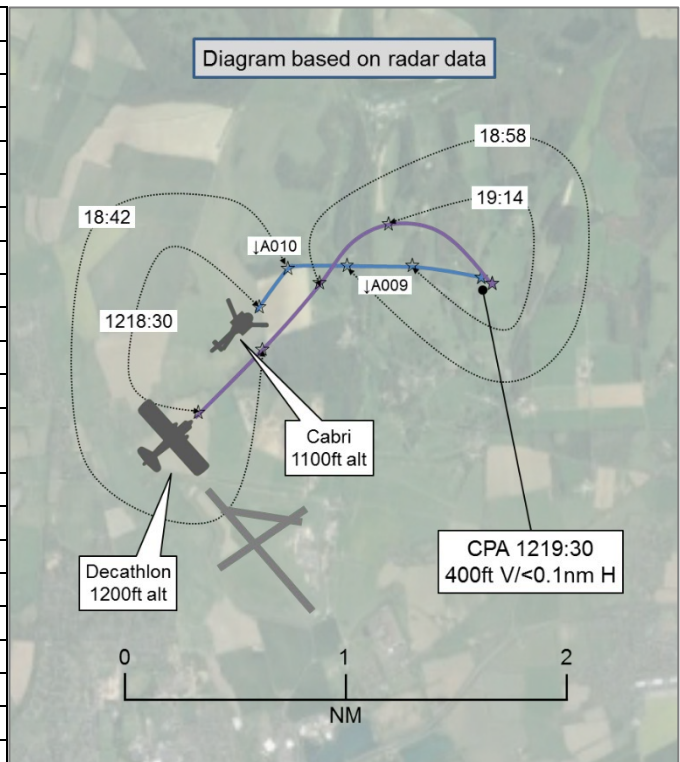


AIRPROX REPORT No 2019264

Date: 07 Sep 2019 Time: 1219Z Position: 5052N 00043W Location: Goodwood airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cabri G2	Decathlon
Operator	Civ Helo	Civ FW
Airspace	Goodwood ATZ	Goodwood ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Goodwood	Goodwood
Altitude/FL	A008	A012
Transponder	A, C, S	A, C
Reported		
Colours	White/Blue/Red	
Lighting	Strobe, Nav, Landing Light	
Conditions	VMC	VMC
Visibility	>10km	
Altitude/FL	500ft	
Altimeter	QFE (1019hPa)	QFE (1019hPa)
Heading	350°	060°
Speed	50kt	110kt
ACAS/TAS	Not fitted	Not fitted
Alert	N/A	N/A
Separation		
Reported	200ft V/0m H	Not seen
Recorded	400ft V/<0.1nm H	



THE CABRI G2 PILOT reports that he was climbing out northbound from the ‘Triangle’¹ to the circuit, based on RW32RH in use. The instructor became aware of another aircraft when he overheard the AFISO say “are you visual with that rotary?”, which he presumed was either a fixed-wing joining crosswind, a previously unnoticed tough-and-go, or go-around traffic climbing from RW32RH. The instructor was sat in the left-hand seat, so he was looking for the other aircraft to the left and behind; his first visual contact with the Decathlon was when it was directly above them at what he estimated to be 200ft vertical separation.

The pilot assessed the risk of collision as ‘Medium’.

THE DECATHLON PILOT reports that RW32RH was in operation with rotary traffic departing from the ‘Triangle’. The pilot was conducting an instructional sortie and joined the airfield on the crosswind leg over the threshold of RW14, slightly low at 1170ft. The crew knew nothing of any Airprox until asked by Goodwood what height they were at. Their instant response was 1200ft, because they had joined at that height, but they noticed afterwards that they were at 1170ft on the QFE of 1019hPa. The student then continued with the circuit detail.

The pilot did not see the other aircraft.

THE GOODWOOD AFISO reports that he had been on duty for 1¼ hrs and that his workload was low-to-medium when the pilot of a Super Decathlon stated on initial call that he intended to join crosswind. He later saw the aircraft joining from the overhead for RW32, a right-hand circuit. A Cabri G2 helicopter had just taken off into the ‘Triangle’ helicopter circuit, a right-hand circuit. When the Decathlon was overhead the RW32 upwind numbers he asked the pilot whether he was visual with the climbing

¹ The ‘Triangle’ is the area at Goodwood between the 3 runways.

helicopter, because it appeared that he was on a possible collision course with the Cabri. The helicopter pilot, having heard the previous transmission between the AFISO and the Decathlon pilot, and having noted the urgency in his voice [the AFISO suggests], asked the AFISO to ask the pilot of the Decathlon for his height. After two attempts, the Decathlon pilot replied that he was at 1200ft QFE – the circuit height. The AFISO's estimate from the tower was that the Decathlon may have been slightly lower than 1200ft QFE and the helicopter was between 800ft and 900ft QFE. His estimate was that separation was about 150ft between the two aircraft at the time that the fixed-wing flew over the top of the helicopter. The Cabri G2 pilot later visited the tower and said that separation was 200ft. The fixed-wing circuit height at Goodwood is 1200ft QFE and the helicopter circuit height is 900ft QFE; this provides a 300ft separation. The AFISO opined that, considering this vertical separation of 300ft, only 50ft above and below their respective circuit heights reduces the separation between rotary and fixed wing traffic by one third; it is therefore crucial that pilots fly the correct heights at this point in the circuit. Furthermore, the Decathlon pilot stated that he intended to join crosswind and then undertook an overhead join, which was unexpected. The AFISO was of the view that, had the Decathlon pilot joined crosswind, the Airprox would not have occurred. He also suggested that it may be worth considering an impact assessment/trial of a reduced circuit height for helicopters operating from the 'Triangle' circuit.

The AFISO did not make an assessment of the risk of collision.

Factual Background

The weather at London Gatwick and Southampton Airports was recorded as follows:

METAR EGKK 071220Z 36009KT 300V040 9999 SCT027 16/09 Q1023=

METAR EGHI 071220Z 35010KT 300V020 9999 FEW035 18/07 Q1024=

Analysis and Investigation

UKAB Secretariat

NATS radar replays show both aircraft in the vicinity of the Chichester/Goodwood airfield visual circuit; the Decathlon is detected on both primary and secondary radar, the Cabri only on secondary radar.

Figure 1 shows the fixed-wing visual circuit pattern overlain by the rotary-wing 'Triangle' circuit in red, both as published on Chichester/Goodwood's website.

The 'Triangle' is shown at Figure 2.

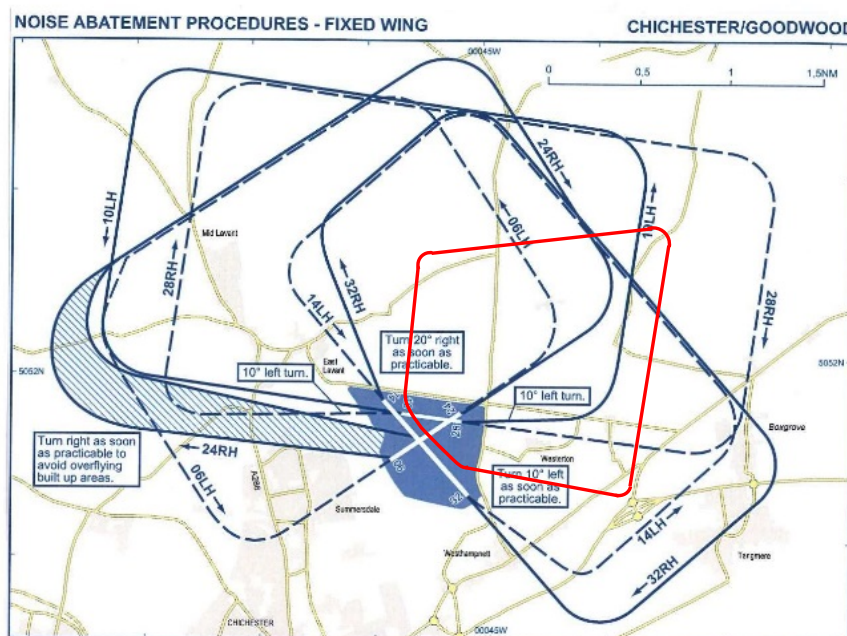


Figure 1 – Chichester/Goodwood circuit patterns for fixed-wing aircraft, overlaid with the helicopter pattern for 'The Triangle'²

² <https://www.goodwood.com/flying/pilot-information/old-circuit-patterns--noise-abatement/>



Figure 2 – Overhead view of Chichester/Goodwood airfield showing the ‘Triangle’

At 1218:02, the radar screenshot at Figure 3 shows the Decathlon approaching from the SW at an altitude of 1200ft; the Cabri is approximately 1nm ahead, climbing from the ‘Triangle’ on the northerly leg of the published circuit pattern at an altitude of 1000ft (Goodwood airfield elevation is 110ft).

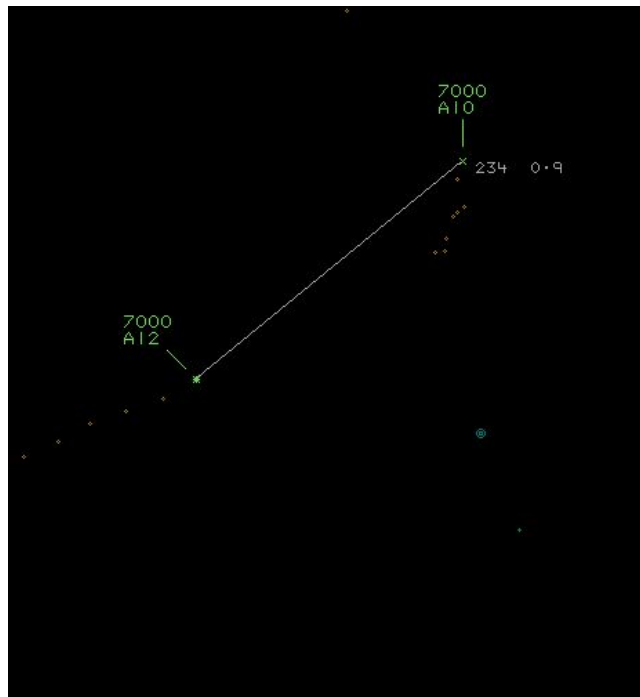


Figure 3 – NATS radar screenshot at 1218:02

In Figure 4, the Decathlon pilot has positioned his aircraft on a tight crosswind join for RW32RH and crosses behind the Cabri, which is now on the easterly leg of the published rotary-wing circuit pattern. The aircraft are separated by approximately 0.1nm and 400ft.

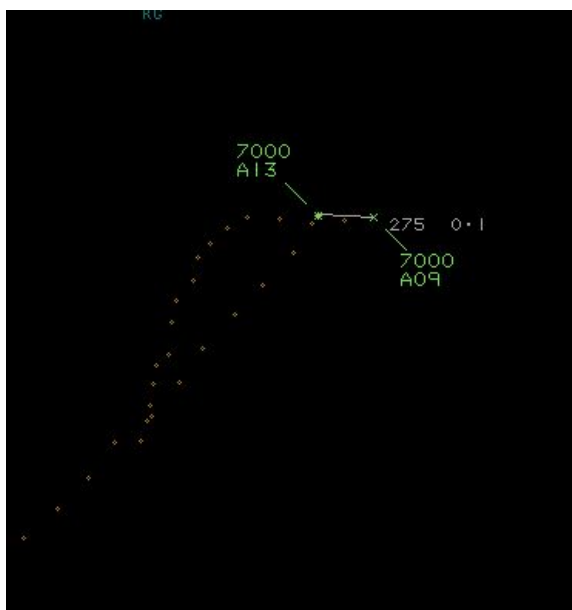


Figure 4 - 1219:02



Figure 5 - 1219:30 (CPA)

CPA occurs shortly after the Decathlon pilot has turned onto the downwind leg for RW32RH as he passes almost overhead the Cabri (see Figure 5). The helicopter is at the most north-easterly point of the Goodwood circuit pattern and the Decathlon is following the published ground track for fixed-wing aircraft at Goodwood; this is the point at which the two published circuit patterns coincide.

The Cabri G2 and Decathlon 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 Cabri G2 and a Decathlon flew into proximity in the Chichester/Goodwood visual circuit at 1219hrs on Saturday 7th September 2019. Both pilots were operating under VFR in VMC and both were in receipt of an AFIS from Goodwood Information.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, 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.

The Board first considered the actions of the two pilots and agreed that there was little more that either of them could have done to prevent the Airprox; the Cabri pilot had been established in the rotary-wing circuit for 'The Triangle' and had been following the published ground track at the appropriate altitude, and the Decathlon pilot had conducted his crosswind join and turn onto the downwind leg in accordance with the Goodwood published procedures, also at the appropriate altitude for fixed-wing aircraft (albeit initially very slightly low it seems). Both pilots had been passed generic information on each other's activity, but neither had received specific information on the relative position of the other aircraft (**CF3**). The Board considered it unfortunate that neither pilot had seen the other aircraft in time to materially affect CPA (**CF4**), but noted that this is the reason that, at nearly all GA airfields, circuit patterns for rotary-wing and fixed-wing aircraft are separated by either height, geography, or both.

³ SERA.3205 Proximity.

⁴ SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Members then discussed the actions of AFISO and commended him for alerting the pilots to what he had considered to be a potential loss of separation, even though he had not been required to monitor the aircraft under the agreed Service (**CF2**). The Board felt that the proactive approach demonstrated by the AFISO would have heightened both pilots' awareness of the presence of the other aircraft, although ultimately had not enabled either pilot to gain visual contact with the other aircraft prior to CPA.

The Board then considered the Goodwood overlapping rotary-wing and fixed-wing circuit patterns for RW32RH and noted that there are at least 2 points of geographical conflict with a height separation of only 300ft; there are also 2 further possible points of conflict for fixed-wing aircraft joining 'tight' crosswind as they pass over the northerly climb-out of 'The Triangle' rotary-wing circuit. A GA member and PPL skills test examiner briefed the Board that height-keeping for a candidate for a Private Pilot's License is +/-150ft, meaning that both pilots could have been within their required flying parameters and be co-altitude (**CF1**). This led the Board to debate whether only 300ft height separation for the overlapping circuits was sufficient to prevent a potentially more serious outcome from occurring. As a result, the Board resolved to make a recommendation for 'Goodwood to review fixed-wing and rotary-wing circuit deconfliction' to address the geographical conflict points and their vertical separation.

Turning to the risk involved in this encounter, members agreed that the 2 circuits had functioned as published and that it was perhaps no surprise that the Decathlon passed overhead the Cabri with 300-400ft separation. Notwithstanding the recommendation made in respect to the overlapping circuit patterns, the Board concluded that there had been no risk of collision between the Cabri and the Decathlon and that the published normal safety standards and parameters had pertained; Risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019264		
CF	Factor	Description	Amplification
	Ground Elements		
	• Regulations, Processes, Procedures and Compliance		
1	Organisational	• Organisational Documentation and Publications	Inadequate regulations or procedures
	• Situational Awareness and Action		
2	Contextual	• Situational Awareness and Sensory Events	Not required to monitor the aircraft under the agreed service
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
3	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
	• See and Avoid		
4	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: E

Recommendation: Goodwood to review fixed-wing and rotary-wing circuit deconfliction.

Safety Barrier Assessment⁵

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 Goodwood circuit patterns for fixed-wing and rotary-wing aircraft overlap, with only 300ft of planned vertical separation between them.

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 agreed Service and was not obliged to integrate the traffic in their respective circuit patterns.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because neither pilot had specific SA on the relative positions of the aircraft. The Decathlon pilot became aware of the presence of the Cabri when asked by the AFISO if he was visual with it; this also alerted the Cabri pilot to the presence of the Decathlon.

See and Avoid were assessed as **ineffective** because the Decathlon pilot did not see the Cabri and the Cabri pilot only saw the Decathlon as it passed overhead when it was too late to materially affect the separation.

		Barrier		Effectiveness Barrier Weighting				
		Provision	Application	0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	⚠	✅	[Yellow bar to 5%]				
	Manning & Equipment	✅	✅	[Green bar to 3%]				
	Situational Awareness of the Confliction & Action	✅	⊖	[Red bar to 15%]				
	Electronic Warning System Operation and Compliance	⊖	⊖	[Grey bar to 3%]				
Flight Element	Regulations, Processes, Procedures and Compliance	✅	✅	[Green bar to 10%]				
	Tactical Planning and Execution	✅	✅	[Green 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	❌	✅	[Red bar to 20%]				
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✅	⚠	❌	⊖				
Application	✅	⚠	❌	⊖	⊖	⊖		
Effectiveness	Green	Yellow	Red	Grey	[Red box]			

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