AIRPROX REPORT No 2022085

Date: 19 May 2022 Time: 1226Z Position: 5142N 00212W Location: IVO Nailsworth

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Discus	SR22
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Basic
Provider	N/A	Gloster
Altitude/FL	~3200ft[1]	FL031
Transponder	Not fitted	A, C, S+
Reported		
Colours	White	White, Silver
Lighting	None	Landing, Strobes, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3027ft	3300ft
Altimeter	QNH	QNH
Heading	Circling	358°
Speed	50kt	160kt
ACAS/TAS	FLARM, SkyEcho	TCAS I
Alert	None	None
Separation at CPA		
Reported	0ft V/<100m H	Not Seen
Recorded	~50ft V/<0.1NM H	

THE DISCUS PILOT reports they had winch launched at about 1214. They contacted a weak thermal about halfway between the airfield and the town of Nailsworth, then slowly climbed to about 2000ft. The thermal then improved and they were able to climb a little bit more quickly from 2000-3000ft. All this time drifting slowly in a ENE direction to a point about 1NM NW of Minchinhampton. At about 3000ft the rate of climb dropped off a little and they opened up the turn a little to search for the centre of the thermal. As they turned they saw a low-wing, white monoplane passing to their starboard side and heading away. Earlier in the turn it would have been in their 5 o'clock position. Their rate of turn while thermalling was about 20sec per turn so, on the previous turn, they believed the other aircraft would have been too far away to have been seen. It was hard to judge the distance but an estimate would be that the other aircraft passed within 100m horizontally, with zero separation vertically. At the time, it felt like less than the radius of a thermalling turn. Their aircraft is fitted with [EC device commonly carried by gliders] which provides traffic warnings. They also carry [additional] electronic conspicuity [equipment], this does not provide warnings but should make their aircraft visible to some others. By the time they saw the other aircraft it was heading away so no avoiding action was taken. After the incident they found a weak thermal to stay airborne and called Gloster and Kemble.

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

THE SR22 PILOT reports that as the pilot in command and there was another experienced GA pilot in the front right seat who was also looking out. Neither of them saw another aircraft during this part of the flight. The TCAS did not provide any alerts, either visually on the screen or audible. They were working Gloucester at the time and recalled that, as they passed overhead Gloucester, a call was made by a glider pilot reporting an Airprox. The response from the Gloucester controller was that they were not working anything in the reported vicinity and suggested that the glider pilot contact Kemble. They

[1] Approximate altitude from GPS data

thought that they would have been a bit further north than the reported position of the Airprox at the reported time. They recalled that they were overhead Gloucester when the glider pilot called, i.e. 12NM north of the reported position and approximately 4min flight time at the speed that they were cruising. However, the glider was clearly operating in the vicinity of their track and they both failed to see it at any level or in any position, and neither was it identified on TCAS I. Visibility was good but with broken cloud above them.

THE GLOSTER CONTROLLER reports that they were not aware of the incident until 26th May. No mention of an Airprox to be filed was given on frequency at the time of the incident. They did remember that a glider pilot had declared on frequency that they had been near a white aircraft, but couldn't remember the exact details, such as distances both horizontal or vertical. They did however remember that they had no aircraft in the glider's location, and told the glider pilot this on frequency. The glider pilot only made one transmission and was not under any service from Gloster Approach, nor visible on the radar.

Factual Background

The weather at Gloucestershire was recorded as follows:

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EGBJ 191220Z 22007KT 180V270 9999 SCT028 FEW035TCU 19/12 Q1018=
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Analysis and Investigation

CAA ATSI

The Discus had cable-launched from [departure airfield] gliding site approximately 11min before the estimated time of CPA and had established in a thermal overhead the village of Nailsworth, less than 3NM to the ESE of the gliding site. The SR22 was on a VFR flight having departed [departure airfield] 30min prior to the estimated time of CPA.

At 1223:50 the pilot of the SR22 called Gloster Approach, requesting a Basic Service. They reported their position as being 15NM south of the airfield, their level as 3200ft and stated their intention to pass through the Gloucestershire Airport overhead. The Gloucestershire controller acknowledged this, confirmed the Basic Service, passed the Gloucestershire QNH and requested a call in the overhead. They then passed Traffic Information to the SR22 pilot on a PA28 which was also intending to transit the overhead at 3000ft, but from east-to-west and which they believed would pass ahead of the SR22. The SR22 pilot acknowledged. The controller then passed reciprocal Traffic Information to the pilot of the PA28.

At 1226:30 the controller dealt with another aircraft receiving a service from them in the FIR. At 1227:22 the controller transferred an inbound aircraft to the Tower controller, and at 1227:45 spoke to the pilot of an IFR inbound aircraft which had called up but had not yet been transferred to them.

At 1228:35 another IFR inbound called at one of the instrument approach fixes and was instructed to report the final approach fix. Then, at 1228:50, the pilot of the Discus called up advising that they had been thermalling over Nailsworth and had been passed by a "*white low-wing monoplane within 100m horizontally and 0ft vertically*." The controller acknowledged this but stated that it was "*not anybody with me at the moment as I know where they all are roughly, and they're nowhere near Nailsworth. Nailsworth er your point of contact is probably Kemble, we don't have an awful lot of traffic in the Stroud Valley*." As soon as this conversation was complete, at 1229:52, the pilot of the SR22 reported in the Gloucestershire overhead.

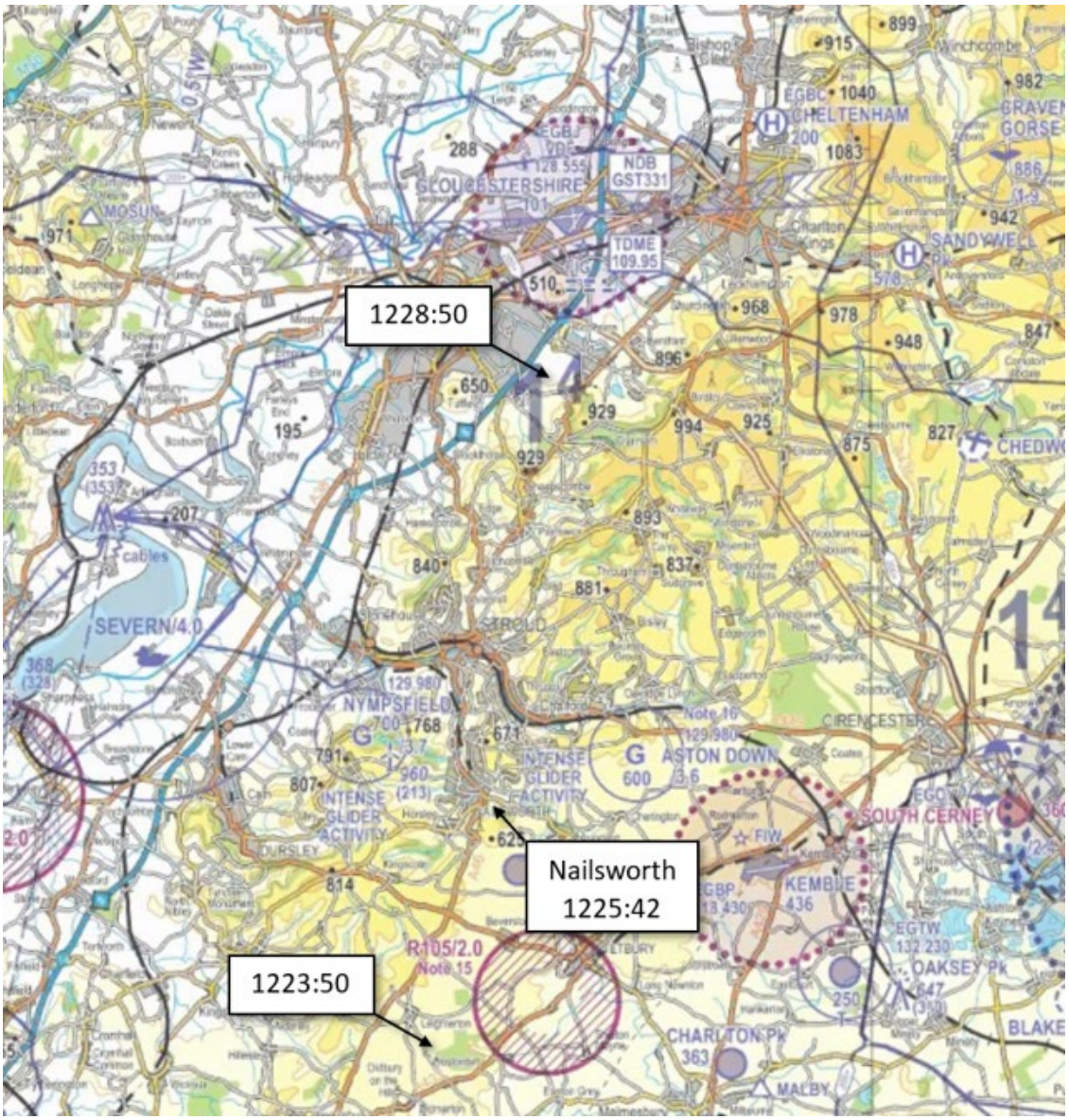
Analysis

ATSI had access to reports from both pilots, the Gloucestershire controller, and the Gloucestershire ATC investigation report. A review of the area radar replay and Gloucestershire Approach RTF was also conducted.

At no time during the review of the area radar replay were any contacts, primary-only or transponding, observed either in the Nympsfield or Nailsworth areas. The SR22 was transponding throughout.

The observed track of the SR22 on the area radar replay was plotted and it was seen to pass equidistant between both Nympsfield and Aston Down Gliding sites, located to the south of Gloucestershire Airport. The graphic below is provided to show the position of the SR22 at the following times:

- 1223:50 - First call.
- 1225:42 - Overhead Nailsworth
- 1228:50 - Position at time of proximity report by pilot of Discus.



The pilot of the Discus was not receiving an Air Traffic Service, but was carrying both a traffic alert and a separate electronic conspicuity system. However, it is not clear as to their compatibility with the equipment carried by the SR22. The Discus pilot did not report receiving any traffic alerts. The pilot also reported that by the time they had seen the SR22 it had already passed them, and that no collision avoidance action could have been taken. The pilot of the SR22 reported that they did not see any gliders at that time nor receive any TCAS warnings.

As the pilot of the Discus did not mention "Airprox" at the time, and was not asked by the controller, no ATC report was filed until the unit was subsequently notified a week later by UKAB.

Whilst Gloucestershire has a primary radar, used for the provision of SRAs and as an Aerodrome Traffic Monitor, it was reported by the unit that the controller did not see any contacts on the display which could be associated with the Discus. The unit reported in their subsequent investigation that it had not been possible to review recorded radar data as the primary radar had actually been out of service that day.

The Gloucestershire MATS Part 2 states the following in relation to gliding activity at Nympsfield (and Aston Down):

> *Winch launch and aerotow gliding takes place from Nympsfield, (EGBJ 200 °T, 12 NM) and Aston Down, (EGBJ 175 °T, 11 NM) from sunrise to sunset. Maximum published winch cable vertical limits for Nympsfield and Aston Down are 3700 ft amsl and 3600 ft amsl respectively. Aerotow gliding also takes place at Bidford, (EGBJ 040 °T, 18 NM). The Cotswold escarpment provides a favourable and popular location for gliding and paragliding activity. All ATC staff are to remain vigilant for the presence of gliders both visually and on radar. When appropriate, pilots are to be advised if their planned or observed track is likely to take them into the proximity of known gliding activity.*

It cannot be determined from the review of the area radar replay, nor from the Gloucestershire ATC investigation, what level of gliding activity was actually taking place at either airfield at that time. It is reasonable to suggest that the information available to the controller did not warrant the issuing of a warning to the pilot of the SR22 on gliding activity to the south of Gloucestershire Airport. Both gliding sites are marked on aviation navigational charts, with two additional warnings of "Intense Gliding Activity."

When the pilot of the Discus called to report, the SR22 was nearly in the Gloucestershire overhead and so was discounted by the Gloucestershire controller.

Ultimately the pilots of both aircraft were responsible for their own collision avoidance, irrespective of any service from ATC.

UKAB Secretariat

The Discus and SR22 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 SR22 pilot was required to give way to the glider.[4] If the incident geometry is considered as overtaking then the Discus pilot had right of way and the SR22 pilot was required to keep out of the way of the other aircraft by altering course to the right.[5]

Comments

AOPA

It is recognised that in a thermal there is a high cockpit workload, lookout being part of this, and that, in a turn, one wing is always obscuring the view from that side. Therefore, it is vitally important to ensure effective lookout when turning and to carefully look in that blind spot. Until there is commonality across the EC range and available radar units, lookout is still the most effective way

[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.
[5] (UK) SERA.3210 Right-of-way (c)(3) Overtaking.

of avoiding MAC. However if operating near to an ATC unit, communication by radio is also advantageous in improving everyone's SA.

BGA

This incident once again highlights the difficulty of seeing a small, fast aircraft approaching directly head-on at speed, as the SR22 would have been from the perspective of the Discus pilot. The SR22 pilot is to be commended for switching on the forward-pointing high-intensity landing lights in daylight, to aid visual conspicuity in this direction.

Despite the Discus transmitting both ADS-B Out and a separate EC protocol used by the vast majority of gliders, there was apparently no interoperability between the Discus' EC transmissions and the EC displays installed in either the SR22 or at Gloster Approach. ATSUs near busy gliding sites should consider installing low-cost equipment to give controllers instantaneous SA on the intensity of gliding activity based on gliders' EC transmissions; the BGA would be happy to advise any interested ATSUs.

When reporting an Airprox by radio to an ATSU, pilots should prefix the message with the word 'Airprox'. Such initial reports act as an important trigger to allow the ATSU involved to preserve any information relevant to the incident, and for the controllers involved to note the circumstances of the incident for use in future investigations. (See UK AIP ENR 1.14.3.2)

Summary

An Airprox was reported when a Discus and an SR22 flew into proximity at in the vicinity of Nailsworth at 1226Z on Thursday 19th May 2022. Both pilots were operating under VFR in VMC, the Discus pilot was not in receipt of an ATS and the SR22 pilot was in receipt of a Basic Service from Gloster Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. 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 Discus pilot. They had been thermalling over Nailsworth and the pilot reported that each thermalling circle took around 20sec. The BGA member reminded the Board that although glider pilots are careful to look out whilst thermalling, the circling nature means that there would have been only a few seconds of opportunity to spot the SR22 before the glider was turning away again. Therefore, there would have been limited opportunity to see the other aircraft as it approached from behind. Although the glider had been equipped with two types of EC, which the Board thought commendable, unfortunately neither had been compatible with the TCAS I in the SR22 (**CF3**) and so the Discus pilot had had no prior situational awareness that the SR22 was in the vicinity (**CF2**). The Discus pilot had seen the SR22 crossing ahead as they circled round, by which stage it had been too late to take any avoiding action, which made this an effective non-sighting by the Discus pilot (**CF4**). The pilot then attempted to report the Airprox on the Gloster App frequency; unfortunately, by the time they had called Gloster ATC, the SR22 had routed further north and the controller thought it had not been the aircraft involved in the incident. Members advised pilots to use the word 'Airprox' on the frequency so that controllers could start the investigation process, otherwise, as in this case, controllers may be unaware that an Airprox had taken place.

Turning to the SR22 pilot, they had been receiving a Basic Service from Gloster App, but the controller had not been required to monitor the aircraft on radar (**CF1**) and so the SR22 pilot had not received any Traffic Information. Furthermore, the TCAS I on the SR22 could not detect the non-transponding glider and it had not been compatible with the EC equipment in the glider and so had not alerted (**CF3**). Consequently, the SR22 pilot had not had any situational awareness that the glider was thermalling in the vicinity (**CF2**). The SR22 pilot reported that they had not seen any gliders in the Nailsworth area and had been unaware of how close they had passed to the glider without being visual with it (**CF4**).

Members noted that the pilot had tried to mitigate the risk of MAC, although the planned route had been through an area of intense gliding activity (as marked on the VFR charts) there was no obvious alternative way to route around due to airspace constraints and other airfields. The pilot had routed between two glider sites, giving them both appropriate separation, they had been in receipt of an ATS, and the aircraft was fitted with EC equipment; it was just unfortunate that the EC equipment was not compatible with that of the glider.

Although the Board briefly looked at the actions of the Gloucestershire controller, members quickly agreed that there had been little more the controller could have done in the circumstances. They had been unaware that the glider had been operating in the Nailsworth area and so they had been unable to provide any Traffic Information to the SR22 pilot. The BGA member was keen to point out that the CAA is currently working on regulation to enable ATSUs to use a Flight Information Display (FID) to display the glider EC data to controllers for situational awareness purposes. Such FIDs were already in use at AFISO and RAF units. In this case, had the controller had the use of a FID, they may have been able to see the Discus operating in the area that the SR22 was transitting through.

Finally, the Board discussed the risk of the Airprox. They were grateful to both pilots for providing the GPS data log because it had provided a clearer insight into the geometry and separation of the two aircraft. Members quickly agreed that there had been a risk of collision, however, some members thought that this had been a close encounter and providence had been a major factor in the separation, whilst others thought that, although there had been an element of chance and safety had been degraded, the separation was such that there had been some risk of collision but that this had not been a near-collision. The Chair called a vote and by a small majority the latter view prevailed; Risk Category B (**CF5**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022085			
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
	• 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: B.

Safety Barrier Assessment[6]

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

Ground Elements:

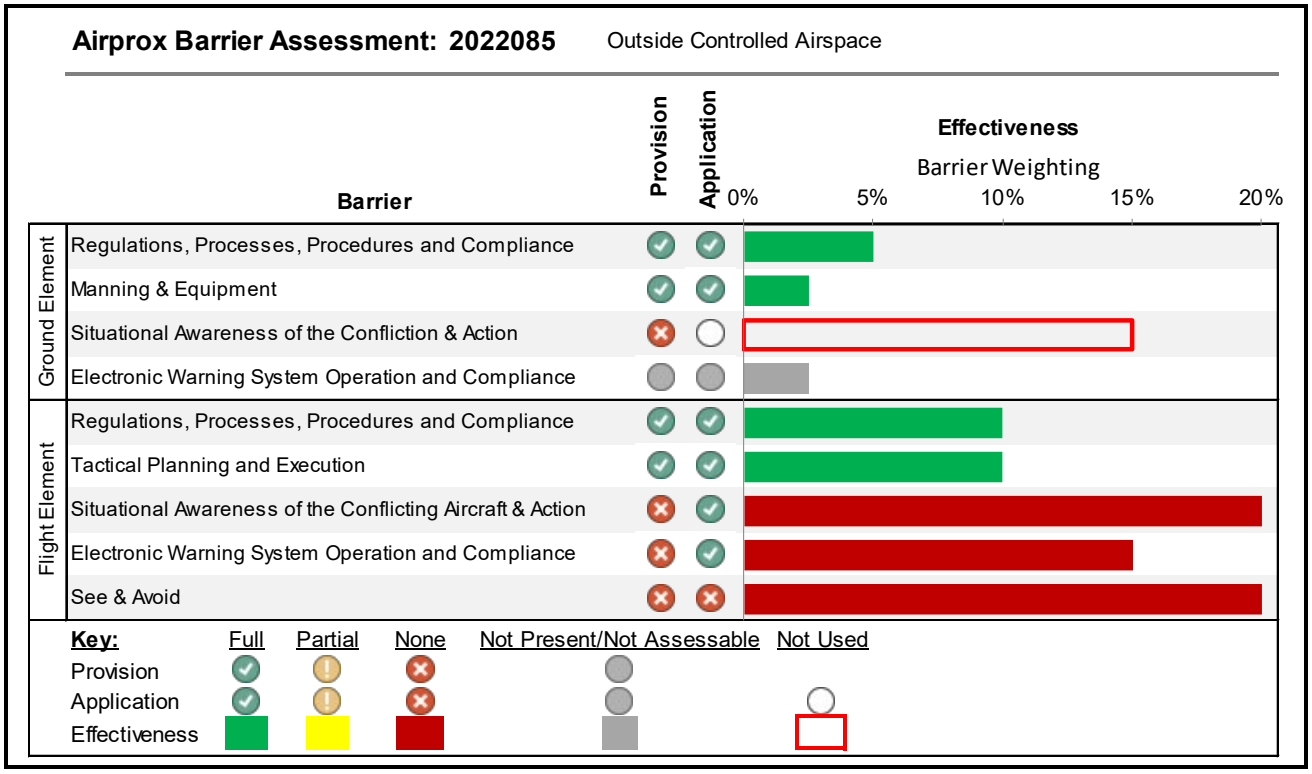
Situational Awareness of the Confliction and Action were assessed as **not used** because the controller was not required to monitor the aircraft receiving a Basic Service.

Flight Elements:

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC on the glider could not detect the SR22 and the TCAS I on the SR22 could not detect the glider.

See and Avoid were assessed as **ineffective** because the glider pilot did not see the SR22 in time to take avoiding action and the SR22 pilot did not see the glider at all.



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