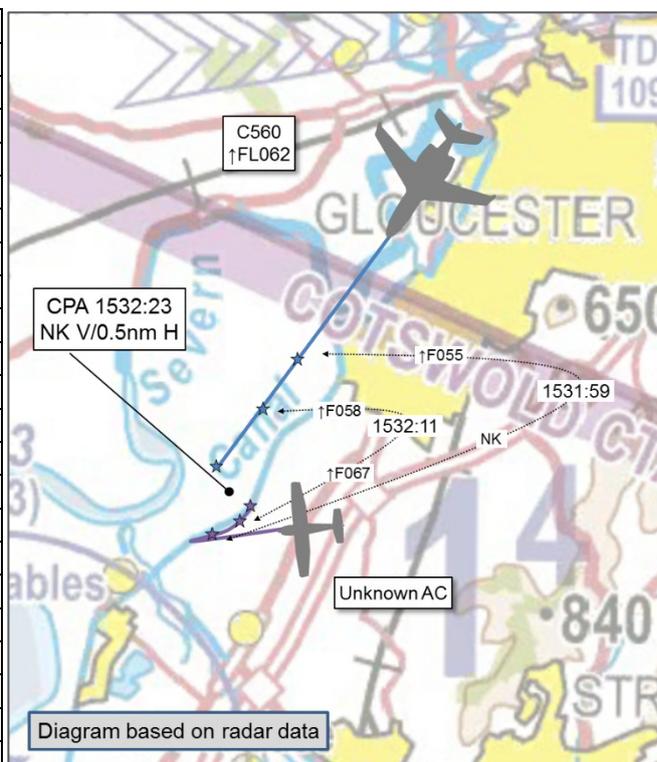


## **AIRPROX REPORT No 2019293**

Date: 02 Oct 2019 Time: 1532Z Position: 5147N 00219W Location: 8nm SW Gloucester

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C560	Unknown Aircraft
Operator	Civ Comm	U/K
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	
Service	Procedural	
Provider	Gloster	
Altitude/FL	FL62	NK
Transponder	A, C, S	A, C
<b>Reported</b>		Not Reported
Colours		
Lighting		
Conditions	VMC	
Visibility		
Altitude/FL	6000ft	
Altimeter	1013hPa	
Heading	SW	
Speed	200kt	
ACAS/TAS	TCAS II	
Alert	RA	
<b>Separation</b>		
Reported	NR	
Recorded	NK V/0.5nm H	



**THE C560 PILOT** reports that he took off from RW27 at Gloucestershire and turned left for point BADIM, still in uncontrolled airspace. He was cleared to climb to FL70 and, on passing about 6000ft, he received a TCAS TA. When he looked out he could see an aircraft conducting aerobatics to his left. Shortly afterwards, he received a TCAS RA to descend, followed by another RA to monitor vertical speed. He disconnected the autopilot and followed the RAs. Once he was climbing back to FL70 he advised ATC about the RAs.

**THE UNKNOWN LIGHT-AIRCRAFT PILOT** could not be traced.

**THE GLOSTER CONTROLLER** reports that an Airprox was not reported on the RT and so the controller had very little information on the incident. The C560 pilot did report an RA, but the radar had very little coverage at the time, it was still undergoing trials to bring it back into service, so the C560 was not being radar monitored.

### **Factual Background**

The weather at Gloucestershire was recorded as follows:

EGBJ 021520Z 01005KT 9999 FEW025 SCT035 13/06 Q1020=

### **Analysis and Investigation**

#### **CAA ATSI**

An Airprox was reported by the pilot of a C560 against an unknown aircraft whilst in the climb to FL70 having departed Gloucester-Staverton, en-route to Bristol. The C560 was first observed on the radar replay at 1529:37 (Figure 1). The unknown aircraft had been manoeuvring in an area

approximately 7nm to the south of Gloucester for a sustained period prior to this. It appeared to be carrying out manoeuvres consistent with aerobatics. Aircraft levels were reported as Flight Levels on the radar replay.

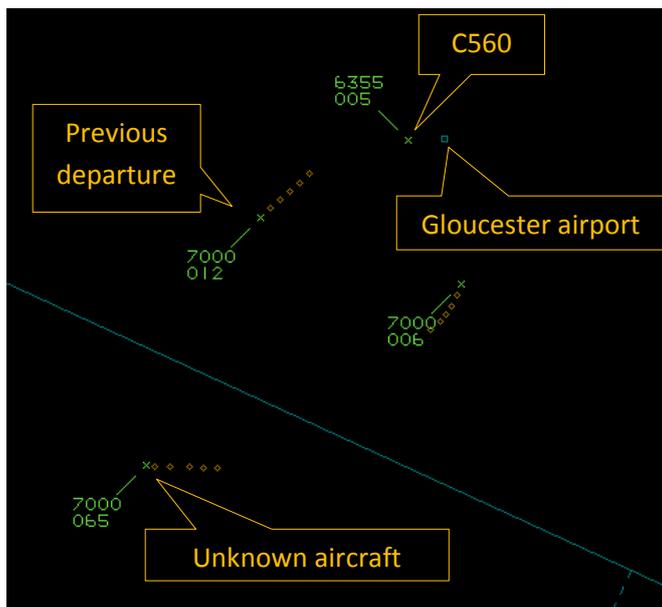


Figure 1 - 1529:37

The C560 had departed on a clearance from the Gloucester Tower controller on track to a reporting point 19.7nm to the south-west of the airfield, climbing to an altitude of 3000ft. At 1530:15 the pilot made their first call to the Gloucester Approach controller. They were advised that it was a Procedural Service and, at 1530:20, were cleared to climb to FL70, but instructed to remain clear of controlled airspace (Figure 2).

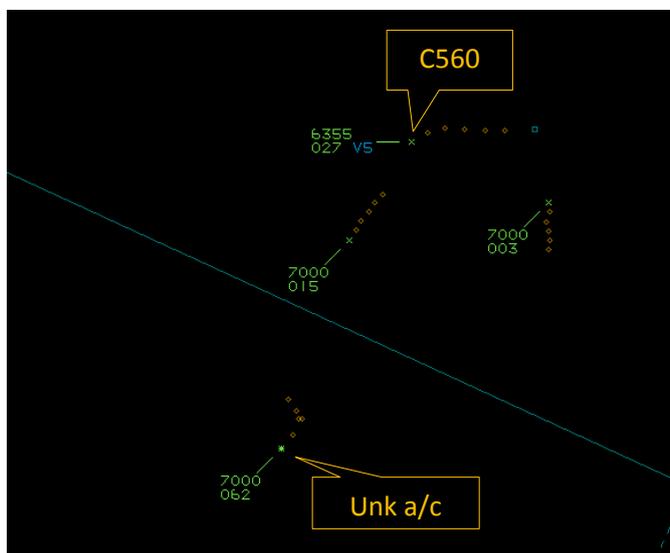


Figure 2 - 1530:20

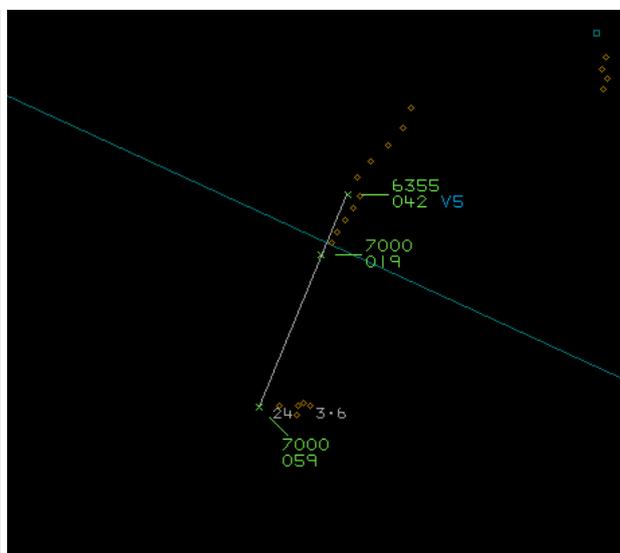


Figure 3 - 1531:21

At 1532:00 (Figure 4), the approach controller instructed the C560 pilot to contact Bristol Radar. However, the pilot had to ask twice for the frequency, and did not acknowledge the last call by the controller.

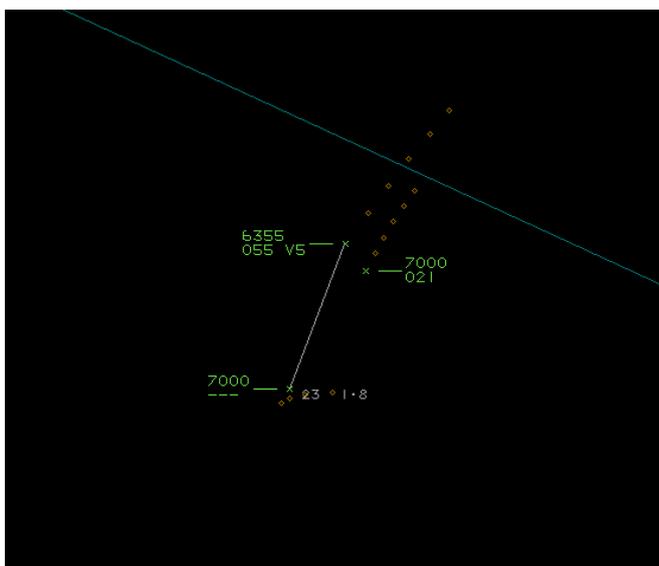


Figure 4 - 1532:00

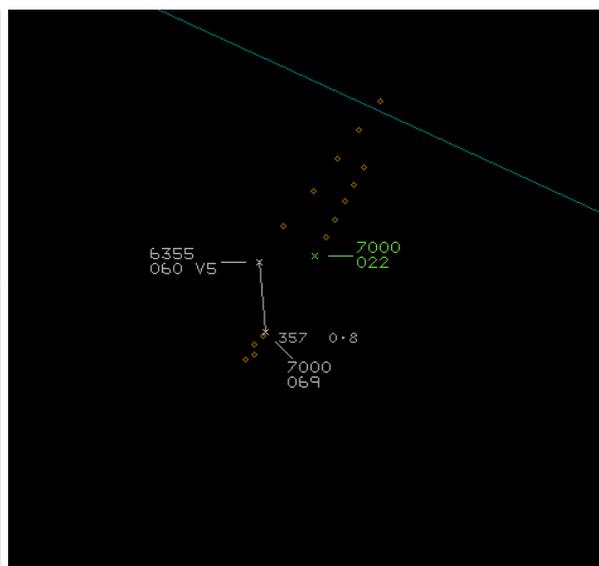


Figure 5 - 1532:18

CPA took place at 1532:23 (Figure 6), with the aircraft separated by 0.5nm laterally. The radar-reported level of the unknown aircraft was only available intermittently on the radar replay, likely due to the rapid changes in level during its manoeuvres, but had been observed to be FL69 at 1532:18 (Figure 5 above), but then FL60 at 1532:31 (Figure 7).

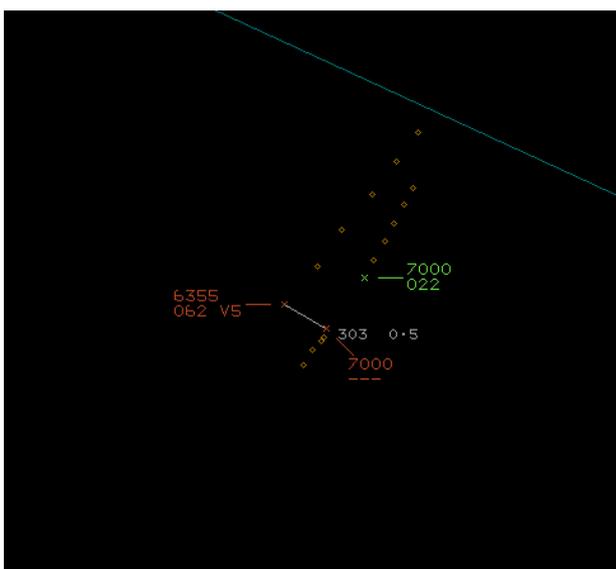


Figure 6 - 1532:23 (CPA)

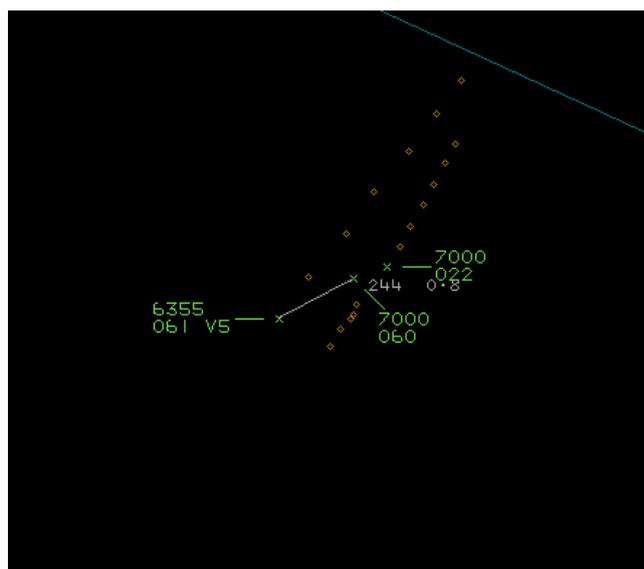


Figure 7 - 1532:31

At 1532:40, the C560 pilot reported having received a TCAS RA, and confirmed that they had resumed their climb to FL70. They requested the Bristol frequency once more, and subsequently changed frequency without further comment.

No report was submitted by Gloster ATC, but the unit reviewed the incident retrospectively and could offer no further information. The approach controller was providing a Procedural Service only. Gloster has a primary radar but it is not generally used for anything other than Surveillance Radar Approaches for inbound aircraft. There is no record of any report from Bristol. The Gloucestershire Approach controller would not have been aware of the presence of the unknown aircraft.

CAP774 UK Flight Information Services Chapter 5 states:

#### Traffic information

5.5 The controller shall provide Traffic Information, if it is considered that a confliction may exist, on aircraft being provided with a Basic Service and those where Traffic Information has been passed by another ATS unit; however, there is no requirement for deconfliction advice to be passed, and the pilot is wholly responsible for collision avoidance. The controller may, subject to workload, also provide traffic information on other aircraft participating in the Procedural Service, in order to improve the pilot's situational awareness.

*Under a Procedural Service, the controller has no ability to pass traffic information on any aircraft that he is not in communication with, unless he has been passed traffic information by another ATS unit.*

*Traffic information provided under a Procedural Service is unlikely to be as accurate as that provided by controllers using surveillance equipment. Therefore, pilots should be alert to the potential to incorrectly correlate the traffic information to other aircraft that they have in sight that are actually unknown to the controller.*

#### UKAB Secretariat

The C560 and unknown light-aircraft 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>1</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>2</sup>

#### Summary

An Airprox was reported when a C560 and an unknown light-aircraft flew into proximity near Gloster Airport at 1532hrs on Wednesday 2<sup>nd</sup> October 2019. The C560 pilot was operating under IFR in VMC and receiving a Procedural Service from Gloucester ATC. The light aircraft could not be traced.

#### **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from the C560 pilot, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controller involved and reports from the appropriate ATC and 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.

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. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first discussed the actions of the C560 pilot. He was in Class G airspace and receiving a Procedural Service from Gloster ATC, who were operating without a radar. As a result, this meant that he could not receive any Traffic Information on the unknown aircraft from Gloster ATC. He did receive a TA, followed by RAs, from his TCAS II, which alerted him to the presence of the other aircraft and cued him to look out and see it (**CF3**, **CF4**). The Board thought it likely that the trajectory of the manoeuvring aircraft triggered the various RAs because, although it was 0.5nm away, the highly dynamic nature of its flight would likely have seen its flight vector fleetingly sweep through the C560's flightpath in quick succession. However, members noted that, once he had seen it, although C560 pilot was concerned by the proximity of the unknown aircraft, he did not take lateral avoiding action. This

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3210 Right-of-way (c)(1) Approaching head-on.

may have been because he assumed that further avoiding action in addition to following the TCAS RA was not necessary. (CF5).

For his part the Gloster controller was operating without a radar and so had no knowledge that the unknown aircraft was there and could not offer any deconfliction advice (CF1, CF2).

Members were disappointed that the unknown aircraft could not be traced, because without its pilot's report it was not known whether they had seen the C560 and thought the separation adequate, or was not aware of it. Members noted that 6000-7000ft was normally well above the levels generally used by GA traffic but that it was just unfortunate that the C560 was transiting past the vertically manoeuvring light-aircraft. Although it would not have helped in this case because ATC was operating without radar, members commented that, generally, it was useful to ATC if pilots conducting aerobatics squawked 7004, the transponder code assigned to aircraft conducting such activities.

Finally, in determining the risk, members quickly agreed that, although the event met all of the criteria for reporting, with a separation determined after analysis to be 0.5nm in Class G airspace, this incident represented a situation where, despite the C560 pilot being concerned by the proximity of the light-aircraft as it conducted highly-dynamic aerobatics, normal safety standards and procedures had pertained. Accordingly, they assessed the risk as Category E.

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

### Contributory Factors:

	2019293			
CF	Factor	Description	Amplification	
	<b>Ground Elements</b>			
	<b>• Situational Awareness and Action</b>			
1	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness	
2	Human Factors	• Conflict Detection - Not Detected		
	<b>Flight Elements</b>			
	<b>• Electronic Warning System Operation and Compliance</b>			
3	Contextual	• ACAS/TCAS RA	TCAS RA event	
4	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication	
	<b>• See and Avoid</b>			
5	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft	

Degree of Risk: E.

### Safety Barrier Assessment<sup>3</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:**

<sup>3</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

**Situational Awareness of the Confliction and Action** were assessed as **ineffective** because, without radar, the Gloucester controller had no knowledge that the light aircraft was there.

<b>Airprox Barrier Assessment: 2019293</b>		Outside Controlled Airspace						
<b>Barrier</b>		<b>Provision</b>	<b>Application</b>	<b>Effectiveness</b>				
				<b>Barrier Weighting</b>				
				0%	5%	10%	15%	20%
<b>Ground Element</b>	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Confliction & Action	✗	✗					
	Electronic Warning System Operation and Compliance	○	○					
<b>Flight Element</b>	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>		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	○				
Application	✓	⚠	✗	○		○		
Effectiveness	■	■	■	■		□		