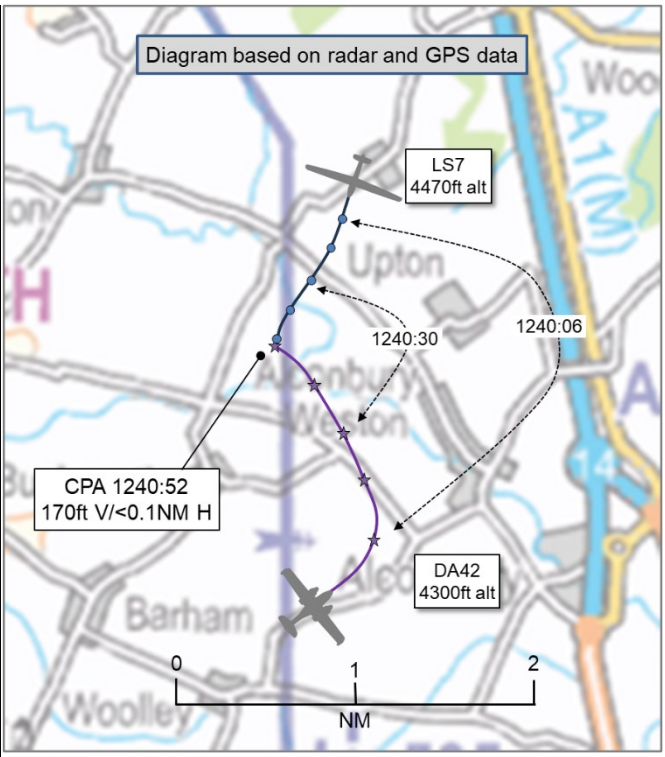
AIRPROX REPORT No 2023168

Date: 07 Aug 2023 Time: 1241Z Position: 5223N 00018W Location: IVO Buckworth, Cambs

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	LS7	DA42
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	N/A	Cranfield App
Altitude/FL	4470ft	4300ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White/Red	White
Lighting	Nil	Nav, Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4700ft	3500ft
Altimeter	QFE	QNH (1018hPa)
Heading	210°	NK°
Speed	75kt	120kt
ACAS/TAS	FLARM	SkyEcho
Alert	None	None
Separation at CPA		
Reported	0ft V/200M H	NK V/NK H
Recorded	170ft V/<0.1NM H	



THE LS7 PILOT reports having been on task in a gliding competition (a low-key club competition) and had been heading from Peterborough to a turn point centred on Grafham Water when a twin had flown in front of them. The LS7 pilot reports that they hadn't seen it until a couple of seconds before it had crossed in front from the left. Just before [that] the LS7 pilot reports that they had been looking to the right to start to plan the route (towards Kettering) that they had wanted to fly after the turn point. As the other aircraft had passed in front, it had started to turn and the LS7 pilot had felt sure that [its pilot] hadn't seen them until then. Conditions had been a bit hazy although visibility was [better than] 10km. The LS7 pilot reports that their previous climb had been to cloudbase but, after several kilometres of glide, they would have been lower. At the point of first seeing the other aircraft [they had judged that] it had been clear that they were going to miss by a couple of hundred metres. A few seconds after the event there had been a brief period of light turbulence where they [thought that they] may have gone through the slipstream.

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

THE DA42 PILOT reports that they had been conducting upper air-work training clear of controlled airspace in good VMC [and] clear of cloud. The pilot reports that they had been aware that, given the good weather conditions and NOTAM [they recall], it would be a busy traffic environment with lots of glider activity. The pilot reports that they had observed many gliders transiting the area routeing along a track orientated NE/SW at various altitudes, some in formation, both on the DA42 pilot's departure from [departure airfield] and on their return. The pilot believed that they and their trainee had maintained an effective lookout. They report that their aircraft had been equipped with TAS and ADS-B. They had a [display unit] linked to the ADS-B unit and a [branded] receiver that provided audio warnings through a bluetooth headset. At no point did the pilot see a threat or have any electronic conspicuity indication of a potential threat.

THE CRANFIELD APPROACH CONTROLLER reports that they had been informed by the Airprox Board via email on the 12th August 2023 of an Airprox involving a glider and a DA42 having occurred 5 days earlier at 1240 whilst they had been working both Tower and Approach frequencies. From looking through the strips, the DA42 had been on frequency receiving a Basic Service at the time of the Airprox. Gliders were reported in the vicinity of Cranfield on the day which would have been promulgated on the departure ATIS. […]. This report had been made without reference to any recordings.

THE CRANFIELD SUPERVISOR reports that the SATCO had checked FPS, RT recordings, and an ADS-B system under test. The DA42 had been airborne between 1212 and 1305, and had been in receipt of a Basic Service throughout the flight. There had been one glider on frequency at the time of the Airprox whose position reports and routeing did not indicate any confliction with the DA42. This had been confirmed using ADS-B data. The DA42 did not display on the ADS-B screen, and therefore routeing and position of the flight is unknown. No other aircraft on frequency had indicated a confliction. Generic and specific Traffic Information had been passed to aircraft on frequency where applicable, including gliding activity in the vicinity of the airport.

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 071220Z 28012KT 250V310 9999 SCT048 19/09 Q1019=
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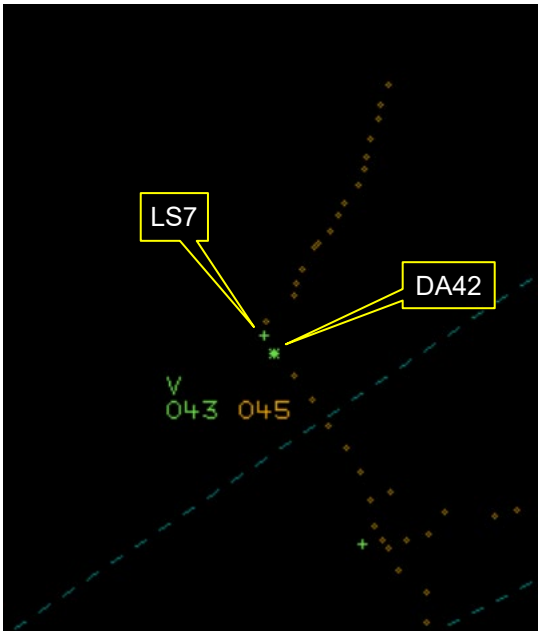
Analysis and Investigation

UKAB Secretariat



CPA minus 2 secs (1240:50)
CPA 1240:52 170ft V/<0.1NM H

CAA ATSI notes that as the LS7 had not been on the Cranfield frequency, and Cranfield not being a surveillance-equipped unit, the controller would have been unaware of the presence of that particular glider and so would have been unable to pass Traffic Information.

The DA42 is equipped with electronic warning systems, including ADS-B transmission and receipt and the ability to receive and display the most commonly used glider alerting system; it does not have the capability to transmit into the same commonly used glider system thereby potentially reducing its overall effectiveness in encounters with gliders.

The LS7 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] If the incident geometry is considered as converging then the DA42 pilot was required to give way to the LS7.[2]

Comments

AOPA

It is interesting to note that both aircraft had EC but neither had a warning from it. Effective lookout on a hazy day is paramount to avoid a mid-air collision.

BGA

The DA42 operator is to be commended for configuring the carry-on TAS device on board the DA42 to receive transmissions from the EC equipment carried by almost all UK gliders (including the Airprox LS7), and warn of nearby glider traffic via a compatible EFB application. However, the DA42 pilot does not report having received such an alert. It would be useful to understand why this barrier did not function.

Summary

An Airprox was reported when an LS7 glider and a DA42 flew into proximity in the vicinity of Buckworth, Cambridgeshire at 1241Z on Monday 7th August 2023. Both pilots were operating under VFR in VMC, the LS7 pilot not in receipt of an ATS and the DA42 pilot in receipt of a Basic Service from Cranfield Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS tracking information 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 looked at the actions of the LS7 pilot. They had been engaged in a local gliding competition focussed on navigation and had been clearing their impending turn. They had seen the DA42 only briefly (**CF5**) before the closest point of approach and had not initiated any avoiding action. Members noted positively the carriage and use of electronic conspicuity (EC) equipment, recognising that the unit in this case would not have been able to receive signals from the DA42 (**CF3**). Board members commented on the lack of radio and transponder which, combined with no external lighting and a difficult to see airframe, had made visual acquisition by others a difficult task and wished to remind operators that in the Class G environment pilots should consider all options, both visual and electronic, to alert others to their presence and reduce the likelihood of such events.

Turning to the DA42 pilot, members noted the nature of their flight recognising that the aircraft had been equipped with a selection of electronic conspicuity equipment and had been in receipt of a Basic Service from Cranfield. They acknowledged that such a service has limitations but, with the paucity of LARS providers in the area, it had been a positive decision to add to their situational awareness having been cognisant of the number of gliders operating in the vicinity. Members expressed disappointment that the EC equipment carried by the DA42 had not registered any signals from the LS7 (**CF4**) despite having suitable means to do so. The lack of interaction between the two aircraft EC fits, together with a limited air traffic service, had meant the LS7 pilot had not had any situational awareness of the DA42 and the DA42 pilot had gained only generic situational awareness of the LS7 via their expectation of gliders operating in the area (**CF2**) but this had still resulted in a non-sighting of the LS7 by the DA42 pilot (**CF6**).

[1] UK Reg (EU) SERA.3205 Proximity.
[2] UK Reg (EU) SERA.3210 Right-of-way (c)(2) Converging.

In considering the contribution by the Cranfield controller, the Board concluded that they had provided a Basic Service and noted that they had been equipped with an ADS-B Flight Information Display (FID) to aid their situational awareness within the area. They noted that, although there had been no requirement to monitor the flight (**CF1**), Traffic Information had been passed where applicable and that one glider in the area had been seen on their equipment but which they had judged had not been in confliction with the DA42. Members expressed disappointment that the DA42, despite carrying ADS-B transmitting devices, had not shown on the Cranfield FID and that this clearly pointed at the need for further development of that aid to afford the greatest possible contribution.

When determining the risk of the Airprox, members considered the reports of both pilots and the controller. They agreed that safety margins had been much reduced below the norm as the DA42 pilot had not seen the LS7 and the LS7 pilot had gained sight of the DA42 only at a late stage and had not been able to take avoiding action to increase the separation. Members were split on the level of risk in this case with the majority assigning a Risk Category B to this Airprox (**CF7**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023168			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	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	• 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 Assessment[3]

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 **not used** because the DA42 pilot was operating under a Basic Service and the controller is not required to monitor the flight.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the LS7 pilot had no Situational Awareness of the presence of the DA42 and the DA42 pilot had only generic Situational Awareness of the presence of gliders.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the LS7 electronic conspicuity equipment could not detect the emissions from the DA42 equipment and the DA42 equipment did not detect the emissions from the LS7 equipment.

See and Avoid were assessed as **partially effective** because the LS7 pilot achieved only a late-sighting of the DA42 and the DA42 pilot only sighted the LS7 at or around CPA.