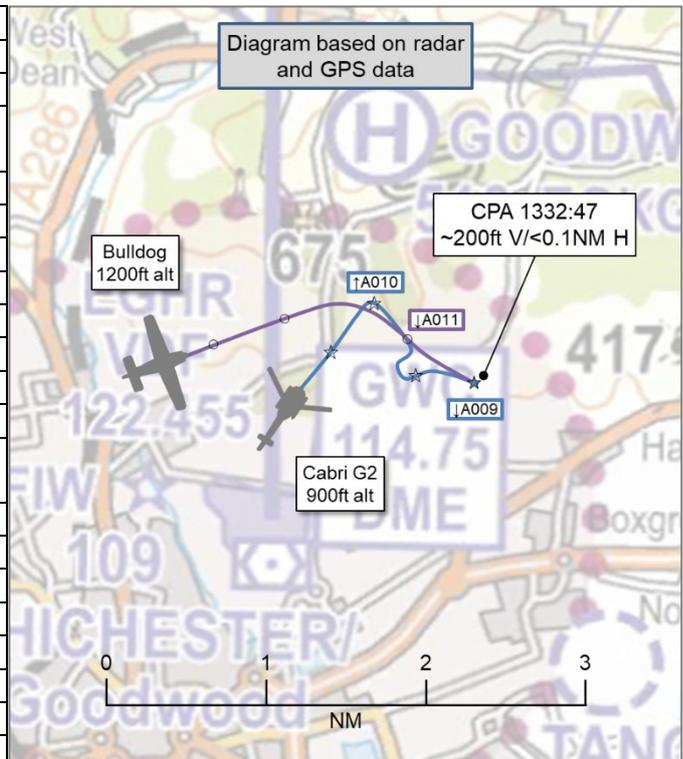


**AIRPROX REPORT No 2021112**

Date: 15 Jul 2021 Time: 1333Z Position: 5052N 00043W Location: Chichester/Goodwood circuit

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cabri G2	Bulldog
Operator	Civ Helo	Civ FW
Airspace	Chichester/ Goodwood ATZ	Chichester/ Goodwood ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Goodwood Info	Goodwood Info
Altitude/FL	900ft	1100ft
Transponder	A, C, S	None
<b>Reported</b>		
Colours	White	Red
Lighting	Red strobe	Nav, anti-colls, strobes, landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	850ft	1000ft
Altimeter	QFE (1014hPa)	QFE (1022hPa)
Heading	'Downwind'	140°
Speed	80kt	90kt
ACAS/TAS	Not fitted	Not fitted
<b>Separation</b>		
Reported	20ft V/20m H	200ft V/300m H
Recorded	200ft V/<0.1NM H	



**THE CABRI G2 PILOT** reports that they became aware of a dark shape in their peripheral vision and immediately lowered the lever, overriding their student who was already 50ft below circuit height. They then saw the aircraft fly over the top of the helicopter and felt its wake turbulence. [The other pilot] seemed to have flown right through the helicopter circuit pattern 350ft below the FW circuit height.

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

**THE BULLDOG PILOT** reports that, following an uneventful flight from [their departure airfield], they entered Goodwood ATZ, having contacted Ground on 122.455MHz and informed them of their intentions to join crosswind for RW32 right-hand circuit, to land. As they entered the crosswind leg, they were aware of a white helicopter very low but climbing as if it had just lifted. They maintained visual with the helicopter as it climbed and appeared to operate to the east of the runway, but remaining within the circuit area. They felt unsure of the helicopter pilot's intentions so maintained a continual lookout on the helicopter. Their passenger, another pilot, stated that they would maintain visual contact with the helicopter and, as the Bulldog pilot turned downwind, they still had sight of the helicopter. They made a downwind radio call, stating that they were visual with the helicopter. At this point they still had the helicopter in sight but were still unsure of its pilot's intentions. They had checked the area to their left, east of downwind leg, and noted there was nothing to prevent them moving further left should it be required. However, at no time did they feel there was a need to take any avoiding action or that they had a possible conflict. As they continued on downwind they lost sight of the helicopter because it was below and behind them. Their passenger stated that they were still visual with the helicopter and there was no conflict. The pilot carried on flying the downwind leg and turned onto base. They cannot recall if they saw the aircraft again at this point. At some point they heard another aircraft say on the radio that they felt they had been close to a red Bulldog. The pilot assumed they were talking about them, however, they made no comment on the radio and continued to concentrate on their final approach and landing.

Although they were always aware of the proximity of the helicopter, and were unsure of its pilot's intentions, they never felt that they were too close, or that there was a need for them to deviate from their route. They had been aware of the helicopter from an early point and felt comfortable being able to continue their circuit whilst maintaining good visual with it. Once they had lost visual, their passenger was still able to maintain visual.

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

**THE GOODWOOD AFISO** reports that the pilot of the Cabri G2 reported a fixed-wing aircraft close at 850ft in the vicinity of the helicopter circuit and reported that they were descending to avoid. [The Cabri G2] pilot visited the Tower after the event and subsequently filed an Airprox report.

## Factual Background

The weather at Shoreham was recorded as follows:

METAR EGKA 151320Z 35010KT 9999 BKN031 22/17 Q1021=

METAR EGKA 151350Z 33010KT 9999 BKN033 23/16 Q1021=

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay and GPS data provided by the Bulldog pilot was undertaken. The Cabri G2 was displayed in both primary and secondary radar; the Bulldog was not detected by the NATS radars. The Cabri G2 was identified using radar data – the track was observed to be unsteady in the moments leading up to the Airprox but this could have been due to radar performance and processing errors. The GPS data provided by the Bulldog pilot was correlated with the radar track of the Cabri G2; CPA occurred at 1342:47 and was measured as ~200ft V and <0.1NM H by comparison of the positional information from the 2 different data sources. A schematic of the fixed- and rotary-wing circuits at Goodwood is at Figure 1. The airfield elevation at Goodwood is 109ft; therefore, the published fixed-wing circuit height of 1200ft equates to an altitude of 1300ft and the published rotary-wing circuit height of 900ft equates to an altitude of 1000ft.

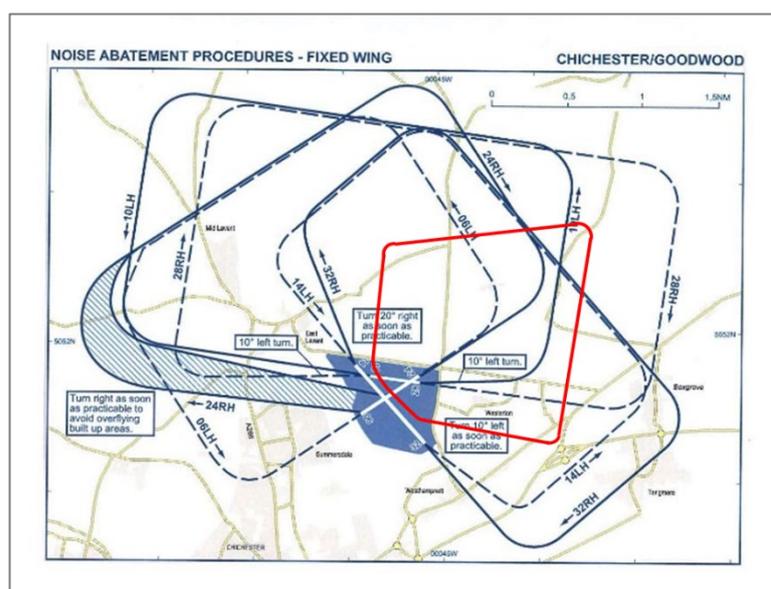


Figure 1 – Chichester/Goodwood circuit patterns for fixed-wing aircraft, overlaid with the (Northern) helicopter pattern for when RW14/32 is in use<sup>1</sup>

<sup>1</sup> Sources: <https://www.aurora.nats.co.uk/html/AIP/Publications/2021-10-07-AIRAC/html/index-en-GB.html> and <https://www.goodwood.com/flying/pilot-information/old-circuit-patterns--noise-abatement/>

The Cabri G2 and Bulldog pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>2</sup> 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.<sup>3</sup>

## Summary

An Airprox was reported when a Cabri G2 and a Bulldog flew into proximity in the Chichester/Goodwood circuit at 1333Z on Thursday 15<sup>th</sup> July 2021. Both pilots were operating under VFR in VMC and both pilots were in receipt of an Aerodrome Flight Information Service from Goodwood Information.

### **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data from the Bulldog pilot 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.

The Board first considered the actions of the Cabri G2 and heard from a helicopter pilot member that the Goodwood circuit patterns for fixed-wing and rotary-wing aircraft can be challenging due to the numerous noise-sensitive areas around the airfield. The Board noted that the helicopter student had been struggling with their height-keeping in the circuit, though agreed that this had been in the 'safe' sense in that they had been flying slightly lower than the promulgated circuit height of 900ft agl (~1000ft alt). The Board also noted that the Cabri G2 pilot had reported 'becoming aware' of the presence of another aircraft, leading the Board to conclude that the Cabri G2 pilot had not assimilated the joining calls from the Bulldog pilot (**CF6**) and had therefore not had any situational awareness of the presence of the Bulldog (**CF5**) until they had seen it in their peripheral vision as it had passed over the top of the helicopter, too late for them to take any action to materially increase separation (**CF7**).

The Board then considered the actions of the Bulldog pilot and members noted the disparity in the reported altimeter subscale settings from the 2 pilots. Some members wondered whether one of the pilots had misremembered, or if the Bulldog pilot had been flying with the QNH selected. The Board noted that the QNH at Shoreham (the nearest available airfield with a weather report) had been 1021hPa, which lent weight to the Bulldog pilot flying the circuit with QNH set, but did not explain the 8hPa difference in QFE and QNH when the Goodwood airfield elevation (109ft) would only account for approximately 4hPa difference. Ultimately, the Board could not consolidate these potential errors and so agreed not to assign a contributory factor to the Airprox relating to incorrect altimeter setting (in any event, the vertical separation had been measured against the same datum). However, it was clear from the recorded data that the Bulldog pilot had been flying the fixed-wing circuit at the incorrect altitude, although the reason why could not be established, and the Board agreed that this had been contributory to the Airprox (**CF2**, **CF3**). Members noted that the Bulldog pilot had been visual with the Cabri G2 as they had joined the circuit on their crosswind leg but had been unsure of the Cabri pilot's intentions (**CF5**). The Board felt that the Bulldog pilot could have asked either the AFISO or the Cabri pilot themselves for their intentions (**CF4**) and that this information may have assisted the Bulldog pilot in remaining sufficiently clear of the Cabri (**CF8**).

The Board then briefly considered the actions of the Goodwood AFISO and quickly agreed that there had been little that they could have done to prevent the Airprox, as they were not required to monitor either aircraft under the terms of an AFIS (**CF1**). However, this led to a discussion regarding the published circuit patterns at Goodwood and the Board was reminded of a similar incident in 2019 (Airprox 2019264<sup>4</sup>) where a fixed-wing and a rotary-wing aircraft had encountered each other on their respective downwind legs for RW32RH. Although the Board found, in that instance, that both aircraft had been separated by the margins required at Goodwood, it was noted that the PPL skills test

<sup>2</sup> (UK) SERA.3205 Proximity.

<sup>3</sup> (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

<sup>4</sup>[https://www.airproxboard.org.uk/uploadedFiles/Content/Standard\\_content/Airprox\\_report\\_files/2019/Airprox%20Report%202019264.pdf](https://www.airproxboard.org.uk/uploadedFiles/Content/Standard_content/Airprox_report_files/2019/Airprox%20Report%202019264.pdf)

tolerances for a pilot's height-keeping are  $\pm 150$ ft; at Goodwood this could feasibly lead to a fixed-wing aircraft and a rotary-wing aircraft flying geographically overlapping circuits at the same altitude. At the time, the Board made a Safety Recommendation for 'Goodwood to review fixed-wing and rotary-wing circuit deconfliction' to address the geographical conflict points and their vertical separation. The Board noted that Goodwood had initially accepted the Recommendation but that communication on addressing the Recommendation had been sporadic (partly due to the Coronavirus pandemic) and that nothing had been heard from Goodwood since June 2021. Given that the published circuit patterns have not changed since Airprox incident number 2019264, the Board agreed that the conditions for the types of encounter seen in this Airprox and in Airprox 2019264 still remain and therefore, rather than make another Safety Recommendation, the UKAB Secretariat undertook to write again to Goodwood in this regard to understand what steps have been taken towards addressing the Safety Recommendation made in June 2020.

Finally, The Board considered the risk involved in this Airprox. Members noted that the Cabri G2 pilot had been alarmed by the proximity of the Bulldog and had assessed the risk of collision as 'high', while the Bulldog pilot had been quite comfortable with the separation and had assessed the risk of collision as 'none'. The Board was grateful to the Bulldog pilot for supplying their GPS log file from the flight because the aircraft had not been recorded by the NATS radars; therefore, without the GPS log file, the Board's understanding of the geometry involved would have been greatly diminished. While it was clear to the Board that there had been almost no horizontal separation, it was noted that this is 'by design' for the Goodwood circuit, relying on pilots maintaining the correct circuit height for their aircraft type. Therefore, noting that the vertical separation at CPA had reduced to 200ft, the Board agreed that safety had been reduced but that there had not been any risk of collision; Risk Category C.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2021112			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Situational Awareness and Action</b>				
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
<b>Flight Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
2	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
<b>• Tactical Planning and Execution</b>				
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
4	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
5	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
6	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
<b>• See and Avoid</b>				
7	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
8	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern

Degree of Risk: C

Safety Barrier Assessment<sup>5</sup>

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 Goodwood AFISO was not required to monitor the aircraft under the terms of an Aerodrome Flight Information Service.

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the Bulldog pilot did not fly at the published height for fixed-wing circuits at Goodwood.

**Tactical Planning and Execution** was assessed as **partially effective** because the Bulldog pilot did not fly the correct circuit height at Goodwood for fixed-wing aircraft.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the Cabri G2 pilot did not assimilate the joining call of the Bulldog pilot and therefore had no situational awareness of the presence of the Bulldog in the fixed-wing circuit, and the Bulldog pilot had only generic situational awareness of the presence of the Cabri G2 and was unsure of its pilot's intentions.

Airprox Barrier Assessment: 2021112		Outside Controlled Airspace					
Barrier	Provision	Application	Effectiveness				
			Barrier Weighting				
			0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 5%]			
	Manning & Equipment	✓	✓	[Green bar to 2.5%]			
	Situational Awareness of the Confliction & Action	⚠	○	[Red box from 0% to 15%]			
	Electronic Warning System Operation and Compliance	⊘	⊘	[Grey bar to 2.5%]			
Flight Element	Regulations, Processes, Procedures and Compliance	✓	⚠	[Yellow bar to 10%]			
	Tactical Planning and Execution	✓	⚠	[Yellow bar to 10%]			
	Situational Awareness of the Conflicting Aircraft & Action	⚠	✓	[Yellow bar to 20%]			
	Electronic Warning System Operation and Compliance	⊘	⊘	[Grey bar to 15%]			
	See & Avoid	✓	✓	[Green bar to 20%]			
<b>Key:</b>							
	Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	⚠	✗	⊘			
Application	✓	⚠	✗	⊘	○		
Effectiveness	■	■	■	■	□		

<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).