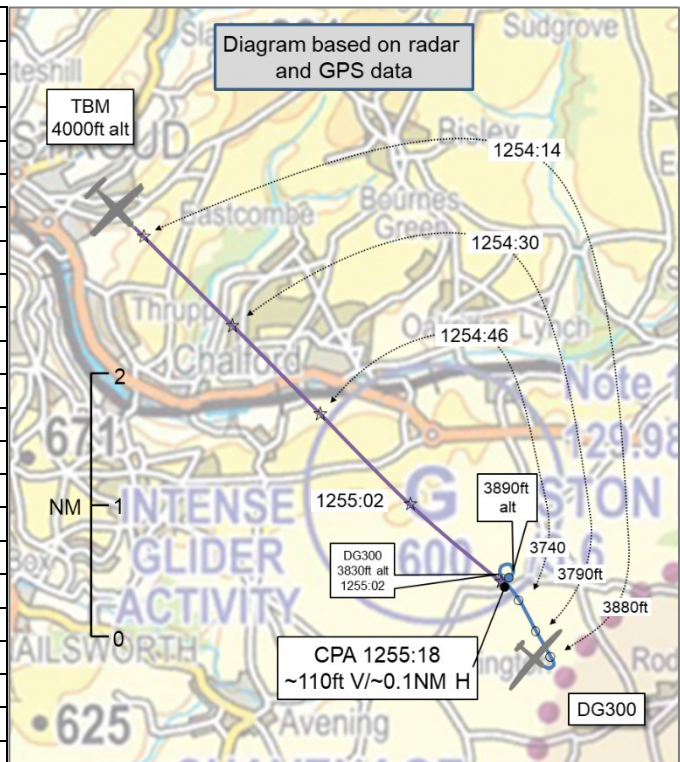


AIRPROX REPORT No 2022199

Date: 29 Aug 2022 Time: 1255Z Position: 5142N 00207W Location: 1NM SE Aston Down

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DG300	TBM930
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	Unknown
Provider	N/A	None ¹
Altitude/FL	3890ft	4000ft
Transponder	Not fitted	A, C, S+
Reported		
Colours	White	Red, White, Blue
Lighting	None	Beacon, Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3600ft	4000ft
Altimeter	QFE (NK hPa)	QNH (NK hPa)
Heading	'Thermalling'	133°
Speed	45kt	200kt
ACAS/TAS	FLARM	TCAS II
Alert	None	None
Separation at CPA		
Reported	100ft V/0m H	Not seen
Recorded	~110ft V/~0.1NM H	



THE DG300 PILOT reports that they were thermalling to the southeast of Aston Down airfield and the other aircraft flew directly over them, about 100ft above. Due to the aircraft travelling so quickly and being head-on to them, they did not see it until it was too late to take avoiding action. As the aircraft flew away from them it did not appear that they had taken any avoiding action. It continued on a southeasterly course at the same altitude. Their aircraft was fitted with functioning [commonly used glider EC equipment] and [an additional EC device] with ADS-B output.

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

THE TBM930 PILOT reports that their aircraft was en-route from [departure airfield] to [destination airfield] in uncontrolled airspace operating under VFR. The pilot was aware of possible glider activity and descended to 4000ft to remain in good VMC and give best chance of any visual contact. Gliders were seen but were not considered dangerously close. The pilot was not aware of any incident.

Factual Background

The weather at Gloucestershire was recorded as follows:

METAR EGBJ 291250Z 02011KT 9999 SCT044 22/11 Q1023

¹ The TBM930 pilot reported being in contact with a London frequency however NATS records show that they did not provide the pilot with a service on the date/time of the Airprox.

Analysis and Investigation

NATS Safety Investigations

No communication was made with Swanwick by the pilot of either aircraft. [The DG300] doesn't appear to have been transponding, [whereas the TBM930] was squawking 7000, which changed to [an enroute LARS provider] approximately 9min after [the reported time of the Airprox].

[The TBM930] did come into close proximity with an intermittent primary return in the approximate position [of the Airprox], (3NM NW of Cotswold Airport), this was only shown on a single [radar] source.

UKAB Secretariat

The UKAB Secretariat contacted the DG300 pilot and confirmed that they had been using their additional EC device as an ADS-B out, 'broadcast-only' piece of equipment and that, as they had not had any equipment upon which the device could display that data, they had not been utilising any of the traffic awareness features or capabilities.

An analysis of the NATS radar replay was undertaken and only the TBM930 was detected and it was identified using Mode S data. The DG300 pilot kindly supplied the UKAB Secretariat with a GPS data file which has been combined with the radar data to produce the diagram and measure CPA. However, due to the necessity to combine two differing data sources, the measured separation has been recorded as an approximation.

The DG300 and TBM930 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 TBM930 pilot was required to give way to the DG300.⁴

Comments

BGA

UK gliding sites are listed in UK AIP ENR 5.5 and labelled on the CAA 1:500,000 and 1:250,000 charts with a "G" symbol, as shown in the chart segment in Part A. A greater density of gliders may be expected nearby at any time during daylight hours, and at any altitude up to cloudbase.

Although each aircraft carried multiple electronic conspicuity systems, unfortunately none of these systems, as configured, were able to warn either pilot of the other aircraft's presence.

Summary

An Airprox was reported when a DG300 and a TBM930 flew into proximity 1NM southeast of Aston Down at 1255Z on Monday 29th August 2022. Both pilots were operating under VFR in VMC, neither pilot in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

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.

Members first considered the actions of the DG300 pilot and noted that, although they had been carrying two EC devices, they had not been fully exploiting the traffic awareness/receive function on one of them. A glider pilot member highlighted that although these two devices both output data to a display unit, they do this through differing means: one device uses Bluetooth, whilst the other utilises WiFi technology, resulting in a requirement for multiple displays. Members agreed that it had been unfortunate that the EC device capable of receiving data from the TBM930's transponder had not had a display unit, whilst the unit that was being fully utilised had been incompatible with, and therefore unable to detect the equipment fitted to the TBM930 (**CF2**). The Board went on to discuss whether the DG300 pilot had had any prior awareness of the TBM930 and concluded that they had had none (**CF1**). Members noted that, immediately prior to the Airprox, the DG300 had been either head-on to the TBM930 or circling, and that in both of these situations it can be difficult to visually acquire approaching aircraft, especially one closing at a relatively high speed such as that of the TBM930. The Board agreed that although the DG300 pilot had seen the TBM930, it had been at a point too late for them to have been able to take any effective avoiding action (**CF3**).

Next, the Board discussed the actions of the TBM930 pilot and agreed that they had had a generic awareness of the likelihood of the presence of gliders (**CF1**) and was encouraged that the pilot had avoided Aston Down vertically by such a margin. Members noted that, although the pilot had reported being in receipt of a service from London Information, no evidence of this could be found by NATS. An extended discussion followed regarding the type of service that may be appropriate for a pilot operating an aircraft of this level of performance in this airspace. A GA pilot member stated that, although the TBM930 had been equipped with TCAS II, it is often the case that this system will not be compatible with, and therefore not capable of detecting, traffic operating in class G airspace, because many aircraft are not transponder equipped, as had happened in this case (**CF2**). They went on to suggest that pilots should seek a surveillance-based ATS from suitable providers, such as Brize LARS, however a military controller stated that it would have been unlikely that the Brize radar would have detected a non-transpondering glider. A glider pilot member suggested that the TBM930 pilot may have benefitted from calling Aston Down, however, they acknowledged that it can be impractical for pilots to call each airfield or glider site they pass, and other members agreed. Members also noted that the TBM930 pilot had reported seeing gliders but, as they had not considered any to have been dangerously close, and considering the recorded separation, the Board determined that they had not visually acquired the DG300 at any point (**CF3**).

Finally, in assessing the risk of collision, the Board agreed that, whilst the TBM930 pilot had had generic awareness of the likelihood of glider activity in the vicinity, the DG300 pilot had not had any awareness of the presence of the TBM930. Members noted that the EC equipment that the TBM930 pilot had been carrying had been incompatible with that of the DG300 and, although the DG300 pilot had had EC equipment that had been capable of detecting the TBM930, they had not had any mechanism to display or access the information, essentially rendering it incompatible also. The Board noted that although the DG300 pilot had become visual with the TBM930, it had been too late for them to have taken any effective avoiding action and that the separation that had existed between the aircraft had reduced the risk of collision, but not removed it entirely. This led members to agree that, in this case, safety had not been assured and that there had been a risk of collision (**CF4**). Accordingly, the Board assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2022199			
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	• 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				
4	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 Assessment⁵

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 had any prior awareness of the presence of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because, although both pilots had been utilising EC equipment, neither had been compatible with the EC equipment used by the other pilot.

See and Avoid were assessed as **ineffective** because the TBM930 pilot had not become visual with the DG300 and, although the DG300 pilot had become visual with the TMB930, this had been at, or after, CPA and too late for them to have taken any effective 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](#).

Airprox Barrier Assessment: 2022199		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	■	■	■	■	□			