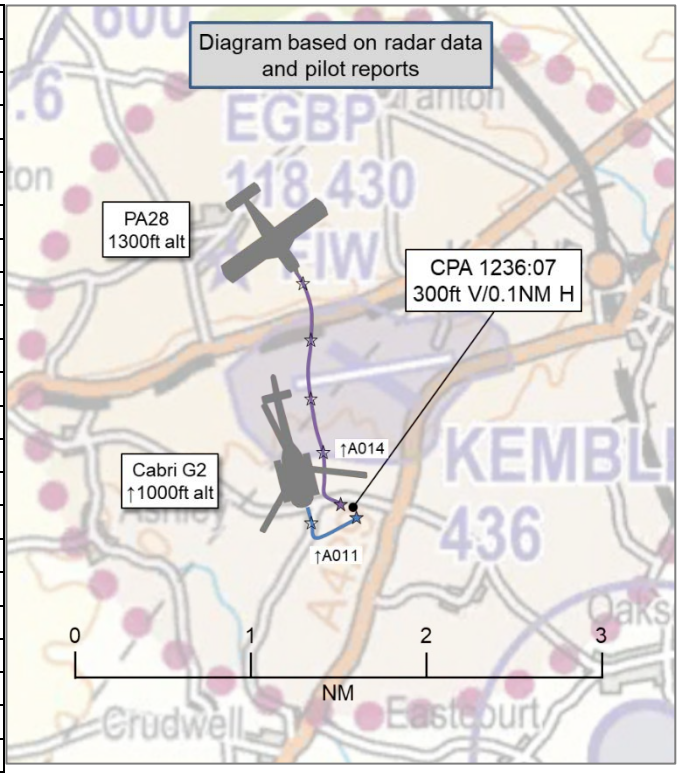
AIRPROX REPORT No 2020091

Date: 07 Aug 2020 Time: 1236Z Position: 5139N 00203W Location: Kemble circuit

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cabri G2	PA28
Operator	Civ Helo	Civ FW
Airspace	Kemble ATZ	Kemble ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Kemble Info	Kemble Info
Altitude/FL	1100ft	1400ft
Transponder	A, C, S	A, C
Reported		
Colours	Blue/white	White, blue, gold
Lighting	Strobe, nav lights	NR
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	700ft	1000ft
Altimeter	QFE (1002hPa)	QFE (1002hPa)
Heading	080°	080°
Speed	80kt	85kt
ACAS/TAS	Not fitted	Unknown
Separation		
Reported	100ft V/NR H	Not Seen
Recorded	300ft V/0.1NM H	



THE CABRI G2 PILOT reports that they were established on the helicopter downwind leg at 700ft, QFE 1002hPa and 70kt IAS. When they were approximately two thirds of the way along the downwind leg, a fixed-wing aircraft joined incorrectly in the overhead and joined crosswind through the middle of the airfield, descending in a steep turn in the helicopter circuit pattern. To avoid a collision, they took evasive action by turning 90° north towards the airfield and also descending to a height of approximately 400ft to avoid being in the descent path of the aircraft. The fixed-wing continued descending to approximately 500-600ft through the helicopter circuit pattern into the fixed-wing circuit pattern, cutting up a Cirrus aircraft established in the downwind leg. Once the threat had passed, they turned right 90° to correct their path. They continued in the circuit and made a safe landing.

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

THE PA28 PILOT reports that they departed [their departure point] on a southerly heading in order to gain height for recovery to Kemble and changed radio frequency to Kemble Information. Once at approximately 2000ft they turned onto a northerly heading and contacted Kemble Information for rejoin instructions, making clear that this would be via a standard overhead join. [The Kemble AFISO] passed the QFE of 1002hPa, RW26 with left-hand turns and instructed them to report overhead. With the QFE set, they entered the ATZ and, on approaching the overhead, observed another fixed-wing aircraft at circuit height on base/final which had extended the circuit past Kemble village. [The Kemble AFISO] asked that aircraft their position. The PA28 pilot was wary of this aircraft due to its extension of the circuit pattern. When they were over the RW26 numbers, they reported overhead and were told by the [Kemble AFISO] to report crosswind. They then descended on the dead-side to 1000ft and the aircraft on final reported going around. They turned crosswind at 1000ft to pass over the RW08 numbers and reported that they had turned crosswind. The aircraft going around passed under them on the extended centreline. They then turned downwind and reported this to the [Kemble AFISO]. [The Kemble AFISO] asked them if they were aware of the fixed-wing aircraft; they checked and reported that it was to their starboard and to their rear. [The Kemble AFISO] asked them if they had visual on the rotary aircraft, so

they checked and, as they had no visual, responded negative. This was the first time they knew about a rotary aircraft. After a short time (about 5sec), [the Kemble AFISO] asked again if they had visual on the rotary aircraft; they checked again but still had no visual and responded negative. After a short time the pilot of the rotary aircraft transmitted to [the Kemble AFISO] that he had dived for the aircraft which had cut the corner; [the Kemble AFISO] acknowledged. They continued downwind, turned base, reported when they turned final and [the Kemble AFISO] gave them landing approval and wind information.

THE KEMBLE AFISO reports that they made a note in the watch log referencing the incident purely in response to the RT comments by the pilots, as it is difficult to appreciate how close aircraft actually come in the visual circuit when viewed from the VCR. They therefore rely on the pilots taking the necessary reporting action if they feel an Airprox occurs. In their view, this incident developed as pilots do not seem to appreciate the importance of joining the circuit over the upwind numbers.

Factual Background

The weather at Gloucester and Brize Norton was recorded as follows:

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METAR EGBJ 071250Z 24005KT 190V270 9999 FEW049 29/17 Q1018=

METAR EGVN 071250Z 13004KT CAVOK 31/14 Q1017 NOSIG RMK BLU BLU=
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Analysis and Investigation

CAA ATSI

ATSI had access to the reports from both pilots, the Kemble RTF and the Area Radar recording. All levels displayed within the screenshots in this report have been taken from the Area Radar and are shown as Flight Levels. The QNH set within the Radar Display was 1017hPa (4hPa difference from the Standard of 1013hPa). Adding 108ft to the levels shown will determine the relevant altitudes flown. The Kemble Aerodrome elevation as published is 436ft. When this is subtracted from the altitudes, the heights above ground level can be determined.

The Kemble RTF was busy throughout the period of the review. In the interest of brevity only the RTF from/to the aircraft involved in the Airprox has been included within this report.

At **1229:00** the PA28 pilot called the Kemble FISO and advised, "*just departed [Aerodrome], overhead Miles Drayton, two thousand feet QFE, request airfield information for re-join*". The FISO responded, "*roger we're two six left-hand, QFE one zero zero two*". The pilot provided a full and accurate readback and the FISO responded, "*Roger, got two others joining*". The pilot acknowledged the two in and requested a standard overhead join and the FISO responded, "*report in the overhead*". The pilot read back "*report overhead*".

At **1229:20** the Cabri G2 pilot reported entering the ATZ and the FISO responded "*report er establishing downwind for the south side*". The pilot responded, "*report established downwind left for southside*".

At **1231:50** the Cabri G2 pilot reported, "*now left base two six, southside*". The FISO responded, "*roger, report final southside*". The pilot acknowledged with "*roger, report final*".

At **1232:30** the FISO issued a landing advisory to the Cabri G2 pilot "*southside land at your discretion, surface wind two one zero five*". The pilot acknowledged with their callsign (Figure 1). At **1233:10** the PA28 pilot reported overhead and the FISO responded, "thank *you, report crosswind*". The pilot responded, "*call crosswind*" (Figure 2).

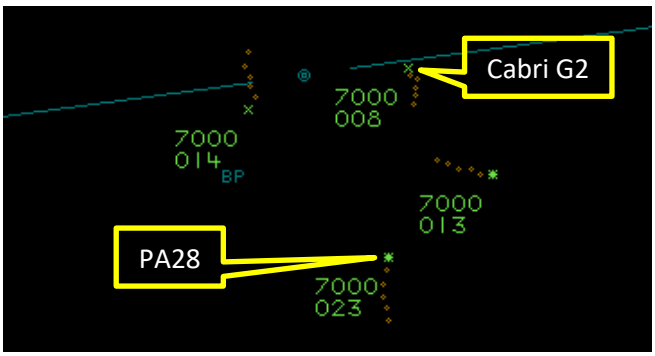


Figure 1 – 1232:30

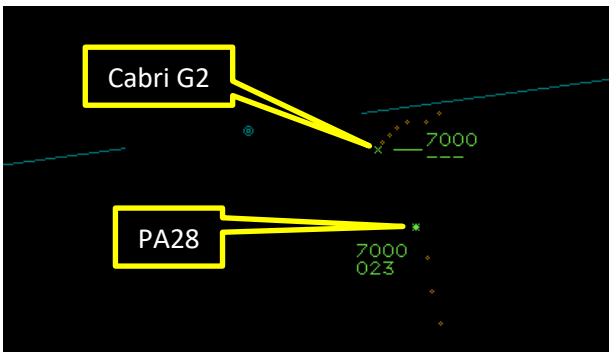


Figure 2 – 1233:10

At **1233:50** the Cabri G2 pilot then said, "*request circuits southside?*" and the FISO responded, "*southside take off your discretion the wind calm*". The pilot acknowledged with their callsign (Figure 3). At **1235:20** The PA28 pilot reported crosswind and the FISO responded, "*report downwind, traffic climbing away, rotary traffic is downwind for the southside*". The pilot responded, "*visual with the climber, er not visual with the rotary*" (Figure 4).

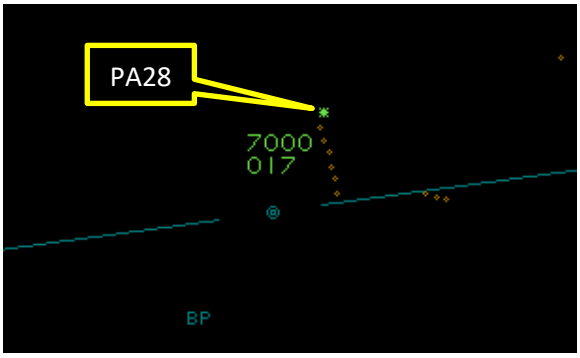


Figure 3 – 1233:50

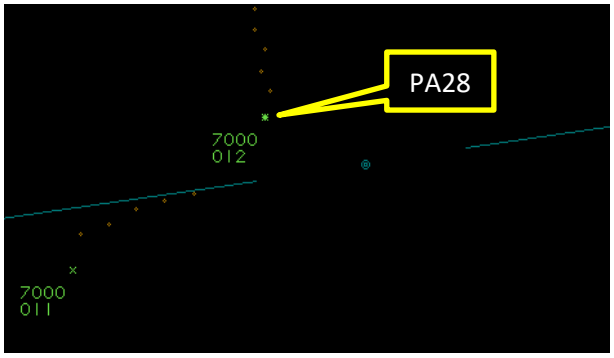


Figure 4 – 1235:20

At **1236:07** CPA occurred, with the aircraft separated by 0.1NM laterally and 300ft vertically (Figure 5). At **1236:20** The PA28 pilot reported downwind and the FISO asked the pilot if they saw the aircraft downwind and the pilot responded, "*affirm he's to my starboard and aft of me?*". The FISO said "*and the helicopter?*" The pilot responded, "*still not visual with it either*" (Figure 6).

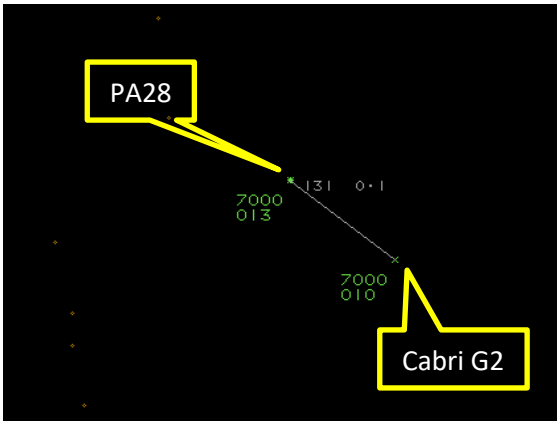


Figure 5 – 1236:07 – CPA

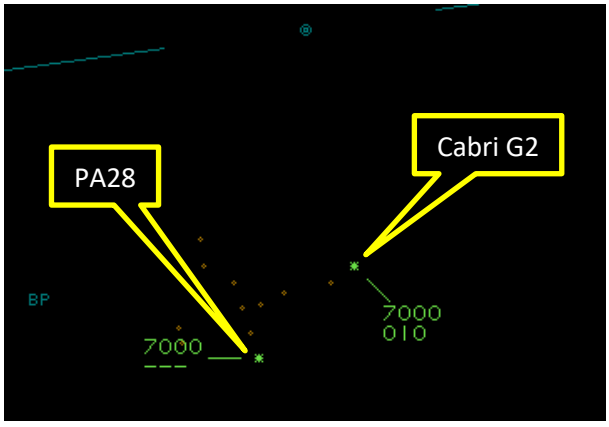


Figure 6 – 1236:20

At **1237:20** the Cabri G2 pilot reported final for the southside and advised the controller, "*just for your information we had to dive out the way for that fixed wing that cut the corner to join downwind*". The FISO responded "*yes, yes*".

Both pilots were in receipt of an AFIS from the Kemble FISO at the time of the Airprox.

The circuit heights published in the Kemble MATS Part 2 and the UKAIP are:
- 1000ft for light aircraft. The PA28 was at circuit height at CPA.
- 700ft for helicopters. The Cabri G2 was at the helicopter circuit height at CPA.

Joining procedures state that *unless agreed otherwise, all aircraft are expected to join overhead for a "standard overhead join"*. The PA28 appeared correctly positioned throughout the standard overhead join, with the exception of one slight turn to the left which was observed to last for one sweep of the radar, just prior to CPA. The aircraft subsequently turned back onto a southerly heading (Figures 5 and 6).

The UK AIP advises that "*helicopters may operate south of Runway 08/26 (asphalt) for training up to 700ft aal, inside the fixed wing circuit*".

Both pilots made all of the position reports requested by the FISO.

Relevant Extract from the UK AIP GEN 3.3

> 3.6 Aerodrome Flight Information Service (AFIS)
>
> 3.6.1 The Aerodrome Flight Information Service (AFIS) is a service provided by Aerodrome Flight Information Service Officers (AFISO) to give information useful for the safe and efficient conduct of aerodrome traffic, including assisting pilots in the prevention of collisions, and to give taxi instructions on the apron and manoeuvring area. From the information received pilots will be able to decide the appropriate course of action to be taken to ensure the safety of flight.

The Kemble FISO requested the appropriate position reports from the pilots to aid their situational awareness and enable them to decide appropriate courses of action to be taken to ensure the safety of their flights.

UKAB Secretariat

The Cabri G2 and PA28 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]

Summary

An Airprox was reported when a Cabri G2 and a PA28 flew into proximity in the Kemble circuit at 1236Z on Friday 7th August 2020. Both pilots were operating under VFR in VMC and both pilots were in receipt of an Aerodrome Flight Information Service from Kemble 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 Aerodrome Flight Information Services Officer 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 Cabri G2 pilot and wondered if perhaps they had been startled by the appearance of the PA28 above them. Members discussed the Kemble fixed- and rotary-wing circuit constructions and agreed that, with the rotary-wing circuit inside and below the fixed-wing circuit, there will inevitably be points at which the two circuit's respective ground tracks cross; indeed, this would have been precisely why there is a different published height for each of the circuits. The

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

Board heard from a helicopter pilot member that there are many airfields around the UK where helicopter and fixed-wing circuits 'overlap' and that occasions where are fixed-wing aircraft overflies a rotary-wing aircraft in the circuit are not uncommon. That said, members agreed that the Cabri pilot had not been aware that the PA28 had been closing on their aircraft from behind, where they would not have been looking, and therefore had been concerned by how close it had appeared (**CF5**) when they eventually saw it pass overhead (**CF4**).

Turning to the actions of the PA28 pilot, members considered the pilot's report, evidence from the NATS radar replay and the findings of the ATSI report, and concluded that they had conducted their overhead join in accordance with the published procedures and made all the radio calls that had been either required or requested of them. That said, the Board felt that the PA28 pilot had not assimilated the position of the Cabri in the rotary-wing circuit and that their track may have taken them overhead the helicopter (**CF2**). Members wondered if perhaps the PA28 pilot had been aware of the active rotary-wing circuit and had been looking for the Cabri with the intent of adjusting their track if necessary, or simply if the PA28 pilot had been relying on the in-built circuit height deconfliction to ensure adequate separation. Whichever the case, the Board agreed that the PA28 pilot had not seen the Cabri prior to CPA (**CF3**) and, therefore, had not adjusted their track to avoid overflight of the helicopter.

The Board then examined the actions of the Kemble AFISO. Both aircraft had been in receipt of a Basic Service and, as such, the AFISO had not been required to monitor the aircraft under the terms of that Service (**CF1**). However, it was clear to the Board that, although Traffic Information on the Cabri had been passed to the PA28 pilot, no reciprocal Traffic Information had been passed to the Cabri pilot. Some members felt that the Kemble AFISO should have passed reciprocal Traffic Information and that this might have directly alerted the Cabri pilot to the relative position and proximity of the PA28 such that they would have been less surprised by its appearance overhead. However, an ATC member pointed out that, with the PA28 positioned behind the Cabri in the moments leading up to the Airprox, it would have been a legitimate decision to not pass reciprocal Traffic Information as the AFISO would not have been expecting the Cabri pilot to be looking for traffic behind them and, in any case, the information had already been transmitted to the PA28 pilot on the same frequency.

Extract from CAP797 – FISO Manual

> 8.11 Traffic information to traffic operating in the vicinity of an aerodrome, and specifically within the ATZ and to flights conducting Instrument Approach Procedures (IAP) shall be issued in a timely manner when, in the judgement of the AFISO, such information is necessary in the interests of safety, or when requested by the aircraft. When a pilot report indicates, or an AFISO considers, that there may be a collision risk, specific traffic information shall be passed to each pilot concerned.
>
> 8.12 In addition to the information listed in paragraph 8.89, before entering the traffic circuit an aircraft should be informed of the current traffic circuits and other traffic when necessary.

The Board therefore concluded that the Kemble AFISO had acted appropriately in the circumstances and could not have done anything more to prevent the Airprox from occurring.

Finally, the Board considered the risk involved in this event. Members noted that the Cabri pilot had been sufficiently concerned about the proximity of the PA28 to initiate a turn and rapid descent to 400-500ft agl and also that they had assessed the risk of collision as 'medium', and so some members felt that safety had been reduced and therefore a Risk Category of C (no risk of collision but safety degraded) was warranted. However, others highlighted that it was clear from the NATS radar replay and ATSI report that both aircraft had been at their respective circuit heights up to and including CPA, and that this was exactly how the circuits at Kemble were supposed to function. After some further discussion, Board members agreed that there had been no risk of collision and, given that the fixed- and rotary-wing circuit tracks and heights had been adhered to by both pilots, normal safety standards and parameters had pertained; Risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2020091		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1	Contextual	• ANS Flight Information Provision	Not required to monitor the aircraft under the agreed service
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
2	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
	• See and Avoid		
3	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots
4	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
5	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E

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:

Ground Elements:

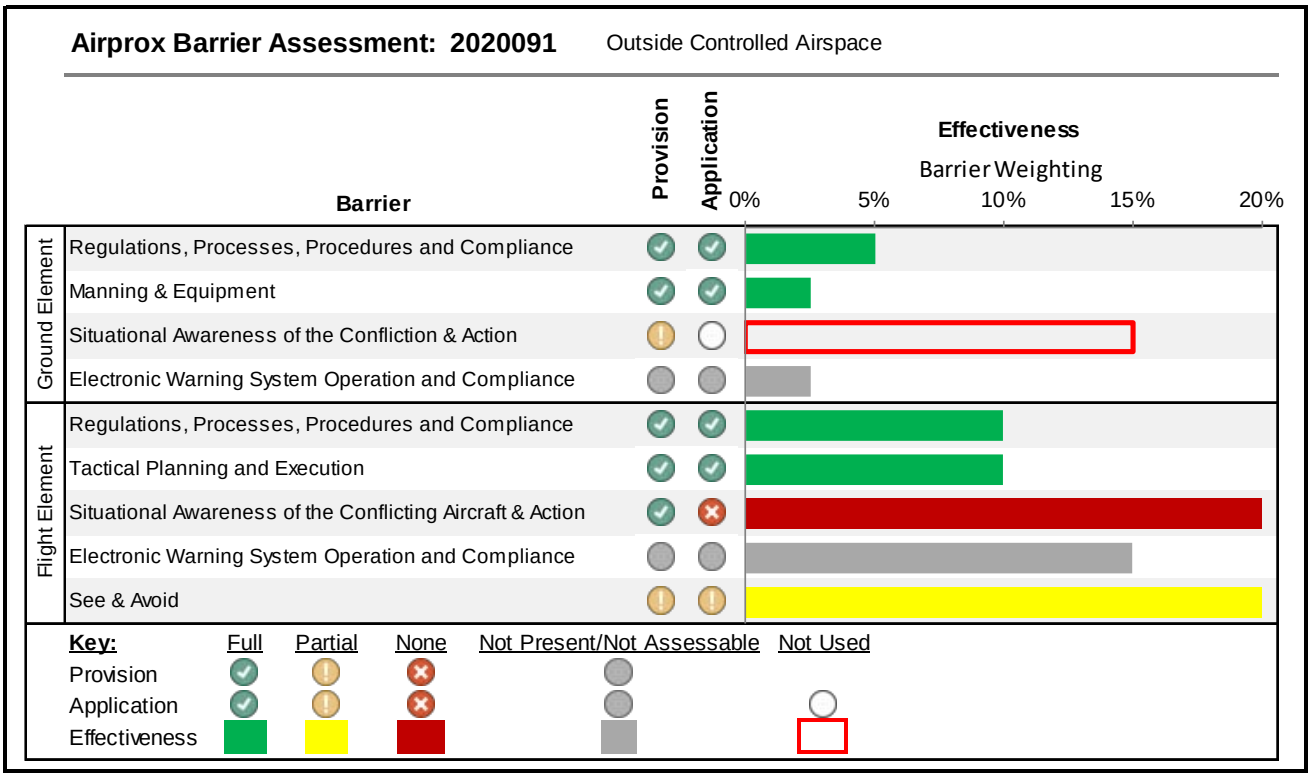
Situational Awareness of the Confliction and Action were assessed as **not used** because the Kemble AFISO was not required to monitor the aircraft under the terms of an Aerodrome Flight Information Service.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the PA28 pilot did not assimilate the presence of the Cabri G2 in the helicopter circuit southside until prompted by the AFISO.

See and Avoid were assessed as **partially effective** because the Cabri G2 pilot sighted the PA28 late and the PA28 pilot did not see the Cabri G2 prior to CPA.

[3] 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: 2020091
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