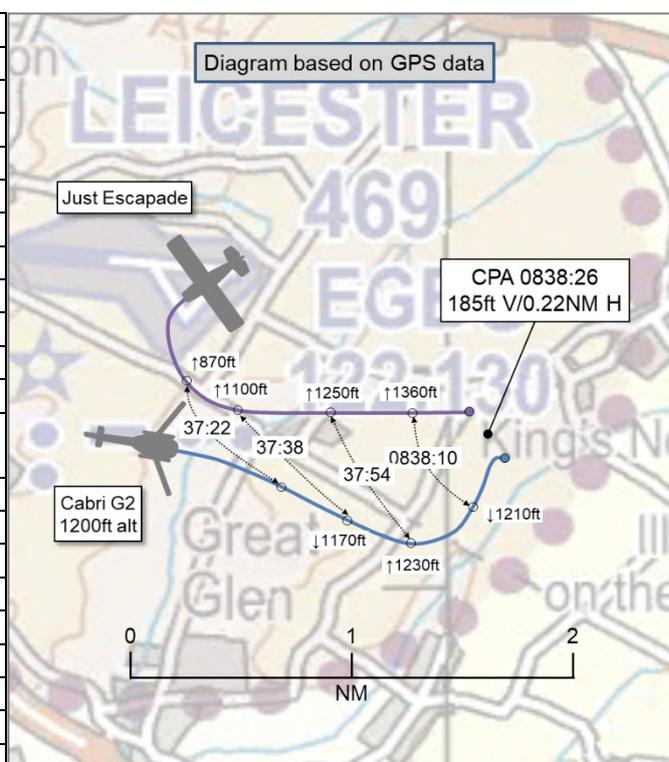


AIRPROX REPORT No 2021086

Date: 16 Jun 2021 Time: 0838Z Position: 5236N 00100W Location: Leicester visual circuit

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cabri G2	Just Escapade
Operator	Civ Helo	Civ FW
Airspace	Leicester ATZ	Leicester ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Leicester Radio	Leicester Radio
Altitude/FL	1124ft	1309ft
Transponder	A, C, S	Not fitted
Reported		
Colours	Grey	Red, yellow
Lighting	Strobe, landing light	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	700ft	20ft
Altimeter	QFE (995hPa)	QFE (998hPa)
Heading	050°	240°
Speed	70kt	60kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	0ft V/150m H	NR V/NR H
Recorded	185ft V/0.22NM H ¹	



THE CABRI G2 PILOT reports conducting a local area training sortie, south of Leicester, north of Bruntingthorpe on frequency with East Midlands. In the vicinity of Countesthorpe they changed to Leicester Radio for re-join information and received the information that Leicester was operating on RW28LH, QFE 995. In their response they made clear that their intention was to enter from the southwest to join RW28LH circuit (rotary) onto the downwind. They heard 2 fixed-wing aircraft on the ground taxiing and a solo helicopter student flying RW28LH circuits. They entered the ATZ and heard the helicopter student on final for the H, one fixed-wing on RW24 grass, and another unsighted aircraft requesting information and if a RW15 departure was ok. They joined downwind RW28LH and an aircraft on RW24 grass announced take-off after the helicopter student passed and landed on the H. They then called downwind left-hand circuit. They continued on downwind and turned onto base [leg]. Halfway along the base [leg] they were scanning to their left-hand side and saw a yellow aircraft coming from the left. The instructor immediately took control and banked right in a tight turn to make an orbit on the spot. They made a clear call that they were taking avoiding action, orbiting on base RW28LH circuit for the fixed wing at their circuit level departing to the east. Nothing was heard back on the radio. They made a radio call to Leicester Radio to confirm RW28LH for rotary was the correct circuit. This was confirmed, so they continued along base to join final. The other aircraft was seen departing the ATZ to the east.

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

THE JUST ESCAPADE PILOT reports that the duty runway was RW22LH circuit for fixed wing, RH circuit for rotary. All runways are available at Leicester. The Escapade is a particularly light tailwheel aircraft so best use of into wind and grass is the least risk. They elected to use RW24 grass, which runs closely parallel to RW22 hard and on the inside of it. They lined up prior to take off and reported visual

¹ Derived from the GPS log files of each aircraft.

with the rotary. When the rotary was clear, they took-off and departed with a smooth left-hand climb-out.

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

THE LEICESTER AIR/GROUND OPERATOR reports that, from their knowledge and observation, [the Just Escapade] took-off from RW24. As far as they remember, RW28 was in use and the pilot chose to take-off from the grass runway. From what they remember hearing on the radio, a helicopter [pilot] chose to make an orbit in order to maintain separation. As far as they were aware, that was the end of the situation.

Factual Background

The weather at East Midlands airport was recorded as follows:

METAR EGNX 160850Z 21008KT 160V250 CAVOK 20/12 Q1011=

Analysis and Investigation

UKAB Secretariat

Analysis of the NATS radar replay and GPS data files for both aircraft was undertaken, which showed the Cabri G2 joining the downwind leg of Leicester RW28LH (rotary) circuit from the southwest, in accordance with the Cabri G2 pilot's report. The helicopter joined the circuit at approximately 1200ft and remained at that altitude (\pm 30ft) up until CPA. The Just Escapade was only detected by the NATS radars for 2, non-consecutive, radar sweeps prior to CPA. These radar detections were primary-only returns (the Escapade was not equipped with a transponder) and were not sufficiently stable for a CPA to be deduced. However, the GPS data provided by the Escapade pilot showed the aircraft taking-off from RW24, climbing and departing to the east, as reported by the pilot. After take-off, the Escapade pilot climbed continuously until after CPA, passing abeam the Cabri with a horizontal separation of 0.22NM and a vertical separation of +185ft.

The UK AIP² entry for Leicester aerodrome (EGBG AD 2.22 Flight Procedures) states that '*The standard fix wing join is overhead. Aircraft should not descend below 1200 FT QFE on the deadside due to the helicopter circuit below at 700 FT QFE. Helicopters will join their circuit downwind.*' The Leicestershire Aero Club website, Airfield Information page³ states that the preferred join at Leicester is a standard overhead join (although it does not specifically state that this is for fixed-wing aircraft) and includes an instruction for pilots to '*...not fly below 1,200 ft QFE on the dead side to maintain separation from rotary traffic*'. The airfield elevation is ~470ft and circuit heights are 700ft QFE (~1170ft alt) for rotary traffic and 1000ft QFE (~1470ft alt) for fixed-wing aircraft. Of note, the circuit direction for **RW28 for rotary traffic** is left-hand; the circuit direction for **RW24 for fixed-wing traffic** is also left-hand.

The Cabri G2 and Just Escapade pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.⁴ 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.⁵

Leicester Airport Safety Investigation

It appears the [Just Escapade pilot] used an alternative runway to the duty runway. However, as all runways are available this is acceptable. It is apparent that [the Just Escapade pilot] never became

² <https://www.aurora.nats.co.uk/htmlAIP/Publications/2021-09-09-AIRAC/html/index-en-GB.html>

³ <https://leicesterairport.com/airfield-information/aerodrome-information/>

⁴ (UK) SERA.3205 Proximity.

⁵ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

visual with [the Cabri G2] but was visual with the helicopter taxiing on the grass runway. A discussion with [the Just Escapade pilot] has since been undertaken regarding the use of non-duty runways.

Summary

An Airprox was reported when a Cabri G2 and a Just Escapade flew into proximity in the Leicester visual circuit at 0838Z on Wednesday 16th June 2021. Both pilots were operating under VFR in VMC and both pilots were in receipt of an Air Ground Communications Service from Leicester Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS log files from both pilots, a report from the air/ground operator involved and a report from the appropriate operating authority. 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 pilot and noted that they had joined the rotary circuit for the duty runway at Leicester in the recommended manner. There then followed a wide-ranging discussion on the use of all runways at Leicester and the fact that the airfield is 'uncontrolled', thus placing the onus on pilots to ensure that they have full situational awareness at all times. Members recalled previous Airprox at Leicester where the use of opposite direction circuits for rotary- and fixed-wing aircraft, coupled with the availability of all runways at all times, had been a factor. Indeed, the Board made a Safety Recommendation in July 2016 (Airprox 2016068) that Leicester Aerodrome review their circuit procedures, leading to an increase in the vertical separation for rotary- and fixed-wing circuits. However, the Board noted that this increased vertical separation cannot procedurally deconflict departing fixed-wing aircraft climbing through the level of the rotary-wing circuit. Returning to the Airprox itself, the Board agreed that the Cabri G2 pilot had joined the RW28LH (rotary) circuit and gained adequate situational awareness of the aircraft operating on the airfield. The Board also agreed that they were aware of the Escapade departing from RW24 grass but were probably unaware of its pilot's intentions to make a left-hand turn and depart to the east. Fortunately, the Cabri G2 instructor had spotted the Escapade in time to take action to maintain separation by conducting an orbit on base-leg.

Turning to the actions of the Just Escapade pilot, the Board judged that they had not had full situational awareness of all the aircraft operating in or around the Leicester circuit. Members were unsure if they had believed the duty runway to be RW22 at the time, or if they had assumed this *post-hoc* because they had elected to use RW24 for their departure.⁶ In any case, members felt that the Just Escapade pilot had not fully considered the impact of their intentions to depart to the east from RW24 grass on other circuit traffic and had, therefore, not conformed with or avoided the pattern of traffic formed by the Cabri G2 (**CF1**, **CF2**). Furthermore, the Board concluded from the Escapade pilot's report that they had only been aware of one helicopter (operating to the 'H') and that they had therefore not had any situational awareness of the Cabri G2 downwind in the rotary circuit for RW28 (**CF3**). Members noted that the Cabri G2 pilot had announced that they had been downwind after the Escapade pilot had announced their take-off from RW24 grass and concluded that the Escapade pilot had not assimilated the presence of the Cabri G2 and therefore that their intended departure might bring them into conflict with that helicopter (**CF4**). This had left the Escapade pilot relying on their lookout to detect conflicting traffic, and the Board agreed that the Escapade pilot had not sighted the Cabri G2 (**CF5**).

The Board then briefly considered the actions of the Leicester Air/Ground Operator and quickly agreed that they had passed the correct airfield information to the pilots operating on the airfield and in the circuit(s), and that there had been no requirement for them to interject.

⁶ Post-Board note – the Just Escapade pilot subsequently informed the UKAB that they had flown from Leicester numerous times in the days prior to the Airprox, where the duty runway had predominantly been RW22, and they confirmed that they may have been mistaken in their recall of the duty runway on the day of the Airprox

Finally, the Board considered the risk involved in this event. Members returned to the subject of the complex operating environment at Leicester – all runways available at all times – and felt that, whilst this had not increased the risk of this Airprox, it had increased the likelihood of an Airprox occurring. The Board did note, however, that events such as this are not commonly reported at Leicester and that therefore, for the most part, Leicester operations appear to function as intended. In this case, the joining Cabri G2 pilot had sighted the Escapade early enough to be able to take action to maintain separation from the departing fixed-wing and so the Board agreed that, whilst safety had clearly been reduced, there had been no actual risk of collision. Accordingly, a Risk Category C was assigned to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2021086				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	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
2	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				
3	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
4	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
• See and Avoid				
5	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

Degree of Risk: C

Safety Barrier Assessment⁷

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 Conflicting Aircraft and Action were assessed as **not used** because both pilots were in receipt of an AGCS from the Leicester Air/Ground Operator.

Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because the Just Escapade pilot, on selecting the use of a non-duty runway for their departure (which they were entitled to do) did not fully consider the implications of their departure routing on traffic in other circuits.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Just Escapade pilot did not have any situational awareness of the presence of the Cabri G2 and therefore had not assimilated that their departure from RW24 grass (left-hand circuit

⁷ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

for fixed wing) might bring them into conflict with the Cabri G2 on downwind/base leg for RW28 (left-hand circuit for rotary wing).

Airprox Barrier Assessment: 2021086		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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	●				
Application	✓	⚠	✗	●	○			
Effectiveness								