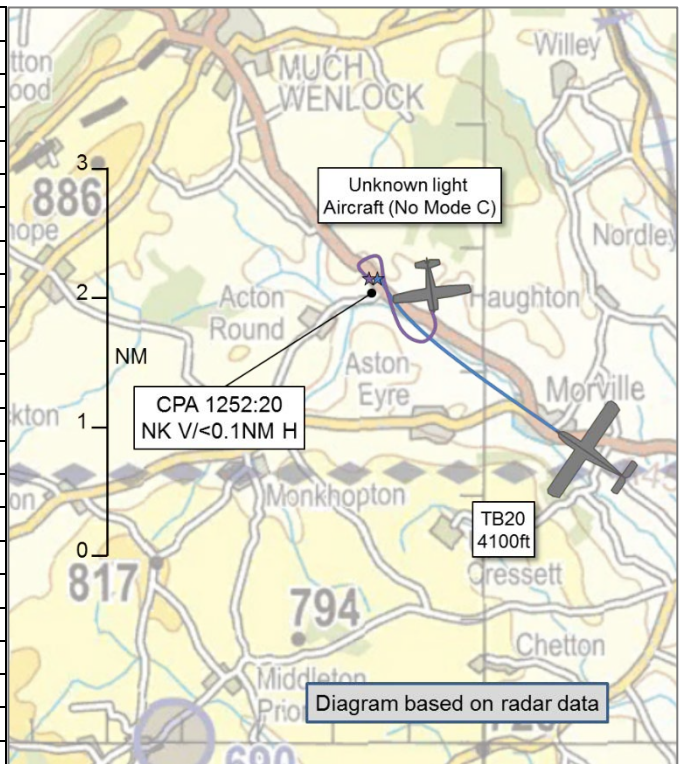


AIRPROX REPORT No 2020001

Date: 03 Jan 2020 Time: 1252Z Position: 5233N 00231W Location: 3NM NE Bridgnorth

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	TB20	Light Aircraft
Operator	Civ FW	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	
Service	Listening Out	
Provider	Shawbury Zone	
Altitude/FL	4100ft	NK
Transponder	A, C, S	A
Reported		
Colours	Green, White	
Lighting	Strobes, Nav	
Conditions	VMC	
Visibility	40km	
Altitude/FL	4200ft	
Altimeter	RPS (1018hPa)	
Heading	313°	
Speed	140kt	
ACAS/TAS	SkyDemon Echo	
Alert	None	
Separation		
Reported	0ft V/40m H	
Recorded	NK V/<0.1NM H	



THE TB20 PILOT reports that he was in the cruise section of a nav-ex and had been on the same heading and at the same altitude for approximately 10mins. He became aware of another single-engine light aircraft above and to the left (about 400-500ft above and probably the same horizontally). They were on roughly the same heading but he seemed to be overhauling the other aircraft. At the same moment as he began a turn to the right to increase separation, the other aircraft climbed sharply and entered an 'inverted loop'. No clearing turns were carried out. It was obvious the pilot of the other aircraft could not see him as they entered the manoeuvre. Keeping the other aircraft in sight, he moved to the right, and the other aircraft came out of the loop at the same altitude, more or less where he had been positioned. He estimated that there was no more than 40m horizontally between them at this stage, and the two aircraft were level with the TB20 on the right. Although he could clearly see the registration markings of the other aircraft, he was so astounded he did not record them. The other aircraft fell behind him and he continued on his course. At the time he was listening to Shawbury Zone, which was not manned but he could hear other traffic in the area on frequency. He did not hear anyone announcing aerobatic manoeuvres. After the event he noted that the other aircraft was not visible on his tablet, which displays all aircraft transmitting conspicuity via ADS-B out.

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

THE UNKNOWN AIRCRAFT PILOT could not be traced.

Factual Background

The weather at Birmingham was recorded as follows:

METAR EGBB 011250Z 20005KT 170V240 8000 BKN011 06/04 Q1028=

Analysis and Investigation

UKAB Secretariat

Although the TB20 pilot was not receiving an ATS (RAF Shawbury was closed at the time), the incident could be seen on the NATS radars. Figures 1 and 2 show the TB20 as it tracks north-west. The unknown aircraft can be seen manoeuvring 4NM away in Figure 1, but without Mode C the height cannot be ascertained.

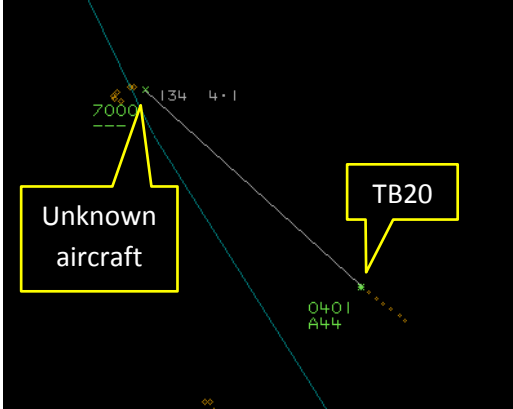


Figure 1 - 1250:04

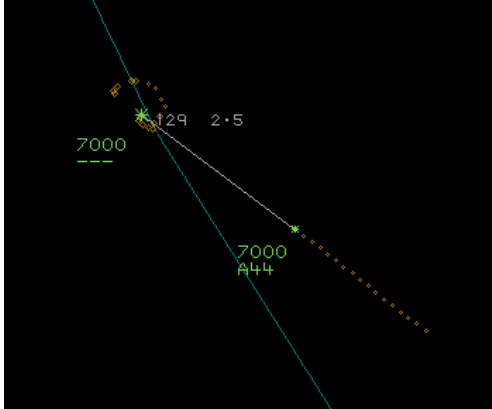


Figure 2- 1250:48

Figures 3 and 4 show the two aircraft as they close to 0.5NM. Figure 5 shows CPA, less than 0.1NM laterally, but vertical separation unknown.

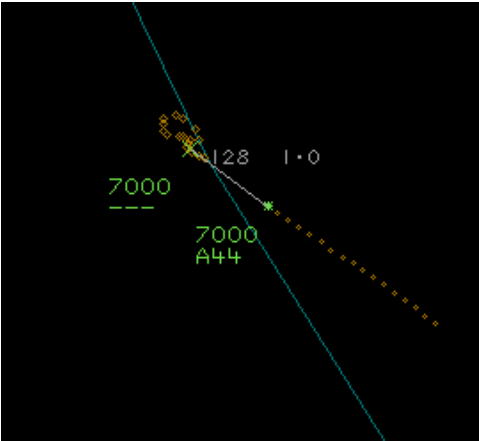


Figure 3-1251:32

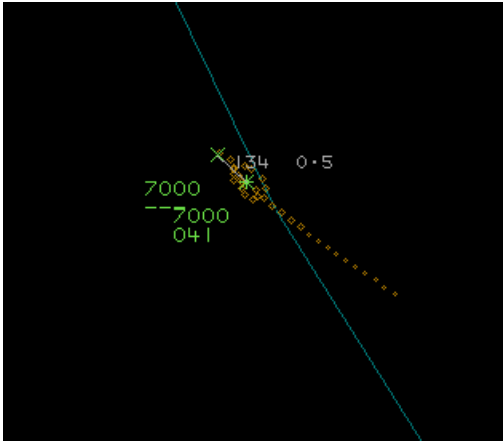


Figure 4- 1252:07

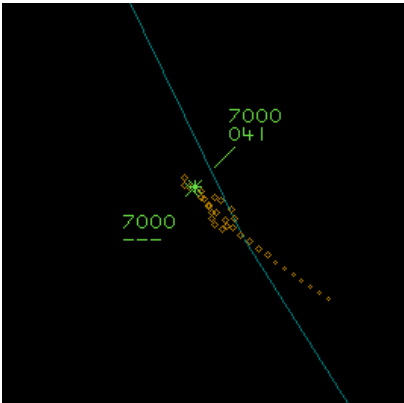


Figure 5 - 1252:20

The TB20 and unknown 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.¹

Summary

An Airprox was reported when a TB20 and an unknown aircraft flew into proximity in the vicinity of Bridgnorth at 1252hrs on Friday 3rd January 2020. The TB20 pilot was operating under VFR in VMC, not in receipt of an ATS. The unknown aircraft could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilot of the TB20, and radar photographs/video recordings. 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 looked at the actions of the TB20 pilot. Noting that he had been on a nav-ex, some members opined that, although it was important for the pilot to maintain his course, some pre-planned directional changes, for example, turning right for 30 seconds, then left for the same amount of time, then back on track, would have been beneficial in changing the aspect ratio and may have aided conspicuity for both pilots. Certainly, the light aircraft had been manoeuvring in the area for the whole time that the TB20 had been approaching from the south-east, although members acknowledged it was not known at what height it had previously been. However, without RAF Shawbury to provide an ATS, there was no ANSP for the TB20 pilot to call in that area and so he had not been able to get any prior situational awareness from ATC (**CF1**). Furthermore, his CWS had not alerted him to the other aircraft (**CF2**). Had the TB20 pilot had any situational awareness, from either aforementioned source or from look-out, he would have been able to route around the other aircraft to keep out of the way and members opined that it was always a good idea to completely avoid manoeuvring aircraft because of their unpredictability. In the event, although he saw the other aircraft late(**CF3**), he managed to take some avoiding action to increase separation.

Turning to the unknown light aircraft pilot, members thought it was unfortunate that he hadn't been traced because, without his report, it was not known whether he had seen the TB20 or not. However, members thought it was unlikely, given that he had ended up so close to the TB20. They noted that he had been squawking 7000 and thought that, although it would not have affected this Airprox because the TB20 pilot had not been receiving an ATS, in general it was good practice to squawk 7004 because this would provide controllers with information that aerobatics were being conducted and they, in turn, could provide Traffic Information to pilots transiting through the area. Members also reminded pilots that, when conducting aerobatics, clearing turns should be conducted prior to manoeuvring to ensure the airspace is clear.

Finally, when determining the risk, members briefly discussed whether the outcome was largely down to providence, but in the end agreed that the separation had been increased by the avoiding action taken by the TB20 pilot and so concluded that, although safety had been much reduced, the avoiding action had materially increased separation; risk Category B.

¹ SERA.3205 Proximity.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2020001			
CF	Factor	Description	Amplification
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
1	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance			
2	Technical	• ACAS/TCAS System Failure	Incompatible CWS equipment
• See and Avoid			
3	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: B.

Safety Barrier Assessment²

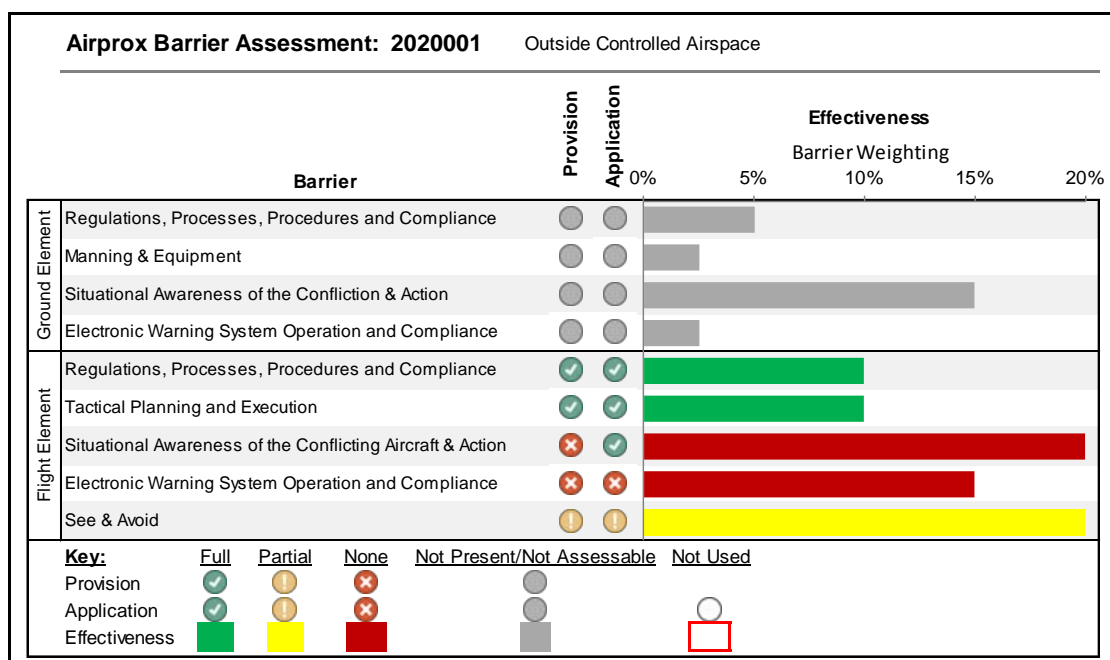
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the TB20 pilot had no prior knowledge of the light aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the CWS on the TB20 had not detected the light aircraft.

See and Avoid were assessed as **partially effective** because although the TB20 pilot saw the light aircraft late, he had been able to take avoiding action.



² The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](http://www.ukab.co.uk).