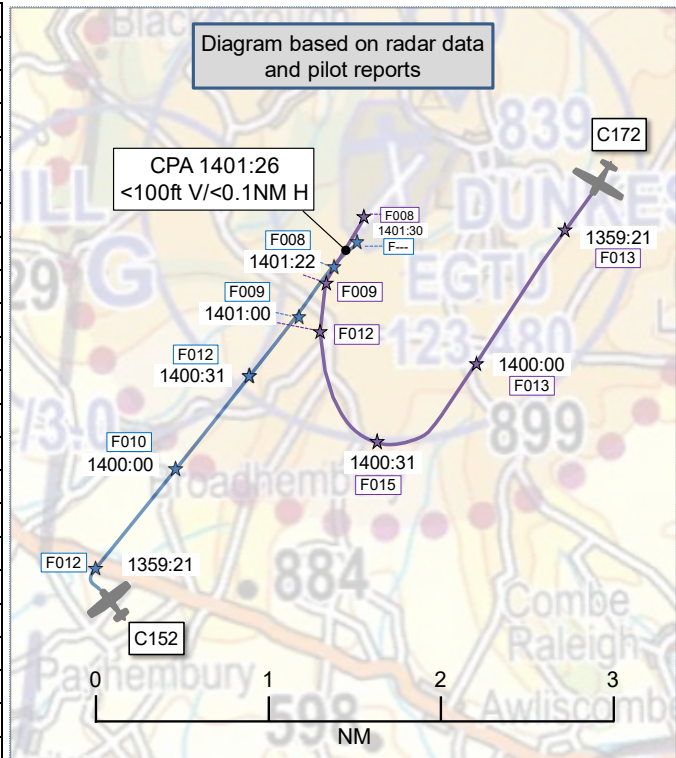


**AIRPROX REPORT No 2023215**

Date: 06 Sep 2023 Time: 1401Z Position: 5052N 00314W Location: Dunkeswell

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	C172
Operator	Civ FW	Civ FW
Airspace	Dunkeswell ATZ	Dunkeswell ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Dunkeswell Radio	Dunkeswell Radio
Altitude/FL	FL008	FL009
Transponder	A, C	A, C
Reported		
Colours	White	White
Lighting	NA	NK
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3ft	NK
Altimeter	QFE	NK
Heading	040°	040°
Speed	60kt	65kt
ACAS/TAS	Not fitted	Unknown
Alert	N/A	Unknown
Separation at CPA		
Reported	10ft V/4m H	NK V/NK H
Recorded	<100ft V/<0.1NM H	



**THE C152 PILOT** reports they departed [the airfield] at 1310 to the east for a local flight. On their return to [the airfield], they had heard [a PA28 pilot] on the same frequency was also going to [the same airfield] and, after receiving airfield information from Dunkeswell Radio (RW04RH circuit), [the PA28 pilot] had reported east of the field, 5 miles, but did not suggest how they would join the circuit.

They were also east of the field at approximately 7- 10 miles, therefore they called up Dunkeswell Radio over Honiton, received the same information from them and said they would position for a right-base to join for RW04. They recalled [the PA28 pilot] asking Dunkeswell Radio twice to 'confirm it is 04 right-hand', but there was no response from the radio operators. They then called '[PA28 C/S] from [C152 C/S]. Affirm, it is 04 right-hand'. As they got closer to a right base position, [the PA28 pilot] had not updated their position in the circuit, therefore they requested it from them, to which they got no response. They called '[C152 C/S] wide right base RW04' and then they requested [the PA28's] position again.

Shortly after [the PA28 pilot] called 'late downwind', they could see them in their approximately half past 2 position, turning through a 'normal' base and then onto final, with more than enough room between them, as they had created that by joining a wide right base, and making it known to circuit traffic. (They report about this interaction with [the PA28 pilot] because it demonstrated the amount of calls that they made for other circuit traffic to make their position known). The [PA28 pilot] called 'final RW04', [the C152 pilot] anticipated their go-around given they were too high, and they shortly called 'going around'. Following [the other aircraft], having created more than enough room between them, they turned onto a slightly longer than 'normal' final, as would be anticipated given their previous call for making a wide right base. At this point [the pilot of C172] called 'downwind', and they (the C152 pilot) called 'final RW04, contact aircraft ahead'. They did not recall hearing [the pilot of C172] before this downwind call. Everything at this point felt ok, they were on final having made a 'final' call and reported seeing [the PA28] go around ahead of them, and [C172] was behind them in the circuit, having just made their

'downwind' call. They continued with their approach, everything was fine and normal, then, when they were on quite a short final, (approximately 50-100ft off the ground at this point), on a perfectly normal and stable approach, [the C172 pilot] called 'final'. Then maybe 10 seconds later, and literally a second or two before they touched down on RW04 as they were probably 1 or 2 feet off the ground, [C172] appeared in their windscreen only a matter of feet above them and proceeded to land ahead of them, approximately 4m ahead of them. They did not recall any response from the Air Ground Radio Operators after either theirs or [the PA28 pilot's] 'final' calls or 'going around' calls, and there certainly was no intervention or response when [C172 pilot] called 'final' while [C152] was already on final. Their approach had been stable the whole way down, their speed approximately 65 knots, reducing to 60 over the threshold, and they were about to land just ahead of the numbers on RW04, as they always like to practise a short field landing when they can. They brought [C152] to a safe halt on the runway, as this was all they could do in this moment of utter shock and horror, as [the pilot of C172] continued with their touch and go, seemingly unaware [of C152], and they safely vacated RW04 to the left, where there was a twin engine aircraft holding to go onto the runway. They taxied to the grass parking area and shut down the aircraft.

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

**THE C172 PILOT** reports they were the instructor onboard at the time of this Airprox. They were sitting on the right-hand side of the cockpit in the RW04 circuit, which is a right-hand circuit, giving them, arguably, the most advantageous view of the circuit. The student was a PPL requiring a club check-out on the slightly larger C172 (having been used to the C152).

They were completely unaware of any Airprox incident until later in the afternoon after their final flight and had not seen any radio/video/GPS track evidence to expand on the situation. Their understanding was, at some point a C152 aircraft landed (or was landing, having been practising short field landings) and their aircraft appeared above and further along the runway (ie landed beyond). That is all they had been told.

The instructor notes written on the day show that they departed the ATZ for some brief air work [to the north and northeast] before returning to the field for 2-3 circuits. The recommended arrival routes inbound via Upottery and then positioned straight onto a long downwind for RW04. On first radio contact with the A/G frequency, they became aware that there were at least two other aircraft either in the circuit or positioning for an arrival onto RW04. [The pilot of C152] requested the preceding (or following?) aircraft [pilot] to state their current position, there was obviously some sort of confusion about who was where. They recall the response being rather unspecific (eg "downwind" or "right base"). They recall sometime later (at least a minute) another rather more anxious sounding call from the [C152 pilot] requesting the other aircraft pilot re-state their position. They were not sure if there was a response to this and, if there was, they did not register it, they assumed [the other aircraft] had landed. By this point they were just joining the start of the long downwind and so weren't involved in the 'melee' yet. There was clearly a situation where the [C152 pilot] was not able to visually locate the preceding (or following?) aircraft and the other aircraft pilot (who they think sounded like a visitor to the field) was failing to make sufficiently precise (helpful) position reports. They did not hear a 'student' prefix in any of the callsigns but sensed a similar threat situation. Another observation for that afternoon is that the gliding field next door was active and a powered aircraft (assumed to be a tug) was spotted in a right-hand circuit (gliders were using left circuit), in approximately RW04's orientation. While the separation distance meant there was no threat, it required an awareness of not straying over Dunkeswell's RW04 centreline or starting the approach too far out. As an instructor, if they are on downwind and somebody calls that they are on base leg or finals, they will immediately move to positively identify their position. This is essential for spacing or adjusting the length of the downwind. Another part of building-up students' situational-awareness are timely radio calls (including base and finals, a good habit, even when the circuit is empty). In this case, they were flying with a somewhat experienced PPL, at their home airfield, quite wary of radio-shy visitors, in fast moving home-built aircraft. They flew three circuits with the check-out pilot and had no further information about which approach to go-around, or approach-to-land, this Airprox incident happened on. Due to the nature of the exercise, flying accurate approach speeds was a requirement. The C172 is flown at 65kts from base and final down to 50ft above the runway and they teach to land within the first quarter of the runway, or the first third (well before the RW35/17

intersection) if nobody is behind them and they are going to roll to the end. If the other aircraft was practising short field landings, they would usually have been aiming for 55kts for most of the final approach, which would give them a potential 10kt speed differential. If at any point late on the downwind they had heard another aircraft call 'base leg' before they had turned onto base, they would have worked to positively spot them and delayed their turn. If they had already turned and called 'base leg' and somebody called 'final' and they did not already know where they were, they would only have 20-30 seconds to locate them or execute a go-around. [They surmised that] this situation occurs [at the airfield] once every couple of months, at most, for them, particularly during the summer months when they get lots of visiting aircraft, so it is a threat to be ready for.

They recalled no such situation occurring on the flight, no conflicting position reports, no unspotted aircraft, nobody calling to clarify their position ([they believe] there is little chance that they failed to make one call and almost no chance they made no calls) and nobody calling to be on base at the same time as them.

[They opined that] an audio recording would be quite helpful. They were not using SkyDemon in flight mode at the time due to the localised nature of the exercise (not needed) so were unable to show ground track. Circuits are generally flown in a 'cookie-cutter' rectangular pattern with a small 'cut' on final to ensure that the centreline is not crossed. In a descending right turn, a blind spot exists under the aircraft, slightly to the left for the instructor. This is slightly mitigated by the high flap setting/lower nose attitude on the C172 creating a larger viewing space to look through. If this Airprox situation occurred, that is the only place [that C152] could have been hidden (assuming [that the C152 pilot] had started with a longer final, at a slower speed, had made no radio calls, had not queried their position and simply had not been spotted by them ([or vice-versa]) on a lower-than-normal approach profile while assumed to be on centreline). [They further theorised that] one hypothesis may be that if the C152's prior circuit had resulted in tactical spacing to separate from the preceding wayward aircraft, it is more likely that their subsequent circuit used the same landmark turning points resulting in a longer than normal/expected final approach, which could be how their aircraft 'cut in' and ended up flying in some sort of blind formation down the approach. At no point during any of their touch-and-goes or final landing/taxi-back did anyone make them aware of a proximity or airmanship issue. [They further opined that] the moral of the story is to make lots of helpful position reports (eg 'right base', 'long final, short final' etc), an abundance of vigilance and to expect the unexpected.

**THE DUNKESWELL AIR/GROUND OPERATOR** reports the [C152] joined on a wide right base for RW04. The [C172] was already established in the circuit on downwind with a licence-holding student and school instructor onboard. There was a PA28 ahead of [the C152] in the circuit. [The C152 pilot] made multiple calls to [the PA28 pilot] to establish their position, with no reply. [The C152 pilot] called 'final, one ahead', and the PA28 pilot then stated an intention to go-around, which moments later was initiated. The [C152] continued its approach with the PA28 then passing above the clubhouse. From memory, they believe [the pilot of C152] made a second 'final' call once a bit closer in. After a good 20/30sec [the pilot of C172] then called 'final'. They then observed a Cessna on the go around as it became visual passing the clubhouse. This was the [C172], which they deemed to be unusual due to the timings, but they put this down to a late call. They then saw the [C152] exiting the runway and presumed the [C172] had gone around for separation. On return to the clubhouse the PIC of [C152] then informed them that the [C172] had actually touched down on the runway in front of the [C152] with little proximity - this was out of their visual range. They spoke to the pilot (instructor) of the [C172] who had no awareness of the proximity.

## Factual Background

The weather at Yeovilton and Exeter was recorded as follows:

METAR EGDY 061350Z 30002KT CAVOK 29/20 Q1018 NOSIG RMK BLU BLU=

METAR EGTE 061350Z 19007KT 9999 FEW040 28/19 Q1018=

The Dunkeswell AIP entry states:

**EGTU AD 2.22 FLIGHT PROCEDURES****1 CIRCUITS**

- a. Circuit directions: Runway 04 - RH; Runway 22 - LH. Circuit height: 800 FT.
- b. No overhead joins due to parachuting.
- c. No straight in approaches.
- d. No orbits in the circuit or on final approach, ie extend downwind or go around.
- e. Aircraft are to join downwind or base.

**Analysis and Investigation****UKAB Secretariat**

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data.

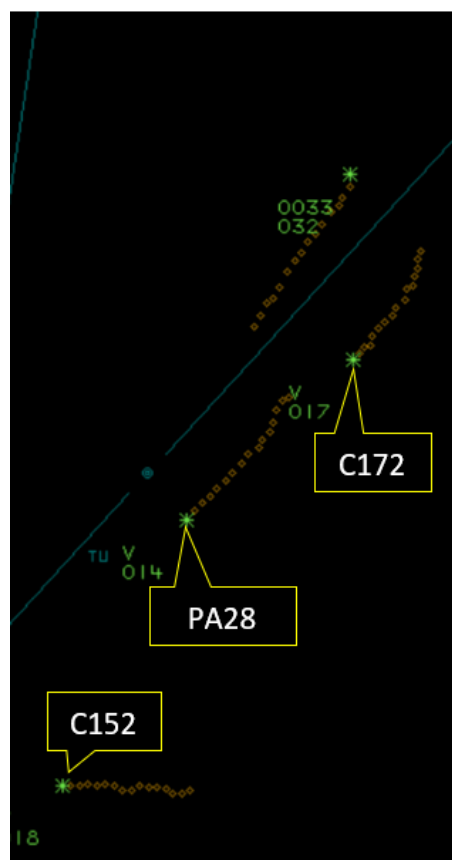


Figure 1: Time 1358:04

At 1358:04, the pilot of the C152 was joining the airfield circuit from the east on a wide right base on to a final approach for RW04. A PA28 was downwind and ahead of [the C172] joining the circuit from a long downwind position. The C152 pilot initiated a wide right base leg as described in their report (see Figure 1). The C152 pilot reported making a number of radio calls to confirm the airfield circuit and to clarify the position of the PA28 with the PA28 pilot. The C172 pilot reported having been aware of the radio calls of 2 other aircraft.

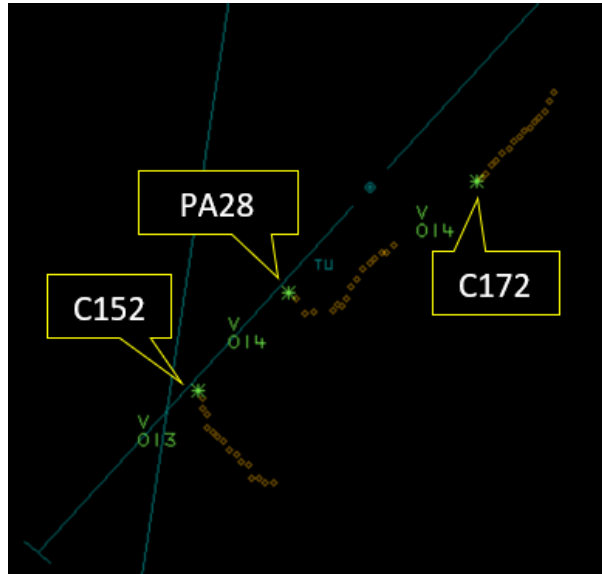


Figure 2: Time 1359:12

Both the C152 and PA28 turned on to the final approach at 1359:12, with the PA28 ahead of the C152 (Figure 2).

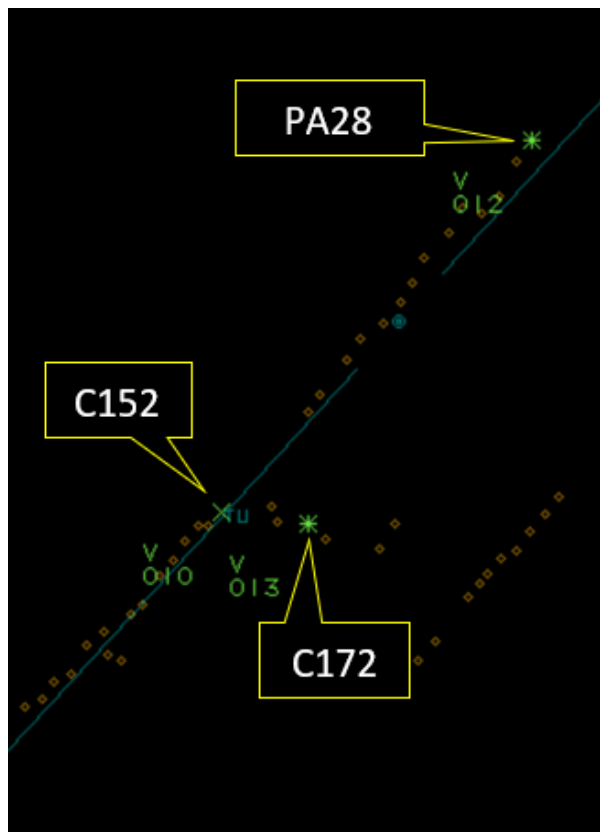


Figure 3: Time 1400:49 separation 0.4NM and 200ft.

At 1400:49 the PA28 was going around and the C172 closed on the C152 from a right-base position (Figure 3), and continued to do so during the final approach (Figure 4).

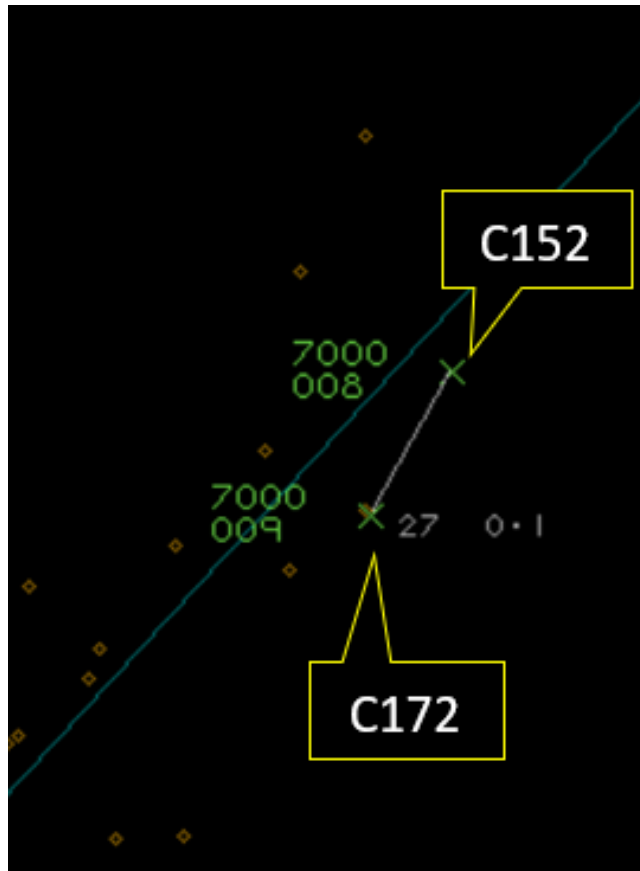


Figure 4: Time 1401:22, separation 0.1NM and 100ft.

On the next radar sweep (Figure 5) the C172 was observed to have overtaken the C152; therefore CPA is assessed to have been <100ft and <0.1NM at time 1401:26.

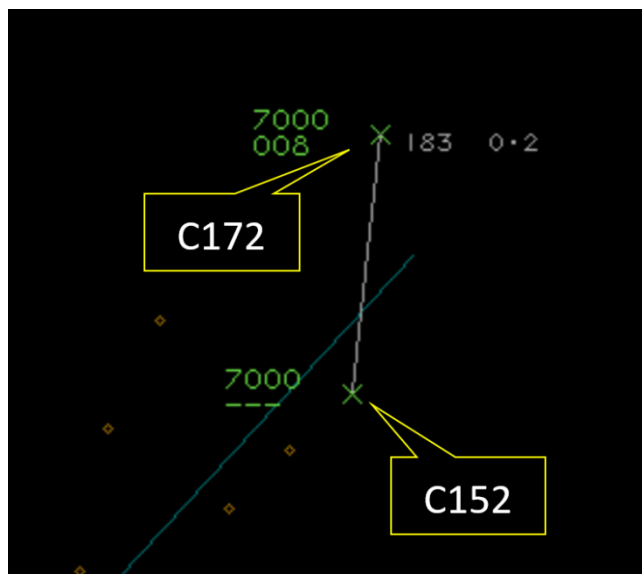


Figure 5: Time 1401:30, C172 ahead of the C152 by 0.2NM.

The C152 and C172 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>1</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>2</sup>

## Summary

An Airprox was reported when a C152 and a C172 flew into proximity at Dunkeswell at 1401Z on Wednesday 6<sup>th</sup> September 2023. Both pilots were operating under VFR in VMC and in receipt of an AGCS from Dunkeswell 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.

Members first focused their attention on the actions of the C152 pilot, considering that there may perceivably have been a heightened risk in joining on a wide right-base to final but commending the C152 pilot for having made aircraft position requests. However, the Board felt that the C152 pilot may have become fixated on the position of the PA28 and had not followed up in the same way with the position of the C172, thereby giving themselves only generic situational awareness that the C172 had been somewhere in the visual circuit (**CF5**). Members agreed that the lack of follow-up had led to an ineffective lookout for the C172 on the final approach (**CF6**) and that, once the C172 had turned on to the final approach, the C152 pilot's view would have been obscured by the C152 high wing with the C172 above and behind them (**CF7**).

Examining the C152 pilot's join, the Board referred to CAP413 noting the definition of a 'long final' join as between 8NM and 4NM (although the Board acknowledged that this was perhaps more applicable to the positioning of commercial aircraft). Members opined that pilots should rightly learn how to operate the aircraft that they are flying, in this case a light single-engine piston aircraft, and not operate like a commercial flight, expressing some concern over the current normality of wider circuit patterns and the possibility of making a successful landing at the airfield in the event of an engine failure. Nonetheless, the Board agreed that the C152 pilot's approach had adhered to the airfield's flight procedures for joining the circuit within normal parameters for a GA aircraft.

Turning their attention to the C172, members considered that the pilot had not monitored the radio appropriately, possibly due to the distraction of providing instruction during the flight, and had not therefore correctly assimilated the situation within the circuit (**CF4**). Furthermore, the Board noted that the C172 pilot had made no requests to clarify the position of the other aircraft, following the pilot's assumption that the C152 had landed (**CF3**).

Discussing the C172's turns to right-base and final, the Board felt that it was likely the instructor had not been able to see the C152 from their position (**CF7**) and that there had been an ineffective lookout by the C172 pilot during the right turns (**CF6**). Furthermore, that the lack of assimilating the C152's position had led to the C172 pilot not integrating with traffic established within the circuit pattern (**CF1**), thereby not complying, albeit inadvertently, with the correct regulations and procedures within the circuit (**CF2**).

When assessing the risk, members considered the reports from both pilots, the air ground operator and the radar replay. They noted that the separation between the C152 and the C172 had been exceptionally close without either pilot being aware of the proximity of the other aircraft. Therefore, the

---

<sup>1</sup> (UK) SERA.3205 Proximity..

<sup>2</sup> (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Board agreed that that providence had played a major part in the event and that there had been a definite risk of collision (**CF8**). Accordingly the Board awarded a Risk Category A to this event.

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

### Contributory Factors:

	2023215			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
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
<b>• Tactical Planning and Execution</b>				
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
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
3	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
4	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
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
<b>• See and Avoid</b>				
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
7	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
<b>• Outcome Events</b>				
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: A.

### Safety Barrier Assessment<sup>3</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 Conflicting Aircraft and Action** were assessed as **not used** because the Air Ground Operator was not required to sequence the aircraft in the circuit.

#### **Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the C172 pilot had not integrated with the C152 on the final approach.

**Tactical Planning and Execution** was assessed as **partially effective** because the C172 pilot had not correctly assessed nor integrated with established circuit traffic, with the C152 on a final approach ahead of them.

<sup>3</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).



**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the C172 pilot had assumed that the C152 had landed and had, therefore, inaccurate situational awareness, and the C152 pilot had only generic situational awareness of the presence and position of the C172 in the circuit.

**See and Avoid** were assessed as **ineffective** because neither pilot saw the other aircraft prior to CPA.

<b>Airprox Barrier Assessment: 2023215</b>		Outside Controlled Airspace						
<b>Barrier</b>		<b>Provision</b>	<b>Application</b>	<b>Effectiveness</b>				
				Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Conflication & 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	✗	✗					
<b>Key:</b>		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	⊘				
Application	✓	⚠	✗	⊘	○			
Effectiveness								