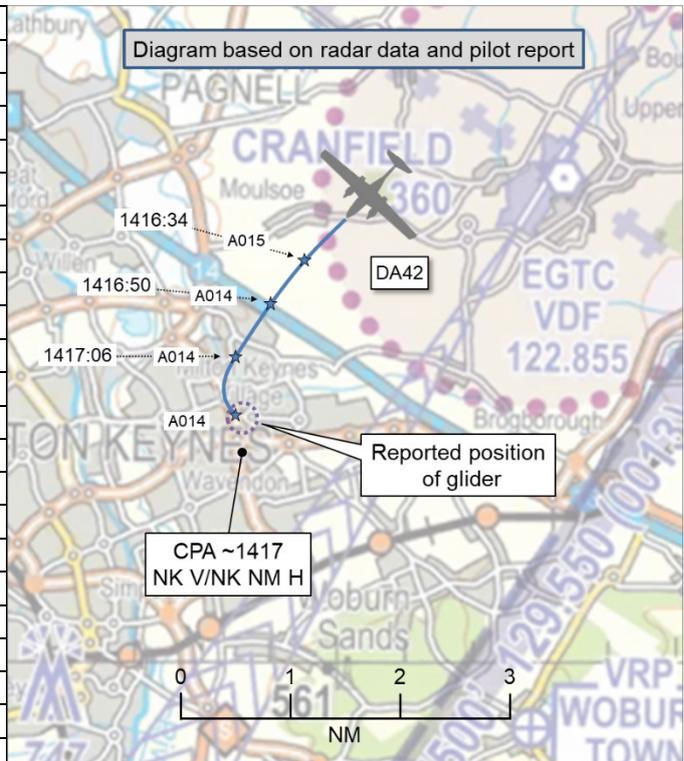


AIRPROX REPORT No 2022233

Date: 11 Aug 2022 Time: 1417Z Position: 5202N 00042W Location: 3.5NM SW Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	Unknown
Operator	Civ FW	Civ Gld
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	NK
Service	ACS	NK
Provider	Cranfield	NK
Altitude/FL	1400ft	NK
Transponder	A, C, S	NK
Reported		
Colours	White, red	NK
Lighting	Strobes, nav	NK
Conditions	VMC	NK
Visibility	>10km	NK
Altitude/FL	1500ft	NK
Altimeter	QNH (NK hPa)	NK
Heading	110°	NK
Speed	120kt	NK
ACAS/TAS	TAS	Unknown
Alert	None	Unknown
Separation at CPA		
Reported	300ft V/0.2NM H	NR V/NR H
Recorded	NK V/NK H	



THE DA42 PILOT reports that they [came into close proximity with] a glider whilst turning left-base for RW03 at Cranfield. Their altitude had been 1500ft and the glider passed approximately 300ft above them. They explained that no avoiding action had been taken as the traffic had been seen too late.

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

THE GLIDER PILOT could not be traced.

THE CRANFIELD CONTROLLER reports that they had no recollection of an Airprox.

Factual Background

The weather at Cranfield was recorded as follows:

METAR EGTC 111420Z VRB05KT CAVOK 30/12 Q1021

Analysis and Investigation

Cranfield Unit

As part of the investigation, the R/T recordings, the Flight Progress Strips (FPS) and the ADS-B recordings were checked and SATCO interviewed the ATCO. The ATCO had no recollection of an Airprox.

The timeline of the event was:

1405: [The pilot of glider(A), and not the subject of this Airprox] reported at 3500ft overhead Milton Keynes to route overhead Cranfield. A Basic Service was requested and given, along with an instruction to report overhead or descending below 3000ft.

1407: [The pilot of glider(B), and not the subject of this Airprox] reported [their] routing. A Basic Service was issued along with an instruction to report passing overhead or descending below 4000ft.

1408: [The pilot of the DA42] reported routing towards Olney for re-join at 2500ft.

1413: [The pilot of the DA42] reported at Olney, 2500ft for re-join.

[The pilot of the DA42] was given joining instructions by the Tower and proceeded to join the circuit normally and land at 1418 with no report of any conflicts. The FPS concurred with the events outlined above. An ADS-B replay indicated that [the pilot of the DA42] had extended the downwind leg slightly outside the ATZ, most likely because they had been no.2 to traffic on the opposite downwind leg. The ADS-B replay indicated no other traffic in the vicinity although it should be noted that it only displays ADS-B with which many aircraft are not equipped.

The gliders that had been in receipt of a service from Cranfield during the previous 15min were at levels and routings that should not have conflicted with [the DA42] in the circuit pattern for Cranfield. The incident [occurred in] Class G airspace, likely with traffic not on Cranfield frequencies.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The DA42 could be positively identified from Mode S data. No aircraft were observed on radar in proximity to the DA42 at the time of the reported CPA (see Figure 1). The diagram was constructed from the radar data and the reported position of the glider.

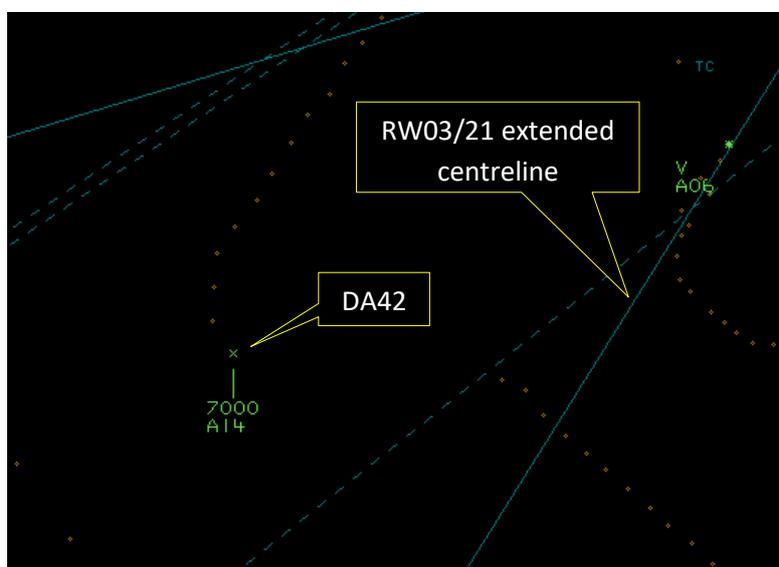


Figure 1 – The DA42 pilot had turned onto base-leg at approximately 1417

The DA42 pilot and the untraced pilot of the glider shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.¹ An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.²

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Comments

AOPA

Having encountered an Airprox, it is important to report it on the frequency in use in accordance with CAP413. Likewise, if operating near to any aerodrome, especially if soaring near instrument approaches, it is extremely important to communicate with a service provider to improve everyone's situational awareness for MAC avoidance.

BGA

Where the necessary Flight Radio Telephony Operator's Licence (FRTOL) is held and cockpit workload permits, glider pilots are strongly advised to contact the relevant ATSU when flying near busy aerodromes such as Cranfield, to make controllers aware of their presence.

Summary

An Airprox was reported when a DA42 and an unknown glider flew into proximity 3.5NM southwest of Cranfield at approximately 1417Z on Thursday 11th August 2022. The DA42 pilot had been operating under VFR in VMC and in receipt of an Aerodrome Control Service from Cranfield. The glider pilot could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of a report from the DA42 pilot, radar photographs/video recordings, 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.

The Board first considered the actions of the glider pilot and were disappointed that, despite best efforts, the pilot could not be traced. A member with particular knowledge of gliding operations commented that, given the location and altitude of the glider, it may be reasonably deduced that the glider pilot had been labouring to find sufficient lift to maintain their flight. Members agreed that the pilot of the glider had descended to a point that had brought them into conflict with the visual circuit for RW03 that had been formed by the pilot of the DA42 and, therefore, that the pilot of the glider had not conformed to the established pattern of traffic (**CF3**).

Members wished to emphasise that pilots are strongly recommended to contact the relevant ATSU before passing within 10NM of an aerodrome which has an Instrument Approach Procedure and marked on navigational charts with instrument approach 'feathers'. Members were in broad consensus that it would have been prudent for the pilot of the glider to have called the Cranfield controller with details of their intentions for the benefit of the controller's situational awareness and that of other pilots in the vicinity. It was noted that there had been other glider pilots that had contacted the Cranfield controller for an ATS on the day in question. However, it was explained that, anecdotally, less than half of UK glider pilots hold a FRTOL. In the absence of a report from the pilot of the glider involved, it could not be determined if the glider had been equipped with a radio or transponder with which to make a call on the Cranfield frequency, or if the pilot had been in possession of a FRTOL. Notwithstanding, the Cranfield controller had not had awareness of this particular glider (**CF2**) and, therefore, had not been able to detect the conflict with the DA42 (**CF1**).

The Board's discussion turned to the equipment available to the Cranfield controller to detect aircraft in the vicinity. A member who had recently flown in the area of Cranfield in a glider equipped with a radio and transponder recounted that the Cranfield controller had not been able to detect the presence of their glider. Members were aware that Cranfield had seen increased traffic levels in recent years and it was suggested that, given that there is no surveillance radar at the airport, the use of equipment such as a Flight Information Display (FID) for example, may have provided the AFISOs and ATCOs with enhanced situational awareness. A member with particular knowledge of the use of such equipment and the requirement for formal authorisation to do so, commented that any ATS unit may employ the

use of a FID in order to test the equipment in an operational environment for tasks that are not safety-related, and that authorisation may be sought subsequently.

Members of the Board recalled previous Airprox occurrences in the vicinity of Cranfield where, through their deliberations, it had been determined that the use of additional equipment by the Cranfield controller may have provided additional situational awareness. Whilst members felt that it was not for the Board to dictate solutions, they agreed that the benefit to controllers and airspace users required further understanding. The Board resolved to make a recommendation in two parts that; '*The Cranfield aerodrome operator considers a means by which controller SA of traffic utilising airspace surrounding the Cranfield ATZ can be improved*' and that; '*Cranfield-based training organisations review their risk assessments with respect to their local operations without a surveillance-based ATS*'.

Turning their attention to the actions of the pilot of the DA42, members noted that the downwind leg of the visual circuit had been extended approximately 1.5NM outside the ATZ. Whilst there had been a number of glider pilots operating in the area of Cranfield, some of whom had been in receipt of a service from the Cranfield controller, members agreed that the pilot of the DA42 had had no situational awareness of the glider with which they had come into conflict (**CF4**). Emphasising the imperative for maintaining a thorough and effective lookout, members noted that the EC equipment fitted to the DA42 had not detected the presence of the glider (**CF5**). Members concluded that the pilot of the DA42 had sighted the glider late (**CF6**), given that it had not been visually acquired by the DA42 pilot in time to have taken avoiding action.

When determining the risk, members were in agreement that safety had been degraded but there had not been a risk of collision. As such, the board assigned Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022233			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
2	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				
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
• Situational Awareness of the Conflicting Aircraft and Action				
4	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				
5	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
• See and Avoid				
6	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

Degree of Risk:

C.

Recommendation:

1. The Cranfield aerodrome operator considers a means by which controller SA of traffic utilising airspace surrounding the Cranfield ATZ can be improved.
2. Cranfield-based training organisations review their risk assessments with respect to their local operations without a surveillance-based ATS.

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 not had Situational Awareness of the glider that had come into conflict with the DA42.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the pilot of the glider had not avoided the pattern of traffic that had been formed by the DA42 in the visual circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the DA42 had not had Situational Awareness of the presence of the glider with which they had come into conflict.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the TAS fitted to the DA42 would not have been expected to have detected the presence of the glider.

See and Avoid were assessed as **partially effective** because the pilot of the DA42 had sighted the glider late.

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

Airprox Barrier Assessment: 2022233 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 Conflicition & 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								