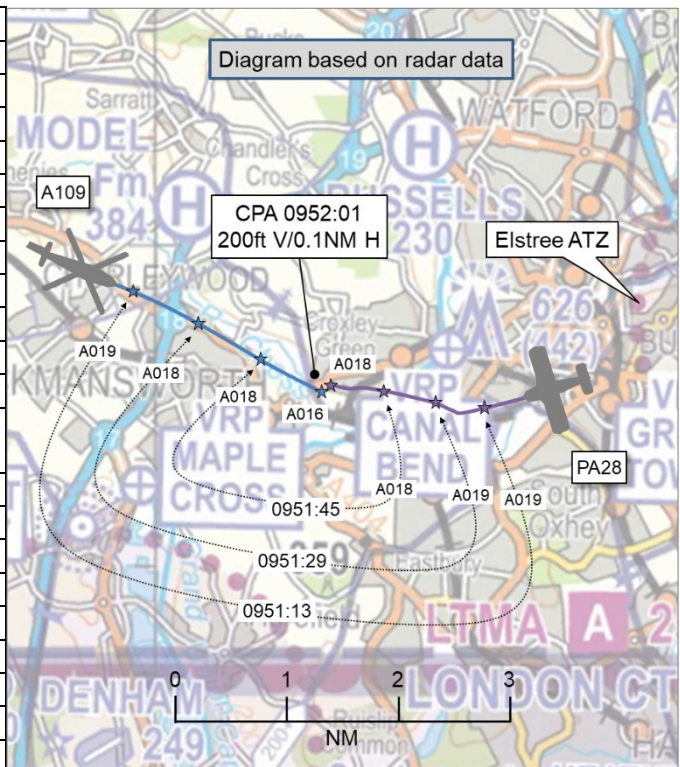


**AIRPROX REPORT No 2023008**

Date: 24 Jan 2023 Time: 0952Z Position: 5139N 00028W Location: 5NM SSE Elstree

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	A109	PA28
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	AFIS
Provider	Heathrow Radar	Elstree Information
Altitude/FL	1600ft	1800ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Gold	White
Lighting	Anti-col, strobes, landing	Anti-col, HISL, beacon
Conditions	VMC	VMC
Visibility	5-10km	<5km
Altitude/FL	1800ft	1100ft
Altimeter	QNH (NK hPa)	QFE (NR hPa)
Heading	120°	260°
Speed	140kt	90kt
ACAS/TAS	TAS	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	100ft V/100m H	NK V/NK H
Recorded	200ft V/0.1NM H	



**THE A109 PILOT** reports that they were on a flight from [departure airfield] to [destination airfield], routing toward Brent Reservoir VRP from the west of Elstree. The flight crew reported an Airprox with a light aircraft in the opposite direction at the same level. Avoiding action was taken, however the sighting occurred very late and the other aircraft was already turning away. No airframe or engine limits were exceeded. Approximately 20NM from the [Heathrow] Zone boundary, contact was made with Heathrow Radar on 125.625MHz to request entry and a Basic Service outside. A slow descent was commenced from 2200ft to 1800ft to remain VMC. At 4NM north of Denham, [and flying into the sun], the Heathrow controller alerted the flight crew to another aircraft at the same level within 1-2NM and moving in the opposite direction. At this time the flight crew reported they were not visual with the conflicting traffic, and nothing was shown on the aircraft's TAS display. Shortly after, the controller issued a further update on the traffic and at this time a light aircraft was spotted in the 11-12 o'clock position at the same level. The flight crew made a turn to the right and initiated a descent, however by this time the traffic was in a right turn and moving away. Once clear of the traffic, the flight crew continued on track to Brent VRP and notified ATC of the Airprox. The flight crew estimate being within 100-200ft of the other aircraft.

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

**THE PA28 PILOT** reports that they did not see the A109.

**THE HEATHROW SVFR CONTROLLER** reports that they were the Heathrow SVFR controller banded with Thames Radar at the time [of the Airprox]. [The pilot of the A109] was inbound from the NW at 2200ft receiving a Basic Service from them in Class G airspace. They had already coordinated the aircraft with Northolt Approach and issued a clearance to enter the London CTR not above 1300ft by reaching Brent. At approximately 0952, they noticed that [the A109] was west of Elstree by about 5NM, had started a descent and was conflicting with a 7000 squawk at 1800ft. In line with

duty-of-care requirements in MATS part 1 for traffic on a Basic Service, they advised [the pilot of the A109] that there was traffic at the same level, 11 o'clock at 1NM. The pilot reported '*not sighted*' so they updated the Traffic Information to 'Same level, 11 o'clock half a mile'. They observed [the pilot of the A109] descend to 1600ft as the radar returns merged. Shortly after, they asked if [the pilot of the A109] had seen the aircraft and the pilot reported that 'it was very close with late sighting due to the low sun'. [The pilot] said they would be filing an Airprox and continued [en-route]. The events described have not been checked for accuracy against the appropriate RTF recording.

**THE ELSTREE AFISO** reports that, having checked the [RT] audio recording, there was no communication relating to any [Airprox] incident. Nothing was recorded in the watch log.

RW26 was in use and, at the request of [a flight instructor uninvolved in this Airprox], the runway was changed from 26 to 08 due to the wind (recorded in the watch log). [The instructor in the PA28] was in the circuit and elected to fly west out of the ATZ to the Canal Bend [VRP] to join back into the circuit for RW08 for long final. Looking at [the PA28] track on ADS-B replay, this can be seen.

The other aircraft involved was an A109, [which] was not on the Elstree frequency. It was travelling NW to SE, outside, and to the west of, the ATZ. The [RT] audio recording has been provided to ATSI as per their request.

## Factual Background

The weather at Northolt was recorded as follows:

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METAR EGWU 240950Z 03004KT 9999 BKN017 03/00 Q1040 NOSIG RMK WHT WHT
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## Analysis and Investigation

### NATS SAFETY INVESTIGATIONS

Information available to the investigation included; [a reporting form] from the Heathrow Special VFR controller; radar and R/T recordings; and the pilot's account of the event received from the operator of [the A109].

The Heathrow Special VFR position (SVFR) was combined with Thames Radar and being operated by a single controller. The Agusta A109 helicopter was routeing from [departure airfield] to [destination airfield] under VFR. [The PA28 callsign] (identified using the aircraft's Mode-S hex address) was a Piper PA28A, displaying Mode-A 7000, which was observed to be operating in the [Elstree] circuit at 1300ft prior to the incident, outside the confines of controlled airspace and not in communication with the SVFR controller.

The pilot of [the A109] checked in with the SVFR controller at 0945:37 and, after a short delay of around 3min whilst the controller dealt with other traffic, reported they were 5NM west of BNN at 2300ft (in Class G airspace) and requested a VFR zone transit to route from Brent to [their destination]. The controller instructed the pilot to squawk 7036, issued the QNH of 1040hPa, and agreed a Basic Service in response.

At 0948:56, based on radar replay data, the pilot of [the PA28] performed a touch-and-go or low approach at Elstree after which the aircraft climbed straight ahead from RW26, to an indicated 1900ft.

After confirming with Northolt ATC that they did not wish to work [the A109], the controller restated that it was a Basic Service to the pilot of [the A109] at 0949:42. The pilot stated they were now at 2200ft and were "*visual with traffic on our right-hand side*". This traffic, unrelated to the Airprox, was 1.6NM south of [the A109], indicating 1100ft and descending, on an approximately parallel track. The controller then issued a clearance to the pilot of [the A109] to enter the Heathrow Zone, not above 1300ft, VFR, to be level by Brent, and then to [continue their route]. The pilot of [the A109] commenced a slow descent at 0950:14.

From NODE [radar replay], the pilot of [the PA28] was observed to make a right turn onto an almost reciprocal track to [the A109] and 30sec later, at 0951:37, the SVFR controller informed the pilot of [the A109], which was then 5.5NM west of Elstree, "Further traffic in your eleven o'clock now, maybe a mile, at one thousand eight hundred feet. Are you visual?". The pilot responded that they were 'looking'. This traffic was [the PA28], 2NM ahead of [the A109].

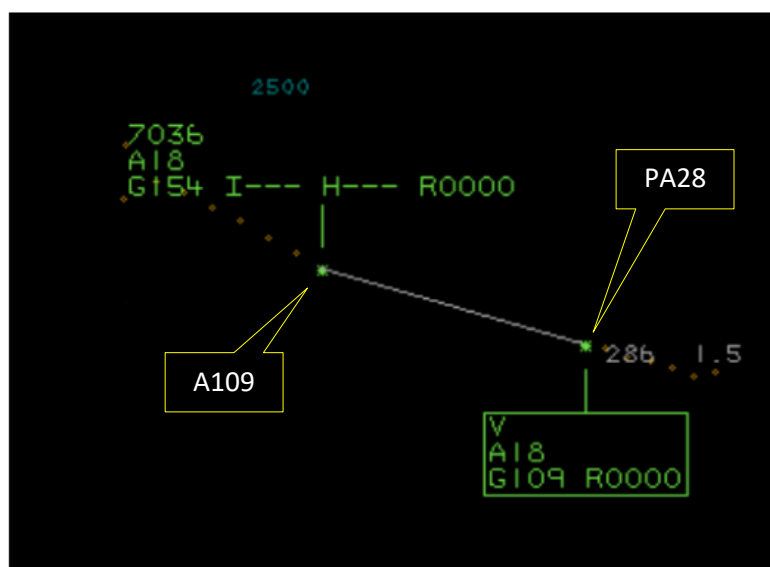


Figure 1 – 0951:42, just after TI had been passed on the PA28 to the pilot of the A109

The relative locations of each aircraft, a single radar update after the controller began to issue Traffic Information, are shown in Figure 1. The SVFR Controller then immediately gave further information, "Eleven o'clock, half a mile, same level". The pilot's short response was blocked by a call from another aircraft on frequency.

Explaining their actions in their [reporting form], the controller detailed, "In line with duty of care requirements in MATS 1 for traffic on a BS, I advised [the pilot of the A109] that there was 'traffic at the same level, 11 o'clock at 1NM'. The pilot reported 'not sighted' so I updated the Traffic Information to 'same level, 11 o'clock half a mile'. I observed [the A109] descend to 1600ft as the radar returns merged".

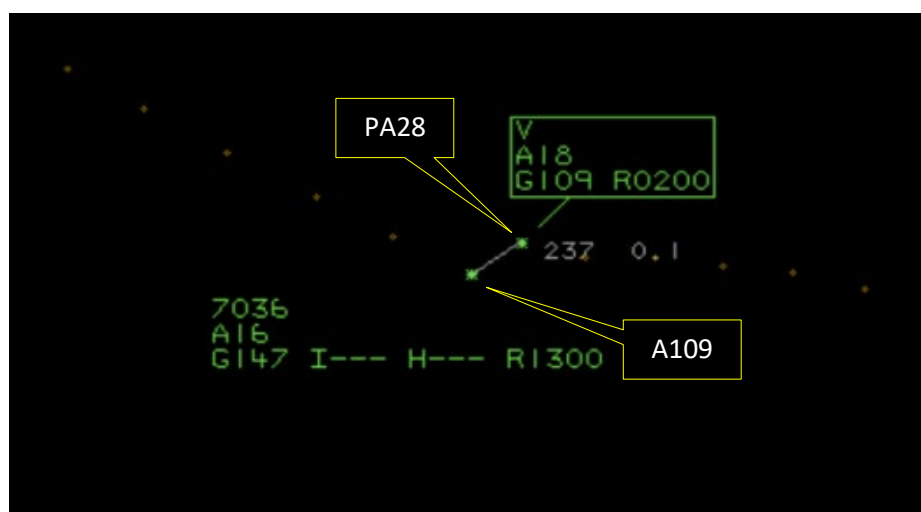


Figure 2 – CPA at 0952:01

The closest point of approach between [the A109] and [the PA28] was at 0952:01, 4.8NM west of Elstree, and the distance between the two was assessed using radar data as 0.1NM and 200ft, as per Figure 2. The pilot of [the A109] had descended to 1600ft.

The controller asked the pilot of [the A109], at 0952:36, if they had seen the traffic and the pilot responded, "Yes, it was very close. We'll probably need to file that as an Airprox". The controller replied, "Yes, that's why I pointed it out" and asked the pilot if they were VMC at the time. The pilot replied, "Affirm, yes, but we've got the sun so he was probably just beneath the cloudbase and it was probably about one hundred feet separation and it was on the left-hand side. It was a low wing...".

The pilot of [the PA28] was observed on the radar replay to re-enter the circuit at Elstree.

The operator of [the A109] was contacted regarding this incident and they replied with the pilot's report [as reproduced above].

In conclusion, the Airprox occurred when the pilot of [the A109], in receipt of a Basic Service, and [the pilot of the PA28], not in contact with the controller, came within close proximity beneath the confines of controlled airspace, 4.8NM west of Elstree airfield. The Closest Point of Approach occurred at 0952:01 and was recorded on Multi-Track Radar as 0.1NM and 200ft.

The incident was resolved by the pilot of [the A109] descending to 1600ft and the pilot of [the PA28] who was reported to be already turning away from [the A109] at the time of the incident.

### **UKAB Secretariat**

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

The PA28 was observed on radar, at 0949:18, to be at 1100ft, approximately on runway heading (260°) and climbing away from Elstree after a touch-and-go. The runway in use at Elstree was then changed from RW26 to RW08. Having initially requested that the pilot of the PA28 "*report at the golf course inbound for RW08 left-hand*", the Elstree AFISO then asked the pilot of the PA28 to "*Just route out to the Canal Bend and report at the Canal Bend inbound for RW08*". The pilot of the PA28 responded that they would route as requested. The Canal Bend VRP is located approximately 1.8NM to the west of the Elstree ATZ.

At 0951:24, when approximately 0.5NM south of Canal Bend VRP, the pilot of the PA28 was observed to turn right by approximately 25° and the CPA occurred less than a minute later. Just after CPA, the pilot of the PA28 turned left to track back to Elstree, initially on the new runway heading (080°).

The A109 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> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>2</sup>

### **Summary**

An Airprox was reported when an A109 and a PA28 flew into proximity 5NM west of Elstree at 0952Z on Tuesday 24<sup>th</sup> January 2023. Both pilots were operating under VFR in VMC, the A109 pilot in receipt of a Basic Service from Heathrow Radar and the PA28 pilot in receipt of an AFIS from Elstree.

### **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 controller and 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.

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

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

The Board first considered the actions of the pilot of the A109. A member with particular knowledge of helicopter operations within the London CTR commented that the airspace in which this Airprox occurred is often particularly congested. The Canal Bend and Maple Cross VRPs are used extensively for traffic routing to Denham, Elstree and into the London CTR. Members noted that the A109 had been fitted with a TAS but wondered why it had not provided an alert to the presence of the PA28 (CF9). The pilot of the A109 had been in receipt of a Basic Service from the Heathrow SVFR controller and members noted that, as such, the pilot should not have expected any form of Traffic Information to have been passed. Notwithstanding, when the PA28 had been within 1NM of the A109, the Heathrow SVFR controller had passed Traffic Information. However, the low-sun had hindered the pilot's view to the southeast (CF12) and updated Traffic Information had then been passed. Members determined that the pilot of the A109 had visually acquired the PA28 late, although acknowledged that it had been visually acquired in sufficient time for action to have been taken that had increased separation (CF10).

Members further considered the actions of the Heathrow SVFR controller and noted that they had not been required to have monitored the flight under the terms of the Basic Service provided to the pilot of the A109. The Airprox had taken place outside the select frame of the STCA in use at the Heathrow position (CF6). However, members noted that the Heathrow SVFR controller had been concerned by the proximity of the PA28 and A109 (CF3). Members commended the controller for having passed Traffic Information on the PA28 to the pilot of the A109.

Turning their attention to the pilot of the PA28, members were disappointed that their report had not contributed to the understanding of how events had unfolded, nor had offered any subsequent reflections on the incident. Notwithstanding, members considered the actions of the pilot of the PA28. Having just taken off from RW26 from a touch-and-go, the runway in use at Elstree was to be changed to RW08. The formulation of a plan to re-position their aircraft to the new circuit direction had required careful consideration. Notwithstanding an earlier discussion concerning the scope of responsibility of an AFISO, members acknowledged that the pilot of the PA28 had agreed to the request by the AFISO to route to Canal Bend VRP before returning to RW08. Within the ATZ, the pilot of the PA28 had been aware of the other aircraft in the circuit. Members were in agreement that, having chosen to leave the ATZ, they would have done so without situational awareness of the traffic picture outside and, specifically, had not known of the presence of the A109 (CF8).

Given that the pilot of the PA28 had chosen to route towards the congested area north of the London CTR, and that their aircraft had not had any additional electronic conspicuity equipment fitted, and that they had not been in receipt of Traffic Information pertaining to the airspace in which they had found themselves, members agreed that it would have been of paramount importance to have maintained a very effective lookout. Members noted that the pilot of the PA28 had had the sun behind them when visually scanning the area to the northwest, the direction from which the A109 pilot had been approaching, but that they had not sighted the conflicting traffic (CF11).

One member suggested that there had been few alternative options for the pilot of the PA28 to have considered other than to have left the ATZ to the west in order to reposition for RW08. It was acknowledged that there would not have been sufficient time for the pilot of the PA28 to have established communication with the Heathrow controller and to have built a reasonable level of situational awareness. However, the majority of members were in agreement that it had not been prudent to have left the ATZ with an incomplete mental model of the prevailing traffic conditions and, further, that the plan to have done so had been inadequate (CF7).

The use of additional electronic conspicuity equipment was considered further, and members agreed that on this occasion such equipment may have provided some additional information to aid visual acquisition. It was for pilots to decide on their own requirements for additional equipment according to their needs and the Board wished to highlight to pilots that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2024.<sup>3</sup>

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<sup>3</sup> <https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/>

Members next considered the actions of the Elstree AFISO. Noting that there had been a request by an instructor that had been flying in the circuit for the runway in use to be changed, members acknowledged that the AFISO had subsequently advised that the runway in use would be changed to RW08 following the touch-and-go conducted by the pilot of the PA28. Members were in agreement that it would have been correct for an AFISO to have subsequently sought the intentions of the pilots affected by the change. However, it had been the case that the Elstree AFISO had requested that the pilot of the PA28 'report at the golf course'. That request had subsequently been amended to a request for the pilot of the PA28 to 'report at Canal Bend VRP'. Members understood that it may have been convenient for the Elstree AFISO to have 'made some space' in the circuit to facilitate the flow of traffic adapting to the new circuit, but that their request had constituted an instruction. Members recalled the FISO procedures provided in CAP797 Flight Information Service Officer Manual and were keen to emphasise that FISOs are not permitted to issue instructions to pilots in the air. To have done so had been at odds with the regulations (CF1). Members were particularly concerned that that instruction had been a contributory factor in this Airprox (CF5). The Elstree AFISO had not had situational awareness of the A109 that had been approaching the area between the Maple Cross and Canal Bend VRPs (CF4), and had not been able to have passed pertinent Traffic Information to support the situational awareness of the pilot of the PA28 as they routed towards the Canal Bend VRP (CF2).

When determining the risk of collision, the Board agreed that safety margins had been reduced much below the norm. It had been the instruction by the Elstree AFISO and the subsequent compliance of the pilot of the PA28, neither having had any situational awareness of conflicting traffic, that had led to the encounter with the A109. Thankfully, it had been the timely Traffic Information passed by the Heathrow SVFR controller that had enabled the pilot of the A109 to visually acquire the PA28 in time to have taken action to have increased the separation. Members agreed, however, that the A109 pilot's actions had not removed risk of collision entirely (CF13) and, consequently, the Board assigned Risk Category B.

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

### Contributory Factors:

2023008				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Regulations, Processes, Procedures and Compliance</b>				
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
<b>• Situational Awareness and Action</b>				
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Expectation/Assumption	Events involving an individual or a crew/team acting on the basis of expectation or assumptions of a situation that is different from the reality	Concerned by the proximity of the aircraft
4	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
5	Human Factors	• Traffic Management Information Provision	An event involving traffic management information provision	The ANS instructions contributed to the Airprox
<b>• Electronic Warning System Operation and Compliance</b>				
6	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
<b>Flight Elements</b>				
<b>• Tactical Planning and Execution</b>				
7	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
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				

8	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>Electronic Warning System Operation and Compliance</b>				
9	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>				
10	Human Factors	• Identification/Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
11	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
12	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>				
13	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>4</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:**

**Regulations, Processes, Procedures and Compliance** were assessed as **ineffective** because the Elstree AFISO had requested that the pilot of the PA28 route to the Canal Bend VRP, effectively issuing an instruction to a pilot in the air.

**Electronic Warning System Operation and Compliance** were assessed as **not used** because the Airprox took place outside the select frame of the STCA in use on the Heathrow SVFR position.

#### **Flight Elements:**

**Tactical Planning and Execution** was assessed as **partially effective** because the pilot of the PA28 had elected to leave the Elstree ATZ.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because the pilot of the PA28 had had no situational awareness of the presence of the A109.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the TAS equipment fitted to the A109 would have been expected to have alerted to the presence of the PA28, but no alert was reported as having been received.

**See and Avoid** were assessed as **partially effective** because the pilot of the PA28 had not visually acquired the A109, and the A109 pilot had visually acquired the PA28 at a late stage, necessitating emergency avoiding action.

<sup>4</sup> 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: 2023008**

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 Conflicition & 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>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision								
Application								
Effectiveness								