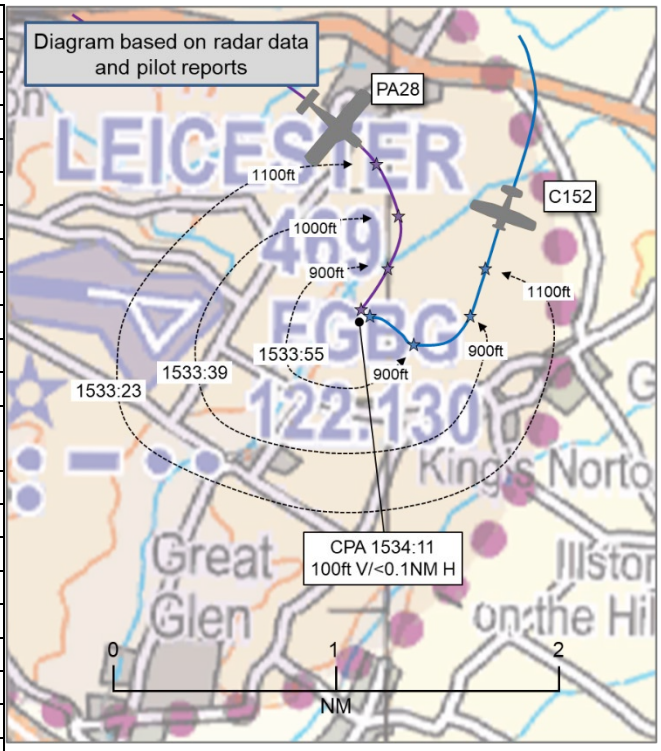
AIRPROX REPORT No 2024041

Date: 30 Mar 2024 Time: 1534Z Position: 5236N 00100W Location: Leicester ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	PA28
Operator	Civ FW	Civ FW
Airspace	Leicester ATZ	Leicester ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Leicester Radio	Leicester Radio
Altitude/FL	800ft	700ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White and blue	White
Lighting	Landing	Landing, beacon, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	700ft	650ft
Altimeter	QFE (976hPa)	QFE
Heading	280°	180°
Speed	65kt	70kt
ACAS/TAS	Not fitted	PilotAware
Alert	None	None
Separation at CPA		
Reported	200ft V/300-400ft H	100ft V/0.4NM H
Recorded	100ft V/<0.1NM H	



THE C152 PILOT reports a near-miss on base-to-final turn. They had been instructing with a student in the circuit at Leicester airport in a C152 registration […]. The circuit in use had been RW28 with a right-hand circuit pattern. The conflicting aircraft, a PA28 […] joined the circuit from the north, unconventionally, joining 'high' downwind and proceeded to turn right base for RW28 right hand circuit. The C152 pilot reports having been established on final approach to RW28 at approximately 700ft descending. The conflicting aircraft had been turning final for RW28 without sight of the C152 [they believe]. The AGO at Leicester advised the PA28 pilot of their converging path towards the C152 on final approach for RW28, whereupon the PA28 turned left towards the C152 (presumably to position behind?) but in so doing caused the C152 Instructor pilot to [have to] take control from the student and execute an immediate descent to mitigate the risk of a collision. The PA28 passed overhead [and] then repositioned to fly another circuit for an uneventful landing at Leicester. In the C152 Instructor pilot's view, on being made aware of the conflicting positions, the pilot of the PA28 should have executed a right-hand turn to rejoin the right-hand circuit late downwind in order to mitigate the risk of collision by turning into the path of the landing aircraft.

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

THE PA28 PILOT reports that they had been returning to [destination airfield] from [departure airfield] and decided to stop at Leicester for fuel. At approximately 12NM to the northeast they called Leicester Radio for airfield information. The AGO provided the QNH, QFE and confirmed the active RW as 28RH for fixed-wing, with no mention of other traffic. The PA28 pilot had read this back and stated their intention to join downwind right-hand for RW28. The AGO had responded with "report downwind". Whilst the pilot descended to circuit height, they turned further west in order to ensure they were beyond the crosswind leg of the circuit. Once they had the runway in sight they had turned left to join early downwind at approximately 1.3NM distance and made a downwind call. Once the threshold had been

[at a] 45° relative position, they had commenced a turn to the right and made a radio call "[PA28 c/s] turning base". Shortly after, the AGO had called "[PA28 c/s] can you see the aircraft on your left?". The PA28 pilot searched to their left and had seen a C152 below and about 0.4NM away. The PA28 pilot called "Yes – [PA28 c/s] going around" and immediately applied power to make a climbing right-hand turn back to circuit height. The PA28 pilot had not been aware of any radio calls from the C152 pilot during this time. The PA28 pilot completed a full circuit and landed. Having refuelled and paid the landing fee they mentioned to the Ops desk that they would be in the cafe if there had been any questions. Nobody had approached and they had then departed from Leicester to [destination airfield]. In retrospect, the PA28 pilot believes that they had turned onto base without being aware of the C152 in the circuit, who had been established on final at that point slightly further out. As Leicester operates an A/G only, they note that they will in future consider making a standard overhead join if there is any doubt as to any circuit traffic or other arrivals on long final.

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

THE LEICESTER AGO reports that on Saturday the 30th March 2024 they had been the AGO at Leicester Airport from 1300 to 1700 operating from the control tower. All afternoon the weather had been fine with scattered clouds with a reported height of 3000ft. The visibility had been at least 9km and the wind was steady at 210° 6-8 kts. The runway in use had been 28 with a right-hand circuit for fixed-wing aircraft. The circuit height at Leicester is 1000ft. At about 1525 they report having received a call from a PA28 pilot stating that they were 4NM to the northeast at 2000ft and requesting joining instructions. The AGO had stated that, 'the runway in use is 28 with a right-hand circuit' and passed the QFE, which the PA28 pilot had read back. At the time there had been an aircraft, a C152, doing right-hand circuits on RW28. A couple of minutes after the initial call, the PA28 pilot had called again asking to join left-hand downwind for RW28. The AGO had replied, 'RW28 has a right-hand circuit and we prefer a standard overhead join'. Which they acknowledged. Shortly after that the AGO had the PA28 visual, approaching from the northeast. The C152 pilot had then called downwind. The PA28 looked to be heading towards the RW10 numbers. The AGO then saw the PA28 turn right and then sharply left and called downwind parallel to RW28 and almost level with the RW10 numbers. The PA28 looked to have been about twice the height of the C152, which at this time had been approximately two thirds of the way down the downwind leg. The AGO had then seen the PA28 pitch nose down at about 45° and started to lose height rapidly. Other aircraft had then been calling and the AGO answered them but continued to watch the PA28 which had now been catching up with the C152. The AGO reports that they were becoming concerned that a potential conflict situation had been building and continued to watch closely while answering a joining aircraft. The C152 turned base leg and then turned and called finals, the AGO gave the wind speed and direction and at the same time had seen the PA28 turning right base and then almost immediately turn again on an offset final approach, inside the C152 and converging. The AGO had then said on the radio, '[PA28 c/s] do you have visual on the Cessna on finals.' There had been no reply. The AGO then saw the PA28 turn left towards the C152, which continued to descend. The PA28 passed above the C152. At that range it had been difficult to estimate how close they came; their best estimate would be 100-200ft. The Cessna continued and did a touch-and-go. The PA28 pilot had then turned right and called, 'going around.' It then flew a normal circuit and landed at 1540. The AGO opined that they believe that the nonstandard way the PA28 had joined the circuit had been extremely dangerous.

Factual Background

The weather at East Midlands was recorded as follows:

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METAR EGNX 301520Z 18009KT 150V210 9999 SCT046 14/02 Q0994=
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Analysis and Investigation

UKAB Secretariat

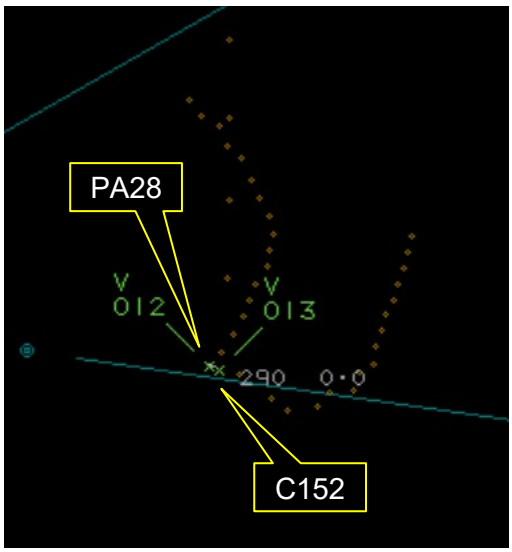


Figure 1: CPA 1534:11 - 100ft V/<0.1NM H

Both pilots report that the PA28 passed over the C152 at CPA but, with the vertical separation recorded as 100ft, radar tolerances have shown the situation to be reversed (Figure 1 above).

Relevant joining instructions for Leicester (taken from the AIP) are shown below:

EGBG AD 2.22 FLIGHT PROCEDURES

1 CIRCUITS

a. Fixed wing circuits left hand on Runways 10, 33, 22, 34 and 24. Fixed wing circuits right hand on Runways 28, 15, 04, 16 and 06.
b. The standard overhead join is preferred for fixed wing.
c. Fixed wing circuits will be at 1000 FT QFE.
d. Helicopter circuits are to the left on runways 28, 15, 04, 16 and 06. Helicopter Circuits are to the right on runways 10, 33, 22, 34 and 24.
e. Helicopter circuits will be at 700 ft QFE.
f. 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 C152 and PA28 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] 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.[2]

Summary

An Airprox was reported when a C152 and a PA28 flew into proximity within the Leicester ATZ at 1534Z on Saturday 30th March 2024. Both pilots were operating under VFR in VMC and both in receipt of an AGCS from Leicester Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the Air/Ground Operator 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 firstly considered the actions of the C152 pilot, noting the nature of their instructional flight. They accepted that the C152 pilot had gained generic situational awareness (**CF4**) only through the passage of RT between the AGO and the PA28 pilot but had not gained visual contact until on finals for RW28, at which point they had acquired the PA28 to their right. Members felt that the C152 pilot had taken avoiding action as soon as the conflict had been recognised and had increased separation

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

between the 2 aircraft. Unfortunately, the C152 had not carried electronic conspicuity equipment which had meant that the pilot had not been alerted to the position of the PA28 (**CF5**) earlier in its arrival.

In reviewing the actions of the PA28 pilot, members opined that the decision to land at Leicester had probably been 'ad hoc' and therefore had suffered from a lack of pre-flight planning (**CF3**). This had been highlighted by the incorrect joining procedure (**CF1**) by the PA28 pilot and, although the PA28 pilot had carried electronic conspicuity equipment, it had been unable to detect emissions from the C152 (**CF5**). As the C152 pilot had not made any RT calls during this period, the lack of RT combined with the incompatible electronic warning systems had denied the PA28 any situational awareness (**CF4**) for the PA28 pilot. Ultimately, that lack of awareness of the presence of the C152 had led to the PA28 pilot having not integrated with the pattern of traffic as formed (**CF2**) and a resulting non-sighting of the C152 as they had turned onto finals (**CF6**).

The Board wished to stress that the carriage and use of compatible electronic conspicuity equipment would in this case have likely enabled earlier situational awareness for both pilots and possibly reduced the likelihood of this Airprox occurring.

Members went on to review the actions of the Leicester AGO, praising them for proactive actions in relaying to the PA28 pilot the preferred joining procedures and latterly reminding them of that as the PA28 had approached the circuit. They had continued to maintain good visual contact with both aircraft despite distractions from other aircraft RT calls at the time, and had been prepared to intervene as the C152 had initiated avoiding action. The Board felt that there had been little more the AGO could have done in this case.

When determining the risk, members considered the reports from both pilots together with the report from the AGO involved and radar photographs/video recordings. They acknowledged that the C152 pilot had attained visual contact as the PA28 had turned finals to their right-hand side at close range and had initiated a sharp descent to increase separation. Members agreed that safety margins had been much reduced below the norm. As such, the Board assigned a Risk Category B to this Airprox (**CF7**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024041			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
2	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
3	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			
4	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			
5	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			
6	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
	• Outcome Events			

7	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[3]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

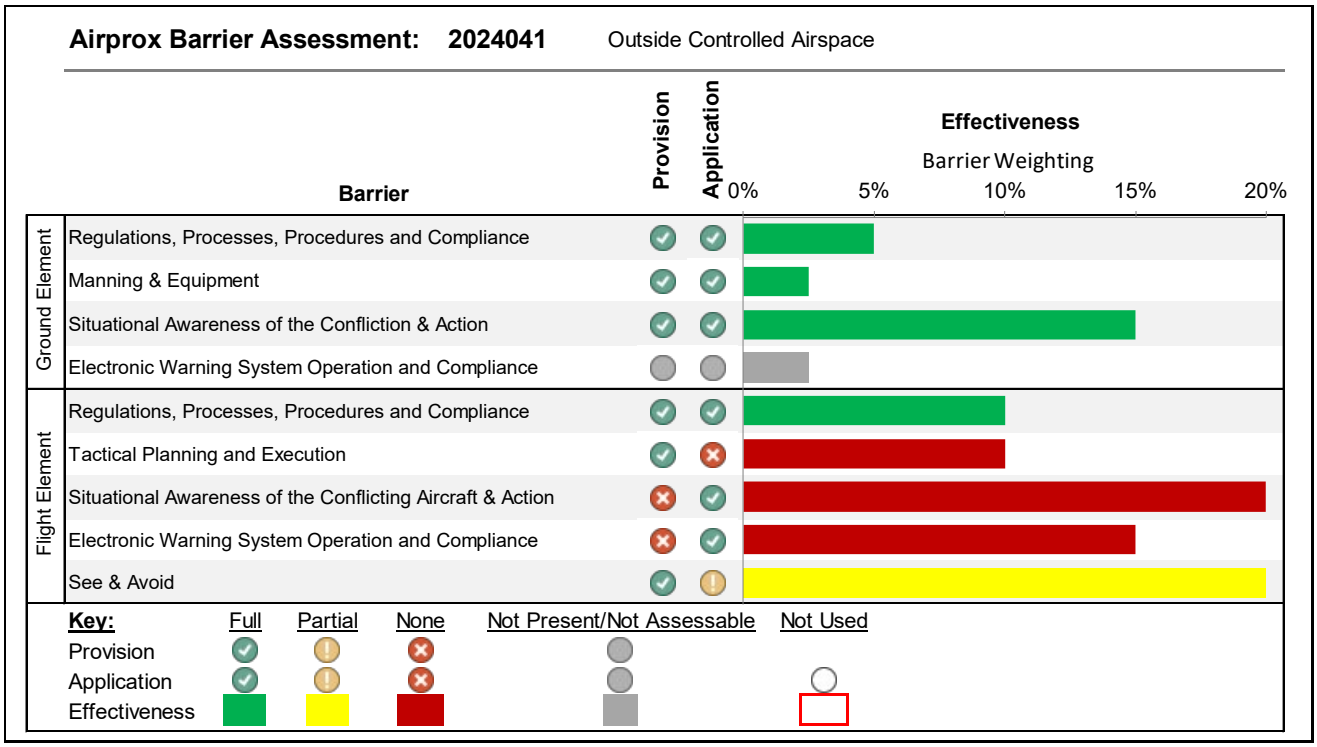
Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because the PA28 pilot had not fully prepared for an arrival at Leicester, had not joined the circuit in the preferred manner and had not conformed with the pattern of traffic formed by the C152.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the C152 pilot had only generic situational awareness of the joining PA28 and the PA28 pilot had no situational awareness of the presence of the C152.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the equipment carried by the PA28 had not been able to detect the electronic emissions from the C152.

See and Avoid were assessed as **partially effective** because the PA28 pilot had not seen the C152 prior to CPA.



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