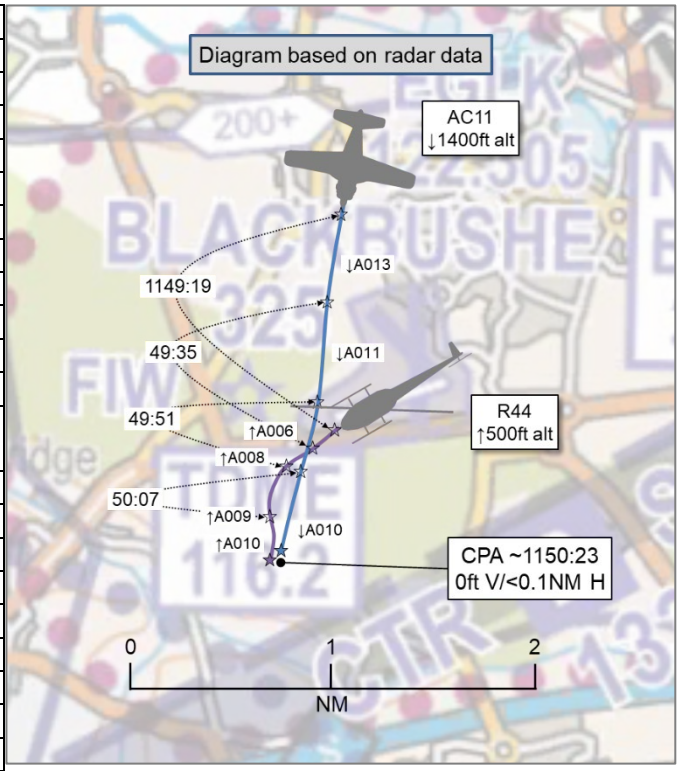
AIRPROX REPORT No 2020161

Date: 10 Oct 2020 Time: 1150Z Position: 5119N 00052W Location: Blackbushe circuit

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AC11	R44
Operator	Civ FW	Civ Helo
Airspace	Blackbushe ATZ	Blackbushe ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Blackbushe Info	Blackbushe Info
Altitude/FL	A010	A010
Transponder	A, C, S	A, C
Reported		
Colours	Silver	White
Lighting	Strobes, beacon, nav, landing lights	Strobe, nav, landing lights
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	800ft	800ft
Altimeter	QFE (1011hPa)	QFE
Heading	190°	200°
Speed	90kt	60kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	10ft V/3m H	Not Seen
Recorded	0ft V/<0.1NM H	



THE ROCKWELL COMMANDER AC11 PILOT reports that they contacted Blackbushe Tower and were passed airfield information of RW25, Left Hand Circuit, QFE 1011. Once inside the Blackbushe ATZ at 800ft QFE and squawking 7010 they commenced a standard overhead join[1] for RW25LH, and positioned for the crosswind leg to pass above RW07 threshold, crossing at 800ft QFE. They established on the crosswind leg at 800ft QFE just south of the RW07 threshold when they noticed the ascending rotor blades of a helicopter just appearing in their right-hand field of view. The pilot immediately turned right to avoid a collision with the helicopter. The helicopter then passed under their aircraft, continued to climb and joined the Blackbushe fixed-wing circuit above 800ft. On landing, they discussed the event with the pilot of the helicopter. The helicopter pilot stated that they were unaware of the Rockwell Commander above them.

The pilot assessed the risk of collision as 'High'.

THE ROBINSON R44 PILOT reports flying a normal departure from the Blackbushe Helicopter Training Area in good weather with no other influencing factors. They remember keeping a good lookout to the right before turning crosswind and no traffic was seen.

The pilot assessed the risk of collision as 'None'.

THE BLACKBUSHE AFISO reports that it was a very busy period with lots going on both on the ground and in the air. [A local helicopter operator] was conducting one of their voucher days, with lots of circuit work from the helicopter landing area situated on the grass area south and approximately midway down the runway.

[1] UKAB note: the pilot was actually conducting a standard dead-side join, as per the Blackbushe Rules and Procedures.

[The AC11 pilot] called to re-join the circuit and was given the current airfield data of RW25 left-hand circuit and the QFE. The rotary in question was a Robinson R44, which departed from the HTA and its pilot was given Traffic Information of aircraft ahead. After the rotary departed, a call was received from [the AC11 pilot] reporting dead-side. They were informed to report downwind, given a squawk code for the circuit and advised of one fixed-wing and two rotary aircraft ahead in the circuit. [The R44 pilot] reported established downwind and was given information of traffic ahead. Within a short space of time, [the AC11 pilot] reported downwind and his close proximity to the rotary.

Factual Background

The weather at Farnborough was recorded as follows:

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METAR EGLF 101150Z AUTO 28010KT 240V310 9999 BKN030/// 12/06 Q1023=
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Analysis and Investigation

CAA ATSI

The Airprox occurred in the Blackbushe circuit, with the AC11 having re-joined from the north into a circuit which was already occupied by an R44, a Cabri G2 and a SportCruiser. The two rotary aircraft were flying circuits from the Helicopter Training Area. The Blackbushe AFISO was providing an Aerodrome Flight Information Service to all aircraft. ATSI had access to reports from both pilots and the AFISO, the Blackbushe RTF and area radar replay recordings from which the screenshots have been taken.

At **1145:18** the AC11 pilot called 10NM north for joining instructions. The Blackbushe AFISO advised that it was RW25 with a left-hand circuit, passed the QFE and Traffic Information; "*one aircraft reported from the west to join*", which was all acknowledged by the pilot. The AFISO then dealt with a landing G109, another rotary completing a circuit, the SportCruiser conducting a touch-and-go, followed by the Cabri G2 pilot requesting to enter the left-hand circuit from the Helicopter Training Area.

At **1148:01** the R44 pilot called in the Helicopter Training Area ready to enter the circuit. The AFISO advised "*you've got one rotary, one fixed-wing ahead departing, take-off your discretion, surface wind…*". The R44 pilot replied "*(c/s) take-off*". There was no acknowledgement of the Traffic Information. The AFISO then dealt with an aircraft wishing to taxi but with another aircraft's door being open which required attendance of a third party to assist.

At **1148:45** the AC11 pilot reported "*dead-side descending*". The AFISO responded; "*roger, report downwind, squawk 7010, and one fixed-wing and two rotaries in the circuit ahead*". The AC11 pilot readback the squawk and the instruction to report downwind but did not acknowledge the Traffic Information (Figure 1). The AFISO then dealt with an aircraft taxiing and the Cabri G2 and then the SportCruiser pilots reporting downwind. The AFISO passed Traffic Information on the Cabri G2 to the SportCruiser pilot. The R44 appeared on the radar replay at **1149:10** (Figure 2).

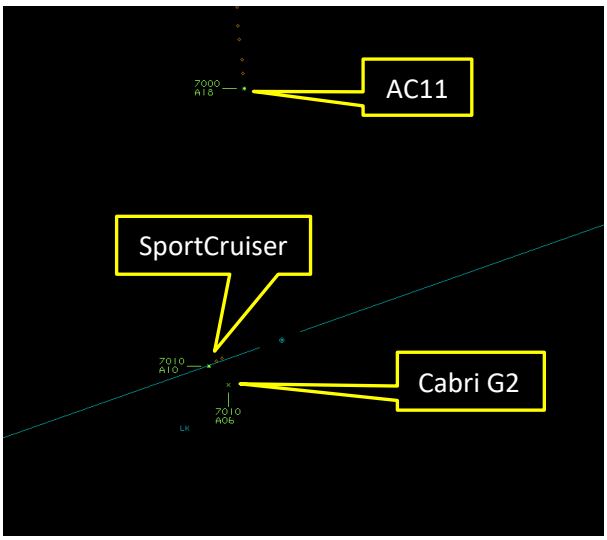


Figure 1 – 1148:45

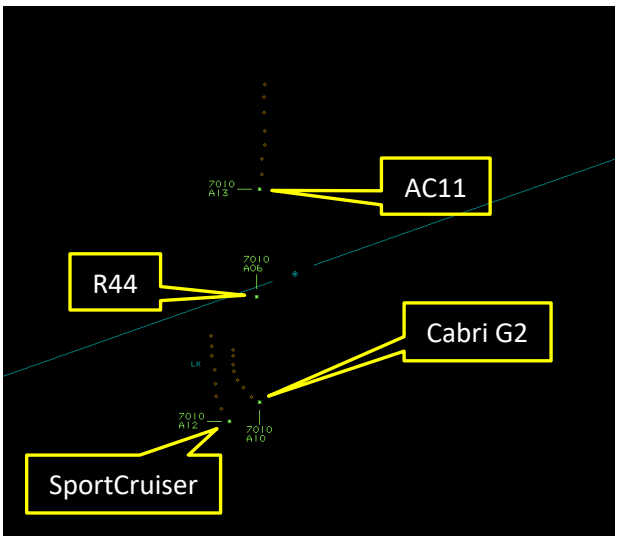


Figure 2 – 1149:10

The R44 pilot reported downwind at **1150:15**. The AFISO replied "*one fixed-wing, one rotary ahead – report final*". The first part of the R44 pilot's response was unintelligible but they did acknowledge the request to report on final (Figure 4).

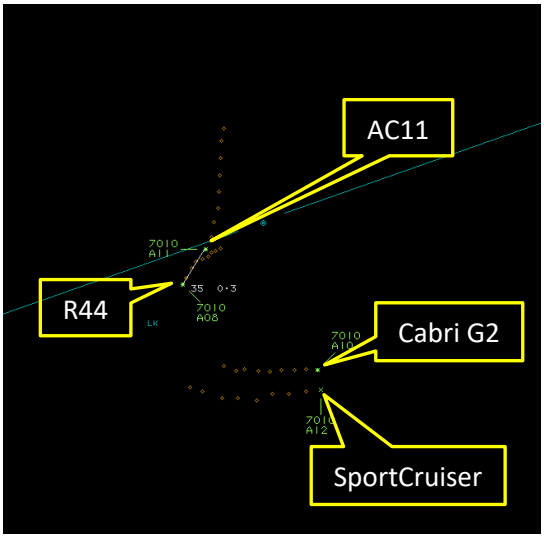


Figure 3 – 1150:10

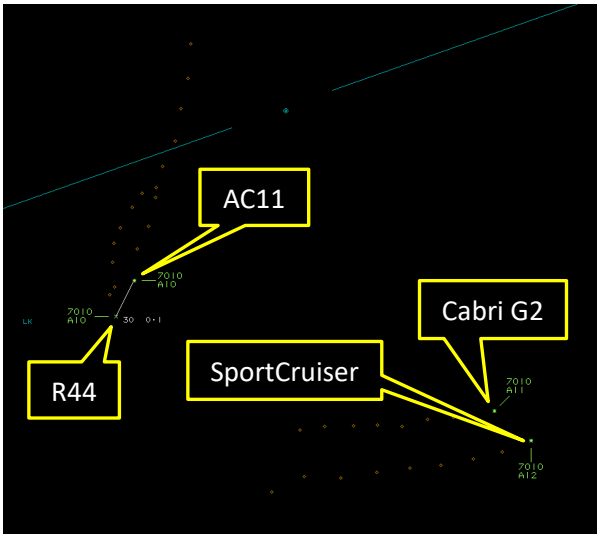


Figure 4 – 1150:15

CPA took place at approximately **1150:20**. The radar return for the R44 disappeared between **1150:19** and **1150:36** (Figures 5 & 6). Between those times, the AC11 pilot was heard to say *"….800ft turning downwind and the helicopter just came above me*". The AFISO replied; "*roger – you've got two rotaries and a fixed-wing in the circuit, report final*".

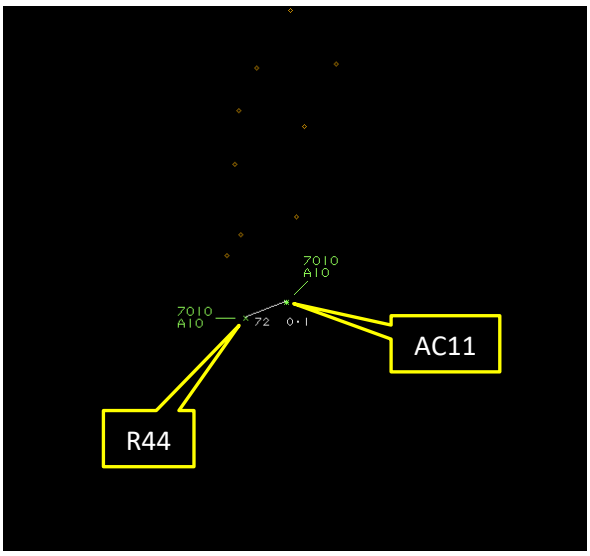


Figure 5 – 1150:19 – CPA

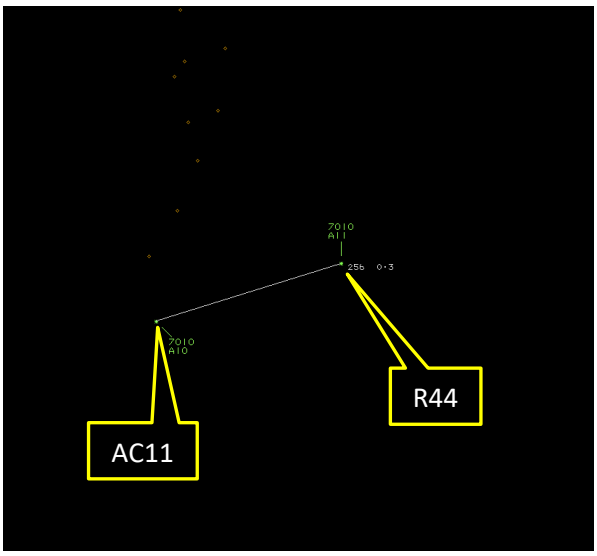


Figure 6 – 1150:36

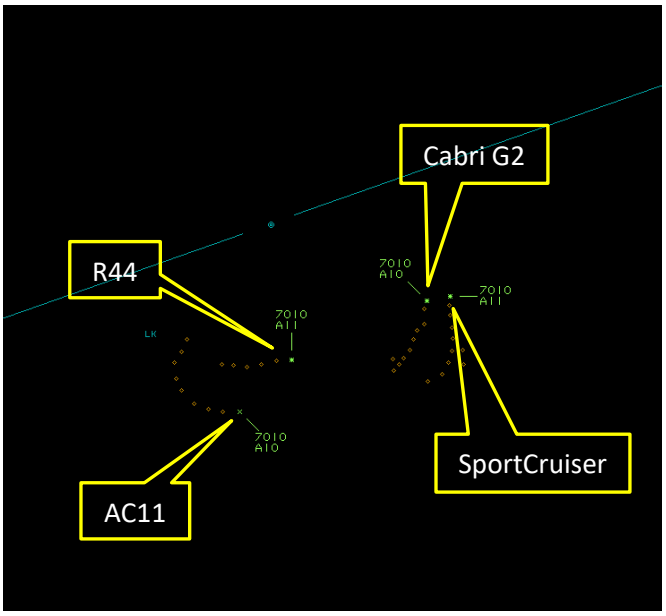


Figure 7 – 1150:55

In their written report, the AC11 pilot reported completing a standard overhead join[2] at a height of 800ft, positioning for a crosswind leg "*to pass above the R/W 07 threshold*". They reported that, whilst crosswind, the pilot in command spotted the helicopter climbing towards them, took an evasive turn to the right and watched as the R44 passed beneath them still in a climb. They did not appear to be previously aware of the presence of the R44 when it was climbing out. The inference that the R44 had climbed above them as the AC11 maintained circuit height was not evidenced on the radar replay, as the level information being received by the system from the R44 was within tolerance for a height of 800ft. (Levels indicated are altitudes. Blackbushe aerodrome elevation is 325ft).

The R44 pilot reported not seeing the AC11, having completed a "*normal departure from* (the Blackbushe) *training area. Good lookout to the right before turning crosswind*".

The AFISO report did not add anything other than confirming the Traffic Information that was passed. The unit did not submit an investigation report.

[2] UKAB note: the pilot was actually conducting a standard dead-side join, as per the Blackbushe Rules and Procedures.

During a review of the period of this occurrence, there were occasions of continuous RTF indicating that the airfield was relatively busy. The AFISO was passing Traffic Information to aircraft as they were turning down-wind and to the AC11 pilot as they joined dead-side. As noted in a previous Airprox at Blackbushe (2020156), no Traffic Information was passed to the pilot of the helicopter in the climb-out on the AC11 joining crosswind. Again, as noted in Airprox 2020156, the climb-out traffic apparently remained unaware of the presence of the AC11 joining dead-side despite the correct calls having been made by the AC11 pilot. Also, on this occasion, the AC11 pilot did not appear to have fully assimilated the presence nor the exact position of the R44.

According to the Blackbushe Airport Rules & Procedures published on the airport website, both fixed-wing and rotary circuits are flown at a height of 800ft, with the rotary circuit "*typically inside the fixed wing circuit*". There is a warning to pilots of the possibility of "*rotary traffic using non-standard circuits when using the Helicopter Training Area to the south of Runway 07/25*".

Having identified similarities between this Airprox and Airprox 2020156, ATSI contacted the Blackbushe Airport Management to discuss the passing of Traffic Information by the AFISOs. It is reported that Traffic Information is not routinely passed to pilots of aircraft in the climb-out on aircraft joining crosswind. There is an expectation that, as the aircraft pilots are on the same frequency, they should be aware of the presence of each other. However, as has been evidenced by two Airprox, this does not appear to always be the case.

There are regular meetings of the Safety Action Group at Blackbushe with representatives from all parties on the airfield. The matter of Traffic Information has apparently been discussed in the past, with the comment having been made that some pilots felt that too much Traffic Information was being passed.

With regards to circuit height, Blackbushe reports that this had been reviewed recently, but as they have a large number of high performance faster twins and small business jets using the airfield, they have prioritised keeping them above the circuit, and below the overhead join at 1600ft, rather than vertically splitting-up the rotary and fixed wing circuits any further. It is expected that the rotary pilots should fly a tighter circuit, making their final approach to the Helicopter Training Area to the south of the main runway.

Neither the AC11 pilot nor the R44 pilot appeared to be aware of the presence of the other despite Traffic Information having been passed to the AC11 pilot. Had Traffic Information been passed by the AFISO to the R44 pilot on the AC11 this might have aided the R44 pilot's situational awareness.

ATSI recommends that Blackbushe considers the passing of Traffic Information to aircraft in the climb-out on aircraft committed to joining on the dead-side.

UKAB Secretariat

The AC11 and R44 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] 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.[4]

Summary

An Airprox was reported when a Rockwell Commander AC11 and a Robinson R44 flew into proximity in the Blackbushe circuit at 1150Z on Saturday 10th October 2020. Both pilots were operating under

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

VFR in VMC and both pilots were in receipt of an Aerodrome Flight Information Service from Blackbushe Information.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the AFISO involved. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first considered the actions of the Rockwell Commander pilot and quickly agreed that, as the pilot joining the circuit, it had been for them to integrate with the traffic already established in the pattern. The Board considered that the R44 pilot, operating from the Helicopter Training Area (HTA) – see Figure 8 – had been established in the circuit and, therefore, the Rockwell Commander pilot had not correctly integrated with that aircraft (**CF4**, **CF6**). Members discussed why this had been the case and agreed that the Rockwell Commander pilot had not been passed sufficient Traffic Information in response to their joining call to permit them to assimilate the presence of the R44 operating from the HTA (**CF7**). Furthermore, the Board also wondered if the Rockwell Commander pilot had actually digested this Traffic Information because there had been no acknowledgement of receipt of the information and, given the lack of passage of the positions of the circuit traffic, no request from the pilot for more precise positional information (**CF5**, **CF8**). Members agreed that the Rockwell Commander pilot had proceeded with their join in accordance with local procedures but had probably not assimilated that the R44 was operating in the area that they were about to fly into, leaving See and Avoid as the only viable barrier to mid-air collision. In this regard, the R44 had been climbing into the circuit from the HTA and the Board considered that this may have hindered the Rockwell pilot's visual acquisition of the helicopter, to the extent that they did not see it until at or around CPA (**CF11**).

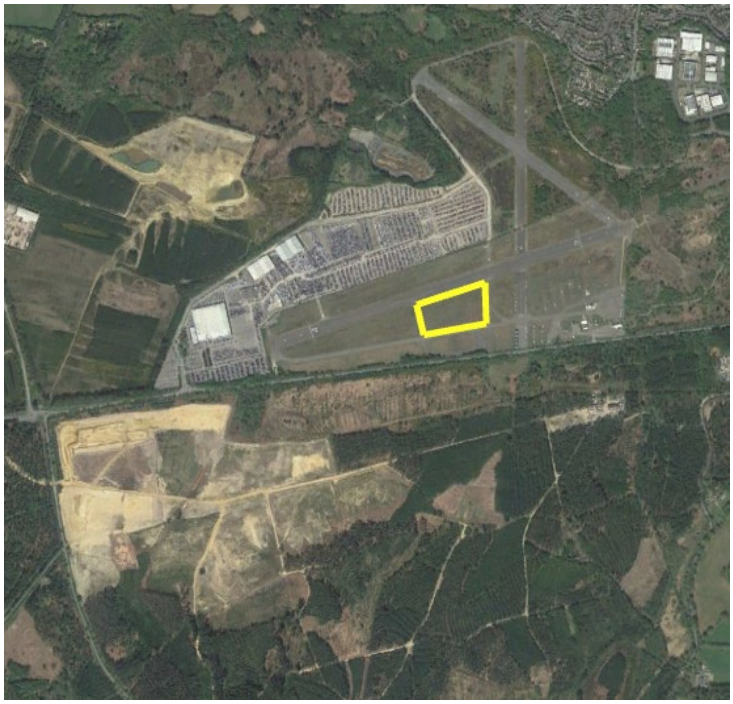


Figure 8 – Blackbushe HTA

The Board then considered the actions of the R44 pilot and heard from a helicopter pilot member that 'voucher days' are extremely high workload events for the helicopter pilots involved, with multiple rotors-running passenger changes to manage. Part of this management includes ensuring the safe embarkation/disembarkation of passengers, safety briefings to passengers on-board and ensuring that the aircraft is secure for flight after each changeover. Members wondered if this high workload could have distracted the pilot such that they had not assimilated the joining Rockwell Commander pilot's radio calls. Coupled to this, the Board considered that the fact that the R44 pilot had not received any Traffic Information regarding the joining Rockwell Commander led to them not having any situational awareness of the presence of the Rockwell Commander (**CF7**). The Board noted that the pilot had reported conducting a good lookout prior to lifting, but also that the Rockwell Commander had been approaching from behind and to the left of the helicopter, making it less likely that the R44 pilot would have been able to acquire the joining aircraft (**CF9**). The Board concluded that the R44 pilot had not

realised that the Rockwell Commander was close to their position as they lifted and then did not see it until after CPA (**CF11**).

Turning to the actions of the Blackbushe AFISO, the Board drew parallels with another recent Airprox at Blackbushe [2020156] where members heard that the airfield can get very busy and so radio transmissions need to be kept short and to the point. The Board felt that there is a balance to be struck between sufficient and too much Traffic Information but that, on this occasion, there had been the opportunity for the AFISO to pass more detailed Traffic Information to both the Rockwell Commander pilot and to the pilot of the R44. Furthermore, members agreed that the imprecise and/or lack of Traffic Information to the pilots involved had contributed to the Airprox (**CF1**, **CF3**). Members again wondered if that this had been more through habit than a lack of time to pass the information, given the circuit did not appear to have been overly busy at the time, and agreed that the AFISO had not detected the potential for a confliction between the Rockwell Commander and the R44 (**CF2**). The Board went on to discuss the circuit procedures at Blackbushe and some members wondered why there was no built-in altitude deconfliction between the fixed-wing light-aircraft and helicopter circuits. The Board heard from a member familiar with Blackbushe that the jet aircraft circuit is deconflicted from the other 2 circuits by altitude, so local procedures are written such that the helicopter circuit is normally flown inside the fixed-wing light-aircraft circuit. The Board acknowledged the difficulties of operating in the congested airspace around Blackbushe and accepted that vertical deconfliction of the circuit traffic is not always possible. However, this did rely on differing ground tracks for helicopters and fixed-wing light-aircraft which was not always achievable. Some members felt that it may be useful for Blackbushe to review its circuit procedures, particularly with respect to the helicopter and light-aircraft fixed-wing circuits, but the Board stopped short of making a Safety Recommendation in this regard.

Finally, the Board considered the risk involved in this encounter. Members took into account the separation recorded on the NATS radar and also the Rockwell Commander pilot's estimate, noting that the R44 pilot had not seen the Rockwell Commander at any time up to and including CPA. All members agreed that there had been a risk of collision (**CF10**), but opinions differed as to whether a Risk Category A or B best described the risk involved. Some members argued that it had been entirely by chance that the 2 aircraft had missed each other, thus demonstrating a serious risk of collision (Risk Category A) while others opined that the lateral separation apparent on the radar replay, coupled with the Rockwell Commander pilot's last-minute actions, had been enough to reduce the collision risk to a Category B. After further discussion, the Director put it to the vote and, by 8 votes to 5, the Board assigned a Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2020161		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Regulations, Processes, Procedures and Compliance		
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not fully complied with
	• Situational Awareness and Action		
2	Human Factors	• Conflict Detection - Not Detected	
3	Human Factors	• ANS Traffic Information Provision	TI not provided, inaccurate, inadequate, or late
	Flight Elements		
	• Regulations, Processes, Procedures and Compliance		
4	Human Factors	• Flight Operations Documentation and Publications	Regulations and/or procedures not fully complied with
	• Tactical Planning and Execution		
5	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
6	Human Factors	• Monitoring of Other Aircraft	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action		

7	Contextual	• Situational Awareness and Sensory Events	The pilot had generic, late or no Situational Awareness
8	Human Factors	• Lack of Communication	Pilot did not request additional information
	• See and Avoid		
9	Contextual	• Poor Visibility Encounter	One or both aircraft were obscured from the other
10	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	Piloted air vehicle
11	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: B

Safety Barrier Assessment[5]

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Blackbushe AFISO did not pass Traffic Information on the Rockwell Commander to the pilot of the R44 and only passed generic information on circuit occupancy to the pilot of the Rockwell Commander.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Blackbushe AFISO had not detected the potential conflict between the joining Rockwell Commander and the R44 in the Helicopter Training Area, and did not pass Traffic Information on the Rockwell Commander to the pilot of the R44.

Flight Elements:

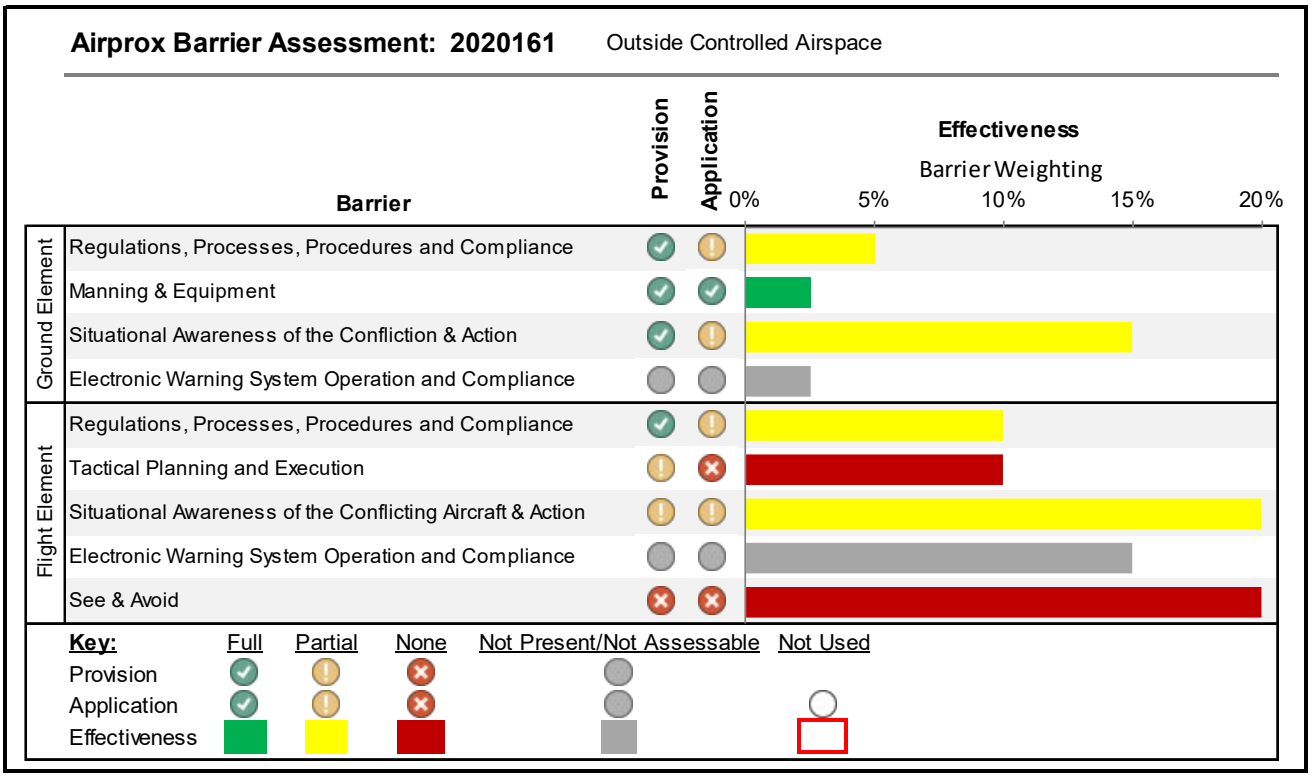
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the Rockwell Commander pilot did not integrate with the traffic already established in the Blackbushe visual circuit pattern.

Tactical Planning and Execution was assessed as **ineffective** because the Rockwell Commander pilot did not request further information from the Blackbushe AFISO regarding circuit traffic positions to enable them to successfully integrate into the visual circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the R44 pilot was completely unaware of the presence of the Rockwell Commander, and the Rockwell Commander pilot did not have specific situational awareness of the position of the R44 in the visual circuit pattern.

See and Avoid were assessed as **ineffective** because the Rockwell Commander was obscured from the R44 pilot's view (behind and to the left of the aircraft), and neither pilot saw the other aircraft in time to materially affect the separation.

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


Airprox Barrier Assessment: 2020161
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness