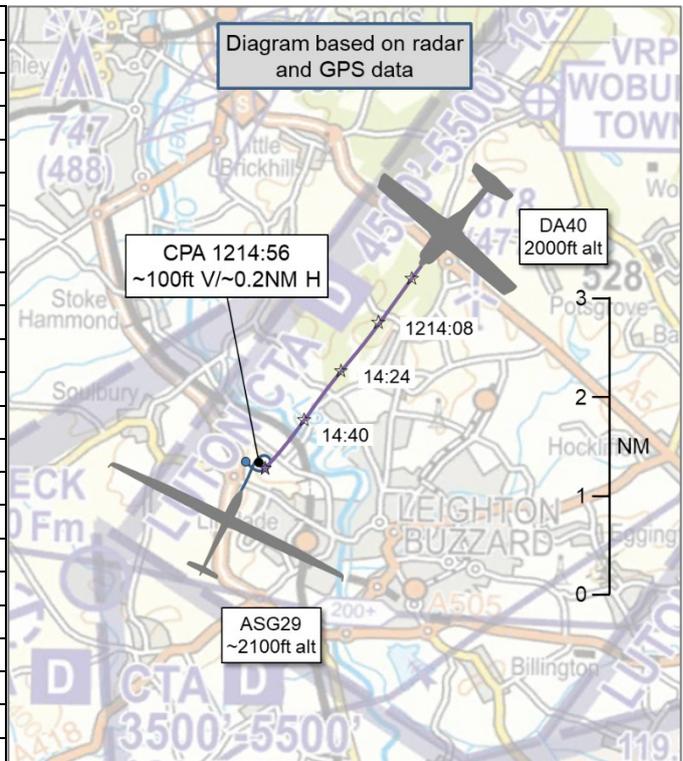


**AIRPROX REPORT No 2021114**

Date: 16 Jul 2021 Time: 1215Z Position: 5156N 00041W Location: Leighton Buzzard

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	ASG29	DA40
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	N/A	Cranfield Approach
Altitude/FL	2100ft	2000ft
Transponder	Not fitted	A, C, S
<b>Reported</b>		
Colours	White	White
Lighting	None	Position, strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1700ft	NK
Altimeter	QFE (NK hPa)	QNH (NK hPa)
Heading	160°	NK
Speed	60kt	NK
ACAS/TAS	FLARM	TAS
Alert	None	None
<b>Separation</b>		
Reported	30ft V/0m H	Not Seen
Recorded	~100ft V/~0.2NM H <sup>1</sup>	



**THE ASG29 PILOT** reports that they were trying to find lift over Leighton Buzzard having taken off from [a local glider site]. They had been heading towards where the other aircraft would have been coming from, and so probably had an opportunity to see them but they were moving quite fast and were presumably at the same level. Shortly after they turned and had resumed straight-and-level flight, the aircraft came over the top of them with very little separation. They called Luton a few minutes later to ask if they had been controlling a light aircraft in that area, they said that they had not.

The pilot assessed the risk of collision as ‘High’.

**THE DA40 PILOT** reports that they were on a solo cross-country qualifying flight and workload was relatively high. They were not visual with the glider at any time and, therefore, no action was taken. They do not recall getting a traffic alert via their aircraft's G1000. They were unaware an Airprox had occurred until they were contacted by their training provider.

**THE CRANFIELD APPROACH CONTROLLER** reports that the first that they knew of this situation occurring was when they were informed of the Airprox via email. There is no radar at Cranfield so any reports of traffic are based on what they know, using information from aircraft participating in the service. [The DA40 pilot] was under a Basic Service and the controller knew of no traffic to affect. Shortly after the reported Airprox time, [the DA40 pilot] switched to Farnborough at 1215:54.

<sup>1</sup> Separation derived from GPS data for the ASG29 glider and radar data for the DA40.

## Factual Background

The weather at Luton Airport was recorded as follows:

METAR EGGW 161220Z AUTO 04011KT 010V070 9999 NCD 24/14 Q1027=

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay and the GPS data provided by the ASG29 glider pilot was undertaken. On the NATS radar replay, the DA40 could be seen tracking in a south-westerly direction at 2000ft as indicated on its Mode C. There were numerous primary contacts in the vicinity of Leighton Buzzard, but nothing visible on radar that correlated with the reported position of the ASG29. The GPS log file provided by the glider pilot was overlaid with the radar image and a CPA of ~100ft V and ~0.2NM H (taken from the 2 different data sources) was measured. CPA occurred at 1214:56 (see Figure 1).

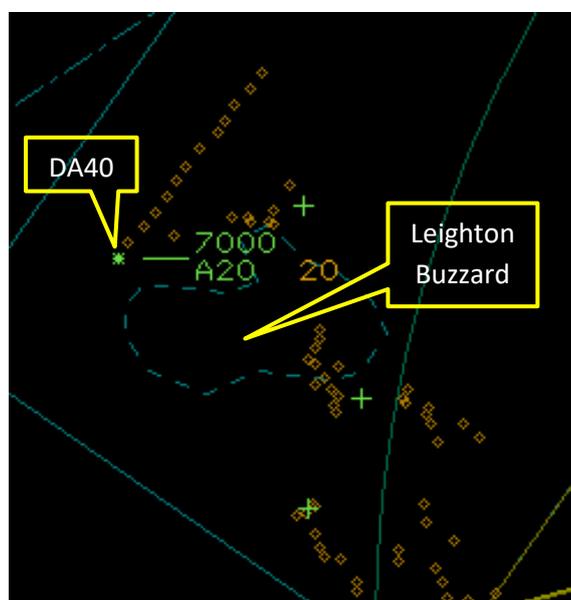


Figure 1 – 1214:56 – CPA

The ASG29 glider and DA40 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>2</sup> If the incident geometry is considered as overtaking then the ASG29 pilot had right of way and the DA40 pilot was required to keep out of the way of the other aircraft by altering course to the right.<sup>3</sup>

## Comments

### BGA

This encounter demonstrates that gliders can be hard to spot, especially when being observed from directly behind or in front, due to the small visible cross-section. There are products coming to market now, like directional strobes and more widely compatible EC devices, which could help mitigate situations like these, but an active lookout is always required.

<sup>2</sup> (UK) SERA.3205 Proximity.

<sup>3</sup> (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

## Summary

An Airprox was reported when an ASG29 glider and a DA40 flew into proximity over Leighton Buzzard at 1215Z on Friday 16<sup>th</sup> July 2021. Both pilots were operating under VFR in VMC; the ASG29 pilot was not in receipt of an ATS and the DA40 pilot was 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 data from the ASG29 glider pilot 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 considered the actions of the ASG29 glider pilot and heard from a glider pilot member that the Leighton Buzzard area is commonly used by pilots seeking lift shortly after take-off from a local gliding site. A GA pilot member added that this is also an area where GA traffic can be encountered, transiting at around 2000ft altitude (the approximate operating altitude of the ASG29 at the time of the Airprox); this led the Board to discuss the opportunities available to the ASG29 pilot to have gained situational awareness of the approaching DA40. Members noted that the glider had been fitted with FLARM, but this had not been compatible with the transponder or TAS equipment on the DA40 so could not have alerted the ASG29 pilot (**CF3**). The Board also noted that the ASG29 pilot had contacted Luton Radar shortly after the Airprox to ask if they had been in communication with the DA40 pilot; some members felt that, given that the ASG29 had been equipped with a radio, the ASG29 pilot could have been more proactive and informed Luton Radar of their operating area which may have given the Luton controller an opportunity to pass Traffic Information on the DA40. Notwithstanding, the Board agreed that, in the event, the ASG29 pilot had not had any situational awareness of the approaching DA40 (**CF2**) and had therefore been relying on their lookout to detect any threats to their aircraft. Although the DA40 had been maintaining a steady course and altitude in the moments leading up to the Airprox, members agreed that opportunities for the ASG29 pilot to sight the DA40 had been fleeting and that they had not sighted the DA40 until it passed over the top of them – too late for the ASG29 pilot to have taken any action to increase separation (**CF4**).

The Board then considered the actions of the DA40 pilot, and noted that they had been conducting a solo cross-country qualifying flight and that they had reported their workload as having been high. Some members wondered why they had chosen to transit beneath the Luton CTA whilst in receipt of a Basic Service from Cranfield Approach – which is not radar equipped – rather than requesting an ATS from either Farnborough (LARS North) or Luton Radar, although the Board felt that this action had not necessarily contributed to the Airprox as it could not be established if the glider would have been visible on either the Farnborough or Luton controllers' radar screens. The Board also discussed the incompatibility of the electronic conspicuity equipment on the aircraft involved and considered that the inability of the TAS on the DA40 to detect the FLARM fitted to the ASG29 had been a contributory factor in this Airprox (**CF3**). Without any information from either on-board or off-board sources, the Board agreed that the DA40 pilot had not had any situational awareness of the presence of the ASG29 circling to the west of Leighton Buzzard (**CF2**) and had therefore also been relying on the See and Avoid barrier to detect other aircraft. Members agreed that the DA40 pilot had, by their own admission, not seen the ASG29 as they passed over it (**CF4**) and that this non-sighting had contributed to the Airprox.

The Board then briefly considered the actions of the Cranfield Approach controller and quickly agreed that, without any form of surveillance equipment nor any prior knowledge of the ASG29's location, there was little that they could have done to assist the DA40 pilot. Furthermore, under the terms of a Basic Service, the Cranfield Approach controller had not, in any case, been required to monitor the DA40 (**CF1**).

Finally, the Board considered the risk involved in this event. Members noted that the recorded separation had been in the order of 100ft vertically and 0.2NM horizontally, but this separation had been measured by comparison of data from 2 different sources (GPS and radar), each of which is subject to its own specific errors and accuracy thresholds. The Board heard again from a glider pilot member that

they considered it highly likely that the measured horizontal displacement was in error because the glider pilot was certain that the DA40 had flown directly over the top of their aircraft. With this in mind, the Board lent more weight to the glider pilot's account of the geometry of the encounter than to the recorded separation (noting that the DA40 pilot did not see the glider so could not estimate the separation) and agreed that there had been a serious risk of collision (**CF5**) and that, because neither pilot had taken any action to increase the separation, it had been entirely providential that the 2 aircraft had missed each other. Therefore, a Risk Category A was assigned to this Airprox.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

2021114				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Ground Elements</b>				
• 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
<b>Flight Elements</b>				
• 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 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
• See and Avoid				
4	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				
5	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: A

### Safety Barrier Assessment<sup>4</sup>

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 Conflicting Aircraft and Action** were assessed as **not used** because the Cranfield Approach controller was not required to monitor the aircraft under the terms of a Basic Service.

#### **Flight Elements:**

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

<sup>4</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

**Electronic Warning System Operation and Compliance** were assessed as **ineffective** because the FLARM on the ASG29 glider could not detect the transponder signals from the DA40, and the TAS fitted to the DA40 could not detect the FLARM signals from the ASG29.

**See and Avoid** were assessed as **ineffective** because the DA40 pilot never saw the glider and the ASG29 pilot did not see the DA40 in time to materially increase the separation.

<b>Airprox Barrier Assessment: 2021114</b>		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	✗	✗					
<b>Key:</b>			Full	Partial	None	Not Present/Not Assessable	Not Used	
Provision	✓	●	✗	●				
Application	✓	●	✗	●		○		
Effectiveness								