken to the captain of the other aircraft, they were only just beginning to level at 1000ft when the Airprox occurred. This may suggest that when he looked out prior to turning downwind they were possibly obscured by terrain and buildings while being below the horizon from his perspective. After the Airprox, the rear seat occupant stated that he thought he had heard ATC call 2 aircraft on final but only saw one, believing it to be the first of the two on final. Tucano(A) pilot called the ATC Supervisor immediately after landing to declare an Airprox.

He assessed the risk of collision as 'High'.

THE TUCANO(B) PILOT reports that whilst rolling on a touch-and-go he heard ATC's response to an aircraft joining via initials. He recalled ATC announcing there was an aircraft deadside. He looked up and visually identified the aircraft and continued to monitor his student's take off roll. Whilst they were in the upwind turn, ATC called Tucano(A) pilot to ask if they were visual with his aircraft. Tucano(A) pilot responded in the affirmative, having sighted an aircraft ahead of them in the circuit. At this point, he looked up and to the right to see Tucano(A) belly-up to them as it turned from deadside to downwind. He took control and rolled out of their climbing turn and transmitted 'Tucano(B) C/S is visual' on the Tower frequency. ATC then informed the Tucano(A) pilot that Tucano(B) was below them and, after this call, he observed Tucano(A) climb up sharply away from the circuit. He continued his circuit to land.

He assessed the risk of collision as 'Medium'.

THE LINTON CONTROLLER reports that he had 3 aircraft in the circuit and Tucano(A) joining. The circuit 'full light' was on and the Supervisor was present in the Visual Control Room (VCR). When the Tucano(A) pilot called late initials he informed him `One dead-side and two on finals` and gave him the surface wind. The deadside aircraft was now downwind and Tucano(B), which had conducted a touch-and-go, was crosswind as Tucano(A) turned inside from the deadside. He assessed that Tucano(A) pilot may not have been aware of Tucano(B), which was now turning downwind, and he asked if he was visual with the Tucano ahead. The Tucano(A) pilot reported visual with the Tucano late downwind. He immediately warned him that there was another on his left and beneath him. Tucano(A) pilot immediately pulled up and climbed to 2000ft in the overhead. Tucano(B) pilot continued in the circuit and Tucano(A) pilot re-joined from the overhead before landing on his next approach.

He perceived the severity of the incident as 'Medium'.

THE LINTON SUPERVISOR reports that the visual circuit was full and he was present in the VCR and witnessed the incident. Controller workload was high-medium. When on the break, it appeared that Tucano(A) pilot was either trying to cut ahead of Tucano(B) or had not seen it. The Aerodrome controller rightly asked if Tucano(A) pilot was visual and, when he reported visual with another Tucano late downwind, he was quick to update the position of Tucano(B); Tucano(A) was observed taking evasive climbing action. He was content that the circuit information given to the Tucano(A) pilot when calling initials was accurate. There was no further incident.

Factual Background

The weather at Linton-on Ouse was recorded as follows:

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METAR EGXU 011150Z 30018KT 9999 FEW024 SCT080 05/M01 Q0999 BLU TEMPO31018G28KT BLU=
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Analysis and Investigation

Military ATM

An Airprox occurred on 1 Feb 18 at approximately 1345, in the visual circuit at RAF Linton-on-Ouse, between two Tucanos operating in the visual circuit. Both pilots were receiving an Aerodrome Control Service from the Linton-on-Ouse Aerodrome Controller (ADC).

The diagram at Figure 1 depicts the Linton visual circuit activity in the lead up to the Airprox. Information is included to show the situational awareness of each participating pilot.

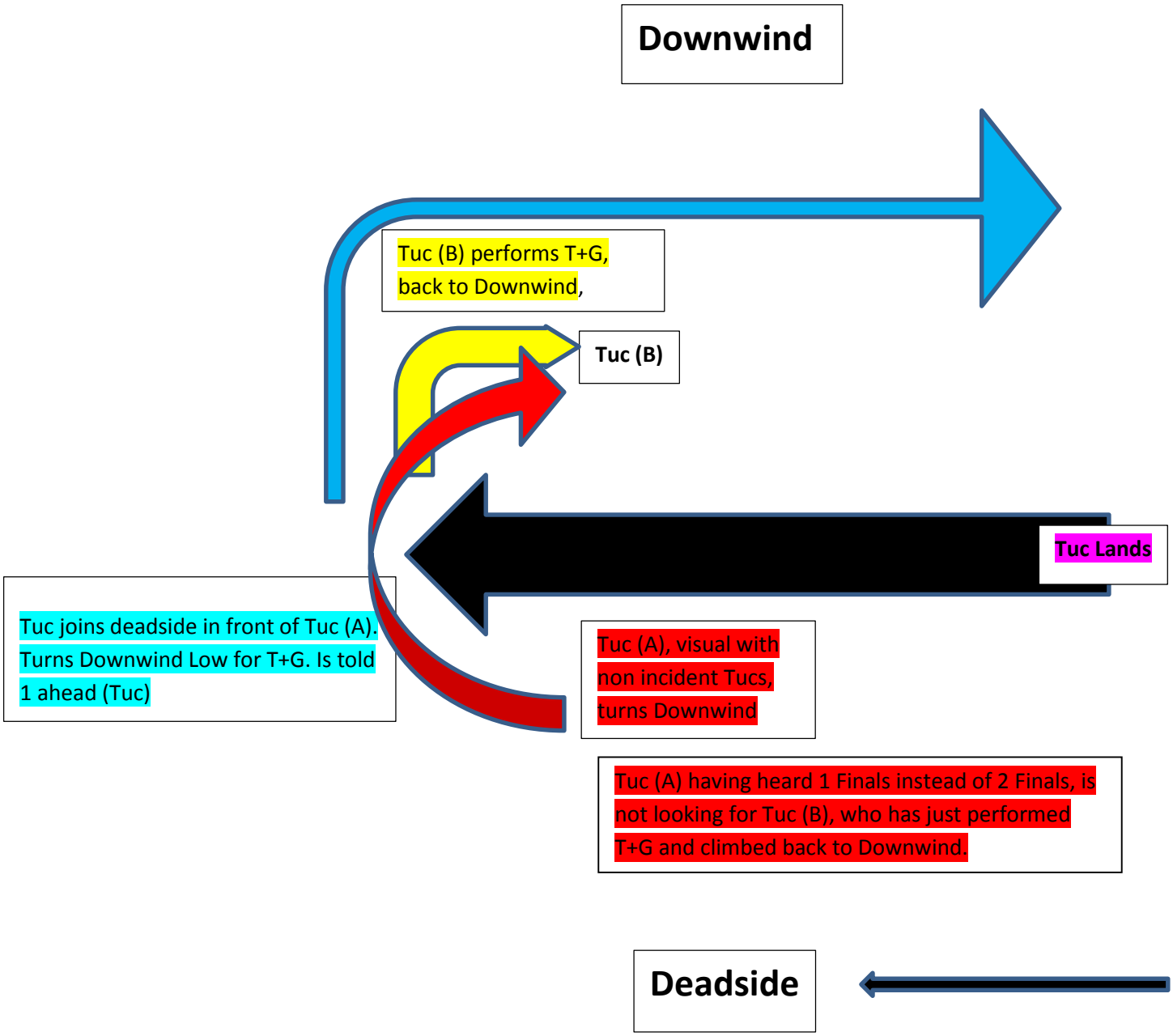


Figure 1: Visual Circuit in Lead up to Airprox.

Due to the high task-load associated with a busy visual circuit, the Linton ADC had selected the 'circuit full' light to red (meaning that no further aircraft could be accepted), and the ATC Supervisor was present in the Visual Control Room (VCR) to assist as required. The ADC provided accurate Traffic Information to each pilot in response to their reporting at initials and downwind. When the ADC asked Tucano(A) pilot if he was visual with Tucano(B) ahead, the pilot's response was in the affirmative, but the words indicated that he was only visual with another Tucano downwind to land. The ADC identified this incorrect mental model and gave the pilot of Tucano(A) further, more specific Traffic Information on Tucano(B), which enabled him to visually acquire the conflicting traffic. The pilot of Tucano(B) reported visual with Tucano(A).

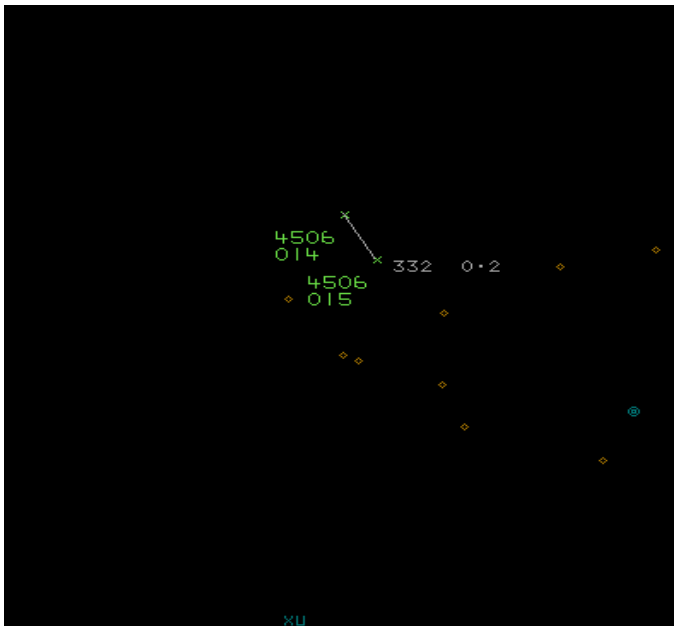


Figure 2: 1210:36. Tucano(A) is SE of Tucano(B).

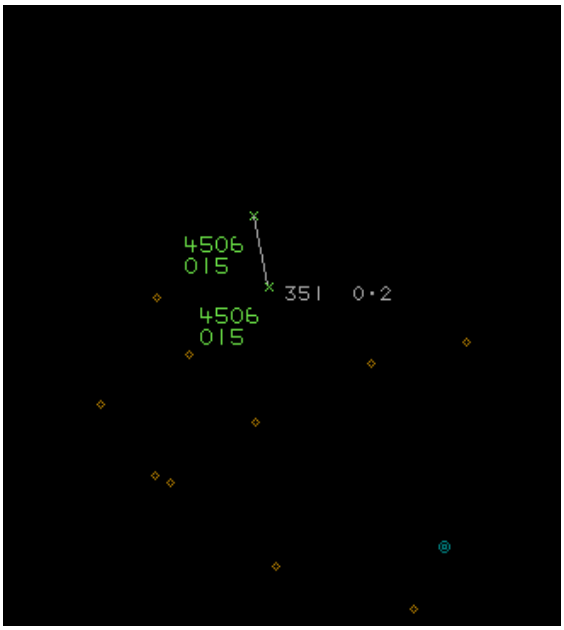


Figure 3: 1210:43.

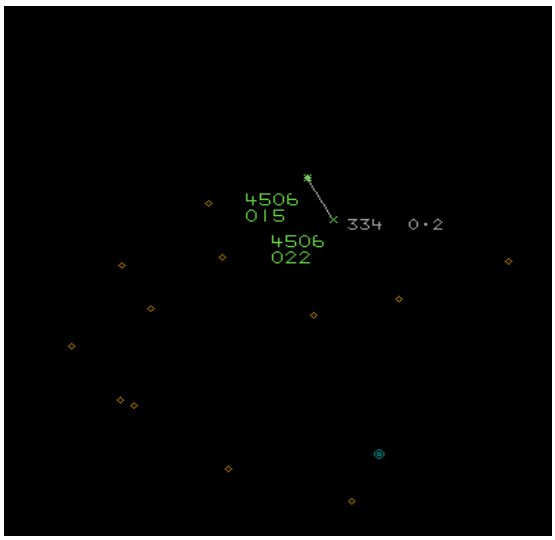


Figure 4 1210:50 - CPA.

UKAB Secretariat

The Tucano(A) and Tucano(B) pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[2].

Comments

HQ Air Command

This Airprox took place in a busy visual training environment and within the extant procedures pertaining to circuit traffic density. Although it is clear from the ATC tape transcripts that the pilot of Tucano(A) was informed of the number of aircraft in the circuit and their positions, he assimilated this information incorrectly and thus had formed a flawed mental model of the traffic in the circuit. This led him to turn in front of Tucano (B) having erroneously satisfied himself that he was visual

[1] SERA.3205 Proximity.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

with all circuit traffic. Unfortunately, the investigation could not establish whether or not Tucano(B) appeared on the TCAS I Display of Tucano(A) or, if it had, whether it would have been sufficient to alert the pilot of Tucano(A) of the presence of another aircraft and overcome his incorrect mental model. The Aerodrome Controller is to be commended for the swift action taken when it became apparent that the pilot of Tucano(A) was unaware of the presence of Tucano(B) – the use of plain English describing the nearest threat to the aircraft undoubtedly prevented the situation worsening. Equally, the vigilance of the pilot of Tucano(B) assisted in maintaining separation between the 2 aircraft. In a busy circuit environment, such as is often the case at a training unit, it is essential to maintain accurate SA on the position of all traffic in (and sometimes around, such as joining or departing) the circuit. If doubt exists then ask ATC; if doubt persists then the safest course of action is usually to extract to a less busy area and build reliable SA from a distance.

Summary

An Airprox was reported when Tucano(A) and Tucano(B) flew into proximity in the Linton-on-Ouse visual circuit at 1211 on Thursday 1st February 2018. Both pilots were operating under VFR in VMC, in receipt of an Aerodrome Control Service from Linton-on-Ouse. The ATC 'Circuit Full' light had been selected, meaning that no further circuit traffic would be accepted. At the time of the Airprox there were four aircraft in, or joining the circuit, including Tucano(A) and Tucano(B).

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controllers concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the Tucano (A) pilot and noted that he had made a late 'initial' call (at 2.6nm rather than the correct 3.5nm) because he was trying to re-establish visual contact with the aircraft joining ahead of him on the deadside, which he had temporarily lost sight of. No doubt pre-occupied with regaining visual contact with that aircraft (which he had slowed down to avoid) it was clear to the Board that Tucano(A) pilot had then not fully assimilated ATC's call about the position of the other aircraft in the circuit. Only now aware of one aircraft downwind and one aircraft on final, he was not aware of, and did not see, Tucano(B) as it turned crosswind from its touch-and-go as he was himself breaking from deadside to downwind.

Turning to the actions of the Tucano(B) pilot, the Board commended him for his situational awareness in monitoring the intentions of Tucano (A) and detecting in the latter stages of the conflict that its pilot had not assimilated the position of his aircraft. He had appropriately rolled out of his turn to avoid Tucano(A) when he had seen it belly-up to his aircraft, thus assisting in materially increasing their separation.

For his part, it was clear to the Board that the controller had saved the day by detecting that the Tucano(A) pilot had not assimilated the position of Tucano(B) and prompting Tucano(A) pilot again about its location in plain language that there was an aircraft 'on your left there underneath you'. The Board therefore also commended the controller for his prompt and proactive actions in a busy circuit environment by providing the information that had allowed Tucano(A) and Tucano(B) pilots to resolve the conflict.

The Board then discussed the cause and risk and quickly agreed that the cause was that the Tucano(A) pilot had flown into conflict with Tucano(B) as a result of the contributory factor that he had misunderstood the Traffic Information pertaining to Tucano(B). Turning to the risk, members noted that although both pilots had taken avoiding action, both had been at a late stage. The Board noted that the radar recordings showed that at CPA the two aircraft were at the same level, only 0.2nm apart and with Tucano(A) pilot unsighted to Tucano(B). Bearing in mind this dynamic situation, the Board considered that safety margins had been much reduced below the norm. Consequently, the Board assessed the risk as Category B.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tucano(A) pilot flew into conflict with Tucano(B).

Contributory Factor: The Tucano(A) pilot misunderstood the Traffic Information pertaining to Tucano(B).

Degree of Risk: B.

Safety Barrier Assessment[3]

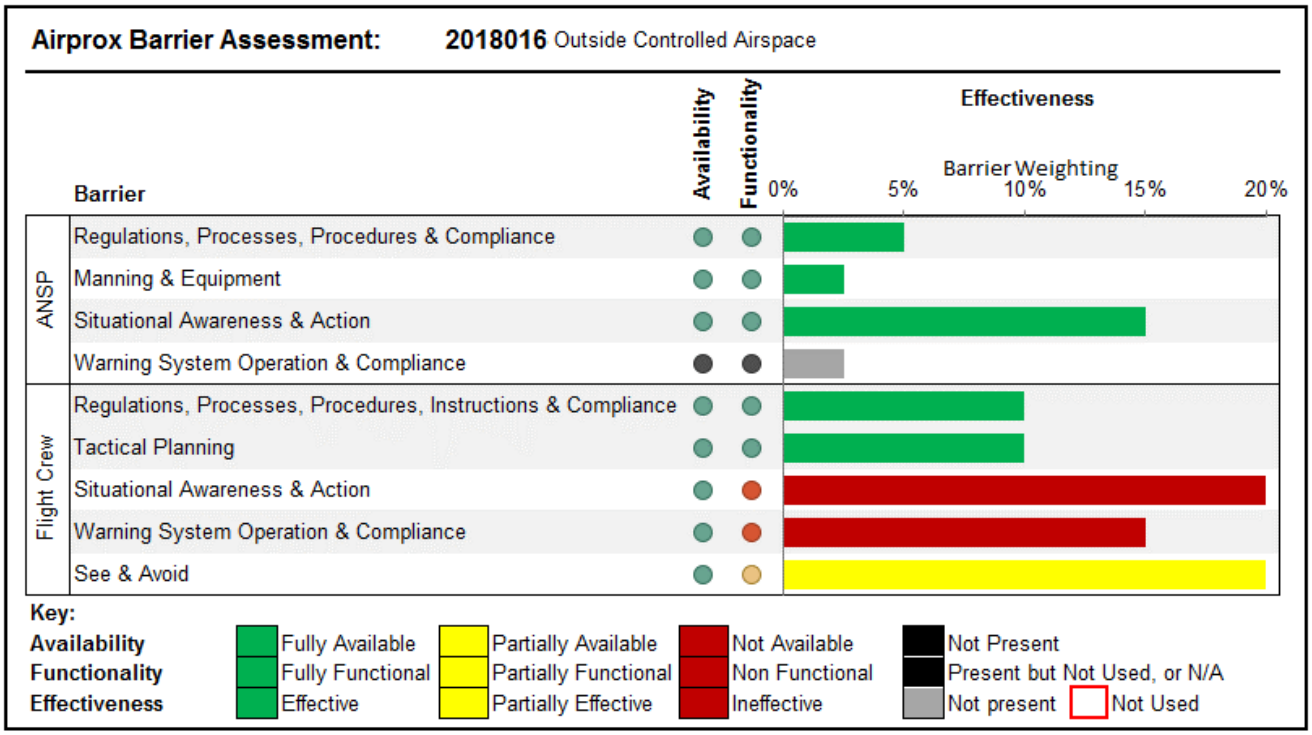
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Crew:

Situational Awareness and Action were assessed as **ineffective** because the Tucano(A) pilot did not assimilate the Traffic Information issued to him by ATC.

Warning System Operation and Compliance were assessed as **ineffective** because neither pilot received a warning from their respective TCAS equipment.

See and Avoid were assessed as **partially effective** because although Tucano(B) pilot was visual with Tucano(A) in the latter stages of the conflict, Tucano(A) pilot only saw Tucano(B) when in close proximity, resulting in late avoiding action.



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