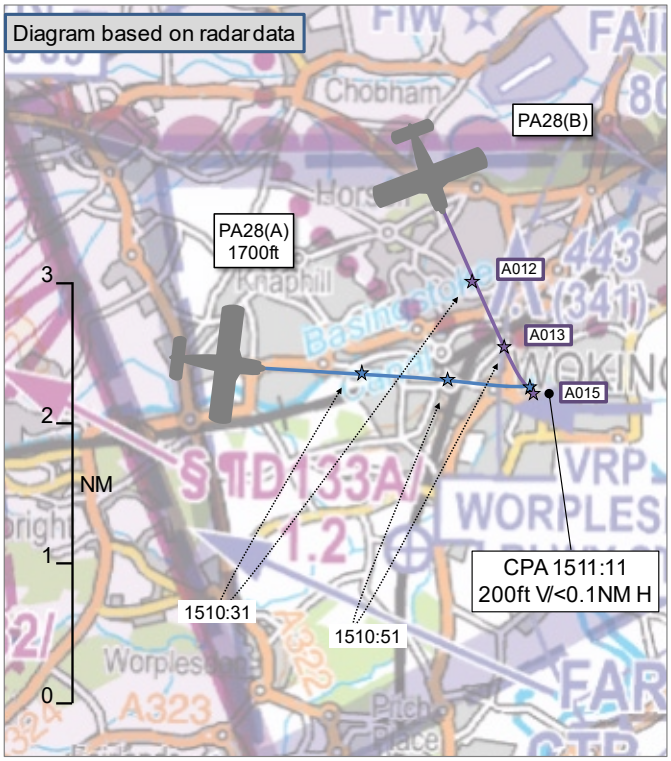
AIRPROX REPORT No 2024284

Date: 17 Nov 2024 Time: 1511Z Position: 5118N 00033W Location: Woking

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	Basic	None
Provider	Farnborough	N/A
Altitude/FL	1500ft	1700ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Silver	White, Blue
Lighting	Beacon, Strobes, Nav	Landing, Nav, Anti-cols, HISL, Strobes, Beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	1800ft
Altimeter	QNH	QNH
Heading	095°	175°
Speed	95kt	115kt
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	50ft V/0m H	Not Seen
Recorded	200ft V/<0.1NM H	



THE PA28(A) PILOT (EXAMINER) reports that they were conducting an IR(R) revalidation, they had just transited Farnborough airspace and had reverted back to a Basic Service. The candidate was wearing foggles and their height was approximately 1800ft. The candidate suddenly exclaimed that there was an aircraft passing below them (they estimated less than 50ft) and pulled the aircraft upwards. [The candidate] had seen something flash underneath the aircraft through the bottom left corner of their foggles. The examiner looked over their right shoulder and saw a PA28 climbing through their level behind their starboard wing. It turned onto a parallel track approximately half a mile away, slightly above and behind. It then turned back towards them and, being faster, it was clear that if it continued on its track, it would pass over the top of their aircraft, probably within 100ft and [the examiner] would lose sight of it. They therefore decided to take avoiding action and took control from the candidate. They decided to make a steep descending turn to the right, passing well clear underneath the other aircraft, in order to keep it in view, as they were not convinced that the other pilot had seen them (they would have been just below, to the left of the other aircraft). They then made a further orbit to increase separation, before handing back control to the candidate. Farnborough did not mention the traffic until they advised them that they were taking avoiding action and they delayed changing frequency to Thames Radar until they had re-established track. The aircraft also did not appear on [their EC device].

The PA28(A) CANDIDATE reports that they had just transited Farnborough's control zone. They were flying at approximately 1800ft on QNH, on track towards the disused beacon at Ockham. When reaching abeam Fairoaks, out of the bottom left corner of their foggles they noticed a white flash. When they looked to see what the flash was, there was an aircraft there climbing up under their aircraft, they only saw [the other aircraft] for a split second before it disappeared under their nose. As [the other aircraft] was traveling left-to-right and approximately 40-50ft under them, they started a climbing turn to the left until they knew they were clear. With the aircraft now being on the right, the examiner was keeping an

eye on it. [The other aircraft] proceeded to climb 100ft above them and on the same track, following behind. It then became clear that they were in a faster aircraft so were catching, but still only about a 100ft separation. As they couldn't see [the other aircraft] because they were on the wrong side, the examiner took control because they could see the exact positioning of the other aircraft, and repositioned so there would be no risk of collision.

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

THE PA28(B) PILOT reports that they were departing Fairoaks on a standard departure, below Farnborough's CTA, towards Woking, which took them to a position 2NM southeast of Woking. They routed south initially to avoid flying directly into oncoming traffic travelling to Fairoaks. This seemed like the most responsible Airprox avoidance procedure. They then turned eastbound to perform a BIG zone transit, avoiding Heathrow's airspace. The conditions were perfect VMC. On this flight they were not aware of any other aircraft in their proximity. They were constantly keeping a good lookout as they prepared to begin their first leg from OCK-BIG. They would have left Fairoaks' frequency just after departure and, a few minutes later, had contacted Farnborough radar – if they recall correctly, just east of the OCK disused VOR. They were not made aware by any relevant ATC unit of any Airprox, and did not see the other aircraft.

THE FARNBOROUGH CONTROLLER reports that they were working as the Approach, Zone and LARS West controller with medium traffic loading. There was no traffic on Approach, 3 aircraft on Zone and approximately 3 aircraft on LARS. [PA28(A)] had departed [departure airfield] under [a different callsign], however due to their Mode S showing [C/S], the pilot elected to change their callsign to [PA28(A) C/S]. PA28(A) was given a clearance to transit the Farnborough CTR and vacated in the vicinity of Woking before continuing their flight towards Biggin Hill. As they vacated CAS, the controller updated them on some traffic that had been called when they were inside CAS. As [PA28(A)] routed towards Biggin Hill, they observed a 7000 squawk depart Fairoaks and route towards [PA28(A)]. They were keeping an eye on this while continuing their scan with their other traffic down near Portsmouth. An aircraft (they could not recall which) then reported that they were visual with an aircraft in their vicinity. Not hearing the callsign, they assumed that this was PA28(A) as they were aware that they had traffic in their vicinity, and it was only a short while later that they realised that it was actually another pilot that had reported visual with traffic. They continued to keep an eye on [PA28(A)] and were aware of the traffic but as it was behind PA28(A) and was showing 300ft above, they did not consider it an immediate risk as PA28(A) was on a Basic Service. They initiated a prenote with Heathrow Radar on PA28(A) as they were booked in for ILS training at Biggin Hill, however, when they attempted to transfer PA28(A) to Heathrow Radar, the pilot asked about traffic in their vicinity. They [the controller] passed Traffic Information on the 7000 squawk and the pilot replied saying they may take evasive action against that traffic. They asked if [PA28(A) pilot] wanted to stay on frequency and they said they would until clear of the traffic. They were going to try free-calling the 7000 squawk to see if they were on frequency (their Mode S showed they were [PA28(B) C/S]) but they were not sure what callsign they might be using as it could have been a company callsign. It was at this point that PA28(B) called on frequency requesting a Basic Service. They asked the pilot to pass their message, gave them a squawk and identified them. They were going to ask if they were visual with PA28(A), but by this point PA28(A) had taken up an orbit and was clear of PA28(B). Both aircraft continued routeing towards Biggin Hill, but with distance between them due to PA28(A) carrying out two orbits. The instructor on PA28(A) reported that they would phone in when they landed.

In the subsequent phone call with the instructor, they reported that PA28(B) passed about 50ft below them from left-to-right and then sat above them on their right-hand side. They were concerned that PA28(B) was a faster aircraft type than themselves and that they were being overtaken and therefore it was, according to the rules of the air, PA28(B)'s responsibility to avoid them who had been on a constant heading. PA28(A) was being flown by an IR student but the instructor said that at this point they took control and decided to orbit to the left to put some distance between themselves and PA28(B). After a discussion with the instructor, they decided that they did want to file an Airprox.

Factual Background

The weather at Farnborough was recorded as follows:

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METAR EGLF 171450Z 23008KT 9999 FEW025 09/06 Q1014=
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Analysis and Investigation

NATS

PA28(A) outbound from [redacted], was transiting the Farnborough Control Zone VFR on squawk 0463 under a Radar Control Service from the Approach, Zone and LARS West controller (LF controller). The aircraft was being flown by a qualified pilot (pilot 1) revalidating their Instrument Rating qualification and an Examiner pilot (PA28(A) pilot 2). PA28(B) was routeing from Fairoaks squawking 7000.

At 1509:30 (all times UTC) the LF controller passed Traffic Information to the pilot of PA28(A) on "*rotary traffic, twelve o'clock, three miles, er tracking northbound right to left one thousand two hundred feet*", the pilot replied, "*looking for traffic*".

PA28(B) had just departed Fairoaks RW24 passing 400ft on VFR conspicuity code 7000 (Figure 1).

Figure 1

The LF controller informed the pilot of PA28(A) that they were just about to leave controlled airspace at 1509:43 and asked what type of service they would like outside, the pilot replied, "*request Basic Service*". PA28(A), maintaining 1800ft, vacated the CTR 2 laterally at 1509:50 where the base of controlled airspace was now 2000ft. The LF controller issued the pilot of PA28(A) with a Basic Service at 1509:51 and advised "*that rotary traffic er is in your... as I say, its outside controlled airspace now but I'll update you, it's in your twelve o'clock, one nautical mile, opposite direction, eight hundred feet below*", PA28(A) pilot 1 replied, "*Basic Service, visual*". At this time, the Mode C height information for [PA28(B)] indicated 900ft, still placing the aircraft within the confines of the Fairoaks ATZ. [PA28(B)] climbed, turned and tracked toward [PA28(A)], with PA28(B) passing directly beneath PA28(A).

The Closest Point of Approach between PA28(A) and PA28(B) occurred at 1511:12 and was recorded on the NODE Multi-Track radar as 0.1NM and 200ft (Figure 2).

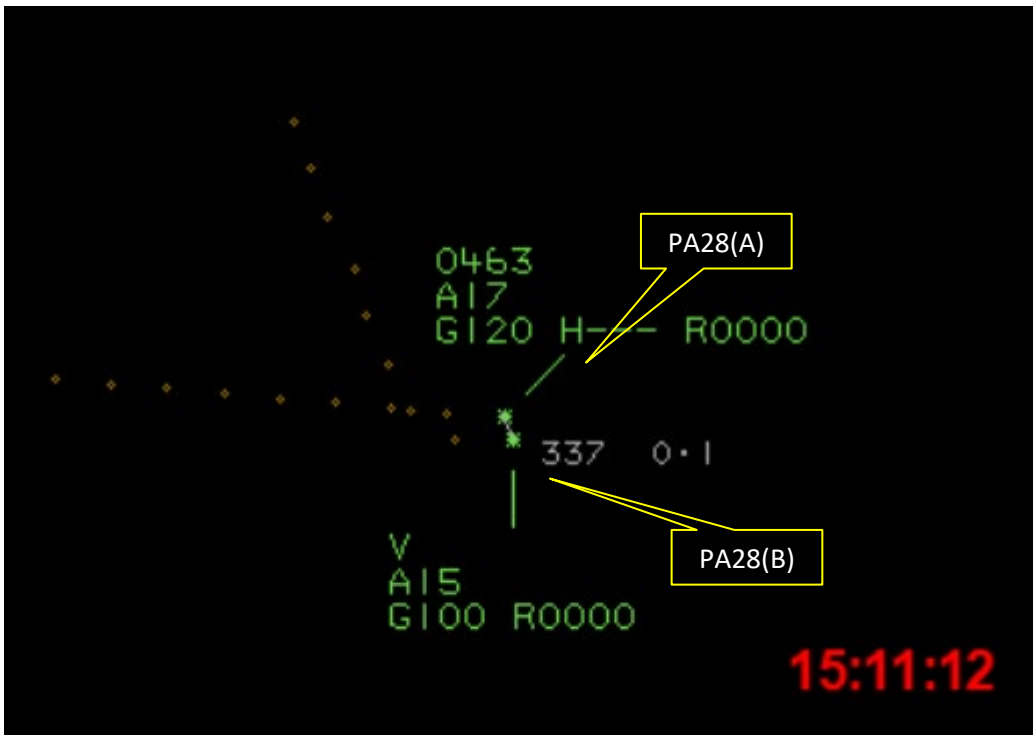


Figure 2 - CPA

At 1511:21 the pilot of unrelated aircraft (in receipt of a Service from Farnborough LARS) informed the LF controller; *"[C/S] traffic about a thousand feet below me, in my ten o'clock*", the LF controller replied "*Sorry, last station say again*", the pilot repeated "*Traffic below me at 1000ft*", the LF controller responded, "*C/S, Roger*".

PA28(B) turned to the east and climbed to 2100ft whilst continuing to remain at less than 0.5NM from PA28(A). At 1514:04 the LF controller instructed the pilot of PA28(A) to report their squawk to Thames Director 128.025MHz, which was read back correctly by the pilot.

Whilst still on the Farnborough frequency, PA28(A) pilot reported at 1514:22 "*we've just had another aircraft popped out of Fairoaks and went under us and is now sort of trailing just behind us I believe*", the LF controller replied, "*ah yes, I've got one in about your four o'clock, half a mile, showing three hundred feet above*" (Figure 3).

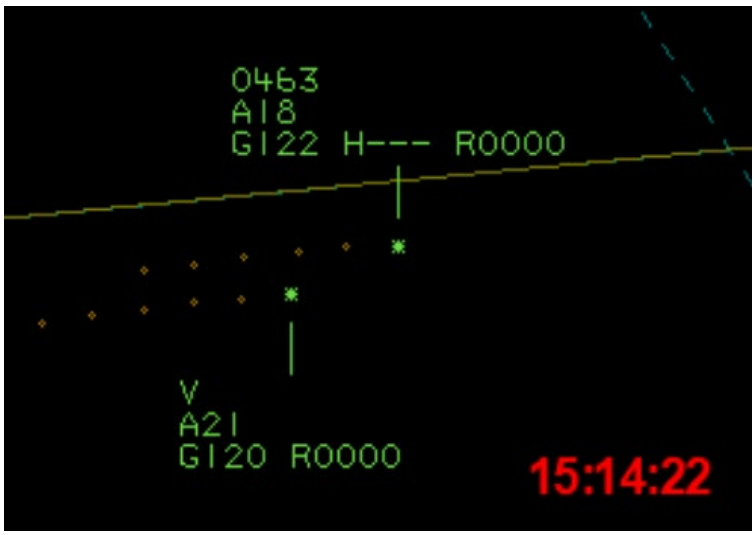


Figure 3

The pilot responded, "*Affirm. er we may take evasive action on them*", the LF controller replied, "*Er ok, that's copied did you want to stay with me?*" PA28(A) pilot responded "*er, we'll stay with you for a moment*". The LF controller passed further Traffic Information at 1514:46, advising that PA28(B) was "*still in that same position four o'clock, half a mile showing three hundred feet above*" which was acknowledged by the pilot.

The pilot of PA28(B) called onto the LARS frequency at 1515:04 and requested a Basic Service, the LF controller instructed the pilot to squawk 0452 on QNH1012 and issued the pilot with a Basic Service.

NODE Radar replay displayed PA28(A) commence the first of two right-hand orbits at 1515:08 with the aircraft descending to 1400ft before climbing back to 1700ft and continuing on an easterly track. The LF controller informed the pilot of PA28(A) at 1516:10 "*that traffic is now working me, it is er well clear to the east of you now but continuing towards Biggin, east of you now by two miles two thousand two hundred feet routeing to Biggin*", PA28(A) pilot replied. "*Yes, we can see it departing and we want to maintain some separation, that was too close*".

At 1516:35 the LF controller queried with the pilot of PA28(A) "*are you looking to file anything?*", PA28(A) pilot 2 replied "*negative, for the moment we'll carry on with the test*". The LF controller transferred PA28(A) to the Thames Radar frequency at 1516:53, and the PA28(A) pilot replied, "*I'll give you a call when we get down*".

Investigation

Information available to the investigation included:

- CA4114 from Farnborough Approach, Zone and LARS West controller
- NATS4118 Initial Watch Management Investigation Report
- Radar and R/T recordings
- DFA03 pilot Airprox Reporting Form

The Farnborough Approach, Zone and LARS West function was being operated in a bandboxed configuration. The NATS4118 described the traffic levels as 'medium with low complexity, consisting of 3 aircraft on zone, 5 aircraft on LARS and no IFR Approach traffic at the time of the event'.

PA28(A) was reported to be being flown by a 'qualified pilot on IR(R) re-validation test wearing foggles' (pilot 1) and an Examiner pilot (pilot 2). When queried by the LF controller, the pilot requested a Basic Service outside controlled airspace, having previously transited the CTR under a Radar Control Service. PA28(B) subsequently departed Fairoaks RW24 squawking 7000.

CAP774 UK Flight Information Services Chapter 2.1 stated that:

> 'Basic Service relies on the pilot avoiding other traffic, unaided by controllers/ FISOs. It is essential that a pilot receiving this ATS remains alert to the fact that, unlike a Traffic Service and a Deconfliction Service, the provider of a Basic Service is not required to monitor the flight'.

The CA4114 stated that PA28(A) pilot 2 telephoned Farnborough and spoke to the LF controller and 'after a discussion with the instructor, they decided that they did want to file an Airprox'.

Safety Investigations reviewed the radar replay of the event and the closest point of approach occurred at 1511:12 (Figure 2 above), this was assessed to be the point when the Airprox as described by the pilot of PA28(A) occurred.

The LF controller reported in their CA4114 that 'I observed a 7000 squawk depart [….] and route towards PA28(A). I was keeping an eye on this while continuing my scan with my other traffic down near Portsmouth. An aircraft (I cannot recall which) then reported that they were visual with aircraft in their vicinity. Not hearing assumed that this was [PA28(A)] as I was aware that they had traffic in

their vicinity, and it was only a short while later that I realised that it was actually another aircraft that had reported visual with traffic.'

Note - Based on the CA4114 report timeline, the other aircraft that reported visual was perceived to be [other C/S] (see 1511:21 above), subsequent to the Airprox occurring. An interview was carried out by Farnborough Watch Management after the event; the LF controller described in the NATS4118 that 'when they realised it was another aircraft that had reported visual, they recalled looking at [PA28(B) and seeing the traffic behind PA28(A) and 300ft above, did not consider it an immediate risk or call traffic as PA28(A) was on a Basic Service'.

Conclusions

Causal Factors

PA28(A), operating outside controlled airspace in receipt of a Basic Service from Farnborough LARS, came into confliction with PA28(B). The Examiner pilot onboard PA28(A) subsequently reported the event as an Airprox.

The LF controller reported they had mis-perceived the Traffic Information reported by the pilot of [another aircraft] to be the pilot of PA28(A) reporting visual with PA28(B).

UKAB Secretariat

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.[1] If the incident geometry is considered as converging then the PA28(B) pilot was required to give way to the PA28(A).[2]

Summary

An Airprox was reported when PA28(A) and PA28(B) flew into proximity in the vicinity of Woking at 1511Z on Sunday 17th November 2024. The PA28(A) pilot was operating under VFR in VMC in receipt of a Basic Service from Farnborough and the PA28(B) pilot was operating under VFR in VMC, not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller 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 looked at the actions of the PA28(A) pilot. They had been conducting an IFR examination flight, had routed through the Farnborough CTR and had been receiving a Basic Service from Farnborough ATC. Members noted that, as it had been an examination, the student would have planned the route from beacon to beacon, in this case in a straight line; nevertheless, members thought that to route so close to the Fairoaks ATZ had indicated a lack of foresight when planning, because any departures from Fairoaks would immediately conflict with the aircraft's planned track, and that choosing to approach OCK from a different radial would have been a safer option (**CF5**). One potential mitigation for routeing so close to the Fairoaks ATZ may have been to request a Traffic Service from Farnborough, under the terms of a Traffic Service the controller would have been more likely to pass Traffic Information on any conflicting aircraft, whereas under a Basic Service the controller was not required to monitor the aircraft. Indeed, some members went on to opine that for any IFR flight with a student under 'foggles', pilots should consider requesting a Traffic Service simply because of the restricted lookout, even with an examiner acting as a safety pilot (**CF4**). The Board agreed that the CWS on the PA28(A) could not have detected the PA28(B) which had not been ADS-B equipped (**CF7**) and, without

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.

Traffic Information from ATC either, the pilot had not received any prior situational awareness that PA28(B) had been approaching them from the north (**CF6**). The student had seen the PA28(B) crossing directly beneath them, but too late to have taken any avoiding action at this point, making this effectively a non-sighting (**CF8**).

Turning to the actions of the PA28(B) pilot, members noted that they had climbed out of Fairoaks and had been routeing southbound to clear the ATZ before turning on track for their destination. Some members wondered whether, knowing that area of airspace is particularly busy with transits and constrained by CAS above, the pilot could have called Farnborough ATC earlier. Others countered that the pilot would have needed to remain on the Fairoaks frequency until clear of the ATZ to maintain situational awareness of Fairoaks traffic and it was agreed that the pilot had probably called Farnborough as soon as they had been able. Some members noted with surprise that the PA28(B) pilot had not been carrying any form of CWS whilst operating in such a busy piece of airspace, and wanted to highlight the benefits of CWS to pilots, noting that had the PA28(B) been equipped with ADS-B out, the equipment on PA28(A) would have alerted to its presence. Without any CWS, or an air traffic service, the PA28(B) pilot had not received any situational awareness that the other aircraft had been in the vicinity (**CF6**). Furthermore, despite crossing approximately 300ft beneath and then paralleling the other aircraft for a time, the PA28(B) pilot had not seen the other aircraft at all (**CF8**), highlighting the pitfalls of relying solely on lookout for collision avoidance.

The Board then discussed the actions of the Farnborough controller. The PA28(A) pilot had been receiving a Basic Service and, under the terms of that service, the controller had not been required to monitor the aircraft. However, the aircraft had just crossed through Farnborough's CTR and so the controller had positively identified the aircraft on radar. The controller reported that they had seen the PA28(B) climbing out of Fairoaks and had intended to watch it and call it if necessary, but had then become preoccupied by other aircraft on frequency requiring attention, which had meant that the confliction had not been detected (**CF2**) and that opportunity to pass Traffic Information had passed (**CF1**). Although Farnborough is equipped with STCA, the squawk on PA28(A) had been outside the select frame and therefore the STCA had not alerted (**CF3**).

When determining the risk of the Airprox, members considered the reports from both pilots and the controller, together with the radar replay screenshots. They noted that the PA28(A) student pilot had not seen the other aircraft in time to take any avoiding action and the PA28(B) pilot had not seen the other aircraft at all as they had been climbing beneath it. The separation had been 300ft vertically when the two aircraft crossed and 200ft and less than 0.1NM at CPA. Members agreed that there had been a risk of collision; they thought that the separation had been fortuitous and that safety had been much reduced (**CF9**). Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024284			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
2	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
	• Electronic Warning System Operation and Compliance			
3	Technical	• Conflict Alert System Failure	Conflict Alert System did not function as expected	The Conflict Alert system did not function or was not utilised in this situation
	Flight Elements			
	• Tactical Planning and Execution			
4	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider

5	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			
6	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			
7	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			
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
	• Outcome Events			
9	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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the controller had been concentrating on other aircraft under their control, so had not noticed the conflict developing and the opportunity to pass Traffic Information was missed.

Electronic Warning System Operation and Compliance were assessed as **not used** because the Basic Service squawk was outside the select frame for an alert.

Flight Elements:

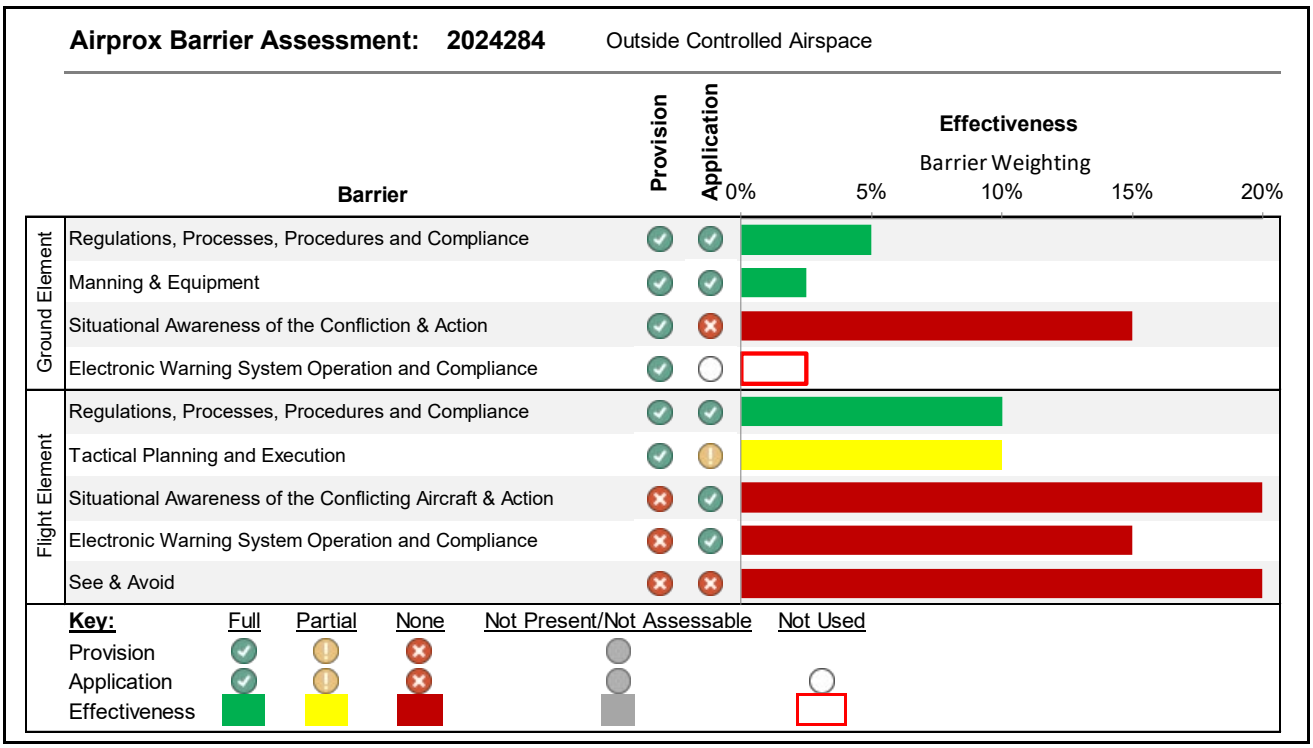
Tactical Planning and Execution was assessed as **partially effective** because the PA28(A) pilot could have planned to route further away from the Fairoaks ATZ to mitigate against encountering departing aircraft and could have requested a Traffic Service.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had received any situational awareness that the other aircraft had been in the vicinity.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the CWS on PA28(A) could not detect PA28(B).

See and Avoid were assessed as **ineffective** because the PA28(A) pilot had only sighted PA28(B) at or around CPA, and the PA28(B) pilot had not sighted PA28(A).

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


Airprox Barrier Assessment: 2024284
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:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness