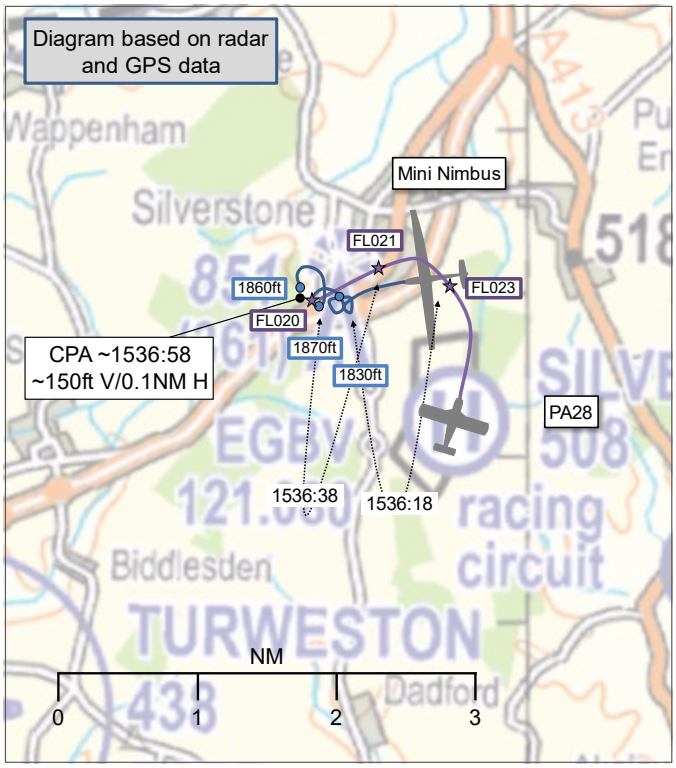
AIRPROX REPORT No 2023114

Date: 10 Jun 2023 Time: ~1537Z Position: 5205N 00102W Location: IVO Silverstone

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Mini Nimbus	PA28
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	AGCS
Provider	N/A	Turweston
Altitude/FL	~1860ft	FL020
Transponder	Not fitted	A, C, S
Reported		
Colours	White	Blue, White
Lighting	None	Nav, Beacon
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	1890ft	2500ft
Altimeter	QNH	QNH
Heading	Circling	360°
Speed	NK	85kt
ACAS/TAS	FLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	100ft V/0m H	Not Seen
Recorded	~150ft V/0.1NM H	



THE MINI NIMBUS PILOT reports that they were returning to Shenington airfield after a short task to Bozeat and Stoney Stratford. Approaching Silverstone circuit, they were unable to find a satisfactory climb and elected to head upwind of the circuit with a view that either the circuit would provide lift, or Silverstone village might. Arriving at the northwest end of the circuit at 1535, they found a weak thermal. The thermal was working but they had to work hard to keep with it and use the available lift. It was after a few turns that they noted the approaching aircraft at a similar altitude. While looking out elsewhere and flying their own aircraft, they watched the approaching Warrior carefully. When they were sure that they hadn't been spotted, and to avoid any conflict, they broke off from the thermal and descended. They watched the aircraft fly over the top of them, within 100ft or so, and were able to make out a couple of markings on the registration. This effectively marked the end of their flight and they landed in a field in Whittlebury, to the east of Silverstone village.

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

THE PA28 PILOT reports that they were on an air experience flight - 30mins from and to [departure airfield]. They conducted a normal comprehensive NOTAM check using SkyDemon. They noted that Silverstone is a well-known reporting point for GA, thus extra care is taken in the vicinity. They did not see the glider and were notified about the Airprox subsequently. At the time indicated in the report, there was very little known activity in the area and they would have requested re-join information from [destination] Tower frequency.

Factual Background

The weather at Oxford was recorded as follows:

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METAR EGTK 101520Z 13009KT 9999 TS VCSH SCT035CB SCT040 28/11 Q1012=
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Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken, the PA28 could be seen on the radar replay squawking 7000 and indicating FL020. The Mini Nimbus glider could not be seen on the radar, although a number of intermittent primary-only tracks could be seen in the area. The glider pilot provided the Secretariat with a GPS track and, by comparing the GPS with the radar data, an approximate CPA could be established. The diagram at the top of this report was compiled by comparing the two data sources. CPA was at approximately at 1537.

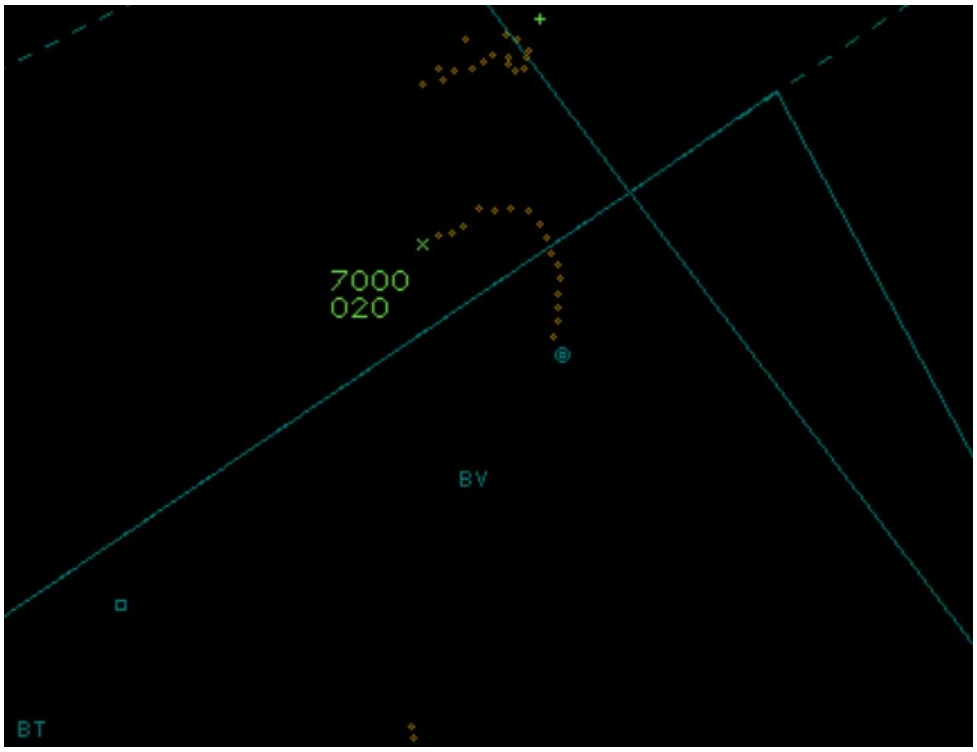


Figure 1 – 1536:58 Estimated CPA, only the PA28 could be seen on the radar.

The Mini Nimbus and PA28 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 head-on or nearly so then both pilots were required to turn to the right.[2] If the incident geometry is considered as converging then the PA28 pilot was required to give way to the Mini Nimbus glider.[3]

Comments

AOPA

Until such time as electronic conspicuity (EC) is enhanced so that all types of EC are compatible, in a non-radar environment lookout is the prime mid-air collision avoidance technique. The CAA rebate scheme for EC is available until March 2024 and it is recommended to pilots that, if possible, they participate in the scheme to enhance flight safety.

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

BGA

The Mini Nimbus pilot is to be commended for maintaining a good lookout, and manoeuvring to remain clear of the PA28.

This particular glider has a 15 metre wingspan, and was completing one thermalling turn about every 25 seconds, implying a bank angle of about 30°. When head or tail-on to a distant observer it would be difficult to see, but much more apparent when planform, twice in the course of each complete turn.

Where forward-pointing high-intensity landing lights are fitted, many pilots now opt to leave them permanently switched on, even in daylight, to aid visual conspicuity in this direction.

Summary

An Airprox was reported when a Mini Nimbus and a PA28 flew into proximity in the vicinity of Silverstone at around 1537Z on Saturday 10th June 2023. Both pilots were operating under VFR in VMC, the Mini Nimbus pilot was not in receipt of an ATS and the PA28 pilot was in receipt of a ACGS from Turweston.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs and GPS data. 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 discussed the actions of the Mini Nimbus pilot. Members agreed that the EC equipment fitted in the Mini Nimbus could not have detected the PA28 (**CF2**) and so the pilot had received no prior situational awareness that the PA28 had been in the vicinity (**CF1**), until they saw it. They had been struggling to maintain lift and had reported that they were in a weak thermal therefore had been working hard to remain airborne. Consequently, when they had first seen the PA28, they had waited to see whether it would continue to be a factor before taking action. Members discussed whether, had the pilot taken action immediately, the final separation might have been much greater. They were informed by the BGA member that landing in a field was not without risk and therefore the glider pilot would have wanted to avoid that scenario if at all possible. Nevertheless, whilst sympathising with the pilot's predicament, members thought that the pilot could have taken earlier action rather than waiting to see whether the other pilot moved first (**CF3**). Members noted that, although it had been for the PA28 pilot to give way to the glider, they could not have given way if they had not been aware of the glider's presence, and that this had been a salutary lesson in not assuming that the other pilot would manoeuvre, but to take action as soon as possible.

Turning to the actions of the PA28 pilot, the Board agreed that they also had not had any prior situational awareness that the glider had been operating in the vicinity (**CF1**). Members briefly discussed whether the pilot could have received a surveillance-based ATS in the area, but agreed that there was not an obvious choice, particularly when conducting a local sortie and remaining in that area. Members heard from the BGA representative that the glider would have been very difficult to spot as it had been thermalling and would present a small cross-section for the majority of the time. Additionally, because the PA28 had been slightly above the glider, the white aircraft would have blended into the backdrop of the ground and for some of the time would have been obscured below the nose and wing of the PA28 as the aircraft turned. Members also wondered whether, given that the PA28 pilot had been conducting a trial lesson, the pilot's attention had been focused on conversing with the passenger and pointing out ground features, perhaps to the detriment of lookout. Whatever the reason, members agreed that the PA28 pilot had not seen the glider at all (**CF4**).

The Board noted that the PA28 had not been fitted with any form of EC, which on this occasion may have provided some additional information to aid visual acquisition. Given that it was a flying school aircraft, members thought that with the benefits that EC brought, schools should look to re-equip their aircraft as soon as possible. It was for flying schools to decide on their own requirements for additional equipment according to their needs but the Board wished to highlight that additional funding has been

made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2024.[4]

When determining the risk, the Board considered the reports from both pilots, together with the radar and GPS data. They noted that the Mini Nimbus pilot had been visual with the PA28, although had not immediately taken action, but that the PA28 pilot had not been visual with the glider at all. Some members opined that, because neither pilot had taken early action, a risk of collision had existed. Other members thought that the Mini Nimbus pilot had been visual for some time and that the separation had been sufficient, and so there had been no risk of collision. In the end, the Chair conducted a vote, and by a majority the Board decided that, although safety had been degraded, there had been no risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023114			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
1	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			
2	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			
3	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
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

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:

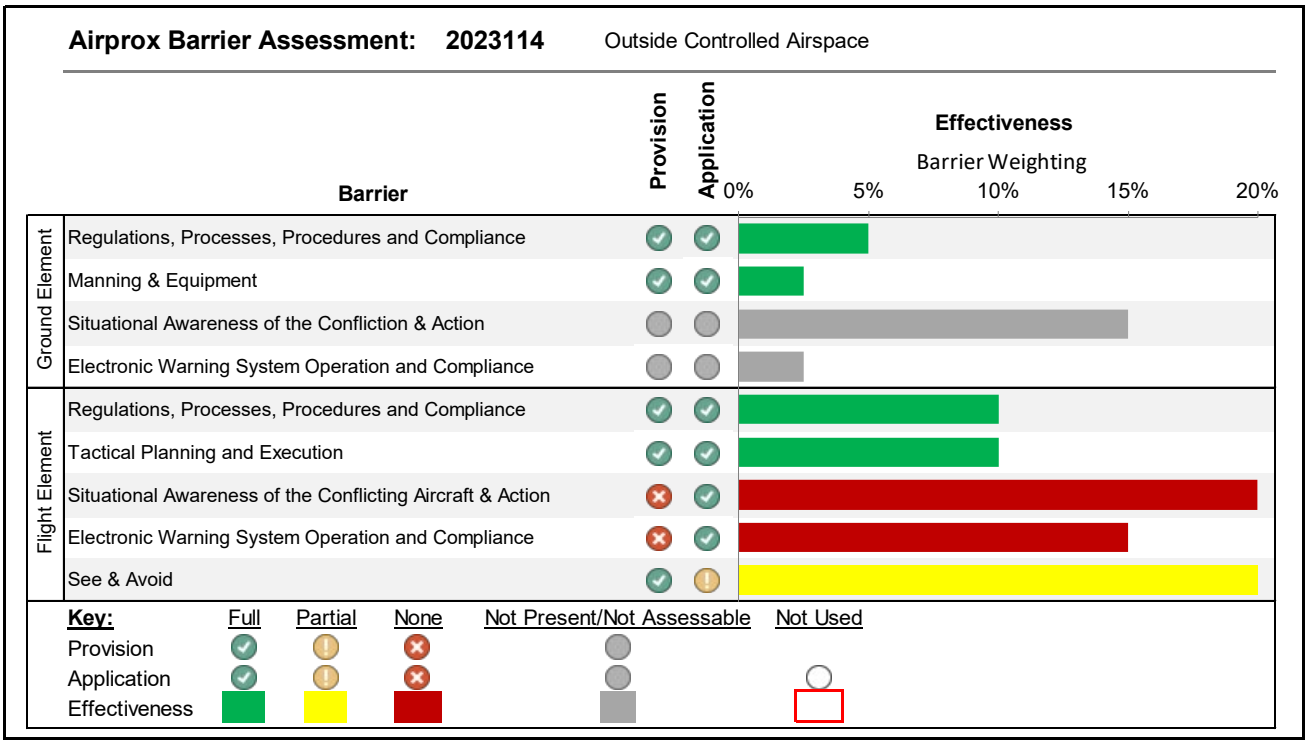
Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had known about the other aircraft in the vicinity.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment on the Mini Nimbus could not detect the PA28.

See and Avoid were assessed as **partially effective** because the Mini Nimbus pilot had seen the PA28 but did not immediately take any action and the PA28 pilot had not seen the Mini Nimbus.

[4] https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/

[5] 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: 2023114
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