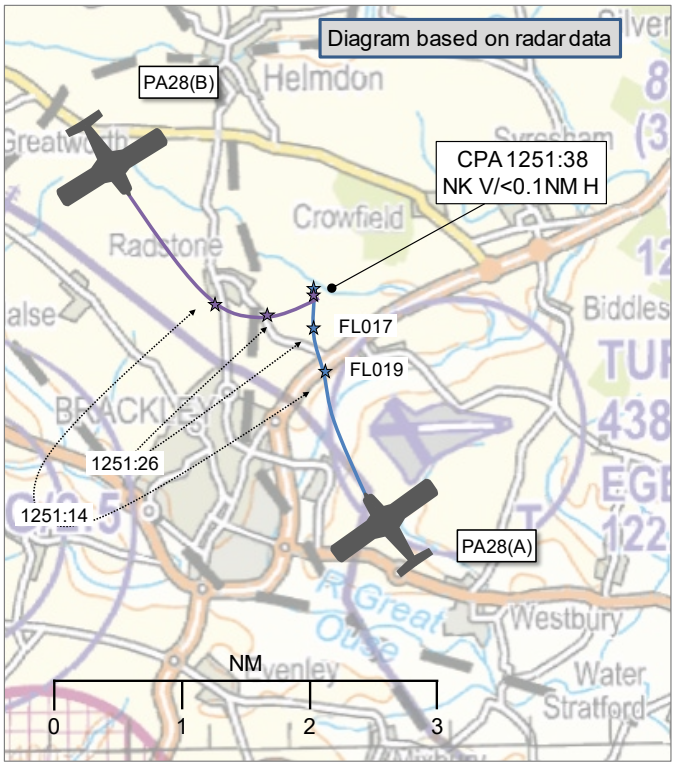
AIRPROX REPORT No 2024126

Date: 16 Jun 2024 Time: 1252Z Position: 5203N 00107W Location: Turweston

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28(A)	PA28(B)
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Turweston	Turweston
Altitude/FL	FL017	NK
Transponder	A, C, S	A, S[1]
Reported		
Colours	White, Blue	Black
Lighting	Strobes, Anti-cols	Beacon, Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1000ft	1000ft
Altimeter	QFE (988hPa)	QFE (988hPa)
Heading	090°	092°
Speed	90kt	90kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	100ft V/0m H	Not Seen
Recorded	NK V/<0.1NM H	



THE PA28(A) PILOT reports that they were the instructor with a student flying in the left seat. An overhead join was made at Turweston for RW27RH. A call had been heard by another aircraft joining via the overhead. No other calls were heard. A scan picked up the traffic and they [the PA28(A)] turned in behind. They instructed the student to go west of Whitfield village to build spacing with the one ahead, providing approximately 1min separation. Immediately after turning onto the downwind, they heard [PA28(B) C/S] call "downwind". They reported visual with traffic ahead about to turn onto base, but not visual with [PA28(B) C/S]. No response was received. They continued to scan, then observed [PA28(B) C/S] appear below on the starboard side, 2 o'clock approximately 100ft below. They were able to maintain good visual separation and reported to Turweston Radio that they would make one left-hand orbit at the end of the downwind leg to position behind [PA28(B) C/S].

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

THE PA28(B) PILOT reports that they were asked to write a report, and potential lessons learned, concerning an incident that occurred on Sunday 16th June 2024. The incident related to them joining the circuit at Turweston. They had analysed the events to gain some clarity on what they remembered; they were at Chipping Warden at approximately 2500ft on the QNH when they contacted the tower requesting airfield information for landing. They were supplied with the QFE. They followed the heading toward the airfield arriving within the vicinity of the beginning of the downwind leg for RW27RH. Following a scan, they did not observe any aircraft in front or coming from the crosswind side. They joined the downwind leg and notified the tower. They had flown about ¾ of the downwind leg when they heard the tower talking to other aircraft about the traffic that was in the circuit. They genuinely believed that they were number one in the circuit and were not aware of any other aircraft in front, or around them. They could hear [the pilot of] one of the aircraft stating that they did not have a visual on their aircraft but shortly afterward as they approached the right base for RW27RH they heard that the other

[1] Pilot reported Mode C but it was not seen on radar.

pilot now had a visual on their aircraft. They were aware that there was an aircraft passing over the threshold just about to touch down as they turned right base. They eventually landed and the same aircraft had then exited towards "B". They exited the runway to the left side onto the grass, which allowed the aircraft waiting on "C" to proceed and take-off. They followed the grass taxiway and parked in the middle bay of three. A few minutes later they were joined by another club plane which parked to their right. As they were exiting the plane they were approached by a male who had just exited the aircraft which had just parked up on their left-hand-side. This person asked, "Did you join the circuit downwind?" and they proceeded to advise [the pilot of PA28(B)] about their positioning in the circuit. They also advised that an overhead join should have been carried out, as it was an active circuit. The PA28(B) pilot noted that they had taken on these words of advice concerning joining the circuit overhead and examined the reasoning behind why they did not and also the potential consequences of their actions. They wanted to make sure they learned from the experience and prevented it from happening again. To aid in their understanding of the positioning concerning the two aircraft, as stated they genuinely believed they were clear of traffic, they used open-source material, namely flight radar. This enabled them to examine the flightpaths of each aircraft in the area at the time, and see what had occurred. Unfortunately, all this did was raise more questions than answers. In that, they saw the aircraft they were flying enter the downwind leg, and the position at that time of PA28(A) was displayed as being on the deadside. As PA28(A) proceeded along the deadside and turned crosswind, their aircraft was by that time ¾ of the length of the downwind. As they turned right base PA28(A) was just leaving the edge of downwind and proceeding north. This has left them somewhat confused. In any case, they will take on the advice regarding joining overhead on an active circuit.

THE TURWESTON AGO reports that from the A/G log for Sunday 16th June 2024:

[PA28(A)] took off from RW27 at 1157 for the local area.
[PA28(B)] took off from RW27 at 1158, also for the local area.

[PA28(A)] called for rejoin sometime later, intending to join overhead, later reported deadside. At this time [a non-Airprox] PA28, was already in the process of joining from the southwest. [PA28(B)] called for rejoin very soon after [PA28(A)] initial call, reporting at Chipping Warden and intending to join right-base. [The AGO] provided information to [PA28(B)] regarding the other joining traffic, another (student, based PA28) called for rejoin, intending to join overhead, shortly after [PA28(B)]'s initial call.

[PA28] landed RW27 at 1250
[PA28(B)] landed RW27 at 1254
[PA28(A)] landed RW27 at 1256
[PA28] landed RW27 at 1257

From recollection:

The 4 aircraft were eventually in the circuit at the same time, with one on base and two (possibly three) downwind. At the time, no mention was made, by any pilot, of concerns over an Airprox, although one of the pilots did advise they were taking an orbit on base for separation.

Factual Background

The weather at Oxford was recorded as follows:

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METAR EGTK 161250Z 27009KT 240V310 9999 FEW044 18/08 Q1002=
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The Turweston website states:

8. Joining Procedures

Pilots should make themselves familiar with procedures operating at Turweston before departure or arrival. Details of these procedures including noise abatement routes are available in the Control Tower and on our website (see link below).

a) Inbound aircraft should establish radio contact at 10nm or 5 minutes away.
b) Standard overhead join. Circuit height 1000 ft QFE.
c) Pilots are responsible for their own separation in the circuit – orbits and extended circuits for spacing are permitted. Joining traffic must be aware of circuit traffic and plan their spacing accordingly.

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Both aircraft could be seen and identified using Mode S data. At Figure 1, PA28(A) could be seen joining via the overhead indicating FL029 (radar QNH 1002hPa, Turweston elevation 438ft), with a non-Airprox PA28 joining from the south-west indicating FL034. PA28(B) was to the northwest of the airfield, with no Mode C and another non-Airprox PA28 was joining from the northeast.

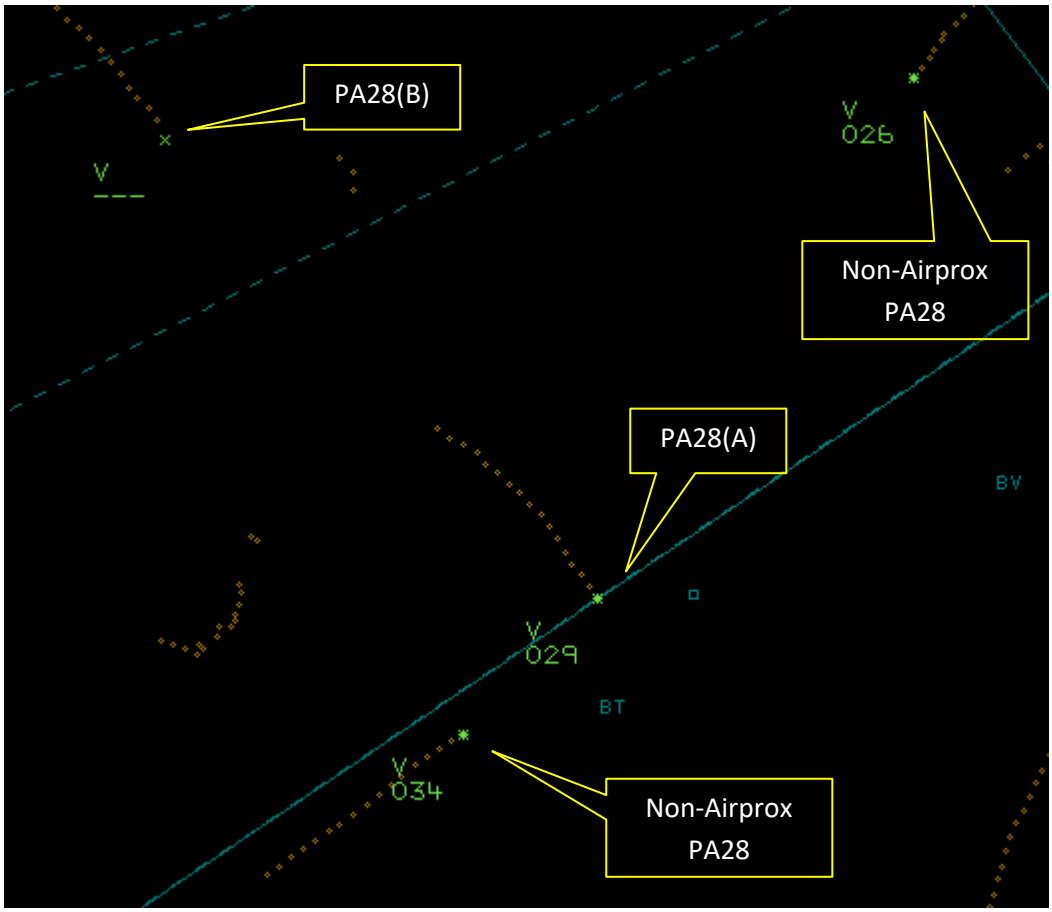


Figure 1 – 1249:07

At Figure 2, PA28(A) had turned to fit in behind the other joining aircraft as described by the PA28(A) pilot in their report.

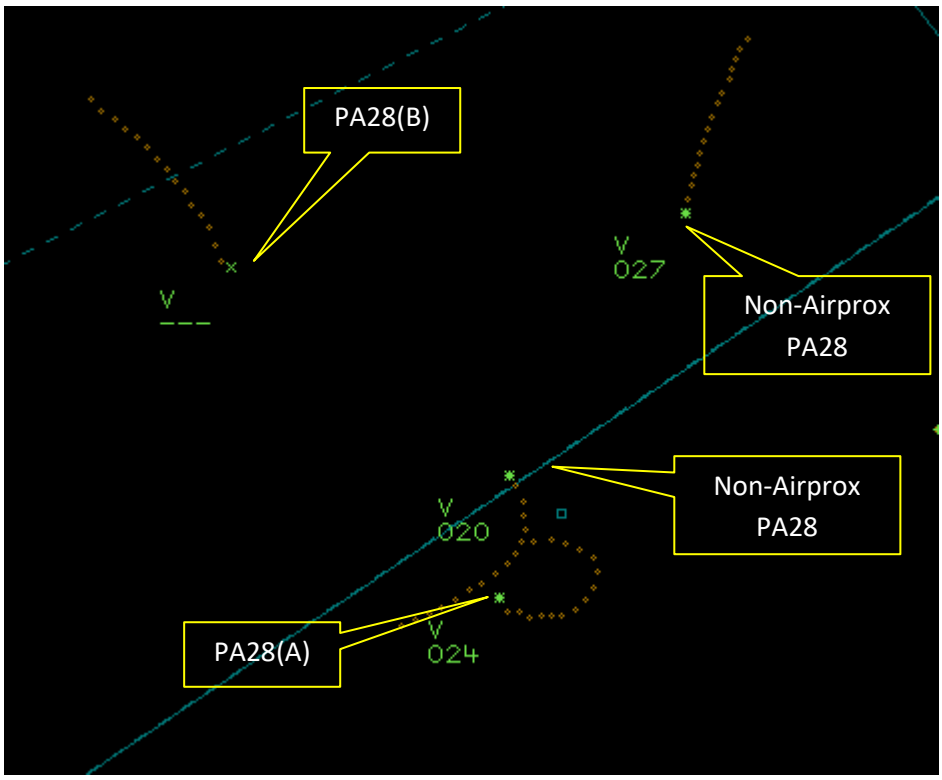


Figure 2 – 1250:29

At Figure 3, PA28(A) was descending on crosswind indicating FL019 with PA28(B) 0.9NM northwest, height unknown.

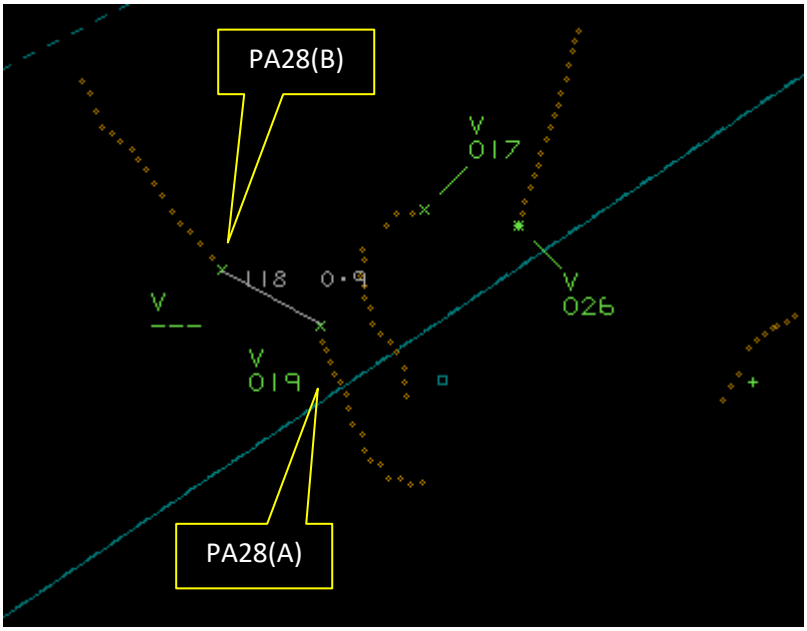


Figure 3 - 1251:14

Figure 4 showed PA28(A) still on crosswind, whilst PA28(B) appeared to have turned onto east.

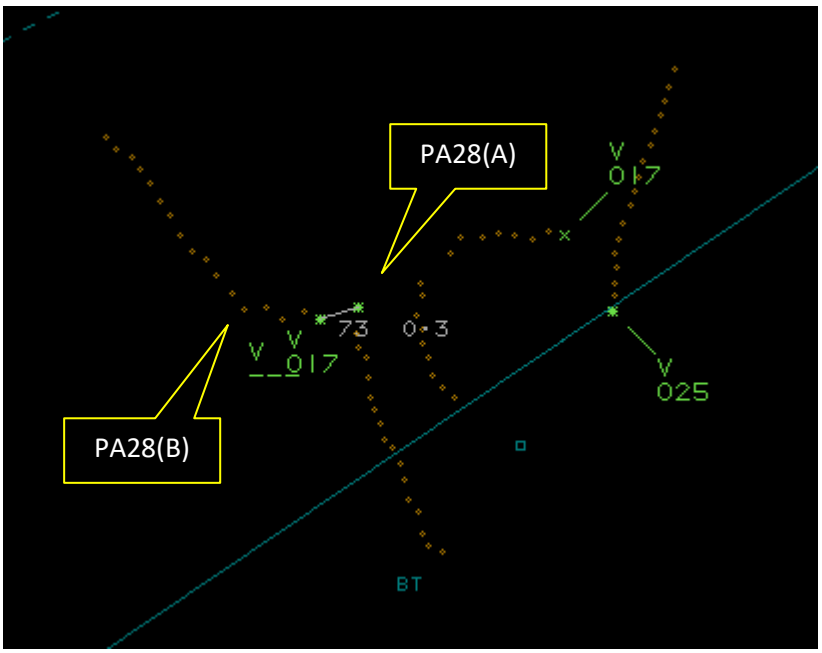


Figure 4 – 1251:30

As PA28(A) turned onto a downwind heading, PA28(B) caught up (Figure 5, radar CPA), after which the two aircraft parallelled each other until 1251:59 (Figure 7) when PA28(B) had moved into PA28(A)'s 2 o'clock, probably the point at which the PA28(A) pilot became visual.

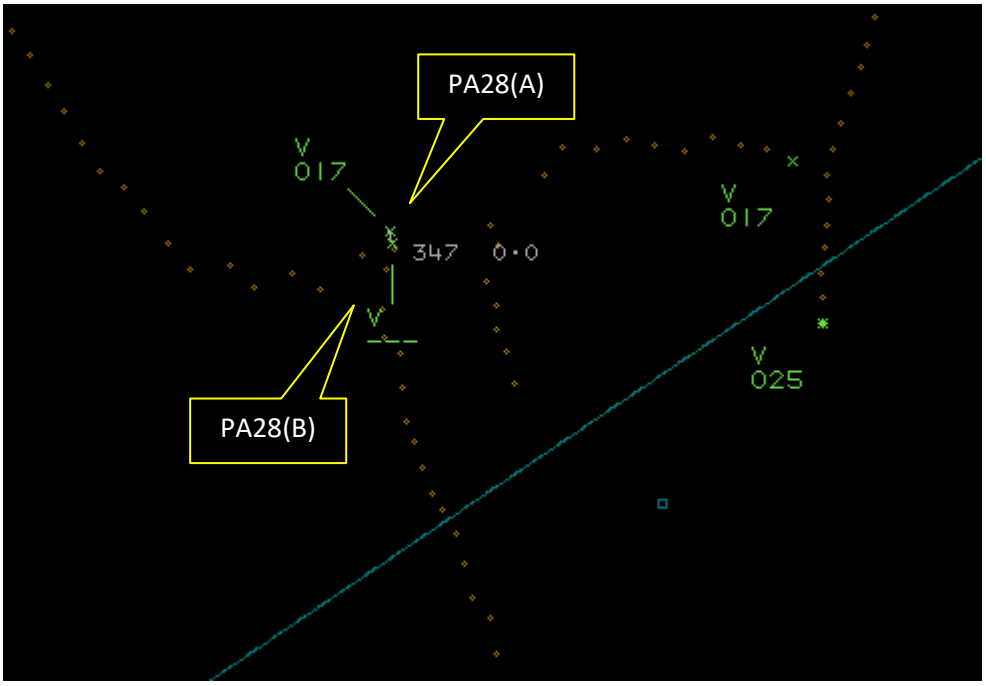


Figure 5 - 1251:38 (radar CPA)

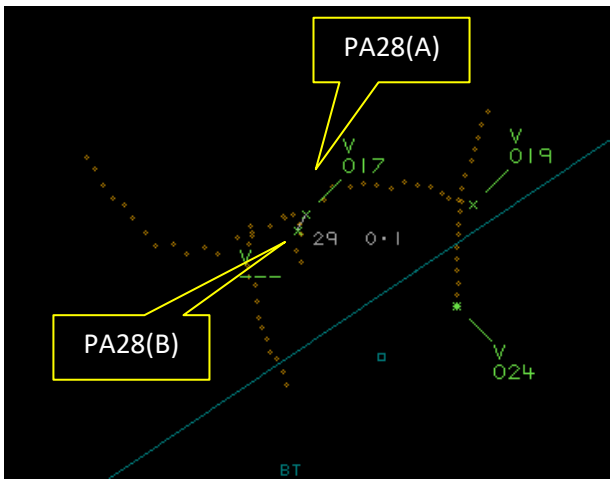


Figure 6 - 1251:51

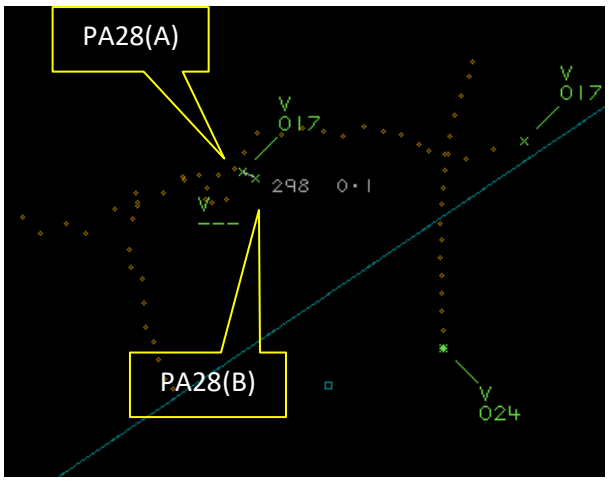


Figure 7 - 1251:59

The PA28(A) and PA28(B) pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] 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.[3]

Summary

An Airprox was reported when PA28(A) and PA28(B) flew into proximity at Turweston at 1252Z on Sunday 16th June 2024. Both pilots were operating under VFR in VMC, both were in receipt of an AGCS from Turweston Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs and a report from the AGO 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 looked at the actions of the PA28(A) pilot. They had been joining Turweston via the overhead and had been aware of other traffic also joining and had fitted in accordingly. Although they would have received generic situational awareness from the RT that the PA28(B) was joining the circuit, the pilot reported not being aware of the PA28(B) pilot's intention to join downwind (**CF5**). They had not become aware of the position of the other aircraft until the other pilot had called downwind, at which point they had looked for, but not seen, the other aircraft. Members opined that because the PA28(B) had been estimated to have been 100ft lower than PA28(A), it could well have been obscured to the pilot by the low-wing at this point. When they had eventually become visual, the PA28(B) had been in their 2 o'clock which, given that the radar had shown the two aircraft paralleling each other for some time, led the Board to conclude that this had effectively been a non-sighting by the PA28(A) pilot (**CF7**).

When looking at the actions of the PA28(B) pilot, the Board first agreed that this Airprox demonstrated precisely why the CAA recommends that pilots undertake overhead joins to fit into an active visual circuit. Members noted that the Turweston website also stated that overhead joins were the preferred method of joining and that in not doing so, the PA28(B) pilot had not complied with the airfields procedures (**CF1**, **CF3**). Although the AGO had reported that the pilot had notified them that they had intended to make a right-base join, in fact the pilot had joined downwind; this ineffective communication of intentions undoubtedly contributed to other circuit users not being aware of their positioning (**CF2**). Members noted that the reason for conducting an overhead join was to allow a pilot time to assess the circuit traffic and work out a safe place to join the circuit, whilst still above the traffic. However, a downwind join brought the aircraft directly into the circuit, at circuit height, making it difficult to see where the other circuit traffic was positioned, and difficult to integrate with it, as had been the case here. The

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

PA28(B) pilot, in joining downwind at the point at which PA28(A) had been descending crosswind, had not conformed with the pattern of traffic (**CF4**) and that in joining in a non-standard way, had positioned themselves in a place where other pilots had not been expecting there to be traffic. There had been 3 other aircraft in the visual circuit, all making standard RT calls, and Traffic Information had been passed by the AGO, but the PA28(B) pilot had not assimilated this information (**CF6**) and therefore had only generic situational awareness about the PA28(A) (**CF5**). They had positioned downwind and had not seen the PA28(A) as it had also positioned downwind (**CF7**).

Outwith the actions of the pilots, members noted with disappointment that despite both aircraft being part of a flying school, neither had been fitted with any form of CWS that may have been able to alert either pilot to the proximity of the other aircraft and aid visual acquisition.

The Board briefly looked at the role of the Turweston AGO, and noted that the AGO had not been required to sequence the visual circuit. They had passed Traffic Information on the other circuit traffic, but could not have refused permission for the PA28(B) pilot to join downwind. Members therefore agreed that there had been little more that the AGO could have done in the circumstances.

When determining the risk of the Airprox, the Board considered the reports from both pilots and that of the AGO, together with the radar screenshots. The radar replay indicated that the two aircraft had been in very close horizontal proximity at the start of the downwind leg, with neither pilot visual with the other aircraft at that point. PA28(B)'s Mode C had not displayed on the radar for some reason and so their actual height could not be known, however, it was noted that the PA28(A) pilot estimated that there had been 100ft of vertical separation. The Board unanimously agreed that there had been a risk of collision, with some members assessing that it had been a serious risk, where providence had played a major part. Others countered that the 100ft of vertical separation meant that safety had been much reduced below the norm. In the end the latter view prevailed; Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024126			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
1	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
	• Tactical Planning and Execution			
2	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
4	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
	• Situational Awareness of the Conflicting Aircraft and Action			
5	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
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
	• See and Avoid			
7	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			
8	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[4]

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 AGO had not been required to sequence the aircraft in the circuit.

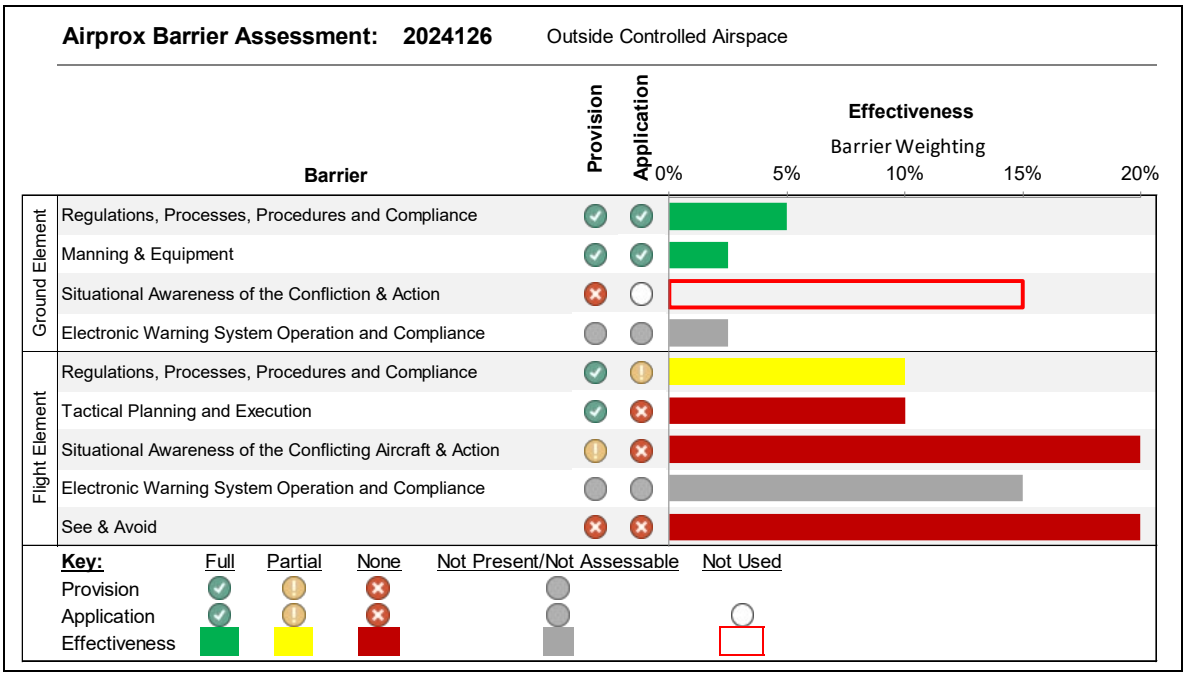
Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the PA28(B) pilot had not conducted an overhead join.

Tactical Planning and Execution was assessed as **ineffective** because, having chosen to conduct a non-standard join, the PA28(B) pilot had not articulated their intentions on the RT and had not integrated with the circuit traffic effectively.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because both pilots could only have had generic situational awareness about the other from the RT, and although the PA28(B) pilot had been told by the AGO that there had been other aircraft joining the circuit, they had not assimilated that Traffic Information.

See and Avoid were assessed as **ineffective** because at CPA neither pilot had seen the other aircraft.



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