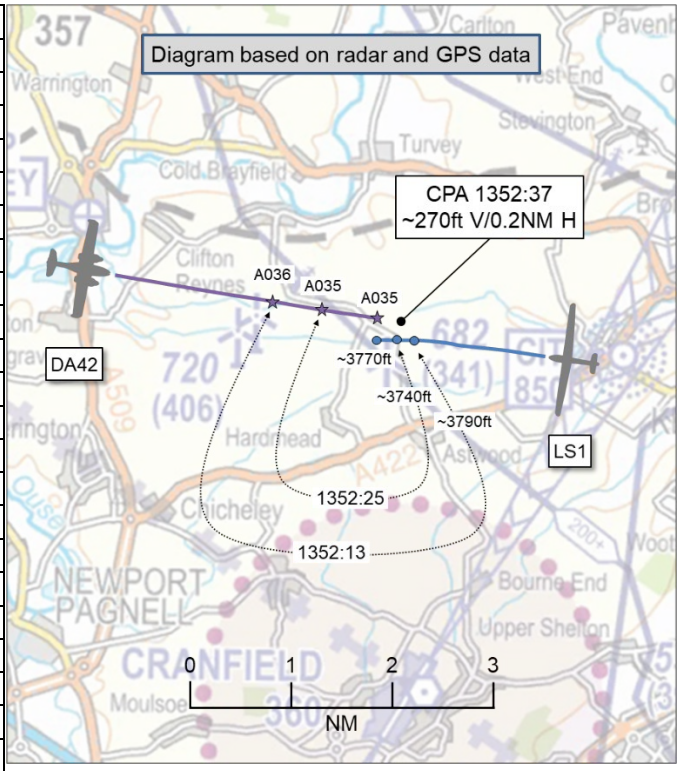
AIRPROX REPORT No 2023187

Date: 20 Aug 2023 Time: 1353Z Position: 5208N 00037W Location: 4NM N Cranfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	LS1	DA42
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	None	Procedural
Provider	N/A	Cranfield Appr
Altitude/FL	~3770ft	3500ft
Transponder	Not fitted	A, C, S
Reported		
Colours	White, red	White
Lighting	None	Nav, position
Conditions	VMC	VMC
Visibility	5-10km	>10km
Altitude/FL	3600ft	3500ft
Altimeter	QNH	NK
Heading	"*WSW*"	100°
Speed	70kt	140kt
ACAS/TAS	FLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	0ft V/500m H	200ft V/1NM H
Recorded	~270ft V/0.2NM H	



THE LS1 PILOT reports that another aircraft was seen at the same altitude, around cloudbase, heading in the opposite direction whilst they were gliding down a cloud-street. Although surprised, they did not judge it to have been an immediate risk. They were aware that there were several gliders behind them. They transmitted a warning on the gliding frequency to alert other pilots.

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

THE DA42 PILOT reports that, during an IFR training flight with 2 students, they were about to enter the hold at the CIT at 3500ft when they got very close to one of the gliders around 3NM from CIT. After spotting the aircraft, they immediately turned right and descended to about 3000ft.

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

THE CRANFIELD CONTROLLER reports that they had no recollection of this event.

Factual Background

The weather at Cranfield was recorded as follows:

```
METAR EGTC 201350Z 23011KT 9999 FEW048 23/13 Q1021
```

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the DA42 could be positively identified from Mode S data. A primary-only return was observed on radar in the vicinity of the DA42 but the

aircraft could not be identified (Figure 1). The UKAB Secretariat obtained EC device data from which the track of the LS1 could be determined. It was by combining the various data sources that the diagram was constructed and the separation at CPA determined.

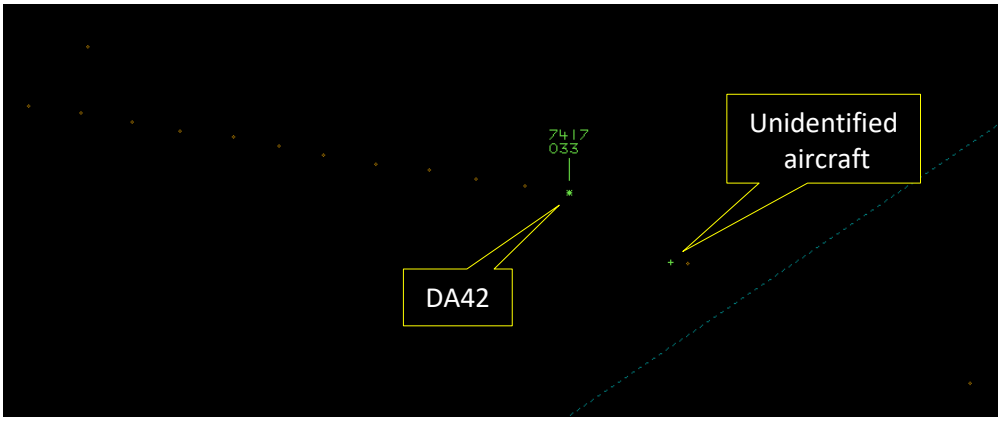


Figure 1 – CPA at 1352:37

The LS1 and DA42 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]

Comments

AOPA

Until there is a serviceable radar or LARS unit for this area, and compatibility of in-cockpit electronic conspicuity, an effective lookout is the primary mid-air collision avoidance tool. It is noted that the BGA is proactive in encouraging its members to obtain a FRTOL, enabling glider pilots to communicate with Air Traffic Control units, which will assist with improving everyone's situational awareness.

BGA

The Class G airspace between Cranfield aerodrome and Grafham Water (17NM NE) is a busy area for both glider traffic and Cranfield instrument training flights. Where the necessary Flight Radio Telephony Operator's Licence (FRTOL) is held, and cockpit workload permits, glider pilots are strongly encouraged to take a service from Cranfield Approach when flying in this area, to make controllers aware of their presence.

ATSUs near this and other busy gliding areas may wish to install a Flight Information Display to provide instantaneous SA on aircraft carrying the EC system fitted to almost all gliders (including this LS1).

Summary

An Airprox was reported when an LS1 and a DA42 flew into proximity 4NM north of Cranfield at 1353Z on Sunday 20th August 2023. The pilot of the LS1 had been operating under VFR in VMC, not in receipt of an ATS. The pilot of the DA42 had been operating under IFR in VMC, in receipt of a Procedural Service from Cranfield Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the air traffic controller involved. Relevant contributory factors mentioned during the Board's

[1] (UK) SERA.3205 Proximity.

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 LS1. Members pondered the altitude at which their flight had been conducted. A member with particular knowledge of gliding operations explained that the altitude data transmitted by the EC device (as fitted to the LS1) is derived from an internal elevation model in accordance with the GPS location of the device. Explaining further, the member suggested that this altitude data may be subject to a tolerance in the order of +/- 200ft. This, the member continued, is in contrast to altitude data taken directly from a 'logger' which can be relied upon as being significantly more accurate, but which had not been available for analysis in this instance. With this in mind, members agreed that the vertical separation of the aircraft may have been less than the recorded figures had suggested, and acknowledged that the pilot of the LS1 had assessed the DA42 as having been at the same altitude when it had been initially sighted.

Member's attention turned to the route that the pilot of the LS1 had taken when following the 'cloud-street' that they had described in their narrative report. Whilst it was appreciated that the pilot had been eager to find lift in order to sustain their flight, members were very keen to point out that the pilot of the LS1 had crossed the Cranfield Airport 'feather' at an altitude that may have brought it into conflict with pilots conducting an Instrument Approach to Cranfield or holding at the CIT beacon.

Members agreed that the EC equipment fitted to the LS1 would not have been expected to have detected the presence of the DA42 (**CF4**). However, it was noted that the LS1 had been fitted with a radio, and members wondered why the pilot of the LS1 had not tuned their radio to the Cranfield frequency. Members agreed that it had been imprudent not to have done so (**CF2**) and explained that, if they had, they may have gleaned situational awareness of the presence of the DA42 in plenty of time to have considered the safest course of action. Further, members agreed that had it been the case that the pilot of the LS1 had held a FRTOL, they would have been strongly recommended to have contacted the Cranfield controller and to have relayed their intentions. Agreeing that a central tenet of operating in Class G airspace is to 'see and be seen', some members felt that the pilot of the LS1 had not appreciated the effect that their presence may have had on other users of the airspace.

Members agreed that the pilot of the LS1 had not had situational awareness of the presence of the DA42 (**CF3**) and noted that they had been surprised upon having sighted it. Members noted that the pilot of the LS1 had judged it to not have been an immediate risk but appreciated that the proximity of the DA42 had caused them concern nonetheless (**CF5**).

The Board next considered the actions of the pilot of the DA42. Members noted that the DA42 had not been fitted with additional EC equipment and suggested that it would be prudent to help mitigate a risk of conflict with other aircraft by installing additional EC equipment, particularly whilst operating an instrument-training aircraft in busy Class G airspace without a surveillance-based Air Traffic Service. It was agreed that the pilot of the DA42 had not had situational awareness of the presence of the LS1 (**CF3**).

Turning their attention to the actions of the Cranfield controller, it was noted that they could not recall any details of the encounter. Whilst a primary-only contact could be observed in the vicinity of the DA42 on the NATS radar replay, members agreed that the Cranfield controller had not had the benefit of a radar facility and had not had situational awareness of the presence of the glider in the area (**CF1**).

Concluding their discussion, members summarised their thoughts. It was agreed that neither pilot had situational awareness of the presence of the other aircraft, and the Cranfield controller had not had situational awareness of the LS1. Members felt that there had been a degradation of safety margins but agreed that the separation between the aircraft had been such that no risk of collision had existed. As such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023187			
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	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			
5	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[2]

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 presence of the LS1.

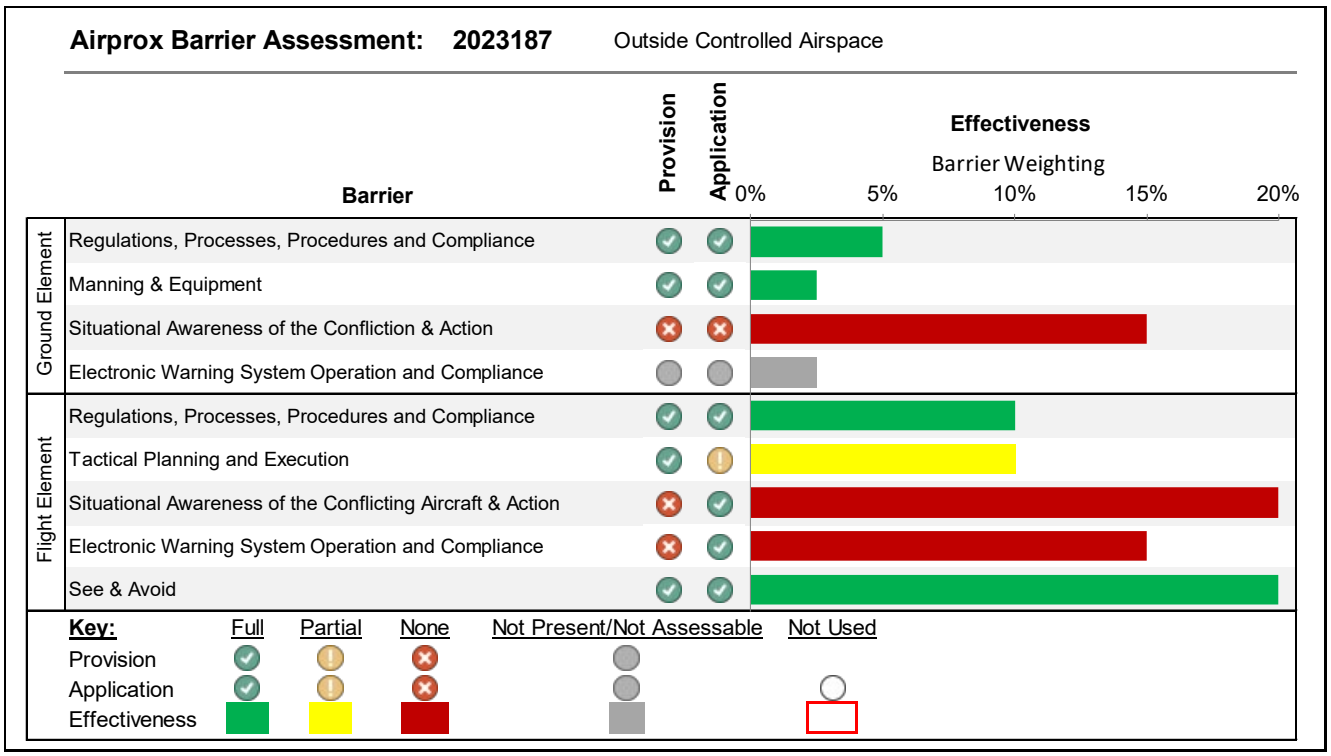
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the pilot of the LS1 had not communicated their intentions to the Cranfield controller.

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC device fitted to the LS1 would not have been expected to have detected the presence of the DA42.

[2] 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: 2023187
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 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