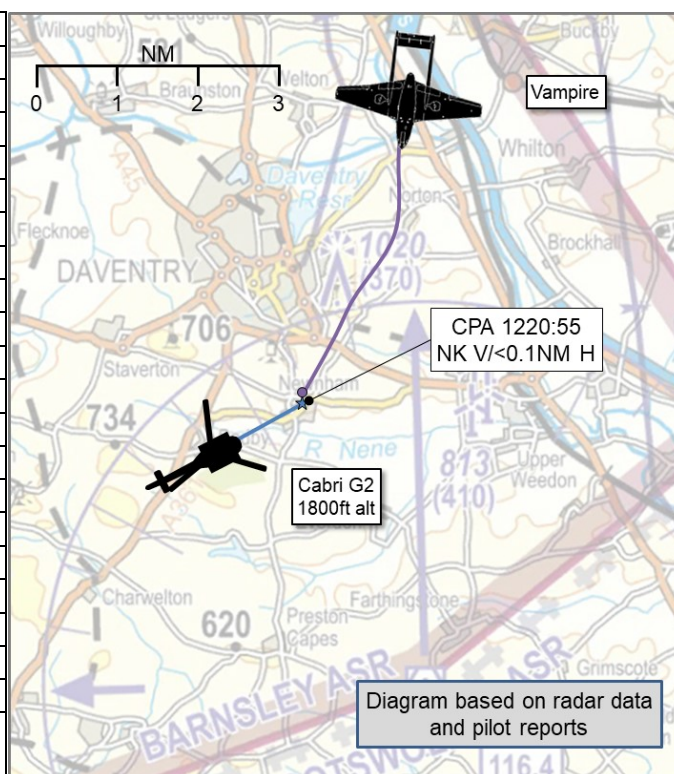


AIRPROX REPORT No 2020137

Date: 29 Sep 2020 Time: 1220Z Position: 5214N 00108W Location: Newnham

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cabri G2	Vampire
Operator	Civ Helo	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Listening Out
Provider	Birmingham	Coventry
Altitude/FL	1800ft	NK
Transponder	A, C, S	Standby
Reported		
Colours	Grey, Yellow	Silver, Yellow
Lighting	Landing, Beacon	Not reported
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	1700ft	1800ft
Altimeter	QNH (1016hPa)	QNH
Heading	360°	240°
Speed	80kt	240kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	50-100ft V/200-300m H	0ft V/400m H
Recorded	NK V/<0.1NM H	



THE CABRI G2 PILOT reports that they were on an instructional sortie. The cloud ceiling was about 1900ft with scattered cumulus lower in places. They believed they had sufficient clearance between themselves and the base of the clouds. The student had decided not to fly any lower due to the aerals on their flight path. They were routing around Daventry when a vintage Vampire appeared in their 12 o'clock about 50-100ft below them, about 200-300m away, crossing right-to-left. The Vampire was observed to have a small roll angle, but it was unclear if this was avoiding action. The Vampire had appeared from behind a patch of cumulus, below the cloud ceiling, travelling at high speed. They had requested a Traffic Service with Birmingham, but Birmingham could not provide one due to their radar coverage limitations. The Vampire's colour scheme, silver, set against white clouds, haze, relatively low cloud and the aircraft's high speed made it difficult to see and did not allow sufficient time to take avoiding action, the aircraft had already crossed in front of them before they had time to react. The company is currently trialling electronic warning systems in the Cabri fleet.

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

THE VAMPIRE PILOT reports that it was a relatively light workload in a geographically well-known area. Both pilots were experienced and current. Standard TEM briefing was carried out prior to the flight and again prior to descent that covered navigation and traffic. Both pilots initially saw the Cabri helicopter in the two o'clock position about 5NM away and determined that the planned route would create no risk and they continued with the planned right turn from Daventry to Draycote water.

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

THE BIRMINGHAM CONTROLLER reports that they were controlling in Radar 1 with the Cabri G2, on frequency under a Basic Service, carrying out a navigation exercise heading back towards their base airfield due to the weather. The pilot called stating that they wished to report an Airprox with a Vampire. The controller saw a fast-moving primary contact in the vicinity of the Cabri G2. The pilot reported that

they were in the Daventry reservoir area at 1700ft and the Vampire passed left-to-right about 500m ahead of them at the same altitude.

Factual Background

The weather at Birmingham was recorded as follows:

METAR EGBB 291150Z VRB03KT 9999 SCT029 15/08 Q1016

Analysis and Investigation

Birmingham Investigation Report

The Cabri G2 was receiving a Basic Service with Birmingham radar. The Cabri G2 pilot stated that they wished to report an Airprox. Figures 1 and 2 show the Cabri G2 (squawk 0402) passing a contact with no transponder information available. The controller took the Airprox details and informed the Cabri G2 pilot that they will file a report and that the pilot will need to file an Airprox report when they land. The second aircraft was believed to be a Vampire aircraft.



Figure 1



Figure 2

UKAB Secretariat

The Cabri G2 and Vampire 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 If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.²

Summary

An Airprox was reported when a Cabri G2 and a Vampire flew into proximity at Newnham at 1220Z on Tuesday 29th September 2020. Both pilots were operating under VFR in VMC, the Cabri G2 pilot in receipt of a Basic Service from Birmingham and the Vampire pilot listening out on the Coventry frequency.

¹ SERA.3205 Proximity.

² SERA.3210 Right-of-way (c)(1) Approaching head-on.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, 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.

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 began with the actions of the Vampire pilot. The Vampire pilot reported that they had carried out a suitable pre-flight briefing and included Threat Error management (TEM) in the briefing. As the Vampire pilot reported seeing the Cabri at 5 NM range Board members opined that their TEM should be adapted to provide a greater safety margin for operations involving a high-performance aircraft in Class G airspace (**CF4**). Additionally, members agreed that there was sufficient time to have altered their course early enough to provide a suitable separation between the aircraft which would have allowed for any sudden changes in heading or height from the Cabri (**CF1, 3, 5 & 12**). The Vampire pilot reported an Indicated Air Speed (IAS) of 240kts, members said that at that speed, and with the associated increased closure rate between aircraft, it would have been prudent for the Vampire pilot to have been in communication with an Air Traffic unit that could provide a radar service (**CF7 & 8**). The Vampire pilot also had their transponder selected to standby; any aircraft that is fitted with a transponder must always have it selected on during flight (**CF3 & 6**).

The Board then turned to the actions of the Cabri pilot. They had requested a Traffic Service, but Birmingham had only been able to provide a Basic Service due to the Cabri's height, because of this, and the Vampire not transponding, they did not receive any Traffic Information from the Birmingham controller (**CF9**). The low cloud and the silver colour of the Vampire served to mask the Vampire from the Cabri pilot and they saw the Vampire too late to carry out any avoiding action (**CF11**).

Next the Board looked at the actions of the Birmingham controller. They had been unable to provide a Traffic Service, as requested by the Cabri pilot (**CF2**), but had provided the Cabri pilot with a Basic Service. A Basic Service does not require the controller to monitor the flight and will only result in the controller passing Traffic Information if they see a definite risk of collision. As the Vampire was neither communicating nor transponding, there was no reasonable way for the controller to have been alerted to its presence and, even if they had happened to notice the primary radar return, they would not have been able to offer anything other than generic information (**CF1**).

Finally, the Board turned to the risk. The Board agreed that the high speed of the Vampire coupled with the late sighting from the Cabri crew meant that safety was not assured and there was a risk of collision, a Risk Category B (**CF10**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2020137		
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
2	Contextual	• ANS Flight Information Provision	Controller not able to provide requested ATS
Flight Elements			
• Regulations, Processes, Procedures and Compliance			
3	Human Factors	• Flight Operations Documentation and Publications	Regulations and/or procedures not complied with
• Tactical Planning and Execution			
4	Human Factors	• Pre-flight briefing and flight preparation	
5	Human Factors	• Action Performed Incorrectly	Incorrect or ineffective execution
6	Human Factors	• Transponder Selection and Usage	Selected off or incorrect selection
7	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
8	Human Factors	• Communications by Flight Crew with ANS	Pilot did not communicate with appropriate ATS provider
• Situational Awareness of the Conflicting Aircraft and Action			
9	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
• See and Avoid			
10	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	Piloted air vehicle
11	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
12	Human Factors	• Lack of Action	Pilot flew into conflict

Degree of Risk: B.

Safety Barrier Assessment³

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 Cabri G was under a Basic Service and the controller was not required to monitor the aircraft.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Vampire pilot had selected their transponder to standby even though an aircraft fitted with a transponder must always have it selected on whilst airborne, and they did not give way to the Cabri G2.

Tactical Planning and Execution was assessed as **ineffective** because the Vampire pilot did not allow sufficient separation between themselves and the Cabri G2, was not communicating with an appropriate ATS whilst flying at high speed, did not conduct a suitable level of pre-flight planning regarding other airspace users and was not transponding.

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

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had any information regarding the other aircraft.

See and Avoid were assessed as **partially effective** because the Vampire pilot reported seeing the Cabri G2 at 5NM but flew within 0.1NM of the Cabri G2. The Cabri G2 pilot saw the Vampire late due to the aircraft’s colour scheme and the cloud cover.

Airprox Barrier Assessment: 2020137		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 Conflicting Aircraft & 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:							
	<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	!	✗	○			
Application	✓	!	✗	○	○		
Effectiveness							