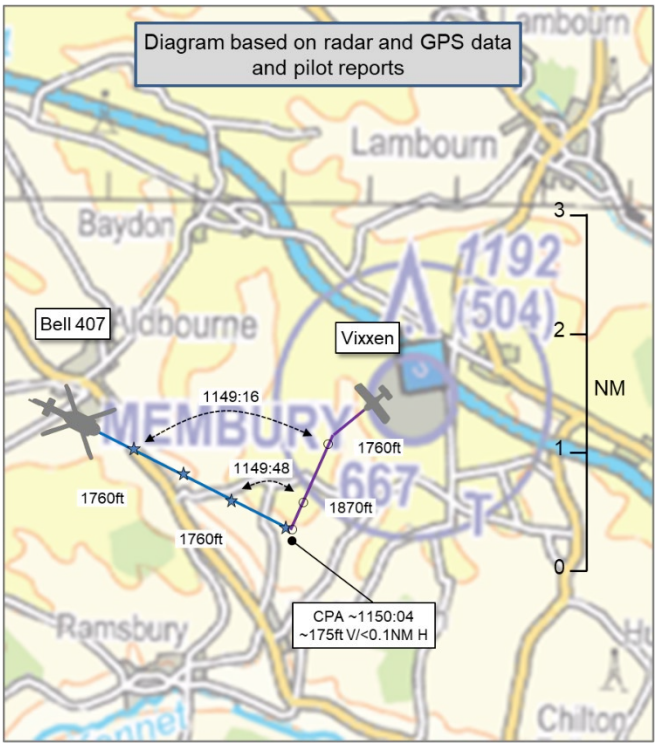
AIRPROX REPORT No 2024295

Date: 06 Dec 2024 Time: ~1150Z Position: 5127N 00132W Location: 2NM SW of Membury Airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Bell 407	Vixxen
Operator	Civ Helo	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Brize Radar	Membury Radio
Altitude/FL	~1560ft	~1735ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue and white	Orange
Lighting	Landing, tail, strobes	Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	NK
Altimeter	QNH (1019hPa)	QFE
Heading	118°	NK
Speed	120kt	NK
ACAS/TAS	TAS	Not fitted [1]
Alert	None	N/A
Separation at CPA		
Reported	200ft V/0NM H	Not seen
Recorded	~175ft V/<0.1NM H	



THE BELL 407 PILOT reports that they had been flying along the M4 motorway to the south side, between Membury and Ramsbury, heading 118° at 1800ft on 1019hPa QNH. Their anti-collision lights were on (red blinking on top of tail fin plus white flashing on each stabiliser tip and on top fuselage), as well as blinking landing light. Weather and visibility had been clear. They note that their aircraft had TAS fitted as well as ADS-Bin and out. They report that they had suddenly visually become aware of a single-engined high-winged light-aircraft (probably a microlight [they opined]) approaching from the north in a southerly direction. The distance on first sighting had been significantly less than 1NM as it had been hidden behind a pillar/mullion. As the other aircraft had made no course alteration at all, the Bell 407 pilot had immediately descended by several hundred feet and the other aircraft passed directly overhead. As far as the Bell 407 pilot could see, it had kept straight-and-level and continued on a southerly heading without any form of course or height alteration. The Bell 407 pilot had been in contact with Brize Radar on a Basic Service at the time, but did not report the incident. They could see no transponder on the other aircraft [via] their TAS, and the pilot [recognised] that they should have seen the threat visually earlier.

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

THE VIXXEN PILOT reports that […] they did not recall seeing a helicopter in the vicinity of their circuit flying on that day, however, they were happy to provide all the information they had, as follows: they had been doing some practice circuits at Membury airfield on RW23LH (hard runway) and completed 4 circuits before landing. The weather was fine for circuit work. The flight in question was the only flight that they had made that day. They made blind circuit position calls on the Membury airfield frequency and had only seen one other aircraft (also on frequency and based at Membury airfield) take-off a short while before themselves and then land again just after the Vixxen pilot had landed. Other than the other

[1] Pilot reports no EC carried but the aircraft was tracked via a FLARM ID output.

aircraft leaving and later re-joining the circuit, they had not heard any other aircraft on that frequency. In response to the email they had received [from Airprox Admin], they provided a copy of the "Debriefing Pack" generated by SkyDemon for the date/time and flight requested and a slightly zoomed-in screenshot image of the circuits in case it helped to identify where they had flown. From the limited information given in the email chain relating to the vicinity of the other aircraft, it seemed to have been quite close to the airfield and quite low so the Vixxen pilot's best guess (and it is just a guess) would be that as they had been climbing out from RW23LH, even if they had remembered to dip the nose a bit (they cannot recall they had although that is their normal practice), it is unlikely they would have spotted it.

THE BRIZE NORTON RADAR CONTROLLER reports that they had been the Brize LARS controller at the time of the incident on an endorsement check. They have no recollection of the incident as the Airprox was not declared on frequency. Having watched a radar replay of the event, at the time of the occurrence they had been working 8 aircraft on frequency, 3 x TS and 5 x BS, the Bell 407 had been one of the aircraft under a BS. At 1149Z a 7000 squawk [that cannot be positively confirmed as the 2nd aircraft] first appeared on radar 2NM east of the Bell 407 indicating FL007, it can then be seen to climb towards the Bell 407. At 1150Z the Bell 407 can be seen descending from FL016 to FL014. The controller notes that they did not see that event at the time due to the speed at which it occurred and having prioritised the 3xTS aircraft on frequency operating in an area of high traffic density.

The controller perceived the severity of the incident as 'High'.

THE BRIZE NORTON SUPERVISOR reports that they did not witness the occurrence; nothing was declared on frequency. However, they did recall telling the LARS controller that they were 'full' and not to accept any more aircraft for a service once they had reached 8 aircraft. The controller had been correctly focused on the aircraft under a radar service.

Factual Background

The weather at Brize Norton was recorded as follows:

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METAR EGVN 061050Z 23005KT 9999 FEW030 BKN300 07/03 Q1019 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

The Brize Norton Radar controller had been working 8 aircraft during the period preceding and during the Airprox which had consisted of 3 in receipt of a Traffic Service and 5 in receipt of a Basic Service.

Sequence of Events

At 1121:03, the Bell 407 pilot contacted Brize Norton Radar requesting a Basic Service. The Brize Norton Radar controller issued the Basic Service along with a Mode 3A code of 3737 and the Brize Norton QNH of 1019hPa. The Bell 407 pilot acknowledged this information and responded with their intentions "*intended routeing is westwards around your outer zone north of Little Rissington*".

At 1133:38, the Bell 407 pilot requested the status of South Cerney, which was passed as not notified to be active.

At 1148:02, the Brize Norton Radar controller passed Traffic Information to another aircraft (Aircraft 3) in accordance with their Traffic Service. This was immediately followed by [the pilot of] an aircraft free-calling and requesting a Basic Service. The Brize Norton Radar controller acknowledged the new aircraft and provided a Basic Service along with the associated information.

At 1149:08, the Brize Norton Radar controller updated the Traffic Information to the pilot of Aircraft 3 who had originally responded with '*traffic not sighted*'. As per the standing agreement, the Brize Norton Radar controller then contacted Gloucester to inform them of a transiting aircraft in the vicinity of the Gloucester RNP approach path.

At 1149:40, the Brize Norton Radar controller provided Traffic Information to [the pilot of] another Traffic Service aircraft who responded with '*traffic not sighted'*. The Traffic Information was therefore updated at 1150:52.

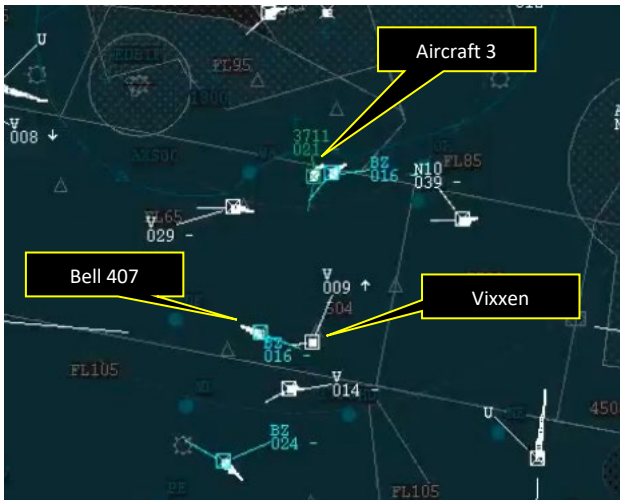


Figure 1: ~1150 – the point at which a radar return (which cannot be confirmed as the Vixxen) first appeared on the Brize Norton radar at a range of ~1.2NM H with ~700ft V separation

At 1150:56, the Brize Norton Radar controller provided Traffic Information to [the pilot of] another Traffic Service aircraft, who responded with '*traffic not sighted'*.

At 1154:46, the Bell 407 [pilot] requested to change enroute to Farnborough West, which was approved.

Local BM Investigation(s)

A local investigation was conducted by Brize Norton following the event to identify the ATS-related causal/aggravating factors. The investigation found that the Brize Norton Radar controller had correctly prioritised first with Traffic Information to the two Traffic Service aircraft and then secondly with information to Gloucester as per the standing agreement. As the Bell 407 was a Basic Service aircraft there was no requirement to maintain identification or monitor the track.

2 Gp BM Analysis

The actions of the Brize Norton Radar controller are assessed as correct with prioritisation of activity in accordance with the varying ATS provision levels being provided. Had a Traffic Service been requested by the Bell 407 [pilot], and the Brize Norton Radar controller had capacity available to provide it, then it can be assumed Traffic Information regarding the Vixxen would have been provided given that it was detected by the Brize Norton surveillance system (Figure 1 above).

UKAB Secretariat

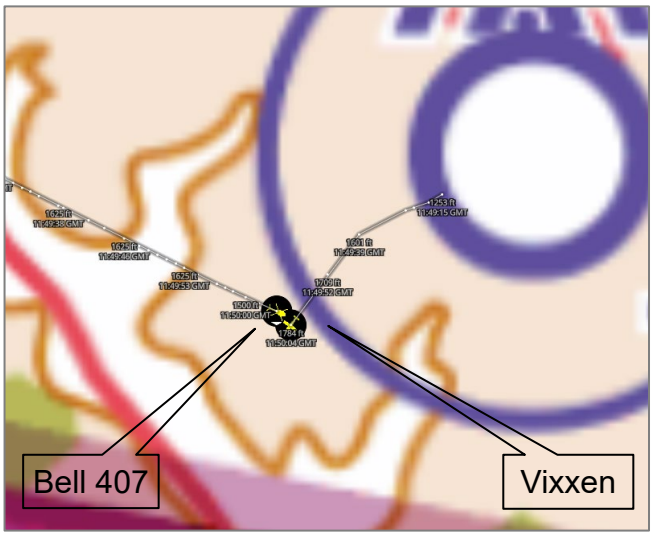


Figure 2: Airspace Analyser Tool view at CPA 1150:04

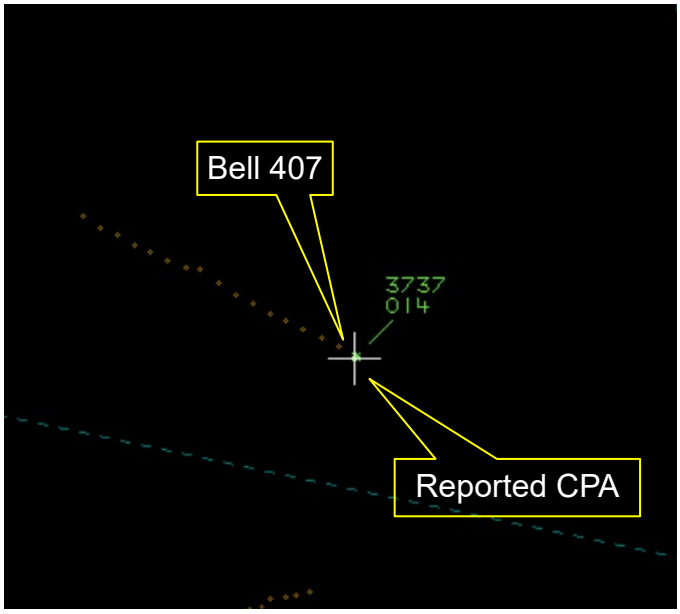


Figure 3: At reported CPA 1150.04

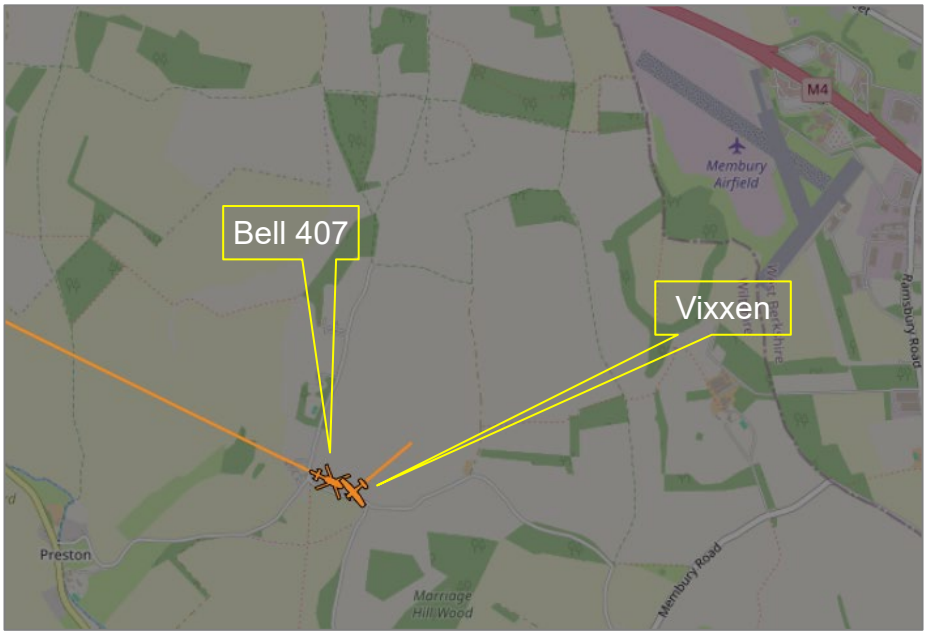


Figure 4: From an ADS-B tracking source at 1150:04

Figure 4 is taken from the CAAs Airspace Analyser Tool. Both the Bell 407 and the Vixxen had shown an SPS-referenced altitude which has had a QNH correction applied to enable an approximate altitude comparison. The Bell 407 shows to have descended as described by the pilot by approximately 200ft between 1150:04 and 1150:08.

The Bell 407 and Vixxen 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] 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.[3]

Summary

An Airprox was reported when a Bell 407 and a Vixxen aircraft flew into proximity 2NM southwest of Membury Airfield at approximately 1150Z on Friday 6th December 2024. The Bell 407 pilot was operating under VFR in VMC in receipt of a Basic Service from Brize Norton Radar. The Vixxen pilot was operating under VFR in VMC and not in receipt of a Flight Information Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, ADS-B tracking data, reports from the air traffic controllers involved and reports from the appropriate operating authorities. 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.

Board members firstly discussed the actions of the Bell 407 pilot. They noted that the pilot had been transiting at a relatively constant altitude and heading, had established themselves on an Air Traffic Service with Brize Radar as the most appropriate LARS provider in that area and had been equipped with an electronic conspicuity capability. Although recognising that support through a Basic Service with Brize Radar had been a positive action, members felt that, where possible, more pro-active support through a Traffic Service (**CF4**) could have afforded greater situational awareness for the pilot. Members opined that the planned route had brought the Bell 407 pilot into relatively close proximity to a known busy airfield and they opined that the pilot could have considered a wider or higher avoidance path (**CF6**) to avoid traffic in that circuit (**CF5**) and potentially have made an information call on the Membury Radio frequency to alert local operators to their passage through the area (**CF3**). The pilot recalls that due to obscuration posed by a pillar/mullion (**CF11**) they had visually acquired the Vixxen only at very close range (**CF9**) crossing from their left-to-right and had made a rapid descent to increase vertical separation as the Vixxen had passed overhead. The Bell 407 pilot reports having received no alerts through their TAS equipment (**CF8**) or having received any Traffic Information regarding the Vixxen and the Board consequently agreed that the Bell 407 pilot had therefore had no situational awareness of the presence of the Vixxen (**CF7**).

Members then considered the actions of the Vixxen pilot, noting that they reported as not having seen the Bell 407 at any stage (**CF10**), had not been in receipt of an Air Traffic Service, had carried no electronic conspicuity equipment (**CF8**) and had therefore had no situational awareness of its presence (**CF7**). Members noted that the pilot had been operating only within the visual circuit at Membury and had continued to make blind calls to alert others in the area to their presence and wished to add that, where possible, adding active electronic conspicuity equipment to their aircraft or flight bag could improve the situational awareness for others operating in the local area.

In reviewing the actions of the Brize Norton controller, members acknowledged that they had been active with a number of Basic and Traffic Service aircraft, rightly prioritising those in receipt of the higher level service and had not been required to monitor the flight of the Bell 407 whilst it had been subject to a Basic Service (**CF1**). They noted that the Brize radar equipment had acquired a Mode A/C return at the position and time of the event as reported by the Bell 407 pilot, and that had the Bell 407 pilot

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

been in receipt of a Traffic Service, Brize Radar may well have been able to alert the pilot to the presence of that aircraft. Members noted that Brize Radar is equipped with a conflict alert system which would in this case have signalled to the controller the conflict had the Bell 407 pilot been subject to the higher level Traffic Service; under a Basic Service this conflict alert system is not used (**CF2**).

Concluding their discussion, members turned their attention to the determination of the risk of collision. Members noted that the Bell 407 pilot had no situational awareness of the presence of the Vixxen before having become visual and, as the Vixxen pilot had not achieved visual contact or had any situational awareness of the presence of the Bell 407, they felt that safety margins had been reduced much below the norm. Members were in agreement that there had been a risk of collision (**CF12**) and, accordingly, assigned a Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	• Electronic Warning System Operation and Compliance			
2	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Tactical Planning and Execution			
3	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
4	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
5	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
6	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
	• Situational Awareness of the Conflicting Aircraft and Action			
7	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
8	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
9	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
10	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
11	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
12	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B.

Safety Barrier Assessment[4]

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 Brize Norton Radar controller was not required to monitor the Bell 407 operating under a Basic Service.

Electronic Warning System Operation and Compliance were assessed as **not used** because the conflict alert system is not utilised for aircraft in receipt of a Basic Service.

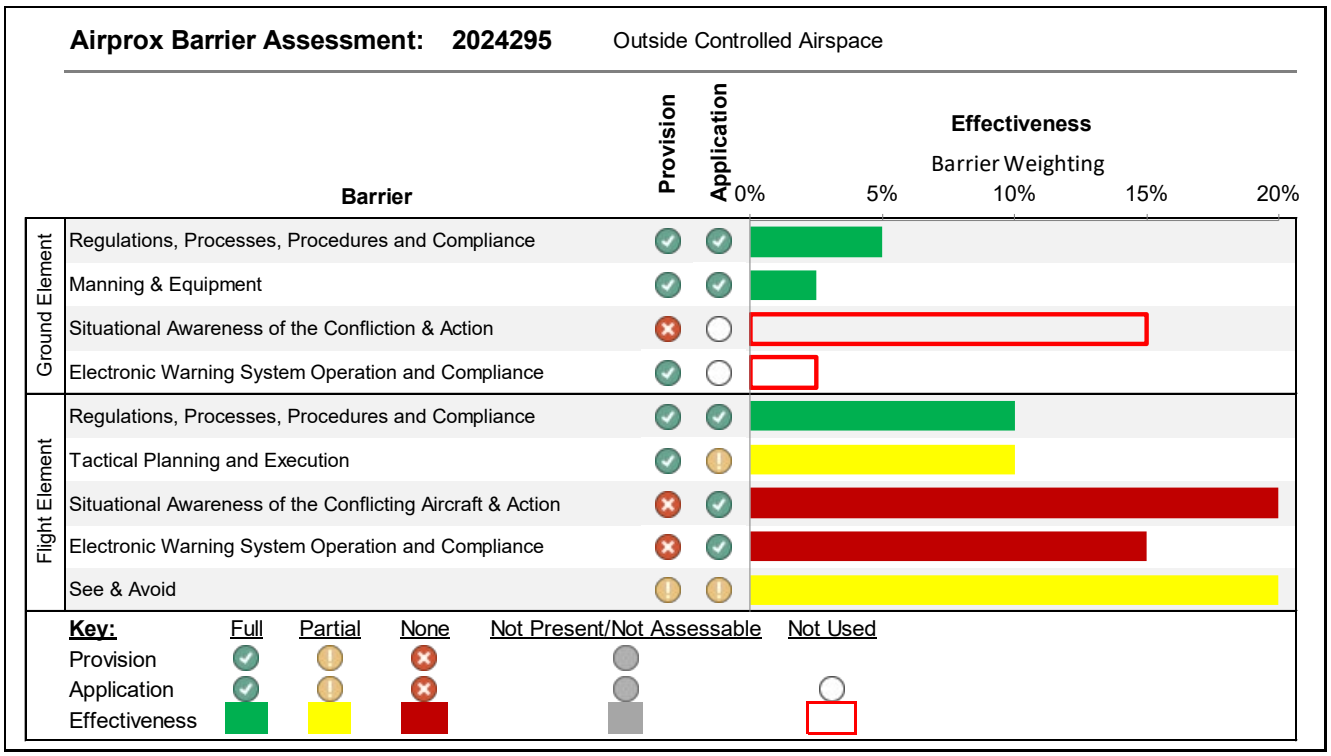
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Bell 407 pilot did not avoid the pattern of traffic as formed by the Vixxen and could have elected to call on the Membury frequency as they had passed and/or avoided the airfield by a wider or higher margin.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had situational awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because neither aircraft carried equipment capable of registering electronic emissions from the other.

See and Avoid were assessed as **partially effective** because the Bell 407 pilot achieved only a late sighting of the Vixxen due in part to obscuration, and the Vixxen pilot did not visually acquire the Bell 407 at any time.



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