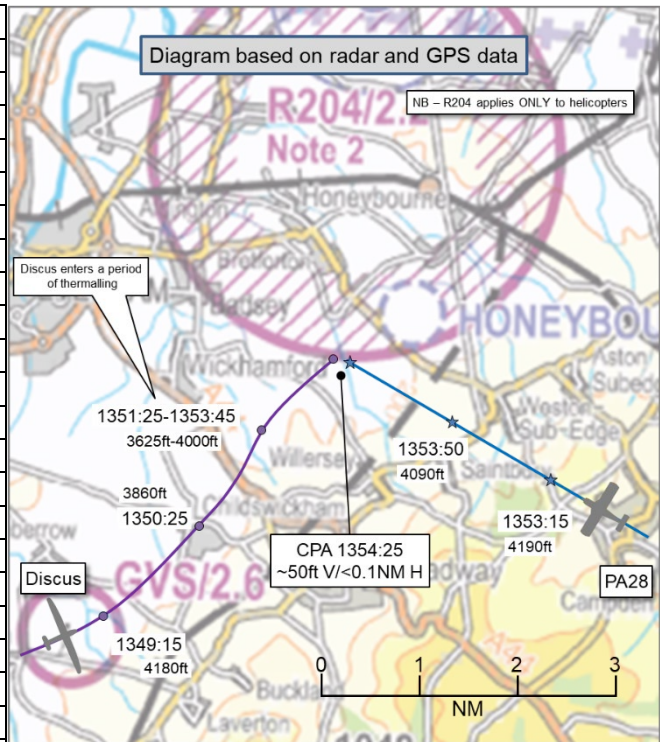


**AIRPROX REPORT No 2024197**

Date: 29 Jul 2024 Time: 1354Z Position: 5204N 00152W Location: 2.5NM southeast of Evesham

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	Discus
Operator	Civ FW	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Oxford Radar	N/A
Altitude/FL	4090ft	4040ft
Transponder	A, C, S	None
Reported		
Colours	White and Yellow	White
Lighting	Landing, beacon	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4181ft	4150ft
Altimeter	QNH	QFE
Heading	300°M	050°
Speed	127kt	65kt
ACAS/TAS	SkyEcho	FLARM, SkyEcho
Alert	None	None
Separation at CPA		
Reported	10ft V/50-100ft H	250ft V/NK H
Recorded	~50ft V/<0.1NM H	



**THE OXFORD CONTROLLER** reports that they had submitted this report pre-emptively in case of a retrospective Airprox report. They had taken over APS at 1353 and, during the handover, the PA28 had been identified by the off-going controller, this aircraft had been under a Basic Service. This aircraft had been transiting [from ... to ...] and had been some 20 miles northwest of Oxford with no other returns within its vicinity. At 1354 the PA28 pilot had reported a very close encounter with a glider and, when the controller had scanned its position, a primary-only return had been seen within its vicinity. Prior to the pilot's report the controller had been engrossed in providing Traffic Information to an aircraft on a Traffic Service and had not scanned in the direction of the PA28 since the position handover.

**THE PA28 PILOT** reports that just prior to the incident they had turned onto their final track to [destination airfield] of 300° and at 4100ft on the QNH provided by Oxford Radar. They had carried [an electronic conspicuity device] attached to the rear right passenger window providing their copy of SkyDemon with ADS-B data which had been capable of providing alerts to their Bluetooth headset. Along with this they had been performing regular scans using the side-to-side scanning method. In addition, Oxford Radar had warned other aircraft of high glider traffic [numbers] in the region. As an additional measure the PA28 pilot had turned on their landing light. Just prior to the Airprox, if they had remembered correctly, they had just completed a scan before looking down at their RPM gauge to make a small change before then seeing the Discus in their 11 o'clock moving towards their 2 o'clock. Due to the left to-right-track of the Discus traffic, as well as their close proximity, the PA28 pilot had deemed the safest option had been to make a left turn and pass behind the glider. Following the incident the PA28 pilot had made a transmission to Oxford Radar reporting the location of the glider and the track along with making a quick check of their SkyDemon only to find that the [electronic conspicuity equipment] had not picked up the glider. Following the flight and in preparation for their return flight they had made sure to check for NOTAMs, specifically those for gliding activity. If they recall correctly, they had been unable to find any NOTAMs on the Husbands Bosworth challenge cup prior to departure on Skydemon.

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

**THE DISCUS PILOT** reports that they had been on a gliding task flying from [departure airfield] to Stratford on Avon and back (without landing in between). Between Broadway and Evesham on the way out, while thermalling, they had noticed a small powered plane some distance away and below them. At that time, they had thought it had been flying on a track well behind them. The Discus pilot reports to have carried on thermalling, then straightened out and headed on track. They did not notice the powered plane again and had thought it had been behind them on their right. It did not appear on [electronic conspicuity equipment]. The Discus pilot had not been aware until looking at the data following the UKAB telephone call that their tracks had come so close horizontally. It had seemed that there had been at least 150ft vertical separation. Given the closing speeds and the fact that the Discus had been higher, if they had seen the PA28 closer, the safest thing for them to have done would have been to carry on flying straight and level and be predictable so that the PA28 pilot could have taken avoiding action if they saw fit.

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

## Factual Background

The weather at Birmingham Airport was recorded as follows:

METAR EGBB 291350Z 16007KT 120V210 CAVOK 27/12 Q1020=

## Analysis and Investigation

### Oxford Safety Investigation

This investigation has been conducted on the assumption that an Airprox would be filed, although the word Airprox had not been used by the pilot.

This Airprox occurred during medium traffic levels with six aircraft on or expected for a Radar Service, several on a Basic Service and multiple gliders known to be operating throughout the area. A primary-only contact appeared and then disappeared to the west of the track of the PA28 and then reappeared some 10sec later. The Oxford Radar controller had been working other traffic, including vectoring one aircraft onto the ILS; the controller had been operating on 125.090MHz. The RAD2/Director position had been closed.

1339:50 The PA28 pilot had free-called Oxford Radar and requested a Basic Service for a transit at 4000ft from [...] to [...] via the Oxford Airport overhead.

1352:40 The ATCO pointed out the PA28 as part of the handover of position [with no primary contact showing at that point].

1353:29 The ATCO took over the Radar position.

1353:38 A primary contact appeared manoeuvring west of the track of the PA28 by about 1NM

1354:02 The controller hovered their mouse pointer close to the PA28.

1354:07 The primary contact disappeared west of the PA28.

1354:17 A primary contact reappeared manoeuvring west of the PA28 by less than 0.5NM but had started to track east.

1354:27 [uninvolved aircraft comms].

1354:27 The closest point between the PA28 (A041) and the primary contact (no altitude), the aircraft returns merged. The glider continued on a northeasterly track.

1354:29 [uninvolved aircraft comms].

1354:44 "Er [PA28 C/S] just had a bit of glider traffic very close to us if possible, to report that in".

1354:48 "Who was that?"

1354:51 "[PA28 C/S] same level glider traffic very close".

1354:54 "[PA28 C/S] Oxford Roger".

1355:40 Controller provided Traffic Information on possible gliders to [uninvolved aircraft] (on a Traffic Service) and pilot of [uninvolved aircraft] reported 3 gliders in sight.

## Analysis

The PA28 pilot had free-called Oxford for a transit at 4000ft from [...] to [...] via the Oxford Airport overhead and requested a Basic Service, this is the service that had been provided by the controller. The aircraft had been under the Basic Service for 14min prior to the time of the Airprox, during that time the Oxford Radar controller had only received one report of overhead Oxford but no other position/levels updates from the pilot in the time leading up to the Airprox. The reported glider had not been in radio contact with Oxford Radar, but the replay showed an intermittent contact that reappeared prior to the Airprox whilst the controller had been vectoring another aircraft.

In accordance with CAP774 the pilot should not expect any form of Traffic Information from a controller under a Basic Service and that whether Traffic Information had been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller. Likewise, even though the controller had access to surveillance-derived information it had been noted again that the PA28 pilot had been operating under a Basic Service and thus the controller had not been required to identify nor monitor the aircraft's flight. Prior to the CPA, the PA28 had been on a constant north-westerly track. It had also been noteworthy that there had been multiple gliders known to be operating and that the controller had provided Traffic Information on potential gliders to other aircraft under a service.

## Conclusion

The PA28 pilot had been on a Basic Service and had been responsible for their own avoidance of traffic.

## UKAB Secretariat

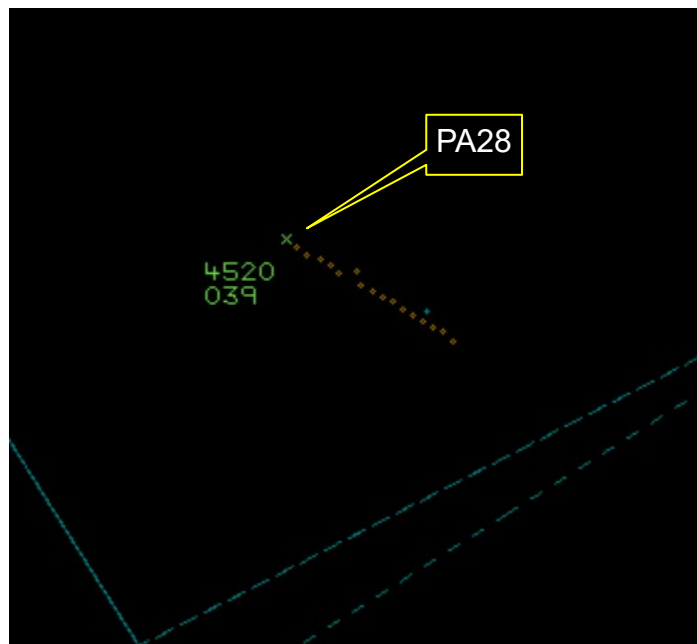


Figure 1: At CPA 1354:25



Figure 2: CPA1354:25 ~50ftV/<0.1NM H (images taken from the CAAs Airspace Analyser Tool)



Figure 3: At 1354:20



Figure 4: At 1354:30

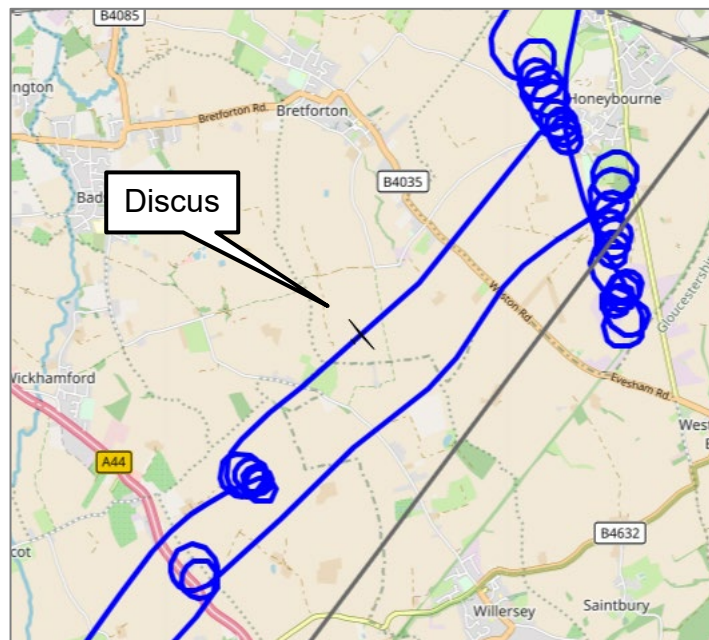


Figure 5: At CPA 1354:25 (Image taken from pilot-provided GPS file)

The Discus did not show on radar. The pilot had carried and utilised an electronic conspicuity unit which allowed the sharing of a GPS-based track file, an image from which is shown at Figure 5. Both aircraft were tracked to and beyond CPA on an ADS-B display platform with images from that system shown at Figures 3 and 4. As the time interval between refresh is 10sec, the images capture CPA minus 5sec and CPA plus 5sec. Both aircraft showed on the CAA's Airspace Analyser Tool, with an image captured at CPA shown at Figure 2. The picture at page 1 was generated using a combination of radar and GPS-derived data.

The PA28 and Discus 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 converging then the PA28 pilot was required to give way to the Discus.<sup>2</sup>

## Comments

### AOPA

Whilst navigating, it is always best to obtain a best radar-based surveillance service if available to assist with lookout. Even though both parties in this case had the same electronic conspicuity system, for some reason it didn't alert, leaving effective lookout as the final barrier for mid-air collision avoidance.

### BGA

It is very encouraging that both aircraft were carrying compatible carry-on CAP 1391 EC equipment designed to broadcast and receive ADS-B. The PA28 CAP 1391 unit was connected to an EFB application, in order to display nearby ADSB-out-equipped aircraft, but the PA28 pilot reports that it did not warn of the proximity of the Discus. It would be useful to understand why this barrier did not function. Although this Discus is one of the few gliders equipped with ADSB-out, the specific model of CAP 1391 ADSB-based EC equipment on board the PA28 can also be configured to receive transmissions from the EC equipment carried by almost all gliders (including the Discus) and display nearby glider traffic via participating EFB applications. Using this option would provide a useful additional safety barrier in airspace where gliders operate.

## Summary

An Airprox was reported when a PA28 and a Discus flew into proximity 2.5NM southeast of Evesham at 1354Z on Monday 29<sup>th</sup> July 2024. Both pilots were operating under VFR in VMC, the PA28 pilot in receipt of a Basic Service from Oxford Radar and the Discus pilot not in receipt of a Flight Information Service.

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

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

When reviewing the role played by the Oxford Radar controller, the Board noted and thanked them for their submission in anticipation of reports from the respective pilots involved. The controller reported that they had been providing a Basic Service to the PA28 pilot, recognising that here had been no requirement for flight monitoring in that situation (**CF1**) and that they had, in fact, been servicing other aircraft operating under a higher-level service at that time. On receiving the notification from the PA28 pilot that they had met with a close encounter with a glider, they had checked their radar screen and observed a primary-only return in that area. The Board felt that the controller had acted appropriately and wished to highlight that a higher level of service, as the controller had been exercising with others at this time, raises the likelihood of increased situational awareness for operators in Class G airspace.

In considering the role of the PA28 pilot, members noted that they had utilised radio, transponder and electronic conspicuity equipment with good in-cockpit connectivity to display tools, alongside external lighting to improve both electronic and visual conspicuity and situational awareness for themselves and others. However, the lack of EC alert or R/T warning of traffic meant that see-and-avoid had been the final barrier to mid-air collision in this case. Fortunately, the PA28 pilot had seen the Discus and had

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

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(2) Converging.

initiated an avoidance manoeuvre, which the Board deemed to have been essential to increase separation between the 2 aircraft.

Members felt it unfortunate that although the PA28 and the Discus had carried compatible electronic conspicuity equipment, neither had alarmed (**CF3**) and that aspect of their situational awareness building had not contributed. As the Discus pilot had not sought an Air Traffic Service, and that provided to the PA28 pilot had not identified the Discus, this second aspect of situational awareness building had also not contributed, leaving both pilots unaware of the presence of the other aircraft in their proximity (**CF2**).

Turning to the actions of the Discus pilot, the Board recognised that the pilot had seen the PA28 in the local area but had not considered it a threat until they had reviewed data files after their flight and members felt that this had meant that with respect to the Airprox, the Discus pilot had effectively not seen the PA28. The Board noted that the Discus pilot had not utilised either radio or transponder and wished to again urge Class G operators to utilise all available tools to reduce the risk of Airprox. Although the Discus pilot had been equipped with 2 forms of electronic conspicuity – utilising the most common forms carried both by gliders and powered GA – it was unfortunate that neither had registered the nearby PA28 (**CF3**) but Board members wished to thank the Discus pilot for recognising the limitations of a single device and again look to the Department for Transport to commit to a common standard for such equipment to improve interoperability.

Concluding their discussion, members agreed that neither pilot had had any situational awareness of the presence of the other aircraft and, with the PA28 pilot having gained only a late sighting of the Discus (**CF4**) and the Discus pilot having seen the PA28 only as having been operating within the local area, (which the Board agreed had been effectively a non-sighting (**CF5**)), members agreed that the separation between the PA28 and Discus had been such that the safety of the aircraft had not been assured and that there had been a risk of collision (**CF6**). The Board therefore assigned Risk Category B to this event.

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

### Contributory Factors:

	2024197			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
<b>• Situational Awareness and Action</b>				
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
<b>Flight Elements</b>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
2	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>				
3	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>				
4	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
5	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
<b>• Outcome Events</b>				
6	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:

**Ground Elements:**

**Situational Awareness of the Confliction and Action** were assessed as **not used** because the Oxford controller was not required to monitor the flight under a Basic Service.

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **ineffective** because neither pilot had any situational awareness of the proximity of the other aircraft.

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because although both aircraft had been equipped with compatible electronic conspicuity equipment, neither had been alerted to the presence of the other.

**See and Avoid** were assessed as **partially effective** because the pilot of the PA28 had achieved only a late sighting of the Discus and the Discus pilot had not seen the PA28 at the time of the Airprox.

Airprox Barrier Assessment: 2024197		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 5%]				
	Situational Awareness of the Confliction & Action	✗	○	[Red bar to 15%]				
	Electronic Warning System Operation and Compliance	●	●	[Grey bar to 5%]				
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 10%]				
	Tactical Planning and Execution	✓	✓	[Green 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	⚠	⚠	[Yellow bar to 20%]				
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	●	✗	●	○			
Application	✓	⚠	✗	●	○			
Effectiveness	[Green]	[Yellow]	[Red]	[Grey]	[Red Outline]			

<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](#).