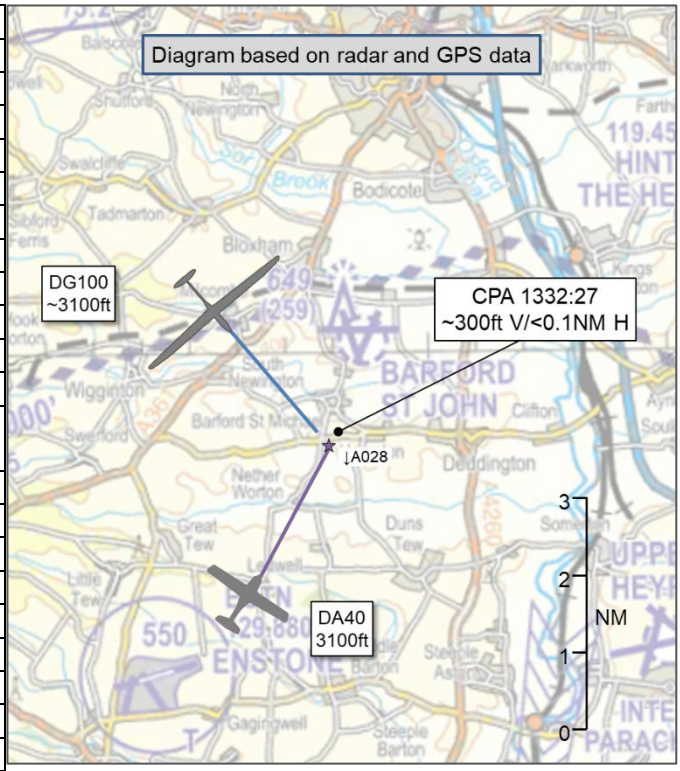
AIRPROX REPORT No 2021048

Date: 02 May 2021 Time: 1332Z Position: 5158N 00121W Location: IVO Barford St John

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DG100	DA40
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	NA	Oxford
Altitude/FL	~3100ft	2800ft
Transponder	Not fitted	A, C, S
Reported		
Colours	White	White
Lighting	None	Position, Nav, Taxi, Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2800ft	3000ft
Altimeter	QNH (1022hPa)	QNH
Heading	SE	020°
Speed	65kt	NK
ACAS/TAS	FLARM	TAS
Alert	None	Unknown
Separation		
Reported	100ft V/0m H	300-350ft V/0m H
Recorded	~300ft V/<0.1NM H[1]	



THE DG100 PILOT reports that they were on a straight glide, having left the area of Edgehill/Shenington at about 4000ft. They were made aware of the aircraft as soon as it passed beneath the glider, they heard it first, and then saw it. They believed the safest avoiding action was to continue on a straight glide and did not believe the other pilot saw them. Workload was slightly higher than usual due to planning a route around a nearby shower. The other aircraft approached from the sun side, obscured during the scan by the wing. They were also distracted by the presence of a nearby helicopter passing left to right above.

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

THE DA40 PILOT reports that they were on a solo land-away and were flying overhead Banbury directly towards Rugby. There were a number of fair weather clouds in the vicinity. They were maintaining a lookout as they were approaching a turning point, but were also checking instruments. When they looked out after checking the instruments, the glider (a white glider with no visible markings) appeared in their 11 o'clock 300-350ft above. After seeing the glider they made a pitch down manoeuvre to the right, as it was above their aircraft. The glider then passed overhead.

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

THE OXFORD CONTROLLER reports that the DA40 departed Oxford under a Basic Service. They were operating at medium intensity in a high background track environment, with 3 aircraft under a Traffic Service and a fourth placed under a Traffic Service several minutes before the alleged event and that radar service was reduced due to high traffic intensity. There were several PSR-only tracks

[1] Separation calculated by comparing GPS and radar data.

near the route of the DA40 toward Barford St.John but nothing that looked like a collision risk hazard. As the aircraft was south east of Enstone several gliders were seen to the north west of Barford St.John but all disappeared from radar. At no time during the aircraft's routing in the vicinity of Barford St.John was a PSR-only return seen that could be considered to constitute a collision risk hazard and that warranted Traffic Information being passed.

Factual Background

The weather at Oxford was recorded as follows:

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METAR EGTK 021320Z 24010KT 210V280 9999 VCSH FEW035CB SCT040 12/01 Q1020=
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Analysis and Investigation

Oxford Investigation

The DA40, a student pilot, was booked out to depart VFR. The aircraft got airborne at 13:24 and at 13:26 first made contact with the Oxford Radar controller to request a Basic Service. The controller replied with: "*OXF RAD: Student [C/S], Oxford Radar, Basic Service, no level restriction"*. The aircraft continued in a north/north westerly direction in receipt of the Basic Service. At no time was any Traffic Information passed to the pilot. The radar replay showed [the DA40] to pass close abeam Barford St.John at 13:33 as the Airprox report denotes. However, at this time no other contacts were visible that would show any imminent/serious risk of collision. At time 13:38 a controller handover took place, and the outgoing controller explained that both Little Rissington and Weston-on-the-Green were active with gliding and that [the DA40 C/S] was operating under a Basic Service. At 13:41, the DA40 pilot requested a frequency change to East Midlands which was approved.

At the time of the Airprox, the Oxford Radar controller was operating in moderate traffic levels, RAD2 was not manned. The radar replays showed the FIR to be busy with numerous aircraft, many of which were non-transponder equipped. Both Little Rissington and Weston-on-the-Green were known to be active with gliding activity and Hinton-in-the-Hedges was known to be active with para-dropping. No specific collision risk could be observed in the vicinity of Barford St.John at the time specified on the Airprox report (13:33). However, it was also noted that prior to this time (whilst the aircraft was still some way south) several non-transponder equipped aircraft were seen to be operating in the vicinity. It was thought that gliders may well have been thermalling in this area and as such the radar returns were intermittent. However, whilst the DA40 was in the vicinity at 13:33 (Figure 1) there was no observed contact that constituted a definite risk of collision and so Traffic Information was not passed.

Figure 1: 1333z

It was also noted that in the time period immediately surrounding the reported Airprox time the aircraft was seen from the replay to come into varying levels of proximity with several non-transponder equipped aircraft which were likely to be gliders. The most notable being at 13:31, north of Enstone aerodrome, similarly at 13:32 (Figure 2) a non-transponder equipped aircraft was seen tracking eastbound towards [the DA40 C/S] and a similar event occurred at 13.35 but at no point was there a perceived definite risk of collision. Likewise no Airprox was reported via the RTF nor did the DA40 pilot request Traffic Information on a conflicting glider.

Figure 2: 1332z

It was noted that the aircraft had been operating under a Basic Service at the time of this Airprox. It should therefore be remembered that as per CAP774 the pilot should not expect any form of Traffic Information from a controller under this service and that whether Traffic Information has been provided or not, the pilot remains responsible for collision avoidance without assistance from the controller. That said, CAP774 also notes that, "where a controller/FISO has information that indicates that there is aerial activity in a particular location that may affect a flight, in so far as it is practical, they should provide traffic information in general terms to assist with the pilot's situational awareness". Therefore it could be argued that Traffic Information in general terms may have been prudent on this occasion, owing to the observed quantity of non-transponder equipped aircraft along the aircraft intended flight path together with the knowledge that adjacent sites (Little Rissington and Weston-on-the-Green) were active with gliding activity.

UKAB Secretariat

The UKAB Secretariat had the benefit of the GPS data log from the glider, not available to the Oxford ATC investigation. Comparing this with the NATS area radars (not the radar utilised by Oxford) showed that the Airprox occurred at around 1332:27. On the NATS radar the track of a helicopter can be seen routing southbound, as reported by the glider pilot (see Figure 3). Although an intermittent contact could be seen in the area earlier, it had faded from the radar by the time the DA40 was in the vicinity, and at 1332:27 (Figure 4) the DA40 had descended from 3100ft, approximately the same height as the glider, to 2800ft, consistent with the DA40 pilot's report. Comparing the radar with the GPS data gave an approximate CPA of 300ft and less than 0.1NM.

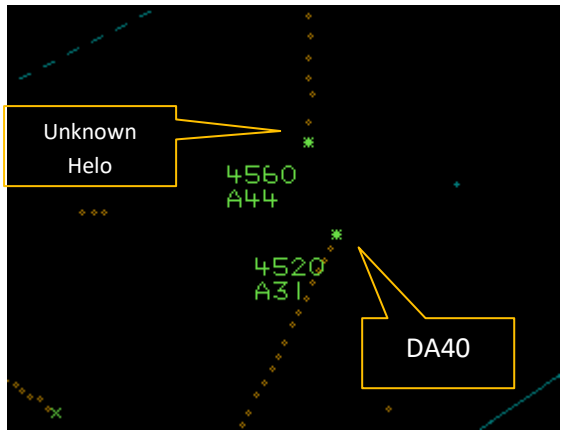


Figure 3: 1332:06

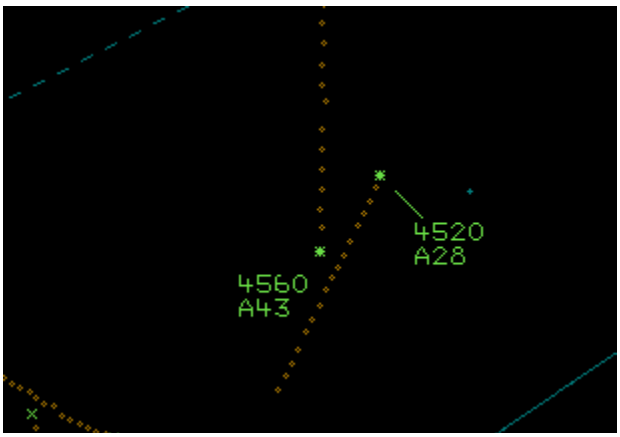


Figure 4:1332:27
DA40 descends (glider not on radar)

The DG100 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.[2] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[3] If the incident geometry is considered as converging then the DA40 pilot was required to give way to the glider.[4]

Comments

BGA

Gliders in the cruise are difficult to spot; it's always worth 'weaving' a bit to increase visibility. In this case, the See and Avoid barrier was effective.

Summary

An Airprox was reported when a DG100 and a DA40 flew into proximity in the vicinity of Barford St John at 1332Z on Sunday 2nd May 2021. Both pilots were operating under VFR in VMC, the DG100 pilot was not in receipt of an ATS and the DA40 pilot in receipt of a Basic Service from Oxford.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data, 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first looked at the actions of the glider pilot, they reported being on a straight glide and gliding members noted that because gliders are notoriously difficult to spot, where possible pilots should try to weave, or dip their wings in order to change the plan profile and allow other pilots to see the movement. The FLARM on the glider was not compatible with the TAS on the DA40 (**CF3**) and consequently the glider pilot had no prior knowledge that the DA40 was there (**CF2**). The glider pilot described seeing a helicopter above them, as seen on the radar screenshots, and members thought this had probably been a distraction to the pilot as they monitored it (**CF4**). Furthermore, it underlined the necessity to ensure look-out covered all quadrants, the DA40 would have been on a constant relative bearing to the glider pilot and as such difficult to see. By the time the glider pilot saw the DA40 it was already passing

[2] (UK) SERA.3205 Proximity.
[3] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.
[4] (UK) SERA.3210 Right-of-way (c)(2) Converging.

beneath the glider and therefore it was too late to take any action to increase the separation (**CF6**), although fortunately the DA40 pilot had already increased the separation by descending.

The DA40 pilot was a solo-student on a land-away, they were receiving a Basic Service from Oxford and did not receive any Traffic Information on the glider, leading some members to wonder whether it was an appropriate service for a solo-student. Members with flying instructor experience noted that it was a difficult trade-off between giving the student as much information as possible and overloading them with ATC calls, but that on balance a Traffic Service offered a measure of protection not available when receiving a Basic Service. The TAS fitted to the aircraft could not detect the FLARM on the glider (**CF3**), consequently the pilot had no prior situational awareness that the glider was in the vicinity (**CF2**). Noting that the pilot described checking their instruments, members thought this was a job-related distraction in the lead up to the Airprox, causing the pilot to be looking inside the cockpit (**CF4**). Again, given that the two aircraft were on a constant relative bearing to each other, the glider would have been difficult to see and consequently the DA40 pilot saw the glider later than desirable, but still in time to take avoiding action by descending (**CF5**). Members then discussed at length the merits of teaching students to make clearing turns and changing heading by a few degrees to provide a better viewpoint for look-out and to make their aircraft more visible to others. They acknowledged that it could be difficult to persuade students to move away from their planned navigational route, if only for a few moments, for fear of getting lost, but advised that if such practices were put in place from early in training, confidence would be built in from early in the flying career.

The Board then briefly turned to Oxford ATC, they were providing a Basic Service to the DA40 pilot and as such were not required to continuously monitor the aircraft (**CF1**), furthermore, they had other aircraft on a higher priority service and described being moderately busy. Therefore, members thought that although it was a missed opportunity to alert the DA40 pilot, it was not surprising that the controller had not noticed the intermittent glider contact on the radar.

When assessing the risk, members discussed that both pilots assessed the risk of collision as 'medium' and that although the glider pilot had thought the DA40 was closer than it was, they were probably startled by the late sighting as the DA40 bloomed into view. The DA40 pilot had had time to take avoiding action, increasing the separation by descending 300ft and therefore members determined that although there had been no risk of collision, safety had been degraded; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021048			
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 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	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	

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

Degree of Risk: C.

Safety Barrier Assessment[5]

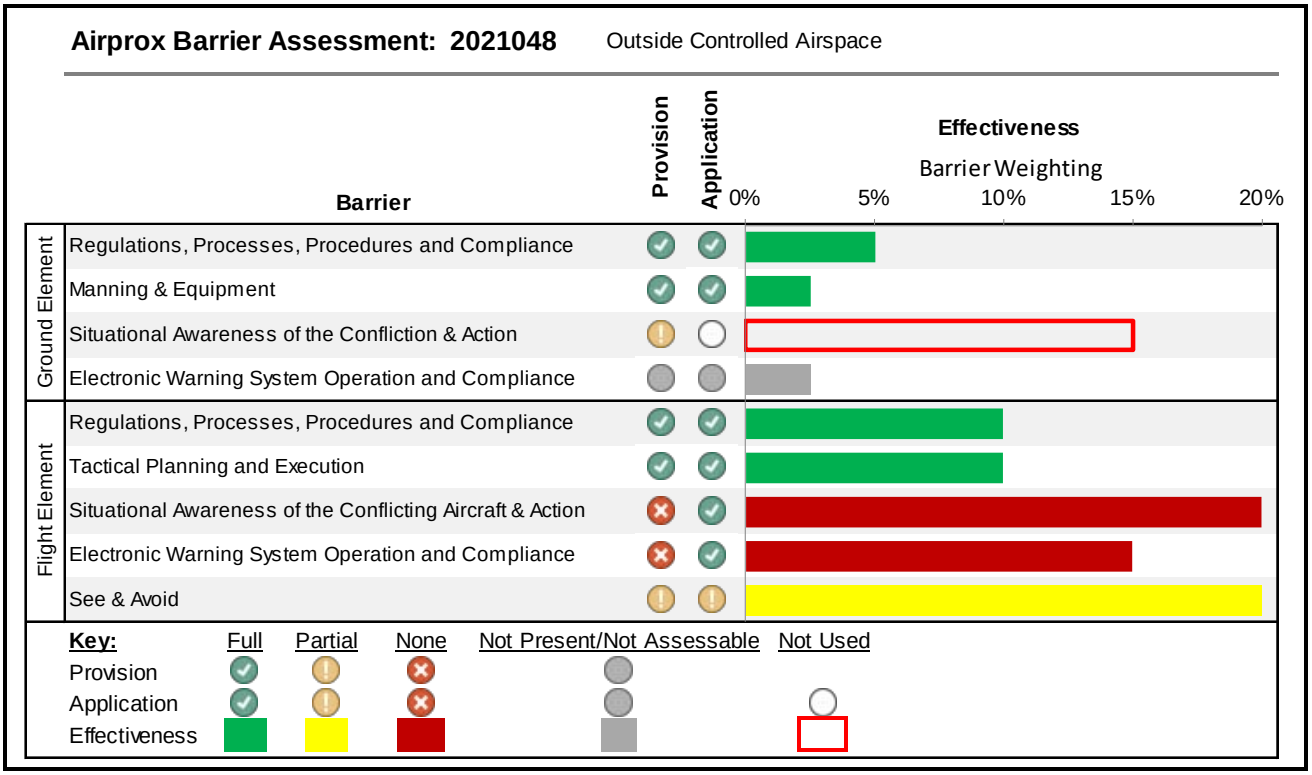
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot knew about the other aircraft prior to the Airprox.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the FLARM on the glider could not detect the DA40 and the TAS on the DA40 could not detect the glider.

See and Avoid were assessed as **partially effective** because although it was a late sighting, the DA40 pilot managed to take avoiding action.



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