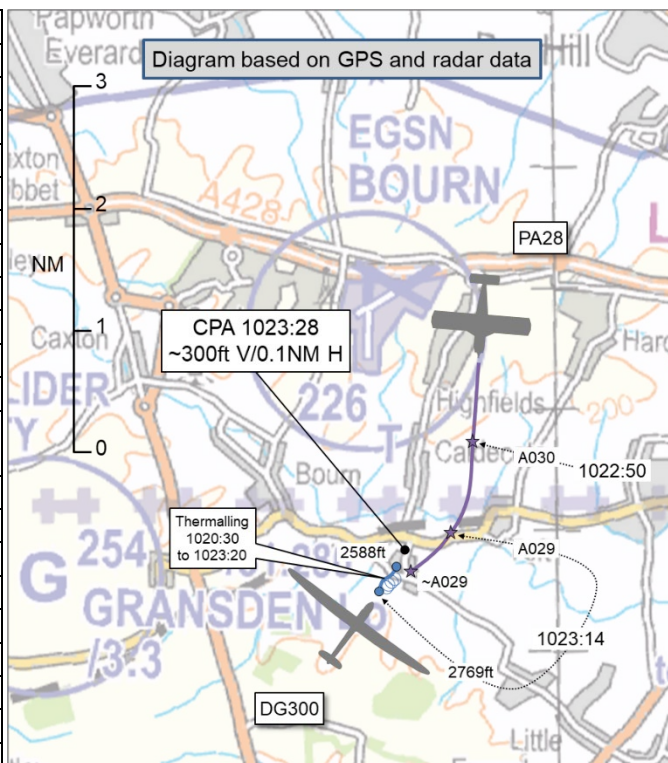


AIRPROX REPORT No 2024065

Date: 26 Apr 2024 Time: 1023Z Position: 5211N 00002W Location: 3NM E Gransden Lodge

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DG300	PA28
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Listening Out	Procedural
Provider	Gransden Traffic	Cambridge Appr
Altitude/FL	2588ft	~2900ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White	Yellow
Lighting	None	Landing, taxi, anti-col, HISL
Conditions	VMC	IMC
Visibility	5-10km	NR
Altitude/FL	2600ft	3200ft
Altimeter	QFE	QNH
Heading	"Thermalling"	200°
Speed	65kt	100kt
ACAS/TAS	FLARM	SkyEcho
Alert	None	None
Separation at CPA		
Reported	300ft V/100m H	"not seen"
Recorded	~300ft V/0.1NM H	



THE DG300 PILOT reports that, at 1023:20, they were about to reach cloudbase, climbing through ~2600ft QFE, turning right in a thermal above the village of Kingston. They sighted a powered aircraft, [the PA28], approaching approximately head-on. At that instant in the turn their heading was roughly 045°. The [PA28] was on a relative bearing of 355° from them and they estimate that [the DG300] had been at a relative heading of 020° from the [pilot of the PA28].

They exited the turn and initiated a negative-G dive simultaneously. This left horizontal separation unchanged and increased vertical separation to a few hundred feet by the time CPA was reached 5-10sec later. At CPA, the aircraft passed ~300ft above and ~100m to their right on a reciprocal heading. They were able to make out a blue colour scheme and read the underwing registration, [PA28 callsign]. They saw no evidence of having been sighted. They judge [that there had been] a high risk of collision if they had they not sighted [the PA28] but had continued the thermalling turn.

They were nearly at cloudbase and they don't believe [the pilot of the PA28] could have been any more than 100ft above them otherwise they would have been inside the cloud. Their GPS trace shows that they had climbed ~70ft in the preceding 10sec. By 1123:30, they would have been on the opposite side of the turn, ~150m further towards [the PA28] horizontally and up to 100ft higher, potentially converging both horizontally and vertically towards zero separation. After the event, they continued with the planned flight. A cockpit camera was also active which recorded the initial visual contact with [the PA28].

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

THE PA28 INSTRUCTOR, in response to specific questions from the UKAB Secretariat, reports that they were in and out of cloud. They had an EC device linked to ForeFlight, and did not get any warnings en-route. They are always aware of gliders and they believe that Cambridge ATC had advised them of gliders in the area. They did not receive any Traffic Information from Cambridge.

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

THE CAMBRIDGE CONTROLLER reports that they were working in APP under instruction from an OJTI. Traffic levels were light and not complex. Gransden Lodge gliding site was notified as active which they passed to relevant traffic throughout the session. They were not notified of, nor had any information to make them believe that an Airprox had taken place until being informed by the duty Watch Supervisor on 10th May 2024.

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

THE CAMBRIDGE OJT INSTRUCTOR reports that they were working as the APP OJTI with a student conducting a Level 2 assessment. Gransden Lodge activity was notified by the trainee throughout the session and there was no reason to assume an Airprox had taken place.

Factual Background

The weather at Cambridge was recorded as follows:

METAR EGSC 261020Z 02004KT 350V090 9999 BKN030 09/04 Q1004

Analysis and Investigation

CAA ATSI

A Procedural Service is not a surveillance-based service and, according to CAP774:

"In addition to the provisions of a Basic Service, the controller provides restrictions, instructions, and approach clearances, which if complied with, shall achieve deconfliction minima against other aircraft participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic".

There is no requirement to continuously monitor an aircraft should the display be available to the controller. Traffic Information can only be passed on traffic known to the controller. The DG300 was unknown traffic, even if the Cambridge controller had believed the primary-only target on the display may have been the DG300. The controller had passed generic information on the activity at Gransden Lodge and it was the PA28 pilot's responsibility to deconflict from other traffic.

Cambridge Unit Investigation

Summary

An Airprox occurred approximately 12NM NW of Cambridge between a DG300 aircraft and a PA28. [The pilot of the PA28] was receiving a Basic Service from Cambridge Approach at the time of the Airprox [they believe]. No report was made on the Cambridge Approach frequency or via telephone after the event.

Incident Details

Cambridge ATC was open and operating in split positions, with Cambridge Approach providing services on 120.965MHz. Cambridge Radar had closed at 1000 as the Radar ATCO had completed two hours and was on a rest period, allowing training to take place in APP. An experienced OJTI was conducting a Level 2 assessment on the trainee at the time of the incident. Traffic levels were light with no more than three aircraft on frequency in the lead-up to the incident and [the pilot of the PA28] being the only pilot on frequency at the time of the incident.

Timeline

1003:24

[The pilot of the PA28] reported on frequency. They were given a Procedural Service in line with their pre-booked instrument training and were placed on a 6177 IFR conspicuity squawk. The pilot notified the APP ATCO that they wished to navigate to waypoint SIVDA prior to returning to

Cambridge for their approaches. The ATCO asked the pilot to confirm if they wished a Procedural Service for this part of their flight, which they confirmed they did not but would require a Basic Service and an upgrade to a Procedural Service once ready for their approaches. The service was downgraded to a Basic Service and a change of squawk to 6176. Generic Traffic Information was passed on a DA42 and notified gliding activity at Gransden Lodge gliding site.

1020:43

[The pilot of the PA28] was approximately 8NM NW of Cambridge and reported general handling complete, ready for their instrument approach. They were upgraded to a Procedural Service, given a change of squawk to 6177 and given a direct track to BEPOX. The pilot was reminded that Gransden Lodge was notified as active with ten gliders and was asked to "keep a lookout".



Figure 1 – The position of the PA28 at 1020:43



Figure 2 – The position of the PA28 at 1021:05

1022:38

[The pilot of the PA28] was cleared for the RNP approach for RW05. The pilot reported routing to the east of Gransden Lodge gliding site en-route to BEPOX, the IAF.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the PA28 could be positively identified from Mode S data. The DG300 could not be positively identified. However, a primary-only contact was briefly observed on radar at a position that, by reference to GPS track data kindly supplied by the DG300 pilot, was assessed to have been the DG300 (Figure 3).

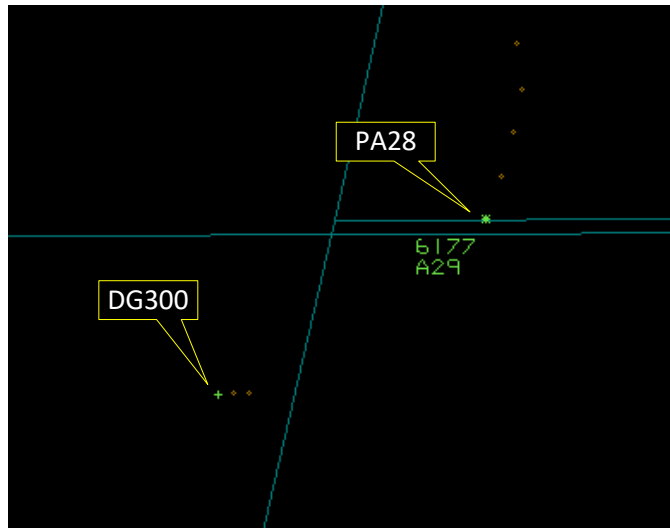


Figure 3 - 1023:10. A primary-only contact (assessed to have been the DG300) appeared for a few seconds.

The diagram was constructed and the separation at CPA determined by combining the data sources. The moment of CPA was assessed to have occurred between the radar sweeps at 1023:26 and 1023:30 (See Figures 4 and 5). The altitude of the PA28 was observed to have changed between those sweeps and, consequently, the altitude of the PA28 has been shown as an approximation in the diagram.

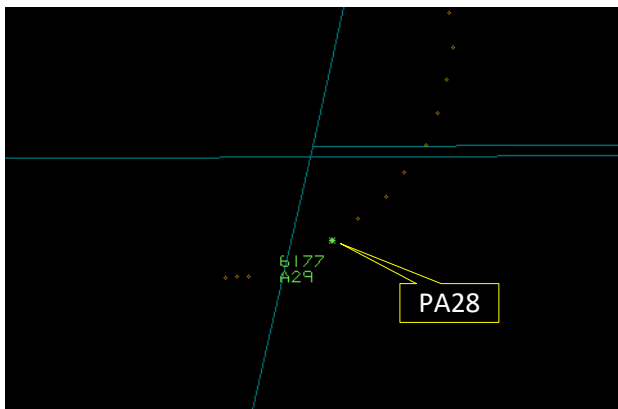


Figure 4 – 1023:26

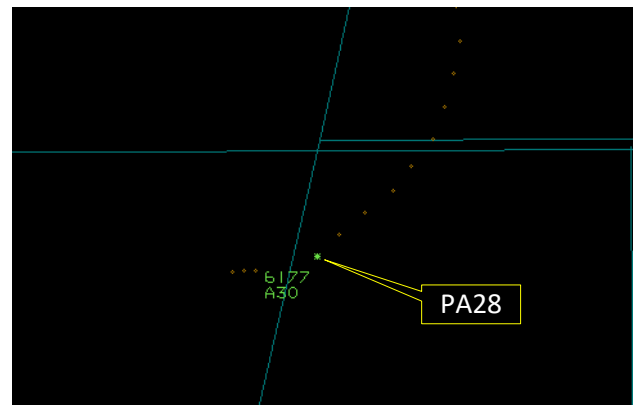


Figure 5 – 1023:30

The DG300 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

Comments

AOPA

¹ (UK) SERA.3205 Proximity.

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

It is interesting to note that both aircraft had electronic conspicuity systems which didn't alert. When gliding at or near cloudbase, it is advisable (if in possession of a FRTOL) to contact an ATC unit for the benefit of everyone's situational awareness. The PA28 was under IFR, in and out of IMC. Due to the lack of radar coverage from Cambridge at the time, the pilot of the PA28 had utilised the best option available, a Procedural Service.

BGA

The pilot of the DG300 is to be commended for their effective lookout and prompt avoiding action.

The PA28 pilot is to be commended for configuring their carry-on TAS device to receive transmissions from the EC equipment carried by almost all UK gliders (including the Airprox DG300), and warn of nearby glider traffic via a compatible EFB application. However, the PA28 pilot does not report receiving any such alert. It would be useful to understand why this barrier did not function.

This incident once again highlights the difficulty of seeing an aircraft approaching head-on, especially if in and out of cloud, as the PA28 would have appeared to the DG300 pilot. In the minutes before CPA the DG300 was completing one 360° thermalling turn every 26sec, during which time an aircraft approaching at 100kt would cover 0.7NM. The pilot of a thermalling glider must look for aircraft approaching from every direction; although continuously turning facilitates 360° lookout, it also leaves the pilot unsighted in any specific direction for about half the time.

Summary

An Airprox was reported when a DG300 and a PA28 flew into proximity 3NM east of Gransden Lodge at 1023Z on Friday 26th April 2024. The DG300 pilot had been operating under VFR in VMC, not in receipt of an ATS. The PA28 pilot had been operating under IFR in IMC, in receipt of a Procedural Service from Cambridge Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data, reports from the air traffic controllers 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 pilot of the DG300. Members noted that there had not been a common frequency in use between the pilots and it was agreed that the EC equipment fitted to the DG300 would not have been expected to have detected the presence of the PA28 (**CF3**). Members noted that the pilot of the DG300 had not been in possession of a FRTOL and, consequently, could not have requested any level of ATS. It was therefore agreed that the pilot of the DG300 had not had situational awareness of the presence of the PA28 until it had been visually acquired (**CF2**). It was acknowledged by members that to have sighted the PA28 in close proximity had caused concern (**CF6**) but members agreed that they had reacted quickly and had taken avoiding action to have generated appreciable vertical separation.

Turning their attention to the actions of the pilot of the PA28, members noted that they had been advised by the Cambridge controller that Gransden Lodge had been active. It was also noted that the Cambridge controller had subsequently reminded the pilot of the PA28 that Gransden Lodge had been notified as active with ten gliders and had asked them to "keep a lookout". Members agreed that the EC equipment fitted to the PA28 would have been expected to have detected the presence of the DG300 but no alert had been reported (**CF4**). Consequently, members agreed that the pilot of the PA28 had held generic situational awareness of the presence of gliders (**CF2**) but had not been aware of, nor had visually acquired, the DG300 at any point during the encounter (**CF5**). Some members suggested that it would have been extremely difficult to have visually acquired a glider at or around cloudbase by the pilot of an aircraft in IMC.

Members next considered the actions of the Cambridge controller and agreed that, under the terms of a Procedural Service, they would not have been able to have passed Traffic Information or deconfliction advice to the pilot of the PA28 on 'unknown traffic'. Members agreed that, although the DG300 had not been known to the Cambridge controller, they had had generic situational awareness of gliding activity at Gransden Lodge (CF1) and had twice passed a caution to the pilot of the PA28. Members appreciated that the inclusion in their caution of an estimate of the number of gliders present (10) had indicated that there had been significant glider traffic in the vicinity. Members agreed that there had been little else that the Cambridge controller could have done to have assisted matters further.

Concluding their discussion, members agreed that, although the pilot of the PA28 had had generic awareness of gliding activity nearby, they had not visually acquired the DG300. However, it was also agreed that the pilot of the DG300 had sighted the PA28 in time to have taken effective avoiding action and had increased separation between the aircraft. The Board agreed that, although safety margins had been reduced, any risk of collision had been averted. The Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2024065				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
Flight Elements				
• 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	• 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
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 Assessment³

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

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Cambridge controller had not had specific situational awareness of the DG300.

Flight Elements:

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the DG300 would not have been expected to have detected the presence of the PA28. The EC equipment fitted to the PA28 would have been expected to have detected the presence of the DG300 but no alert was reported.

Airprox Barrier Assessment: 2024065		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & 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	✓	✓					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness	■	■	■	■	□			