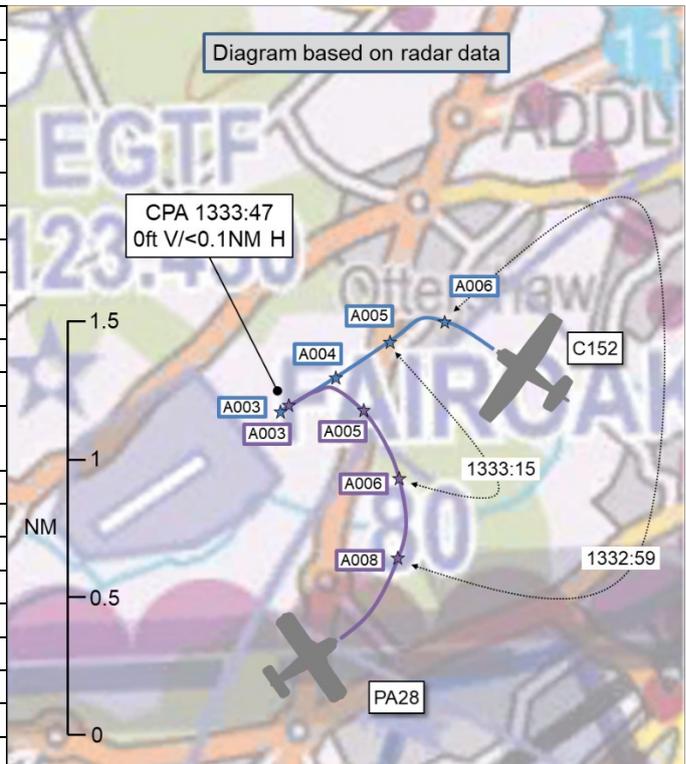


**AIRPROX REPORT No 2023003**

Date: 09 Jan 2023 Time: 1334Z Position: 5121N 00033W Location: Fair Oaks ATZ

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	PA28
Operator	Civ FW	Civ FW
Airspace	Fairoaks ATZ	Fairoaks ATZ
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Fairoaks Info	Fairoaks Info
Altitude/FL	300ft	300ft
Transponder	A, C, S+	A, C, S
<b>Reported</b>		
Colours	White, blue	White, blue
Lighting	Landing, beacon	Landing, nav, anti-col, HISL, beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft	600ft
Altimeter	QNH (1003hPa)	QNH (1003hPa)
Heading	240°	240°
Speed	70kt	75kt
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
<b>Separation at CPA</b>		
Reported	50ft V/50m H	100ft V/30m H
Recorded	0ft V/<0.1NM H	



**THE C152 PILOT** reports [that they] joined downwind, visual with the only other circuit traffic, a PA28, that was downwind. The [PA28] was observed from the downwind position as making a glide approach which resulted in a go-around approximately 10ft above the runway. The [pilot of the C152] flew a normal circuit to land, being informed on base leg that they hadn't updated their squawk to 7010 (Fair Oaks circuit squawk) and that they could land at their discretion. [The pilot of the C152 recalls that] on short-final, the [pilot of the PA28] reported final, and was told "suggest you go around as the other aircraft is also on final, just ahead of you". [The pilot of the C152] looked out of the rear window to see a PA28 just above and behind them, within approximately 50ft. [The C152 pilot] reports that no avoiding action was taken as the PA28 went-around to the left [of the C152]. Both [pilots] landed without further incident.

On the ground, [the pilot of the C152] spoke to the [pilot of the PA28] and [reports that the PA28 pilot] informed them that when they were downwind, they hadn't seen the [C152] on final so assumed that it must have landed already, and that they hadn't heard [the C152 pilot] call final (which they hadn't as the call they received on base-leg was regarding the squawk). [The C152 pilot reports that the PA28 pilot also] admitted that their workload had been high due to the gusty wind and that they should have asked for the position [of the C152].

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

**THE PA28 PILOT** reports that there had been strong gusting winds predicted which would not be suitable for local or cross-country flying so they decided to do circuit flying. They had done circuit work five days before this flight and the weather had been similar. On arrival at Fair Oaks, there was an aircraft doing circuits and the circuit-work looked okay. They had printed off the latest Met-GA forecast including GRAMET and were aware that the winds would be increasing from 1200 onwards. They intended to get airborne by 1200 but were delayed by a visiting aircraft parking in front them on the taxiway. They

had to wait until the aircraft was towed away, so their start-up was 1240. The wind was reported as 15kt gusting 22kt at 270°. With this TWR wind report, they knew the crosswind component would be within the aircraft limits. They were the only one in the circuit for about the first 30min. During that time, the only aircraft movement was an outbound helicopter of which they were aware by the R/T calls and noted that it was going to stay on the north-side of the airfield on take-off and departure. After about 30min, a pilot [of an unrelated aircraft] asked to join crosswind and was declined so elected to join downwind. When asked, [the PA28 pilot] confirmed that they knew of the inbound aircraft and would be looking for it. Although they did not get sight of it, they knew where it was when the pilot called finals. The second aircraft, [the C152], was inbound from [departure airfield] and [the C152 pilot] said they would join downwind. 'Tower' advised [the PA28 pilot] of the inbound aircraft and they acknowledged that they were aware of it and would keep a lookout. During the downwind leg, [the PA28 pilot] decided to do a flapless landing. Just before turning on to base-leg, they scanned the approach and it looked clear. They had not heard a 'finals' call so they turned onto base-leg. On descending, the nose was higher than usual as they were not using flaps. On reflection, they think this might have caused a blind-spot if the lower aircraft had been on a longer than usual final.

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

**THE FAIROAKS AFISO** reports that [the C152 pilot] was joining from the west as they were inbound from [departure airfield] and [the PA28 pilot] was operating a circuit detail. They gave Traffic Information to both [pilots] regarding current position and intentions. When [the C152 pilot] was downwind and abeam the Tower, [the PA28 pilot] had just completed a glide-approach for a touch-and-go and was climbing out to remain in the left-hand circuit. There was ample spacing between the two aircraft. [The C152 pilot] was on base-leg when [the AFISO] received a call on the Air Traffic Operational Telephone Network (ATOTN) from Farnborough to request [the C152 pilot] squawk 7010. After the very short phone call, [the C152 pilot] was turning final, so in one transmission, [the AFISO] said "*Farnborough have just phoned for you to squawk 7010, land at your discretion*" and gave them the instant wind. As soon as they ended the transmission, [the PA28 pilot] was already on base-leg, turning final, very close behind [the C152]. [The AFISO's] colleague mentioned a go-around, which [the AFISO] then suggested to [the PA28 pilot], and the pilot did exactly that.

Once both aircraft were on the ground, [the AFISO] asked both pilots to phone the Tower. The instructor of [the C152 pilot, reportedly] said that [the PA28 pilot] had come to within 50-100ft of them. [The PA28 pilot reportedly] said they hadn't seen [the C152] until the go-around, and that they had thought [the C152 pilot] had landed because they hadn't heard them make a 'Final to land' call. That was true but [the AFISO] had said they could land at their discretion.

The AFISO perceived the severity of the incident as 'High'.

## Factual Background

The weather at Farnborough was recorded as follows:

```
EGLF 091220Z AUTO 27013G24KT 250V310 9999 FEW025/// 09/03 Q1002
EGLF 091250Z AUTO 28013G24KT 240V310 9999 SCT031/// 08/03 Q1003
```

The entry for Fairoaks in the AIP provides the following information:

### EGTF AD 2.22 FLIGHT PROCEDURES

#### 1 CIRCUITS

- a. Circuits variable.
- b. All procedures are based on Fairoaks QNH.
- c. Circuit altitude is 1100 FT for aeroplanes and 800 FT for helicopters.
- d. Inbound aircraft and circuit traffic should squawk 7010 when operating in the Fairoaks circuit and ATZ/LFA unless otherwise instructed.

- e. Joining
  - i. Aeroplanes should normally enter the ATZ level at 1400 FT AMSL, and descend to 1100 FT AMSL when north of the runway prior to turning:
    1. downwind for Runway 06 left hand circuit;
    2. crosswind for Runway 24 left hand circuit;
    3. crosswind for Runway 06 right hand circuit;
    4. downwind for Runway 24 right hand circuit.
  - ii. 'Straight-in', 'downwind' and 'base' joins are strongly discouraged when the circuit is active.

## Analysis and Investigation

### CAA ATSI

ATSI notes that although Fairoaks provides a FIS they do not record their RTF. As such, ATSI has not been able to complete any useful investigation into this incident without being able to verify the RTF used.

### UKAB Secretariat

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

At 1329:00, the pilot of the PA28 was observed to turn onto the downwind leg. At 1330:08, the pilot of the C152 was observed to enter the Fairoaks ATZ.

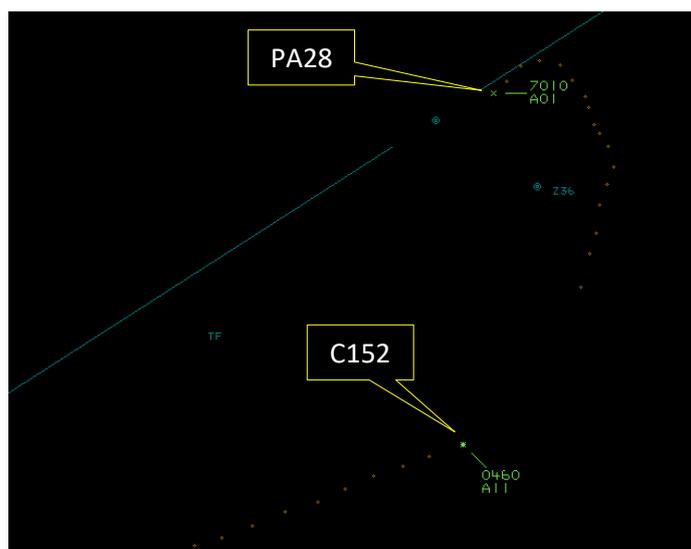


Figure 1 – 1330:47. The PA28 pilot performed a go-around as the C152 pilot was on the downwind leg

The PA28 faded from radar as the pilot performed a go-around at approximately 1331 (see Figure 1) and it reappeared on radar at 1331:25 in the position marked by the purple circle in Figure 2. At that moment, the C152 had been at the position marked by the blue circle in Figure 2. Subsequently, the C152 and PA28 followed the blue and purple lines respectively (see Figures 3 to 8) to the point of CPA at 1333:47 marked by the black star.

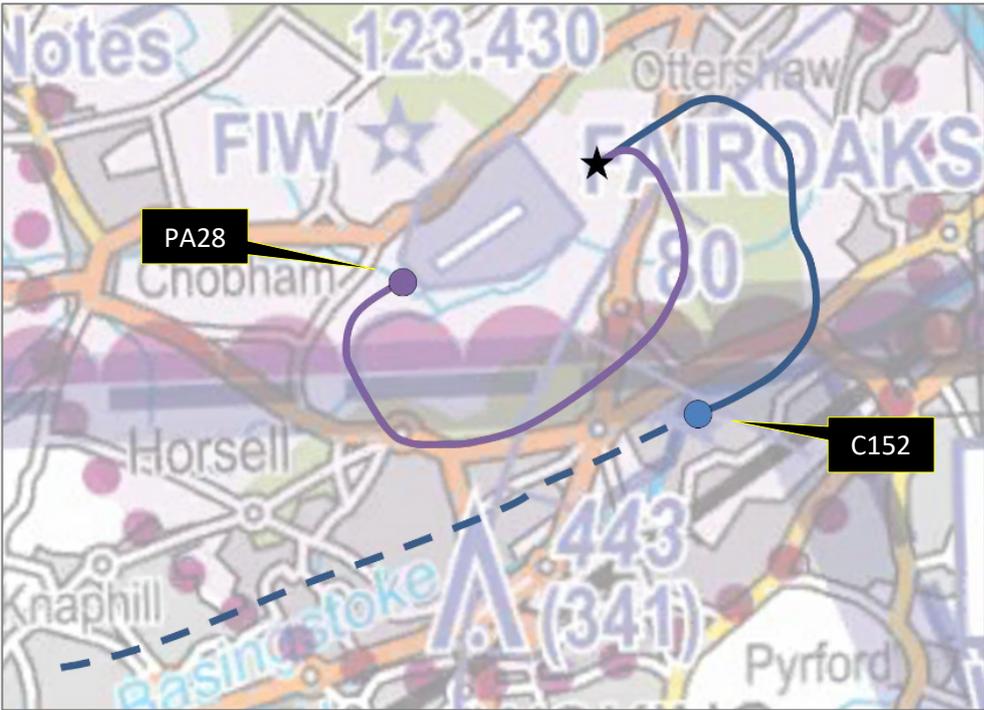


Figure 2 – The tracks flown by each aircraft. The coloured circles represent the positions of the aircraft at 1331:25

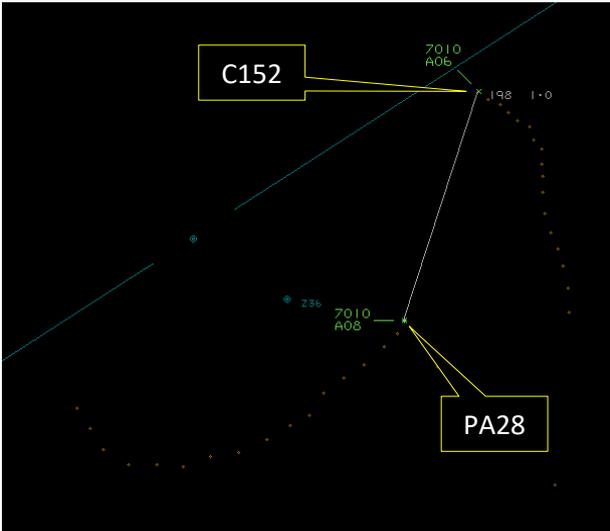


Figure 3 - 1332:55

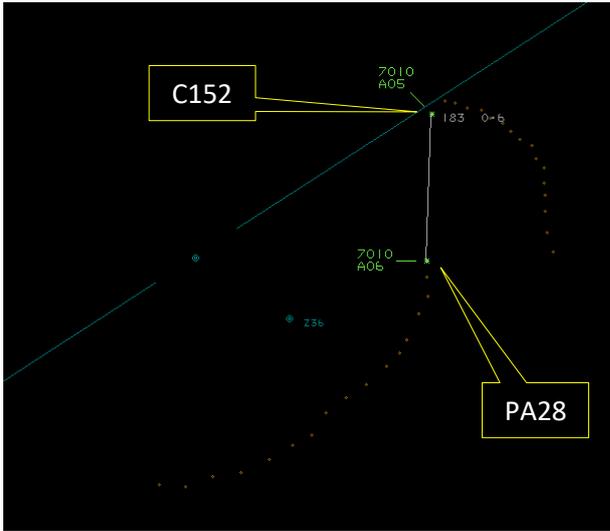


Figure 4 - 1333:11

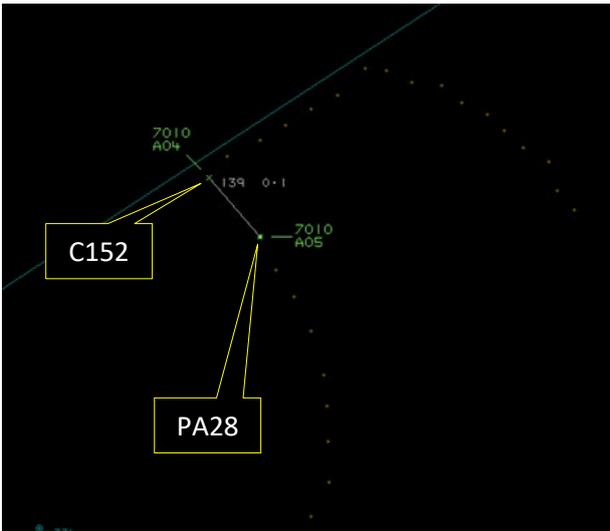


Figure 5 - 1333:31

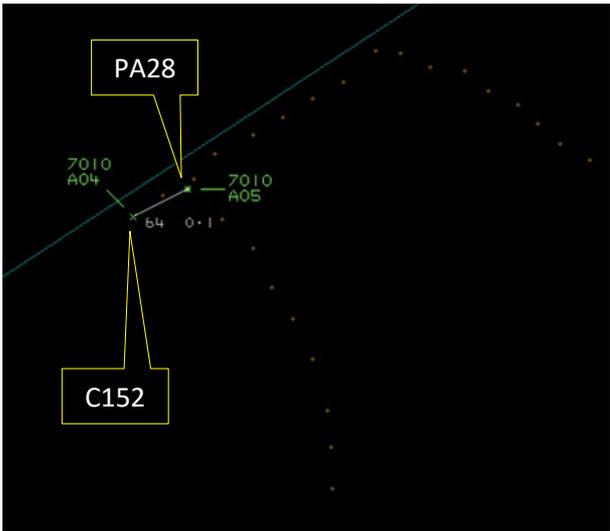


Figure 6 - 1333:39

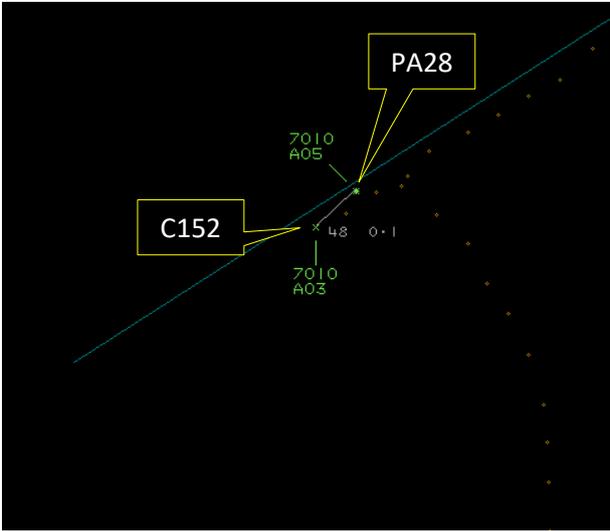


Figure 7 - 1333:43

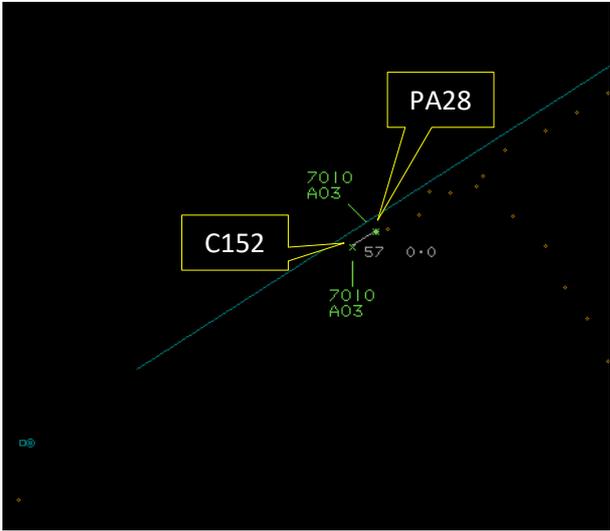


Figure 8 – CPA at 1333:47

After CPA, the two aircraft were observed to have been within 100ft and 0.1NM for approximately a further 12sec, before the pilot of the PA28 turned left by 30° and started to climb (see Figures 9 and 10).

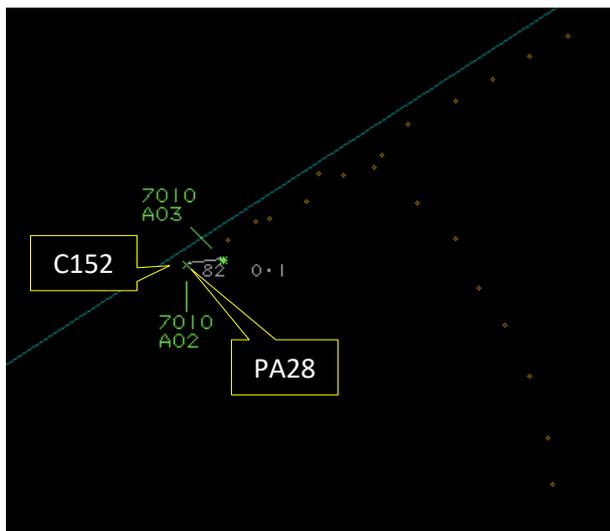


Figure 9 - 1333:51

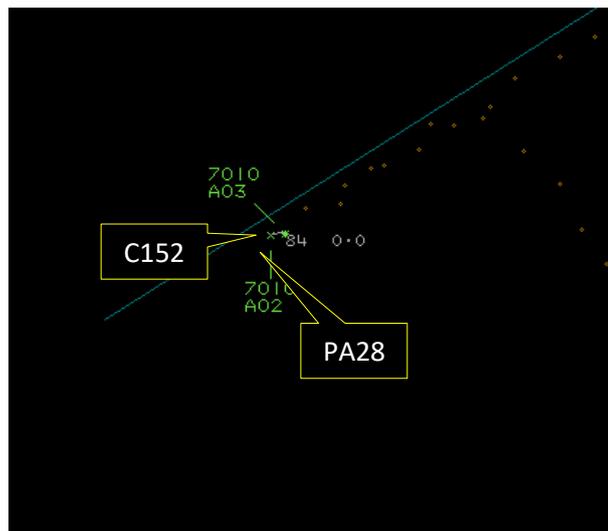


Figure 10 - 1333:55

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.<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 PA28 flew into proximity in the Fair Oaks ATZ at 1334Z on Monday 9th January 2023. Both pilots were operating under VFR in VMC and in receipt of an AFIS from Fair Oaks Information.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the AFISO involved and reports from the appropriate operating authorities. 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 considered the actions of the pilot of the C152. Referring to the joining procedures in the entry for Fair Oaks Aerodrome in the AIP, members noted that downwind joins are strongly discouraged, but not prohibited, when the circuit is active. Acknowledging that there had not been any reference made to the nature of the join by the pilot of the C152 in the narrative reports from either pilot, nor from the Fair Oaks AFISO, members determined that the C152 pilot's join had not been a contributory factor in this case.

Members noted that the pilot of the C152 had been mid-downwind when they had witnessed the pilot of the PA28 perform a go-round. There had been only these two aircraft in the circuit at that time and there had been abundant separation. At approximately the time that the C152 pilot had turned from base-leg on to final, they had received a radio call from the Fair Oaks AFISO. In one transmission, the AFISO had requested that the pilot's squawk be updated and that they may land at their discretion. Members agreed that, although there had been an unexpected action required of the pilot concerning the transponder during their approach and landing, there had not been any significant distraction. Nevertheless, the pilot of the C152 had not been aware that the pilot of the PA28 had been flying a markedly different circuit pattern and had been on a converging track to their port-side. Members noted that the C152 had been fitted with additional EC equipment but it would not have been expected to have detected the presence of the PA28 (**CF7**). It was agreed by members that the pilot of the C152

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

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

had had inaccurate situational awareness of the location of the PA28, believing it to have not been on a conflicting track (**CF5**).

The Board agreed that it had been the radio call by the pilot of the PA28 calling final, and the subsequent transmission by the Fairoaks AFISO to the pilot of the PA28 suggesting a go-around, that had alerted the pilot of the C152 to the conflict. Members determined that the PA28 had not been visually acquired until after the point of CPA, and that that effectively constituted a non-sighting on the part of the C152 pilot (**CF8**).

Members next turned their attention to the pilot of the PA28 and noted that, prior to the pilot of the C152 joining the circuit, there had been another pilot that had joined downwind. The pilot of the PA28 had not visually acquired that aircraft but had assimilated their position from the radio calls made. When the pilot of the C152 had called to join the circuit downwind, and the Fairoaks AFISO had advised the pilot of the PA28 of such, the pilot of the PA28 had acknowledged that information and had replied that they would keep a lookout. However, members wondered whether the information had been heard but had not been assimilated into their mental model of the relative positions of the aircraft. Members determined that the pilot of the PA28 had not appreciated the position of the C152 within the circuit nor had it been visually acquired. Acknowledging that the gusty conditions had presented an opportunity to practise a flapless landing, members were keen to highlight that the nose-high attitude would have significantly reduced the forward visibility (**CF9**). It was acknowledged that the pilot of the PA28 had self-debriefed that very point. Members wished to emphasise that a fundamental tenet of the visual circuit is that a pilot must maintain visual contact with other aircraft. It had been of utmost importance to have been certain of the position of the C152, perhaps by gentle weaving to aid the visual scan, but it was apparent that that had not been the case, the consequence of which had been that the pilot of the PA28 had not conformed to the circuit pattern formed by the pilot of the C152 (**CF1, CF2**), and had flown a circuit of their preferred dimensions despite the awareness that they had been sharing the circuit with the pilot of the C152 (**CF3**). Members suggested that a call on the radio to request a position report might have been most prudent indeed (**CF4**).

In consideration of the moment that the pilot of the PA28 had turned from the downwind leg to base-leg, members noted that the pilot of the PA28 recalled having scanned the approach and had assessed that it had been clear. Members also noted that there had been an assumption on the part of the pilot of the PA28 that the pilot of the C152 had already landed. Some members suggested that there had been 'confirmation bias' insofar as there had been an expectation that the approach had been clear based upon the (incorrect) assumption that the C152 pilot would not have been there. It was clear to members that the pilot of the PA28 had held inaccurate situational awareness of the position of the C152 (**CF5**). Additionally, members were in agreement that the pilot of the PA28 had not heard or had not assimilated the radio call from the Fairoaks AFISO giving the runway to the pilot of the C152 which would have alerted them to a conflict (**CF6**). The approach to land continued and the pilot of the PA28 had been unaware that their separation from the C152 had reduced considerably. The pilot of the PA28 had not visually acquired the C152 (**CF9**) and the Fairoaks AFISO had suggested to the pilot of the PA28 to go around and had mentioned that the C152 had been on final just ahead of them. Members agreed that to have aborted the approach and to have flown a go-around had been appropriate action in the circumstances.

Members next considered the actions of the Fairoaks AFISO and wondered why the radio call made to the pilot of the C152 as they had turned onto final had included a message regarding their squawk. A member with particular knowledge of transponder usage in the Farnborough LARS coverage area suggested a reason for the importance of such a change to the squawk. However, members agreed that the request, made whilst the pilot had been concentrating on their final-approach may have caused an unnecessary distraction. Nevertheless, the approach continued and, moments later, the Fairoaks AFISO had been aware that the separation between the C152 and PA28 had been of concern. The Fairoaks AFISO had suggested a go-around, and with reference to CAP797, members discussed the content of that radio call in the context of the limits of responsibility of a FISO. Members were in agreement that the suggestion to go-around, with the inclusion of traffic information, had not constituted an instruction. Further, members were in full agreement that it had been this call that may have averted a mid-air collision.

Concluding their deliberations, and in determination of risk, the Board agreed that safety margins had been much reduced below the norm through the non-sighting of each aircraft, and that there had been emergency avoiding action, prompted by the timely radio call by the Fairoaks AFISO, that had materially increased separation at the last minute (**CF10**). As such, the Board assigned a Risk Category B to this Airprox.

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

### Contributory Factors:

2023003				
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	• Incomplete Action	Events involving flight crew performing a task but then not fully completing that task or action that they were intending to carry out	Pilot did not sufficiently integrate with the other aircraft despite Situational Awareness
4	Human Factors	• Lack of Communication	Events involving flight crew that did not communicate enough - not enough communication	Pilot did not request additional information
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
<b>• Electronic Warning System Operation and Compliance</b>				
7	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
<b>• See and Avoid</b>				
8	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
9	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>				
10	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<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:

<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](#).

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **ineffective** because the pilot of the PA28 had neither conformed with nor avoided the existing pattern of traffic.

**Tactical Planning and Execution** was assessed as **ineffective** because the pilot of the PA28 had not integrated into the pattern of traffic formed by the pilot of the C152.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the PA28 had had inaccurate situational awareness of the position of the C152.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the EC equipment fitted to the C152 would not have been expected to have detected the presence of the PA28.

**See and Avoid** were assessed as **ineffective** because the C152 had been obscured from the view of the pilot of the PA28.

Airprox Barrier Assessment: 2023003		Outside Controlled Airspace					
Barrier	Provision	Application	Effectiveness				
			Barrier Weighting				
			0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 5%]			
	Manning & Equipment	✓	✓	[Green bar to 2.5%]			
	Situational Awareness of the Confliction & Action	✓	✓	[Green bar to 15%]			
	Electronic Warning System Operation and Compliance	○	○	[Grey bar to 2.5%]			
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✗	[Red bar to 10%]			
	Tactical Planning and Execution	✓	✗	[Red bar to 10%]			
	Situational Awareness of the Conflicting Aircraft & Action	!	✗	[Red bar to 20%]			
	Electronic Warning System Operation and Compliance	✗	✓	[Red bar to 15%]			
	See & Avoid	✗	✗	[Red bar to 20%]			
<b>Key:</b>							
	Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	○			
Application	✓	!	✗	○	○		
Effectiveness	■	■	■	■	□		