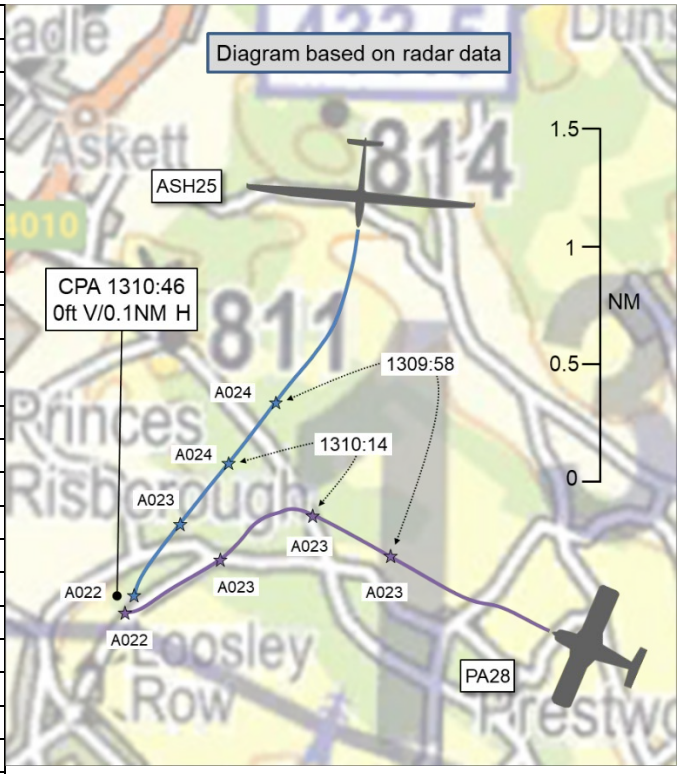
AIRPROX REPORT No 2023064

Date: 01 May 2023 Time: 1311Z Position: 5142N 00049W Location: 1.5NM SE Princes Risborough

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	ASH25	PA28
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	N/A	Farnborough LARS
Altitude/FL	2200ft	2200ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White, red, blue
Lighting	None	Beacon, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2100ft	2300ft
Altimeter	QNH (1018hPa)	QNH (1017hPa)
Heading	230°	270°
Speed	65kt	90kt
ACAS/TAS	PowerFLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	50ft V/70m H	100ft V/0.5NM H
Recorded	0ft V/0.1NM H	



THE ASH25 PILOT reports that, on a cross-country flight in difficult conditions, [they were] flying slowly, 60-65kts. They had just transited Halton ATZ and were changing from the Halton to the Benson frequency when they saw co-level traffic on their right 2 o'clock, at approximately 1NM. [It was on a] constant bearing for a while, then was going to pass behind. They then looked left and saw a PA28 quite close in their 7-8 o'clock position behind the wing, overtaking just above. They initiated a turn to the right and [the PA28] passed abeam within 5sec, at an estimated 70m horizontally and slightly above. They tried to raise Benson but it appeared to be unmanned, so they contacted Oxford to report the Airprox when high enough and when their workload permitted. The registration of the PA28 was passed to ATC. [Their glider was equipped with an EC device], an ACS transponder and ADS-B in/out which were all functioning, but no traffic alerts or warnings were received.

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

THE PA28 INSTRUCTOR reports that, on a training flight, they made their way to the Westcott area to practice PFLs. Along the journey there, they picked up a Basic Service from Farnborough Radar. As the journey to Westcott took about 15min or so, they got their student to practice flying at different airspeeds in a straight-and-level configuration. Their track took them from the M1/M25 junction to Princes Risborough. As they approached Princes Risborough, they saw a glider performing a medium-level turn to the right at the start of the Chiltern Hills, just east of Princes Risborough. They assumed this was to pick up lift from any updrafts. They weren't quite sure of the intentions of the glider pilot so adjusted their heading to the left around 250° to avoid the glider, whilst maintaining a watch on the glider. They understood the need for a powered aircraft to give way to the glider and they did so by adjusting their heading. As the glider exited its turn, they flew side-by-side at a distance of around 0.5NM for a few seconds before they pulled clear of the glider due to their greater speed. As this was a training flight, they made it a learning point for the student to understand the need to give way to gliders and that they could expect to find gliders near hills to pick up thermals. At no point did they feel

this was an Airprox as they had spotted the glider whilst they were making their turn and took avoiding action to ensure they did not conflict.

The pilot assessed the risk of collision as 'None'.

THE OXFORD RADAR CONTROLLER reports that they submitted a report on behalf of the pilot of [the ASH25] who contacted Oxford Radar to report the incident via RT at approximately 1420. Based on the information given, Oxford was not providing an ATS nor in contact with either aircraft at the time of the incident. Figure 1 is a screenshot from the Oxford Radar.

Figure 1 - 1309:24

THE FARNBOROUGH LARS CONTROLLER reports that they had been working Farnborough North and East band-boxed. [The PA28] was 1.5NM SE Princes Risborough at 1310. They have no recollection of this incident and the pilot did not report an Airprox on the RT.

Factual Background

The weather at Benson was recorded as follows:

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METAR EGUB 011320Z AUTO 31009KT 9999 OVC068/// 15/08 Q1018
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Analysis and Investigation

CAA ATSI

The [pilot of the ASH25] was operating VFR, and not in receipt of an ATS at the time of the event. The pilot had just completed a transit of the Halton ATZ and had tried to contact Benson which was closed. They later reported the Airprox on the Oxford frequency. The pilot stated in their report that they had sighted traffic in their 2 o'clock, 1.0NM away that looked like it would be passing behind them. After reviewing the radar recording, ATSI believes that the aircraft to which the pilot was referring was a C172 and not the PA28 involved in the Airprox.

The PA28 approached the ASH25 from the 10 o'clock position initially. The PA28 pilot was operating VFR on a Basic Service with Farnborough North at the time of the event. No Traffic Information was passed to the pilot. They reported that they had sighted the ASH25 at approximately 0.5-1.0NM away and altered course to avoid it.

The Farnborough LARS North controller was operating in a band-boxed configuration with LARS East. The controller was made aware of the event retrospectively and had no recollection of it. The Farnborough Investigation describes the traffic levels as medium and the weather as suitable for

VFR flight. The aircraft was identified, the squawk validated, the altitude verified, and a Basic Service agreed.

At 1308:49, the aircraft were 2.4NM apart with an indicated 300ft vertical distance. The ASH25 was in an orbit, and they were not a threat to each other. The controller was engaged in a lengthy RT exchange with a pilot making their initial call to request a service.

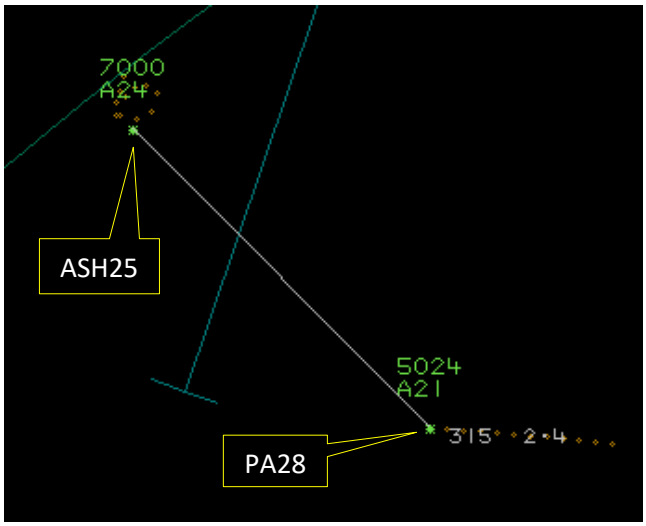


Figure 2 – 1308:49

At 1310:17, the above RT exchange concluded, and the aircraft were then 0.3NM apart with an indicated vertical distance of 100ft. The controller then engaged with the pilot of an aircraft who had previously stated their intention to leave the frequency but commenced a discussion about wishing to stay with the Farnborough controller.

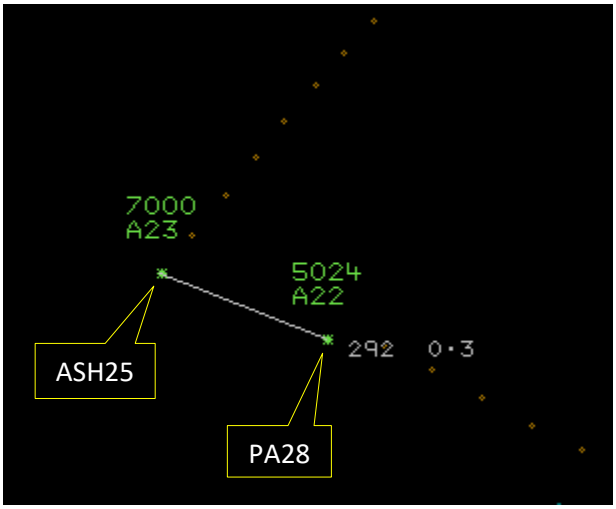


Figure 3 - 1310:17

At 1310:42, the above RT exchange concluded, with the two aircraft then 0.1NM apart and indicating the same altitude.

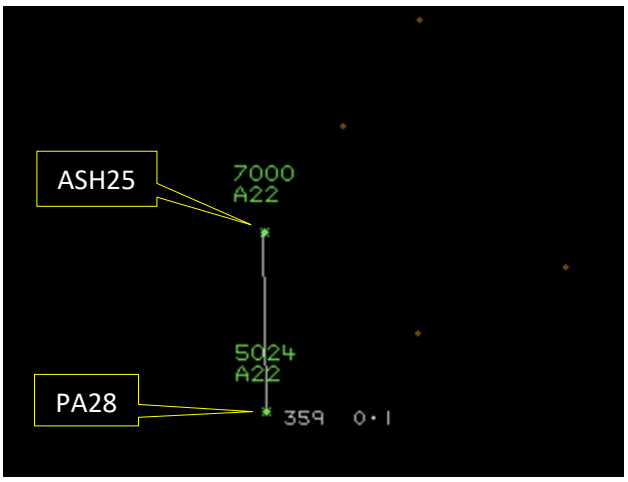


Figure 4 – 1310:42

NATS Unit Investigation

Farnborough LARS N and E were being operated in a bandboxed configuration, [there was] medium traffic and VFR weather.

1259:00 [The pilot of the PA28] checked-in on frequency. Their routing was via WCO NDB for general handling. [They were] issued with QNH 1018, a squawk of 5024 and a Basic Service. This was read back correctly, the aircraft was identified, validated and verified.

Figure 5 - 1308:04

1309:45 [The PA28] was north of Wycombe Air Park by approximately 5NM, tracking 280° indicating 2200ft. An aircraft squawking 7000 was seen tracking towards [the PA28] from the north at 2400ft.

Figure 6 - 1309:32

1310:01 The labels garbled but it appeared that [the PA28] remained level at 2200ft and a descent arrow can be seen against the aircraft squawking 7000. The aircraft converged, range 1NM.

1310:19 The aircraft squawking 7000 now indicated the same level as [the PA28]. [The pilot of the PA28] now had the other aircraft in their 12 o'clock, passing right-to-left, less than 0.5NM at the same level.

1310:25 [The pilot of the PA28] was seen to have made a left turn to avoid the other aircraft.

1310:38 Contacts merged at the same level, 2200ft.

1311:09 Contacts passed, both still indicated 2200ft. [The pilot of the PA28] was under a Basic Service, the pilot of the other aircraft was not on frequency. No Traffic Information was passed. The pilot of [the PA28] did not mention the Airprox on frequency.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data (see Figure 7).

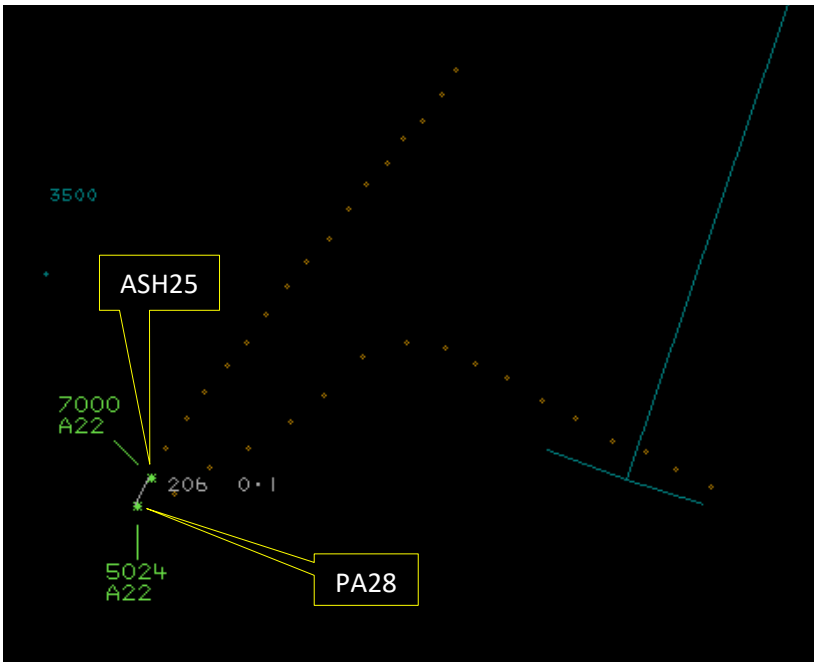


Figure 7 - CPA at 1310:46

The ASH25 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as converging then the PA28 pilot was required to give way to the ASH25 and should have avoided passing over, under or in front of the ASH25, unless it had passed well clear and had taken into account the effect of aircraft wake turbulence.[2] If the incident geometry is considered as overtaking then the ASH25 pilot had right of way and the PA28 pilot was required to keep out of the way of the ASH25 by altering heading to the right, and no subsequent change in the relative positions of the two aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear.[3]

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.
[3] (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

Comments

AOPA

Until there is a common standard of EC, lookout is still the most effective barrier for MAC avoidance. This incident also highlights the requirement for effective lookout all the time and taking appropriate action in a timely manner.

BGA

It's wise to assume [that the pilot of] an aircraft you are overtaking has not seen you, and could manoeuvre in any direction without warning. This is especially true of gliders, which rarely maintain a constant course or altitude for very long.

It's concerning that the glider's TAS apparently did not warn its pilot of the PA28's proximity, based on the latter's Mode S transmissions. It would be helpful to understand why this barrier did not function.

Summary

An Airprox was reported when an ASH25 and a PA28 flew into proximity 1.5NM southeast of Princes Risborough at 1311Z on Monday 1st May 2023. Both pilots were operating under VFR in VMC, the ASH25 pilot not in receipt of an ATS and the PA28 pilot in receipt of a Basic Service from Farnborough LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers 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.

The Board first considered the actions of the pilot of the ASH25. Members noted that they had been aware of an aircraft to their right which had been tracking towards them on a constant bearing, and surmised that the pilot of the ASH25 had been momentarily distracted by that aircraft. The pilot of the ASH25 had not been in receipt of an ATS at the time of the encounter and, in the absence of any indication from their EC equipment as to the proximity of other traffic, had not had any situational awareness of the presence of the PA28 that had been approaching from their left (**CF4**). Members agreed that the pilot of the ASH25 had visually acquired the PA28 moments before CPA, and appreciated that they had been concerned by the close proximity (**CF7**).

Members next turned their attention to the actions of the pilot of the PA28, and noted that they had been in receipt of a Basic Service from Farnborough LARS North. In consideration of the density of traffic in the operating area, members suggested that it may have been more prudent to have requested a Traffic Service. The Farnborough LARS North controller had not been required to have monitored the flight under the terms of a Basic Service (**CF1**), and members agreed that the pilot of the PA28 had not had any situational awareness of the presence of the ASH25 until it had been sighted (**CF4**).

Given that the PA28 and ASH25 had been on perpendicular tracks, members were puzzled that, at the moment that the ASH25 had passed through the 12 o'clock position of the PA28, the pilot of the PA28 had chosen to turn left. Members agreed that, in addition to being at odds with the correct aviation practice to have turned right in such an encounter, and to have passed behind the conflicting traffic, the turn to the left had presented the pilot of the PA28 with a problematic situation which had required very careful consideration. Members noted that the PA28 had been on a converging track with the ASH25 for approximately 30sec before the pilot of the PA28 had assessed that their greater speed had allowed them to turn right, in front of the ASH25, and to have continued on their original routeing to the northwest.

Members examined the separation between the aircraft as displayed on the radar replay, and noted that the aircraft were observed to have been at the same altitude. However, members were aware of the imprecision in the Mode C returns shown by the radar equipment, and were satisfied to accept that the PA28 had actually been 50-100ft higher, as reported by both pilots. However, members felt that the horizontal separation reported by each pilot required further understanding. The pilot of the PA28 had reported the horizontal separation had been 0.5NM, whereas the separation shown on the radar replay had been 0.1NM. Members concluded that the separation between the aircraft had been misjudged by the pilot of the PA28 and that they had caused the ASH25 pilot concern by having not appreciated the risk of the overtaking manoeuvre (**CF6**). Further, members were in agreement that, from the moment that the pilot of the PA28 had turned left, and had subsequently converged with the ASH25, their dynamic plan had not been adapted sufficiently to have resolved the situation satisfactorily (**CF3**). As such, members determined that the overtaking manoeuvre had been ineffectively executed (**CF2**).

In consideration of the electronic conspicuity aspects of the encounter, members were concerned that the equipment fitted to the ASH25 had not detected the presence of the PA28 when an alert would have been expected (**CF5**).

In summary of their deliberations, members discussed that neither pilot had had situational awareness of the presence of the other aircraft, but the pilot of the PA28 had visually acquired the ASH25 in time to have considered the safest course of action. Members were in agreement that it had been the decision by the pilot of the PA28 to have turned left, the misjudgement of the relative speeds and positions of the aircraft and the subsequent manoeuvre to have overtaken the ASH25, that had degraded normal safety margins. However, members were satisfied that there had not been a risk of collision and, as such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023064			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	Flight Elements			
	• Tactical Planning and Execution			
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
	• Situational Awareness of the Conflicting Aircraft and Action			
4	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
5	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
	• See and Avoid			
6	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
7	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

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 Farnborough LARS controller had not been required to have monitored the flight under the terms of a Basic Service.

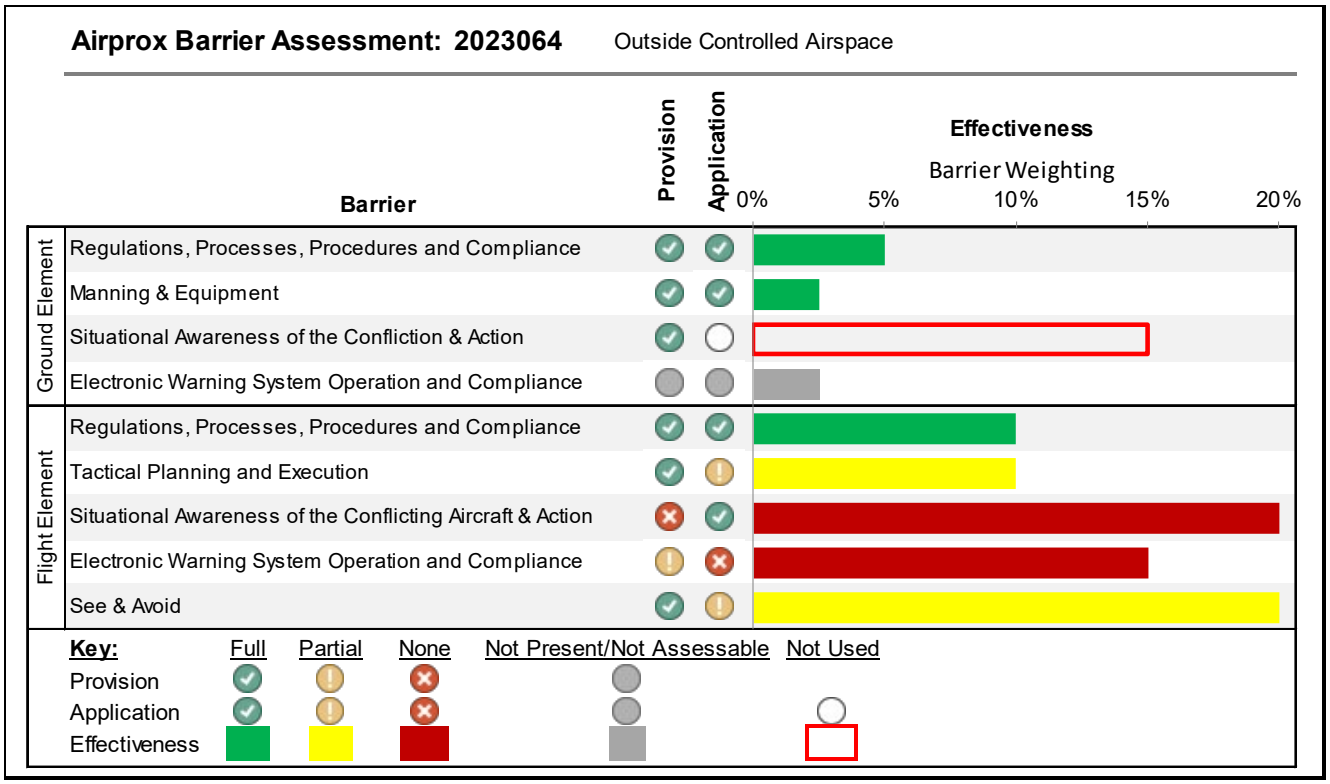
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the pilot of the PA28 had not conducted the overtaking manoeuvre with sufficient separation from the ASH25.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had situational awareness of the presence of the other before they had been visually acquired.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the ASH25 would have been expected to have detected the presence of the PA28 but no alert was reported.

See and Avoid were assessed as **partially effective** because the pilot of the PA28 had flown close enough to the ASH25 to have caused the pilot of the ASH25 concern.



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