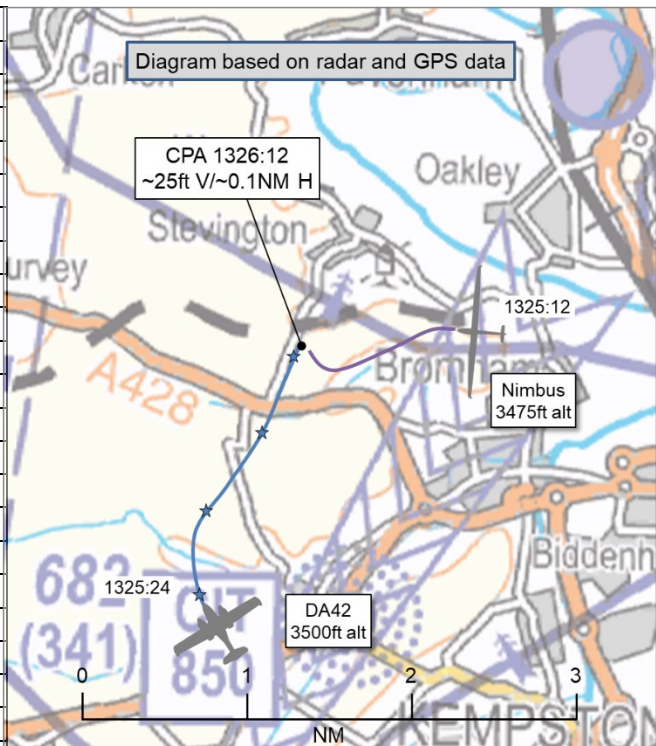


AIRPROX REPORT No 2023157

Date: 20 Jul 2023 Time: 1326Z Position: 5209N 00034W Location: 5NM NNE Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	Nimbus
Operator	Civ FW	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	Listening Out
Provider	Cranfield	Shenington
Altitude/FL	3500ft	~3475ft
Transponder	A, C, S+	Off
Reported		
Colours	White	White
Lighting	Strobes	Nil
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3500ft	NK
Altimeter	QNH (1016hPa)	QFE
Heading	Various	NK
Speed	120kt	70kt
ACAS/TAS	FLARM	FLARM
Alert	TA	None
Separation at CPA		
Reported	1ft V/500m H	NK V/NK H
Recorded	~25ft V/~0.1NM H	



THE DA42 PILOT reports that they had been one of two aircraft in the hold at Cranfield waiting for the approach; they had been at 3500ft, the other at 2500ft. [TAS] alerted the pilot to traffic at the CIT both times as they had passed over the beacon. Nothing was seen on the first alert but the reported aircraft was below and between the two holding aircraft. On their second lap they had been able to see the second alert and it was close but moving south, away and below them; again it was between the two aircraft in the hold. The DA42 pilot informed ATC that gliders were in the hold area but elected not to report it as an Airprox. On their third lap outbound from the beacon they had a 3rd alert and had been able to see a glider flying straight at them at about the 3 o'clock position. Thankfully, the glider had a strobe which enabled them to see it and it took avoiding action to pass behind the DA42 [they believed]. As the other aircraft had obviously seen them and had been avoiding [they believed], they elected to maintain heading and altitude rather than attempt avoiding action themselves and risk worsening the situation. The DA42 pilot reported the Airprox to ATC on the radio at this point.

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

THE NIMBUS PILOT reports that they had been flying in a basically westerly direction, but sometimes circling to climb. There had been a considerable amount of glider traffic and some powered. The pilot recalls that they had several [TAS] warnings, but none that were close to an Airprox. They did not see any aircraft that had been dangerously close.

THE CRANFIELD CONTROLLER reports that [the DA42] had been in the CIT hold at A035 and reported a glider at the same altitude in close proximity. The pilot said they would be filing an Airprox on RTB.

Factual Background

The weather at Cranfield was recorded as follows:

METAR EGTC 201320Z 32007KT 270V340 9999 FEW049 19/09 Q1015=

Analysis and Investigation

Cranfield Investigation

The Cranfield SATCO listened to RT recordings, checked FPS and VDF display replay, and consulted an ADS-B system under test. RT recordings and FPS indicated that there had been a glider on frequency at the time of the Airprox but that it had been to the south-east (DF indication) and routeing south of Cranfield westbound. There had been nothing else on frequency which matched the description or routeing of a glider in the holding area. Replays of the ADS-B system displayed no other aircraft in the holding area. The Cranfield DATIS had been broadcasting gliding activity in the local area. The APP controller had no knowledge of the subject traffic.

UKAB Secretariat

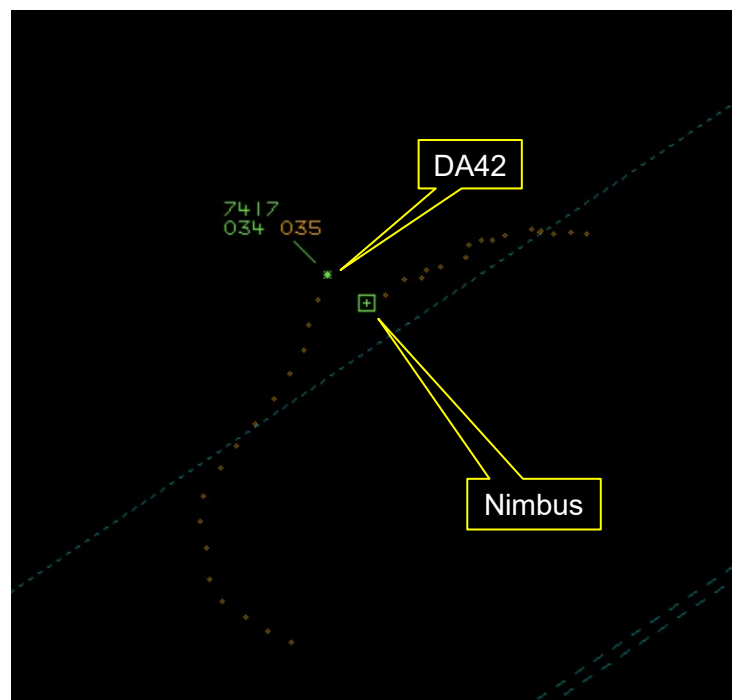


Figure 1 – radar CPA – ~25ft V/~0.1NM H

As the Nimbus had appeared on radar as a primary-only contact and had not been in receipt of a service from Cranfield, a non-surveillance unit, Traffic Information could not have been passed.

The DA42 and Nimbus 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

It is heartening to see electronic conspicuity worked in this Airprox, however, if communication had occurred with Cranfield, the event may have been avoidable as everyone would have had knowledge of each other.

¹ UK Reg (EU) SERA.3205 Proximity.

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

BGA

Where the necessary Flight Radio Telephony Operator's Licence (FRTOL) is held and cockpit workload permits, glider pilots are encouraged to contact the relevant ATSU when flying near an Instrument Approach Procedure (IAP) in Class G airspace, to make controllers aware of their presence.

It's encouraging that the compatible EC equipment fitted to both aircraft provided an actionable proximity warning to the DA42 pilot. As an additional safety barrier, ATSUs in airspace with high levels of glider traffic may wish to install Flight Information Displays that provide instantaneous SA on aircraft carrying this EC system (which is fitted to almost all gliders).

Summary

An Airprox was reported when a DA42 and a Nimbus glider flew into proximity at 5NM north-northeast of Cranfield at 1326Z on Thursday 20th July 2023. The DA42 pilot was operating under IFR in VMC and the Nimbus pilot was operating under VFR in VMC. The DA42 pilot was in receipt of a Procedural Service from Cranfield and the Nimbus pilot was listening out on the Sherington frequency and not in receipt of an Air Traffic Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS log files and a report from the air traffic controller 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.

The Board first discussed the actions of the DA42 pilot, noting that they had been supported by the most appropriate air traffic service and active TAS equipment whilst executing their flying exercise and that the onboard equipment and DATIS messaging had enabled generic situational awareness of the presence of gliders in the area (**CF3**). Members questioned whether, on receipt of successive TAS alerts (**CF4**) and having notified air traffic control that there had been gliders operating in the area, they might have stepped away from the hold and reset for their approach, but accepted that this might have introduced further risk into their operation.

In considering the role of the Nimbus pilot, Board members acknowledged the nature of flight that the aircraft had been involved in, and the limitations of onboard batteries to support electronic devices for the duration of such an exercise, accepting that continual use of equipment such as transponders, radios and electronic conspicuity units can create a heavy drain on power sources. However, they opined that the Nimbus pilot could have switched the radio frequency they had been monitoring to a more appropriate channel in this area, perhaps even transmitting their position and intention (**CF2**), and better time-shared the transponder use for areas of greater traffic density to offer themselves some situational awareness (**CF3**).

Turning to the contribution by Cranfield air traffic control services, members accepted that as a non-surveillance unit they had been limited in their Situational Awareness, relying on voice communication and information sharing through DATIS and ADS-B equipment (operating under trial and test limitations). As the Nimbus pilot had been operating with their transponder selected to 'Off' and monitoring another radio frequency, the Board agreed that the controller had not had any Situational Awareness of the Nimbus (**CF1**) and there had been little more they could have done to alert the DA42 pilot to the glider's presence. The Board noted that the AIP entry for Cranfield is clear in its warning to all of intense activity by all aircraft types in this area and of supporting advice for those on approach to or in transit through the Cranfield area.

When assessing the risk, members considered the reports from both pilots, the controller involved, radar replays and GPS track files where available. They noted that the separation between the 2 aircraft had been greatly reduced and that, although the DA42 pilot reported that they had visually acquired the

Nimbus at a late stage (**CF5**) and believed that the Nimbus pilot had performed an avoidance manoeuvre, the Nimbus pilot had reported that they had seen no conflicting traffic (**CF6**); members therefore accepted that safety had been much reduced and a risk of collision had been present (**CF7**). Accordingly, members assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023157			
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				
• Tactical Planning and Execution				
2	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				
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	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• 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	• 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: B.

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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Cranfield controller had no Situational Awareness of the presence of the Nimbus.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Nimbus pilot had not switched on their transponder and not shared information via radio on their transit through the Cranfield instrument pattern.

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

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the DA42 pilot had been under a Procedural Service and had gained only generic Situational Awareness on the presence of the Nimbus through their onboard TAS equipment.

See and Avoid were assessed as **partially effective** because the DA42 pilot had achieved a late sighting of the Nimbus.

Airprox Barrier Assessment: 2023157		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 Conflicting & 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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness								