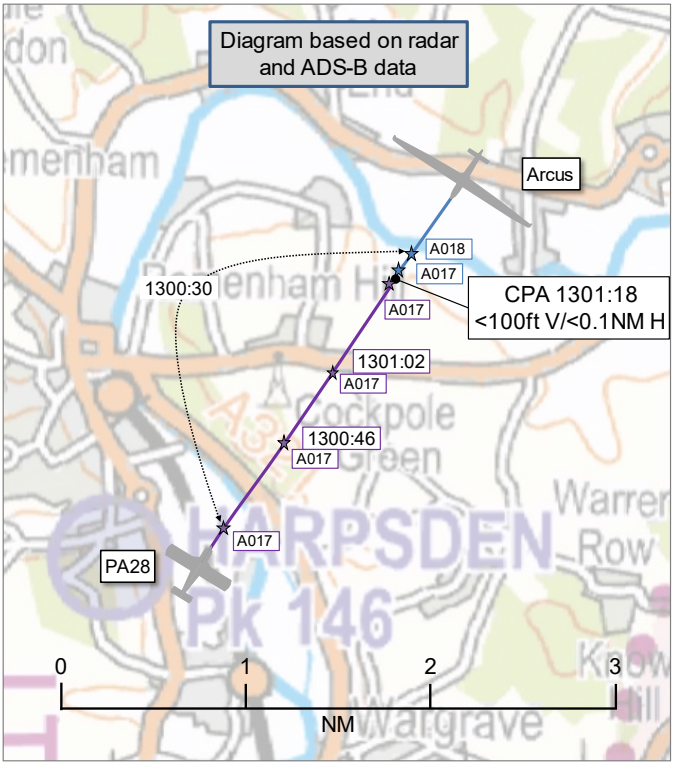
# AIRPROX REPORT No 2024100

Date: 27 May 2024 Time: 1301Z Position: 5133N 00051W Location: Near Henley-on-Thames

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | Arcus | PA28 |
| Operator | Civ Gld | Civ FW |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | None | None |
| Provider | N/A | N/A |
| Altitude/FL | ~1765ft | ~1740ft |
| Transponder | None[1] | A, C[2] |
| **Reported** | | |
| Colours | White | Red, white |
| Lighting | ACL strobe | Strobes |
| Conditions | VMC | VMC |
| Visibility | 5-10km | 5-10km |
| Altitude/FL | 1886ft | 2000ft |
| Altimeter | QNH | QNH |
| Heading | 290° | 180° |
| Speed | 60kt | 95kt |
| ACAS/TAS | PowerFLARM | SkyEcho |
| Alert | None | Unknown |
| **Separation at CPA** | | |
| Reported | 20-30ft V/10ft H | "not seen" |
| Recorded | <100ft V/<0.1NM H | |




**THE ARCUS PILOT** reports that, while returning from an uncompleted task at the 20m national championships, they were running under sustainer engine power under the London TMA, trying not to enter the TMA, a white and red Warrior aircraft passed head-on to them and passed them about 10ft to the left and around 30ft under them. It was that close it was very easy to read the registration. Their glider was installed with a forward facing red flashing strobe which is very visible. They felt that a collision was only avoided by sheer luck.

The pilot confirmed that the aircraft has a display linked to the radio and transponder, and [an EC device] with (all) traffic displayed. They also commented that the crossing traffic had displayed on their device, but not the conflicting aircraft.

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

**THE PA28 PILOT** reports that they are a flight instructor and fly consistently in the area returning to [their local airfield] after each sortie. They log each flight with an electronic portable device and use [an EC device] as well, with no aural alerts, only visual on the screen. [They commented that] the main way to avoid [other aircraft] is to look out, with [an EC device] as a back-up. They turn away from countless aircraft in the area whilst conducting training and have never been subject of nor filed an Airprox report before. They take safety very seriously and look out constantly as well as encouraging their students to do the same. They fly close to 500 hours a year and [opined that] if this was a glider, where it is stated they are always difficult to see unless turning, and also unless in a competition at Booker or cross-country running, [gliders] rarely use that Henley run as it is a bit of a dangerous corridor as it is both narrow and also height restricted.

[1] The pilot of the Arcus reported that the Arcus was fitted with a transponder squawking Modes A, C and S.
[2] The pilot of the PA28 reported that the PA28 was fitted with a transponder squawking Modes A, C and S.

**THE FARNBOROUGH CONTROLLER** reports that, after a review of their recordings, they did not believe that they were working either aircraft at the time of the Airprox.

## Factual Background

The weather at Farnborough was recorded as follows:

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METAR EGLF 271250Z 29007KT 250V320 9999 VCSH SCT035 13/10 Q1015 RESHRA
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## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and neither aircraft could be positively identified. However, both aircraft tracks were available via ADS-B and those for the PA28 matched returns on the radar replay (Figure 1).

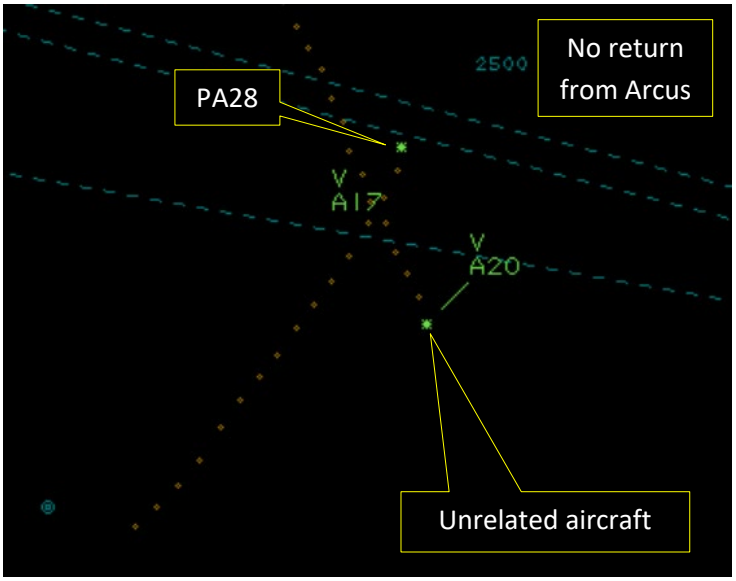



Figure 1 Time 1301:18 primary radar track to CPA.

The ADS-B data is based on 1013hPa, with both aircraft positively identified prior to CPA (Figure 2).


Figure 2 -Time 1301:01. Pre-CPA separation 1.1NM and 25ft.

The next combined ADS-B data collection time occurred after CPA, and the Arcus track was clearly defined at approximately 12sec intervals (Figure 3).


Figure 3 – Time. 1301:25. Post CPA separation 0.6NM and 150ft.

The combined radar and ADS-B data were used to determine the CPA at 1301:18.

The Arcus 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.[3] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[4]

## Comments

### AOPA

When flying in busy airspace pilots should try to obtain the best ATS they can from an air traffic unit. When flying straight and level, effective lookout is assisted by banking an aircraft, thereby changing its profile. Until there is a mandated electronic conspicuity standard, unfortunately events such as this will occur.

### BGA

The carry-on TAS on board the PA28 can be configured to receive transmissions from the EC equipment carried by almost all gliders (including this Arcus) and display nearby glider traffic via participating EFB applications. Using this option could provide a useful additional safety barrier in airspace where gliders operate.

The TAS fitted to the Arcus is designed to warn of nearby aircraft broadcasting either Mode S transponder returns or ADS-B out. This TAS had detected an unrelated powered aircraft in the minutes before CPA at a range of about 5km. However, the Arcus crew report that it did not warn of the Mode-S-equipped PA28 at any point during this encounter. It would be useful to understand why this barrier did not function.

## Summary

An Airprox was reported when an Arcus and a PA28 flew into proximity at Henley-on-Thames at 1301Z on Monday 27th May 2024. Both pilots were operating under VFR in VMC, neither 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 and ADS-B-derived data. 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 reviewed the actions of the Arcus pilot and noted that their reported heading appeared to be incorrect, however, that had no impact on the Board's discussion. On viewing the combined ADS-B and radar tracking data, which had clearly depicted the Arcus had been heading directly towards the PA28 in Class G airspace, members had wondered why a Flight Radiotelephony Operator's Licence holder had not made better use of their radio. The Board discussed whether the noise of the sustainer engine had made using the radio difficult at that time, but some members felt that a good noise cancelling headset should be sufficient to overcome any noise interference from the sustainer engine. Members agreed that the Arcus pilot had not requested an appropriate service where an ATS had been available, which would also have served as a means of checking the output from the Arcus' transponder (**CF1**), noting also that, although the Arcus pilot had been certain that the transponder had been operating, the lack of any SSR data for the Arcus on the NATS radar replay was indicative of the transponder either having been switched off or unserviceable (**CF2**). Members also noted that the Arcus pilot's EC had not warned them of the presence of the PA28 (**CF5**), despite providing information on another aircraft that had been crossing their track. The Board agreed that the combined effect of having

[3] (UK) SERA.3205 Proximity.
[4] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

had no EC warning and no ATS had meant that the pilot had had no situational awareness of the PA28 (**CF3**).

Members applauded the Arcus pilot for the installation of a canopy flasher to make it more visible to other traffic, but made comment that, despite being a large 2 seat glider with a wingspan of approximately 20m, any aircraft flying straight and level for some time would be difficult to see and the Board wished to remind all pilots that, when flying straight and level, an effective lookout is assisted by banking the aircraft, thereby changing its profile, to improve the likelihood of being seen by other pilots. The Board concurred that the Arcus pilot had had an effective non-sighting of the PA28, with the actual sighting being as the PA28 had passed them (**CF6**).

Turning their attention to the PA28 pilot, members were disappointed that the pilot had also not been in receipt of an ATS at the time of the Airprox (**CF1**). The Board noted that the PA28's transponder Mode S had not been detected by the NATS radars, and surmised that it had either not been selected to 'on' or had not been serviceable on that day. That said, the PA28's Mode C transmissions should have been detected by the Arcus EC but the PA28's EC would only have detected the Arcus had an appropriate subscription to enable the display of EC commonly used by gliders been in place.. Members thought it likely that the PA28's owners had not subscribed to the display of this additional data and, therefore, agreed that the PA28's EC equipment had been incompatible with the Arcus EC equipment (**CF4**). The Board agreed that, as with the Arcus pilot, the combined effect of no ATS and no EC warning had meant that the PA28 pilot had not had any situational awareness of the Arcus (**CF3**). Members further agreed that the PA28 pilot had not sighted the Arcus (**CF6**).

In summarising their discussion, the Board agreed that neither pilot had utilised all the facilities available to them nor had they been aware of each other's presence. Furthermore, it was agreed that neither pilot had sighted the other aircraft in time to have taken any avoiding action and that the encounter had only stopped short of an actual collision because providence had played a major part in events (**CF7**). As such, the Board determined that there had been a serious risk of collision and assigned Risk Category A.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | **2024100** | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Flight Elements** | | | |
| | **• Tactical Planning and Execution** | | | |
| 1 | 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 |
| 2 | Human Factors | • Transponder Selection and Usage | An event involving the selection and usage of transponders | |
| | **• Situational Awareness of the Conflicting Aircraft and Action** | | | |
| 3 | 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** | | | |
| 4 | 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 |
| 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 | • 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** | | | |

| | | | | |
|---|---|---|---|---|
| 7 | Contextual | • Near Airborne Collision with Aircraft | An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles | |

Degree of Risk: A.

Safety Barrier Assessment[5]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

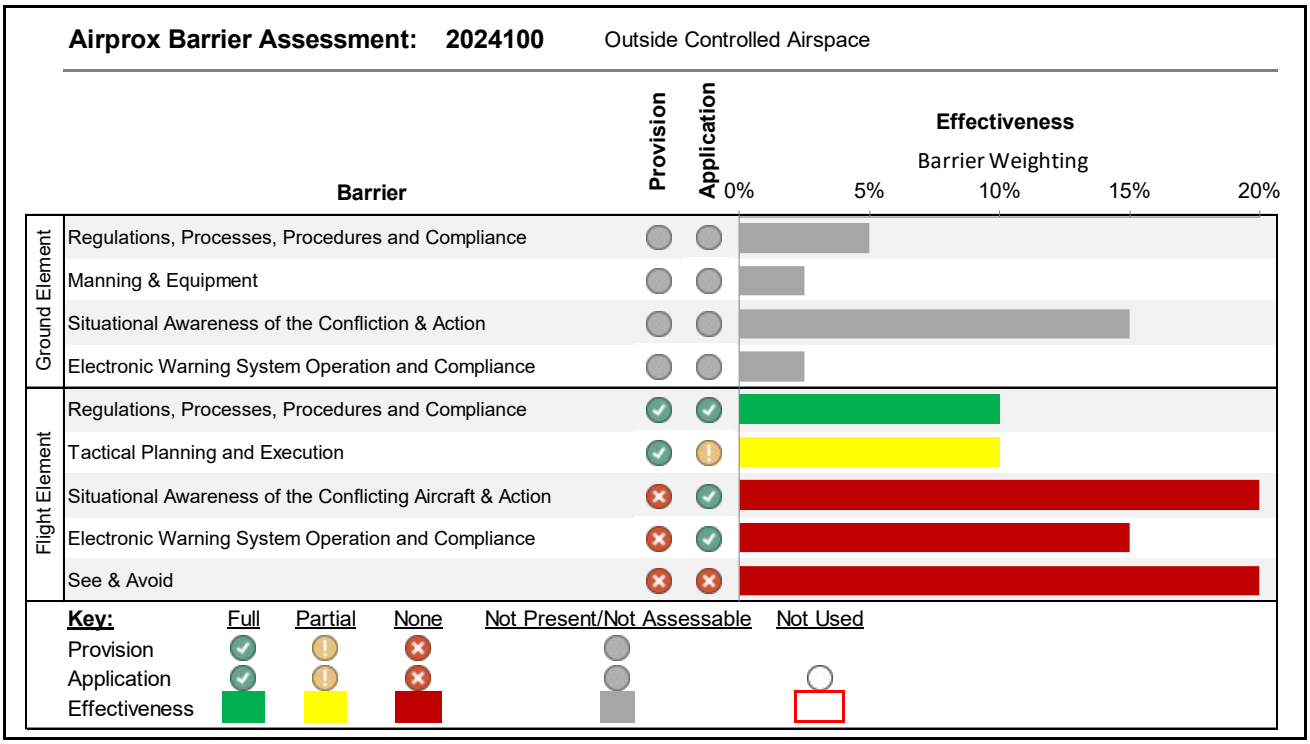
**Flight Elements:**

**Tactical Planning and Execution** was assessed as **partially effective** because neither pilot had been in receipt of an ATS, and the Arcus pilot had not made effective use of their transponder.

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither the Arcus nor PA28 pilots had any situational awareness of the other's aircraft.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the PA28's EC equipment was unable to detect any emissions from the Arcus, and the Arcus' EC equipment did not detect any emissions from the PA28's transponder or EC.

**See and Avoid** were assessed as **ineffective** because the PA28 pilot had not sighted the Arcus, and the Arcus pilot had only sighted the PA28 at or around the moment of CPA.




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