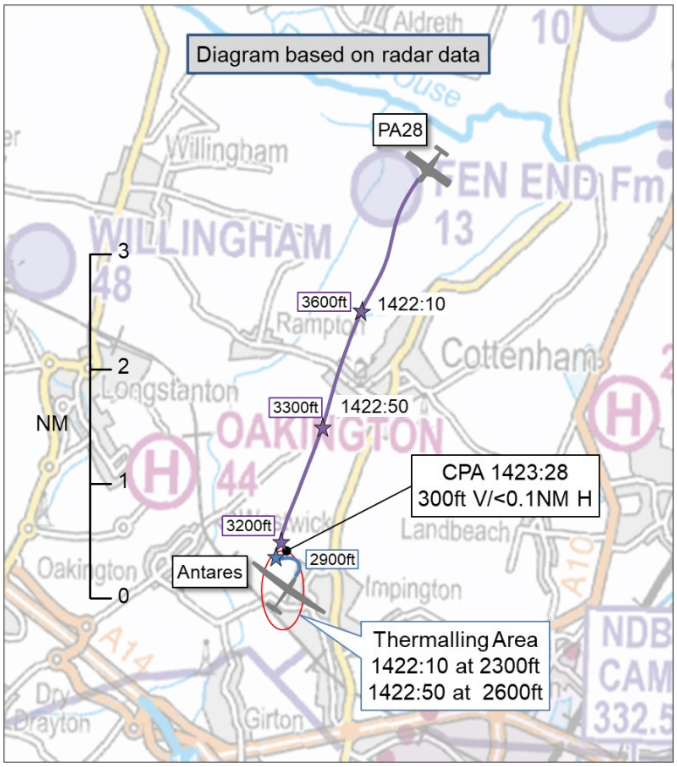
AIRPROX REPORT No 2024171

Date: 18 Jul 2024 Time: 1423Z Position: 5216N 00006E Location: Impington, Cambs.

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Antares	PA28
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Cambridge App.	Cambridge App.
Altitude/FL	2900ft	3200ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White
Lighting	None	Nav and beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3150ft	4000ft
Altimeter	QNH	QNH (1020hPa)
Heading	Circling left	180°
Speed	50kt	NK
ACAS/TAS	FLARM	PilotAware
Alert	None	None
Separation at CPA		
Reported	25ft V/100m H	NK V/NK H
Recorded	300ft V/<0.1NM H	



THE ANTARES PILOT reports that they were on a cross-country flight, receiving a Basic Service from Cambridge Approach and listening out for other traffic receiving a service from Cambridge. At 1419 they entered a left-hand thermalling turn starting at 1680ft (fairly low level) and climbed at around 50kts to 3155ft. They saw the other aircraft ahead (northwest of their position) higher and flying straight and level in a southerly direction, its flightpath was to the west of their circling but they tightened their turn to maximise separation at the closest point. The other aircraft did not appear to take any action, and it was unclear whether they had been seen. They believed the other aircraft was not receiving a service from Cambridge. Shortly after the Airprox they pressed the marker button (not sure how this registered in the IGC log file) and called Cambridge to say they had been passed by another aircraft at 3100ft but they did not use the keyword 'Airprox'. If they had not seen the other aircraft and taken any action, then the closest point would have been less than 50m, but they would not have collided.

The pilot further reported that their EC device was not capable of detecting Mode S or ADS-B outputs.

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

THE PA28 PILOT reports that they were passing by Histon and spotted a glider on their left side with a lower altitude. They seemed to be circling around their port side (anti-clockwise), possibly upwards in a thermal. They turned right to avoid them. At the moment they spotted the glider they also received the radio call from Cambridge Approach reporting the Traffic.

They noted that they had not expected to have an alert from [their EC device] on this occasion, as they understood that it shows some ADS-B and Mode-S equipped aircraft, but that older aircraft or gliders may not have such equipment, and they did not know there was an EC device for gliders which their EC could detect. So it was not a surprise to them that it did not show an alert.

In addition, they mentioned that the power socket in their PA28 was pretty loose, and that often the [EC device] came on and off intermittently if it was plugged into the aircraft instead of a mobile power bank. The [EC device] was mounted and connected at the beginning of the flight, but they could not recall the actual status of it at the time of the Airprox.

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

THE CAMBRIDGE CONTROLLER reports that both aircraft were under a Basic Service and operating in a region north and west of Cambridge with intense gliding activity. [The PA28 pilot] was given generic information warning of the presence of gliders operating [in the vicinity]. [The PA28] was on a navigational exercise and had initially called close to the Cambridge ATZ requesting transit, which required quick co-ordination with the Tower. Both aircraft had been identified, validated and verified. On observing the aircraft being proximate, greater than generic Traffic Information was passed both ways to assist the aircraft in avoiding each other.

The controller perceived the severity of the incident as 'Low'.

Factual Background

The weather at Cambridge was recorded as follows:

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METAR EGSC 181420Z 20009KT 9999 FEW040 27/15 Q1019
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Analysis and Investigation

Cambridge ATC

There had been intense gliding activity [to the west] causing a high workload for the ATCO. Generic Traffic Information was continually passed to other aircraft on frequency and [the PA28] was co-ordinated through the Cambridge ATZ.

On observing the aircraft being proximate, greater than generic Traffic Information was passed both ways to assist the aircraft in avoiding each other. This was above the provisions of a Basic Service, however, was provided under the basis of duty of care to assist the pilots when possible with seeing and avoiding other traffic.

Cambridge City Airport operates in class G airspace (uncontrolled). It is surrounded by other airfields and gliding sites which are in close proximity and therefore can be very busy at times. Gliders do not always show on the radar screen which makes it very difficult to pass Traffic Information to other aircraft. The ATCO acted above the requirements for providing a Basic Service and safety was not compromised. Neither pilot expressed any concerns. A full investigation is not required as nothing could be achieved by doing so. There are no recommendations arising from this investigation.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be seen throughout using Mode S data. The Antares had been circling anti-clockwise, climbing, and moving slightly northwards, reaching 2900ft on 1013hPa. The PA28 was in a descent tracking approximately southwards and indicating 3200ft on 1013hPa.

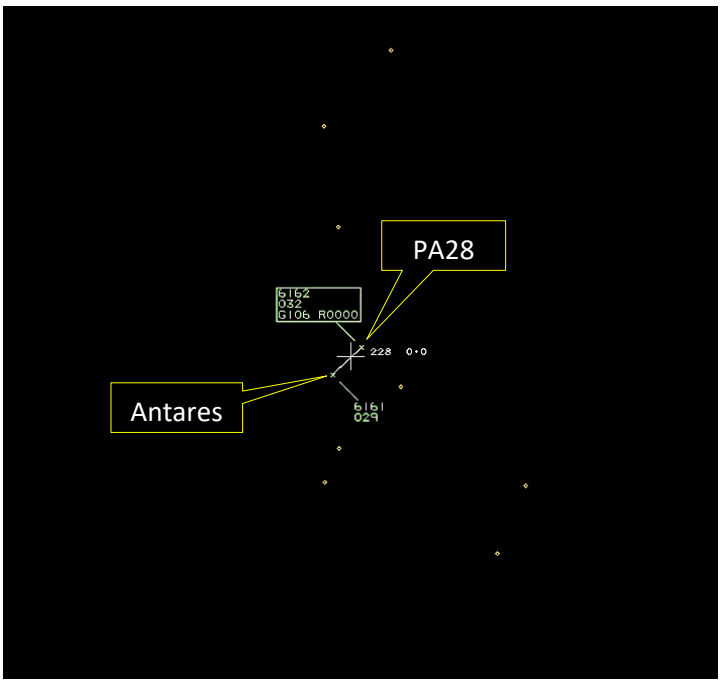

Figure 1- CPA 1423:28 0NM and 300ft indicated separation

The point of CPA was 1423:28 with a separation of 300ft vertically and less than 0.1NM horizontally.

On listening to the NATS R/T recordings, the timing of the Airprox coincided with specific Traffic Information being passed to both the PA28 and Antares pilots. Throughout the recording the Cambridge controller had been able to provide at least one other unrelated aircraft with a *'Traffic Service with reduced Traffic Information'*, after agreeing that it may be difficult to get the aircraft in on a Deconfliction Service due to the number of gliders in the vicinity, and was providing regular information regarding Gransden Lodge being active while also giving specific locations of other gliders affecting inbound traffic. At 1423:10 the controller passed information to the PA28 pilot regarding the glider position and altitude of 2900ft, which was acknowledged by the PA28 pilot. This was immediately followed with a call to the Antares pilot with information regarding the position of the PA28 at 0.5miles to the northwest and would pass down their right-side, to which the Antares pilot seemingly responded, *'three thousand one hundred',* however, this call is likely the end of a transmission from the Antares pilot, who reported informing Cambridge that they had been passed by another aircraft at 3100ft. Neither pilot was heard on the recording again until they each made a request to change frequency, the PA28 pilot at 1426:20 and the Antares pilot at 1430:30.

The Antares 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 head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the PA28 pilot was required to give way to the Antares.[3]

Comments

AOPA

As noted in the ATC investigation, this can be a very busy piece of airspace and the controller did well to spot the conflict and issue an alert. Until the Department for Transport mandates a common form of electronic conspicuity it cannot be relied upon as an effective barrier for mid-air collision avoidance. It is heartening to see glider pilots using the radio to announce their intentions, in this

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

case both pilots were also on the same frequency which could have given an earlier warning had all radio calls been assimilated.

BGA

In the moments before CPA the glider was completing one 360° turn every 25 seconds, during which time an aircraft approaching at typical PA28 cruising speeds would cover 0.75NM. The pilot of a thermalling glider must look for aircraft approaching from every direction; although continuous turning facilitates 360° lookout, it also leaves the pilot unsighted in any specific direction for about half the time.

The difficulties of sighting another aircraft approaching head-on with little relative motion are well-known. Many pilots now opt to permanently switch on forward-pointing high-intensity landing lights, even in full daylight, to aid visual conspicuity in this direction.

Summary

An Airprox was reported when an Antares and a PA28 flew into proximity at Impington, Cambridgeshire at 1423Z on Thursday 18th July 2024. Both pilots were operating under VFR in VMC, and both were in receipt of a Basic Service from Cambridge Approach.

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 considered the actions of the Antares pilot and members were encouraged that the pilot had been speaking with Cambridge Approach, although they agreed that the pilot may have been better served, especially during their thermalling activity, to have requested a Traffic Service (**CF1**). Members also discussed that the Antares pilot would most likely have gleaned situational awareness on the PA28 pilot's routeing from the exchanges taking place on the frequency between the controller and the PA28 pilot, and agreed that they had had generic awareness of the PA28's presence (**CF2**). The Board also concluded that the Antares pilot's situational awareness had not been improved by their electronic conspicuity equipment, which had been incompatible with that of the PA28 (**CF3**) and so had not provided any information regarding the presence of the PA28. Members agreed that the Antares pilot, having sighted the PA28 whilst they had been thermalling and been concerned by its proximity (**CF6**), could have taken more positive action to exit the thermal if they had been in any doubt, thus achieving greater separation than had been the case.

The Board then turned their attention to the actions of the PA28 pilot and noted that they had also had only generic situational awareness of the presence of gliders as passed by the Cambridge controller (**CF2**) and, although they had received further specific Traffic Information from the Cambridge controller, it had been relatively late and coincident with their sighting of the Antares glider (**CF5**). Considering the fitment of electronic conspicuity equipment to the PA28, members agreed that it should have detected the presence of the Antares but that no alert had been reported by the PA28 pilot (**CF4**), which led to further discussion regarding the use of dissimilar devices and how incompatibilities between these devices are a common factor in Airprox. The Board hoped that a mandate for carriage of equipments operating to the same protocol(s) would be forthcoming from the Department for Transport in the near future.

Briefly turning their attention to the actions of the Cambridge controller, the Board was heartened that they had been able to provide specific Traffic Information to both pilots, albeit the Antares pilot may have not heard the call and for the PA28 pilot it had occurred at the same time as their sighting of the Antares.

In conclusion, members noted that the Antares pilot had been concerned by the proximity of the PA28 to the extent that they had tightened their turn to increase separation and that the PA28 pilot had also reported making a right turn to avoid the Antares. The Board agreed that safety had been degraded, but that both pilots had taken timely and effective avoiding action to prevent the aircraft from coming into closer proximity and, as such, members were satisfied that there had not been a risk of collision and assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024171			
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
	• Situational Awareness of the Conflicting Aircraft and Action			
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
	• Electronic Warning System Operation and Compliance			
3	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
4	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			
5	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
6	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:

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because both the Antares pilot and the PA28 pilot could have requested a Traffic Service from the Cambridge controller.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Antares pilot had only generic situational awareness of the presence of the PA28 from the PA28 pilot's transmissions on the Cambridge Approach frequency, and the PA28 pilot had only generic situational awareness of the presence of gliders after receiving Traffic Information to that effect from ATC.

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the Antares pilot's electronic conspicuity equipment was not compatible with that of the PA28 and the PA28's electronic conspicuity equipment had not detected the presence of the Antares as expected.