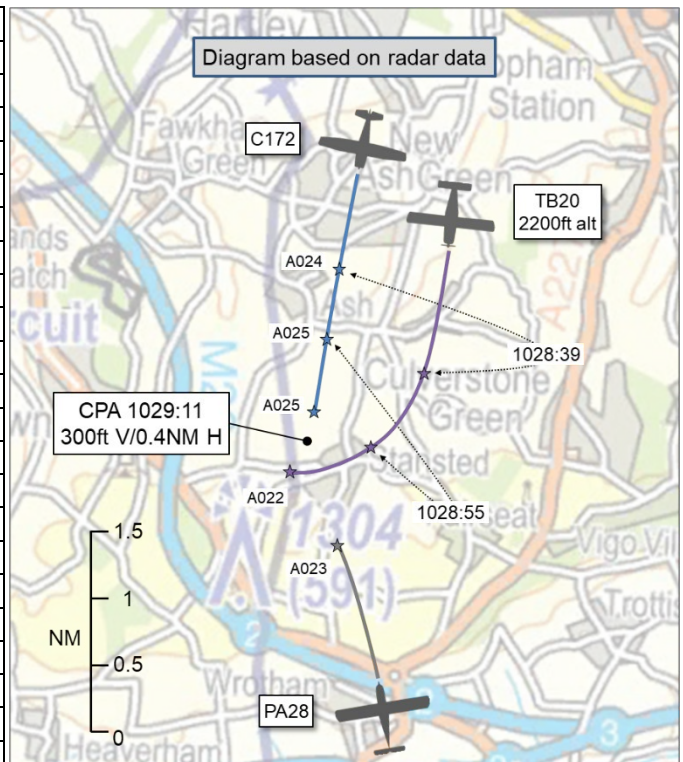


AIRPROX REPORT No 2023257

Date: 25 Nov 2023 Time: 1029Z Position: 5120N 00018E Location: 2NM SE Brands Hatch

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	TB20
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Altitude/FL	2500ft	2200ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue, white	Blue, white
Lighting	NR	Strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2400ft	2000ft
Altimeter	QNH (1022hPa)	QNH (1021hPa)
Heading	180°	200°
Speed	NK	130kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	TA
Separation at CPA		
Reported	100ft V/120m H	300ft V/0.1NM H
Recorded	300ft V/0.4NM H	



THE C172 PILOT reports that, on their way to [destination airfield], they carried out the usual FREDA checks, and looked for traffic. They were heading south, and on a Basic Service [they recalled]. They had asked for a Traffic Service because the airspace was very busy and the low sun made it harder to spot aircraft. They exercised due diligence to keep away from [controlled] airspace above. All of a sudden, [they saw the TB20]. The aircraft went from their left to right. They had spotted it to their left and could tell that its pilot had not seen [the C172] to take avoiding action. Usually, both aircraft turn to the right. [The pilot of the C172 opines that] they could do nothing else other than climb because they were at approximately 2300ft and had to climb immediately to get above [the TB20] because decreasing height would have caused a collision.

The pilot assessed the risk of collision as ‘High’.

THE TB20 PILOT reports that their flight was an IR(R) renewal exercise. They had been to Southend to do two instrument approaches and were [en-route to their destination]. They manoeuvred on a limited panel at around 2000ft QNH, and did a limited panel spiral-dive recovery. These were carried out in the vicinity of West Kingsdown/Brands Hatch before a visual recovery to [their destination airfield]. They were under the hood, but their aircraft was equipped with “traffic radar”, and were warned of a number of contacts in the area. The nearest was a C172, which was close, but higher. They received the traffic warnings and they discussed this with their examiner. [The examiner] had the C172 in sight at all times, and believed that it was above by at least 200-300ft. They estimated the risk of collision as nil in view of the TAS warning and early visual sighting. [The pilot of the TB20 opines that] the C172 pilot may not have had the benefit of TAS warnings, and may have seen [the TB20] late and close, hence the Airprox report.

The pilot assessed the risk of collision as ‘None’.

THE TB20 PILOT EXAMINER reports, [in response to specific questions from the UKAB Secretariat], that they had been conducting an IR(R) renewal test for [the pilot of the TB20] who had been the

handling pilot and they, [the examiner], had been the Captain. They were returning from doing 2 letdowns at Southend and were conducting the limited panel section at around 2000ft QNH.

The TB20 traffic warning system came up with 2 alerts - one to the south of them, [the PA28], and one closer, to the north of them, [the C172].

They did not visually see the aircraft to the south of them (from which they were turning away by changing course to west). They cannot remember its altitude on the "radar", but did not regard it as a threat. They were maintaining a good lookout, and saw the second aircraft in their five o'clock position, heading roughly south-east and approximately 300ft above. They then initiated a turn onto west and the aircraft passed behind and above. No avoiding action was necessary, but they did turn onto a westerly heading while the aircraft was in sight.

They were not in receipt of a service, having left Southend's frequency for [their destination airfield frequency], the short transit did not seem to justify a change to Farnborough East as a Traffic Service on a busy VFR day seemed very unlikely.

THE PA28 PILOT reports that, as a witness to the incident, they recall a point at which there were three aircraft converging. They believe that it was the TB20 which had concerned them the most as it appeared to come from nowhere and appeared to pass at very high speed compared to the speed that they were doing.

THE FARNBOROUGH LARS EAST CONTROLLER reports that they were working LARS North and East with medium-to-high traffic levels. [The pilot of the C172] reported on frequency at 2600ft [after CPA], east of Sevenoaks. They told the pilot to descend and then issued a squawk and service when outside controlled airspace.

Factual Background

The weather at Biggin Hill was recorded as follows:

METAR EGKB 251020Z 31006KT CAVOK 02/M02 Q1021

Analysis and Investigation

The Biggin Hill Airport Head of ATS reports that the pilot of the TB20 called the Biggin Hill controller (when approximately 15NM NE of Biggin Hill) but then the TB20 pilot examiner requested that the Biggin Hill controller "*disregard*". The Biggin Hill controller did not reply or offer an ATS.



Figure 1 – 1026:05. The pilot of the TB20 had called the Biggin Hill controller approximately 3min before CPA.

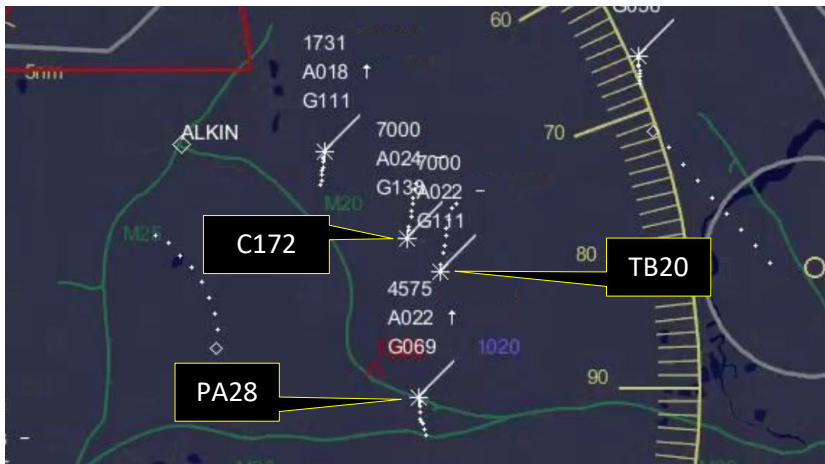


Figure 2 – 1028:31

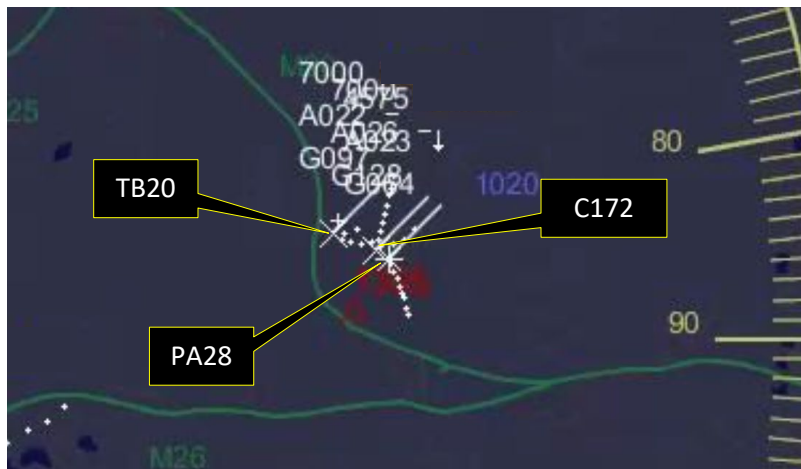


Figure 3 – 1029:26. After CPA.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Both aircraft could be positively identified from Mode S data (see Figure 4). The separation between the C172 and TB20 was observed to have been 0.5NM at 1029:07. The separation decreased to 0.4NM on the next radar sweep (Figure 5) and this was assessed to have been CPA. The diagram was constructed and the CPA determined from the radar data.

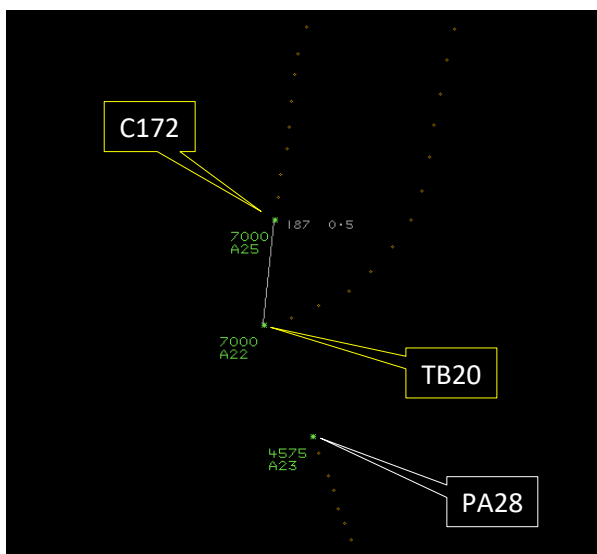


Figure 4 – 1029:07

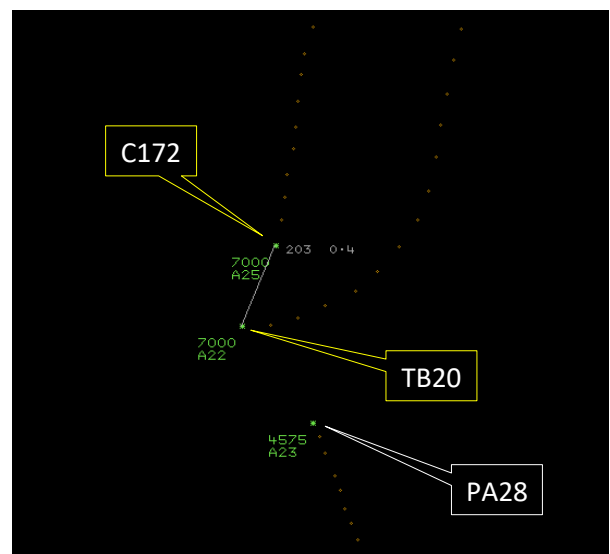


Figure 5 – CPA at 1029:11

The C172 and TB20 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 converging then the TB20 pilot was required to give way to the C172.² If the incident geometry is considered as overtaking then the C172 pilot had right of way and the TB20 pilot was required to keep out of the way of the other aircraft by altering course to the right.³

Summary

An Airprox was reported when a C172 and a TB20 flew into proximity 2NM southeast of Brands Hatch at 1029Z on Saturday 25th November 2023. Both pilots were operating under VFR in VMC, neither in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots involved, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate operating authority. 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 considered the actions of the pilot of the C172. Noting that the situation had involved 3 aircraft, apparently on converging flightpaths, it was agreed that the safest course of action had required careful consideration.

Members noted that, without the benefit of having been in receipt of an ATS (**CF1**), and that the C172 had not been fitted with additional EC equipment, the pilot of the C172 had not had situational awareness of nearby traffic (**CF2**). Members were in agreement that it would have been particularly prudent to have been in receipt of an ATS during their transit of busy airspace. Further, members wished to emphasise that the use of additional EC equipment may have provided a timely alert to the proximity of the TB20. Nevertheless, members had some sympathy with the pilot of the C172 in that the sudden appearance of the TB20 had caused concern (**CF4**), and may have caused a startle effect. Members noted that, at the moment of CPA, the PA28 had been converging with the C172 from the south and had been slightly below its altitude. Therefore, with the TB20 to their right, the C172 pilot had initiated a climb to ensure the greatest separation from both the TB20 and the PA28.

Turning their attention to the actions of the pilot of the TB20, members noted that, for approximately 1min before CPA, they had followed a broadly similar track to that of the C172 pilot, albeit displaced by 0.5NM to its east and slightly ahead. Members noted that the pilot of the TB20 had not been in receipt of an ATS (**CF1**). Indeed, it was noted that the TB20 Examiner had requested that the Biggin Hill controller disregard the TB20 pilot's request for a service. Members were keen to highlight the benefit to the situational awareness of pilots, as well as controllers, when a service is provided. However, members noted that the pilot of the TB20 had acquired situational awareness of the C172 given that they had received an alert to its presence on their TAS (**CF3**). It was further noted that the TB20 Examiner had sighted the C172 in plenty of time to have considered the safest course of action. Notwithstanding, the pilot of the TB20 had subsequently turned across the track of the C172 and members considered the separation with which they had afforded its pilot. Noting that the TB20 Examiner had estimated that their horizontal separation from the C172 had been 0.1NM, members recalled the wording of SERA 3210 Right-of-way that states:

(c) An aircraft that is obliged [...] to keep out of the way of another shall avoid passing over, under or in front of the other, unless it passes well clear and takes into account the effect of aircraft wake turbulence.

It was appreciated that the TB20 Examiner had considered that the separation from the C172 had been adequate, but members felt that it would have been more prudent to have provided greater horizontal separation to have ensured that they had remained 'well clear'. One member (with particular knowledge

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3210 Right-of-way (c)(2) Converging.

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

of general aviation operations) suggested that it may also have been wise to have increased vertical separation by initiating a descent.

Concluding their discussion, members were in agreement that the separation between the aircraft had been such that it had caused the pilot of the C172 concern and that it may have been more prudent for the pilot of the TB20 to have ensured greater separation between the aircraft during their turn. Members concluded that safety margins had been reduced but were satisfied that there had not been a risk of collision. As such, the Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2023257				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Flight Elements				
• Tactical Planning and Execution				
1	Human Factors	• Communications by Flight Crew with ANS	An event related to the communications between the flight crew and the air navigation service.	Pilot did not request appropriate ATS service or communicate with appropriate provider
• 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	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
4	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment⁴

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

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because neither pilot had elected to have been in receipt of an ATS.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the C172 had not had situational awareness of the presence of the TB20 until it had been visually acquired.

⁴ 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: 2023257		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 Conflicition & 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:		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	●	●	●	●				
Application	●	●	●	●				
Effectiveness	■	■	■	■	□			