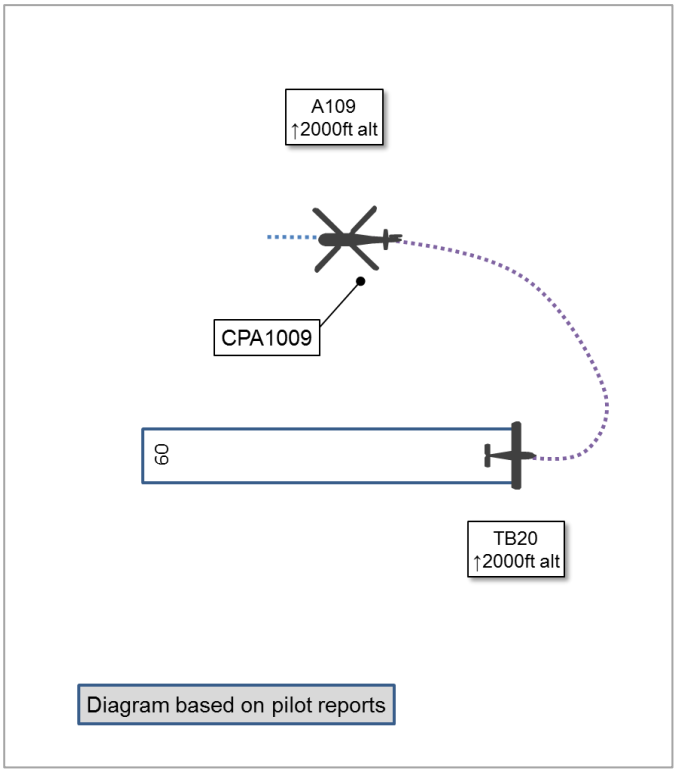
AIRPROX REPORT No 2015090

Date: 4 Jun 2015 Time: 1009Z Position: 5155N 00209W Location: Gloucestershire

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW109	TB20
Operator	Civ Comm	Civ Trg
Airspace	Gloucestershire ATZ	Gloucestershire ATZ
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Basic
Provider	Gloster	Gloster
Altitude/FL	NK	2000ft
Transponder	A	A,C
Reported		
Colours	Blue, White	Cream, Green
Lighting	Strobes, Nav, HISLs	Beacon
Conditions	VMC	VMC
Visibility	>10km	NK
Altitude/FL	1600ft	2000ft
Altimeter	QNH (1022hPa)	QNH
Heading	270°	270°
Speed	65kt	120kt
ACAS/TAS	Not fitted	NK
Separation		
Reported	10ft V/10ft H	NK
Recorded	NK	



THE AW109 PILOT reports he was in the RW09 helicopter circuit and had received ATC approval to climb to 2000ft for a practice auto-rotation. He was maintaining a good look-out because there was a lot of traffic around, when an aircraft passed within 20ft vertically and "inside the disc diameter" overhead. It had come from their 7 o'clock, and the pilot opined that no amount of look-out would have seen it. It was seen when the sky above became completely blocked out, and he thought it likely that the other pilot hadn't seen them because he didn't see the other aircraft change direction at all. He noted that there was no time to react, and he thought that the 2 aircraft missed by pure luck.

He assessed the risk of collision as 'Very High'.

THE TB20 PILOT reports departing from RW09 with the student under the IFR hood. He was aware that the helicopter circuit was active, but expected this to be at 750ft, and they were already passing 1500ft as they turned wide-downwind to depart. They were told to change to Approach frequency and, as they checked-in, they were downwind passing 2000ft. Almost simultaneously, ATC gave Traffic Information and the instructor saw the roof and rotor blades of a helicopter below and left. He took control and recalled wondering what the forward speed of a helicopter in the climb was. He started a right turn, but it was quickly apparent that they were overtaking and climbing away from it. The helicopter passed below and from left to right, but he was unable to meaningfully judge the distance. He didn't think the risk of collision was high and therefore at the time didn't consider it to be an Airprox. However, he noted that despite many years flying at Gloucestershire he did not realise that the helicopters could routinely climb up to 2000ft, especially considering that overhead joins were at this height. After landing, he called to discuss the incident with ATC. He opined that it was unfortunate that his unusual departure had coincided with the helicopter's unusual operation, which, with hindsight, could have been easily deconflicted with a clearance not to turn west below 2000ft.

He assessed the risk of collision as 'Low'.

THE GLOSTER CONTROLLER reports that the TB20 departed from RW09 with a left turn to the west and was advised that the helicopter circuit was active. The AW109 in the helicopter circuit was climbing to 2000ft for an auto-rotation into the Heli North Training Area. The controller observed on the air traffic monitor that the two aircraft were parallel to each other and tracking west, so advised the pilot of the TB20 that the helicopter was at 2000ft.

Factual Background

The weather at Gloucestershire was reported as:

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METAR 0950Z 18006KT 130V220 9999 FEW045 18/08 Q1025
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from both pilots, the Gloucestershire Airport ATC unit investigation report, Swanwick MRT and Gloucestershire Airport primary radar recordings, and RTF transcript of the Gloster Tower frequency. An interview was also conducted with the tower controller. Although the report from the pilot of the AW109 indicated having an SSR transponder fitted and selected "On," in the Swanwick MRT radar recording only the TB20 was visible, therefore the screenshots produced in the report and used for analysis were taken from the Gloucestershire Airport primary radar recordings. Swanwick radar screenshots are included to illustrate levels of the TB20 as close as possible to the corresponding Gloucestershire Airport recordings.

Prior to departure, the TB20 had been given Traffic Information on traffic descending on the deadside from an overhead join, and also advised that the left-hand helicopter circuit was active. In a continuation of the same transmission the TB20 was then cleared for take-off with a left turn-out to the west. The TB20 pilot acknowledged the clearance for take-off but not the Traffic Information. The AW109 had already completed a practice auto-rotation in the helicopter circuit to the north of RW09 and, at 1008:23 (Figure 1), was observed making a left turn into the circuit again, ahead of the TB20 which departed straight-ahead.

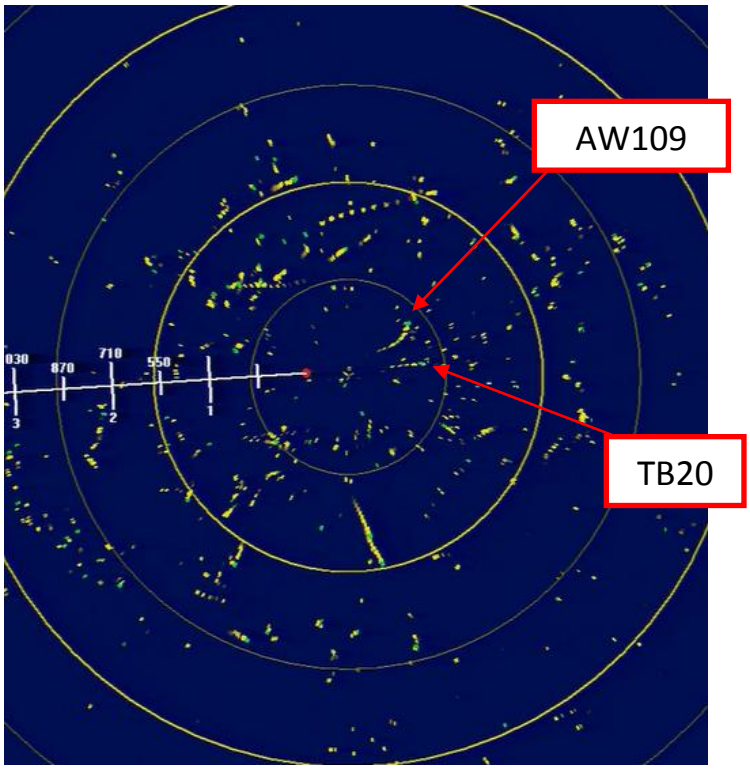

Figure 1 – 1008:23 (1NM Range Rings)

Shortly afterwards, the pilot of the AW109 requested a climb to 2000ft for a practice auto-rotation, which was approved by the controller, together with Traffic Information on traffic routing for an overhead join at 2000ft from the north-east which was acknowledged.

At 1008:46 the AW109 was established in the crosswind left-hand position. The TB20 was also in a left-turn, outside the AW109 (Figure 2). Figure 2.1 shows the Swanwick MRT radar for the TB20 at approximately the same time.

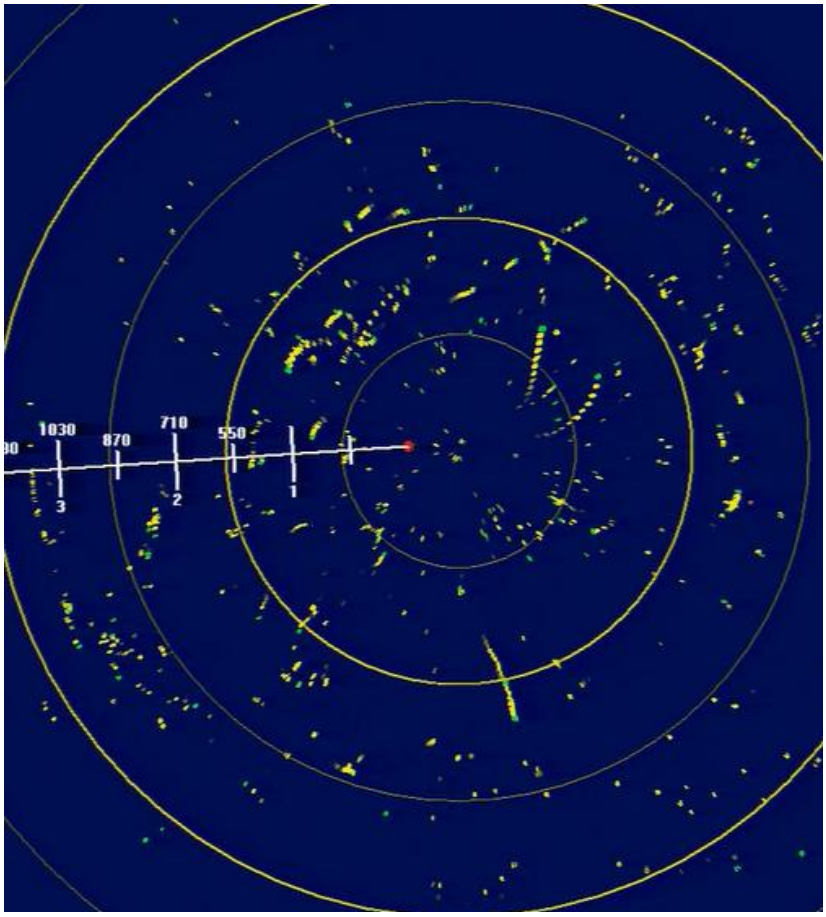

Figure 2 – 1008:46

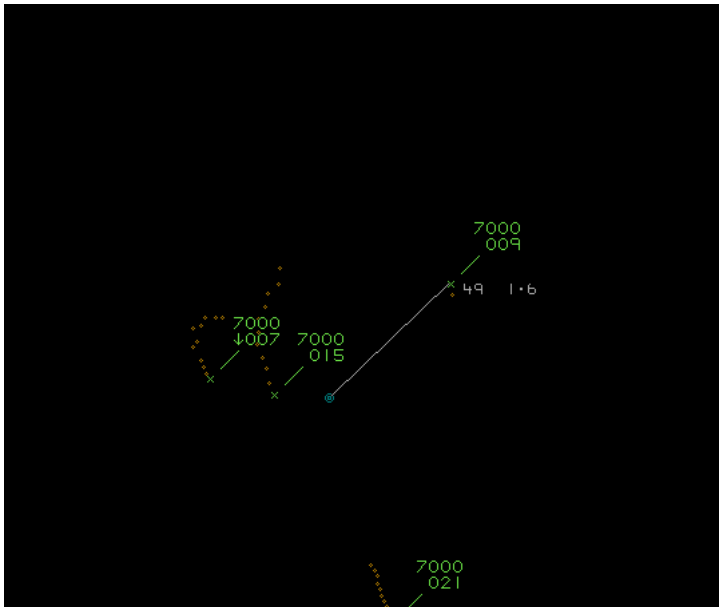

Figure 2.1

At 1009:09 the AW109 commenced a left-turn into the downwind position. The TB20 also commenced a left turn for the west, turning inside the AW109 and at a relatively higher speed (Figure 3).

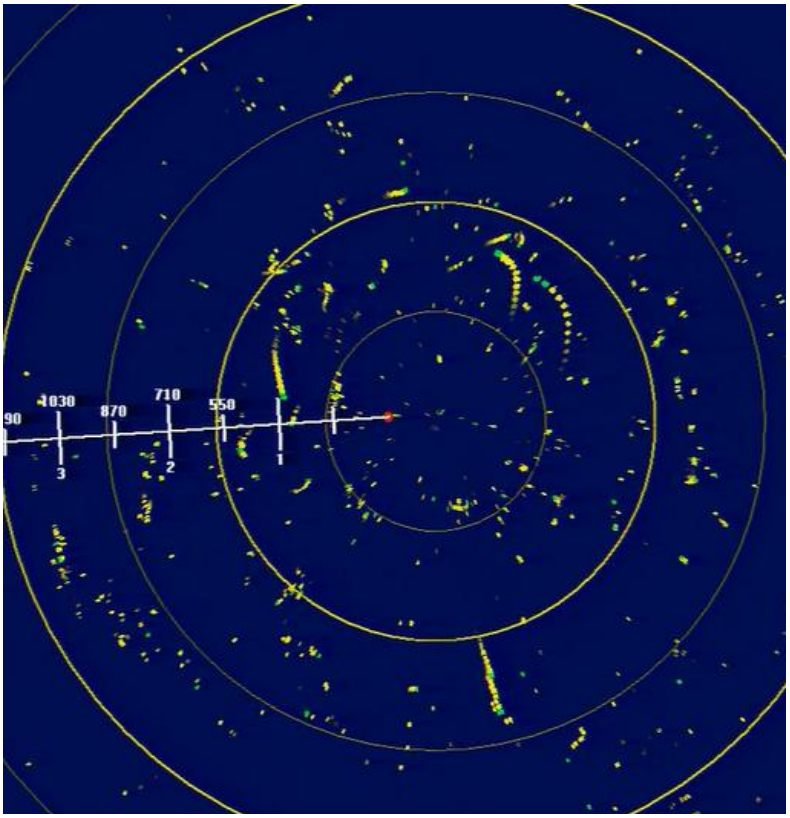

Figure 3 – 1009:09

Figure 4, (1009:27) shows the TB20 completing the turn inside the AW109 as it started to overhaul the helicopter.

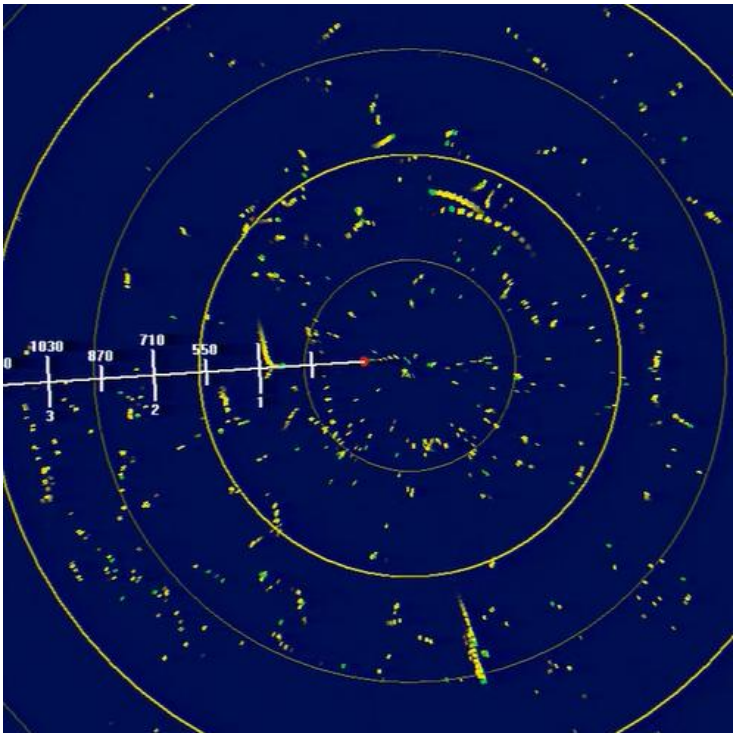

Figure 4 – 1009:27

At 1009:37, the TB20 was established on a west north-westerly track and had started to converge with the AW109 which was on a more westerly track. Swanwick MRT recordings show the TB20 was passing FL010 (Figure 5.1). There was no level information for the helicopter at this point. Prior to being transferred to the approach frequency, the TB20 was given further Traffic Information on the AW109, specifying the position of the AW109 as being on the downwind leg and climbing to 2000ft. The TB20 pilot acknowledged the instruction to contact Approach but again did not acknowledge the traffic information.

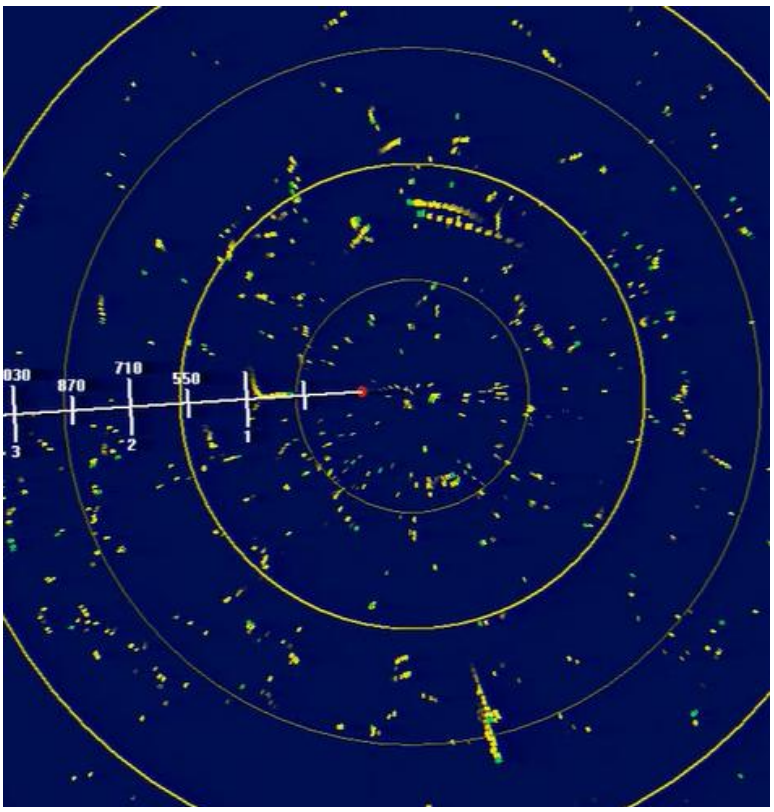

Figure 5 – 1009:37

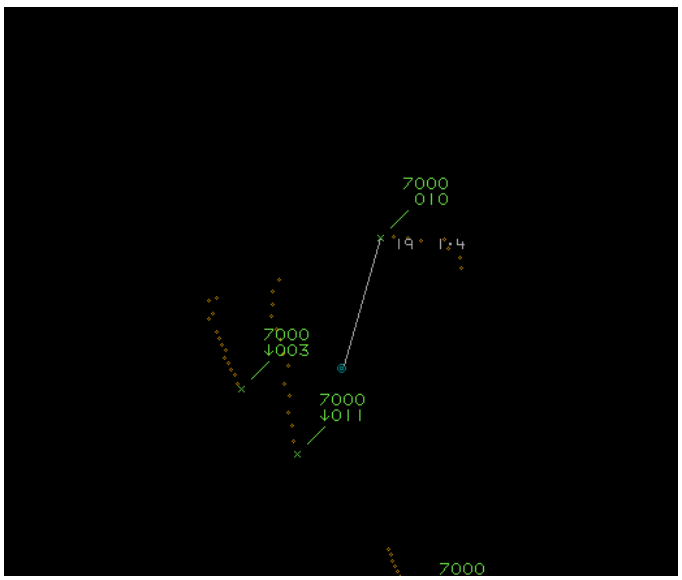

Figure 5.1

At 1009:48, the contacts merged (Figure 6).

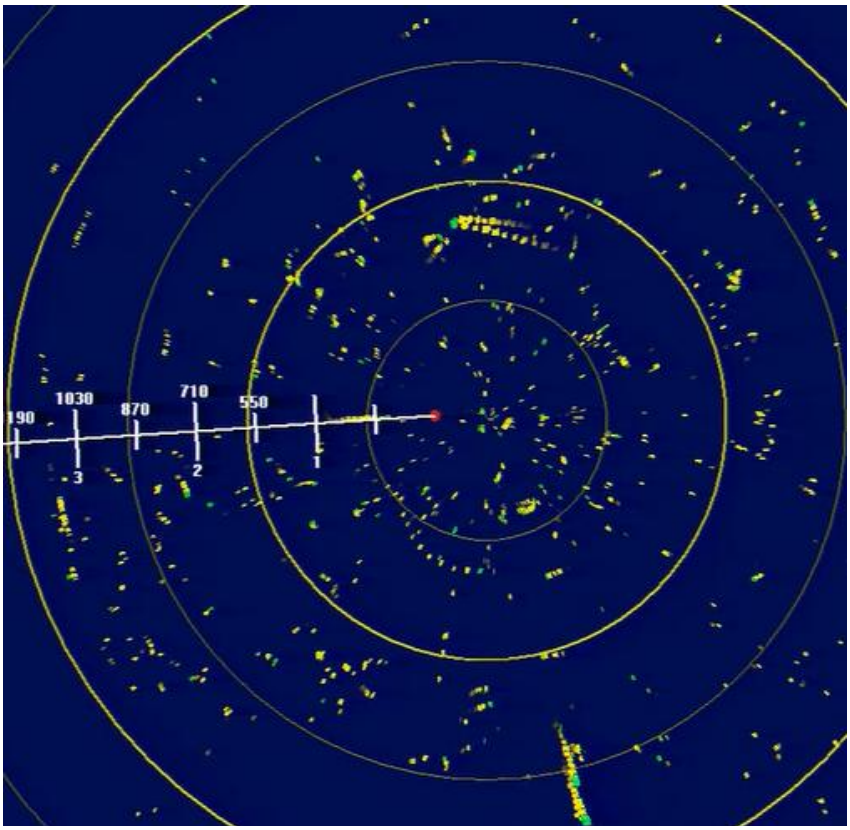

Figure 6 – 1009:48

Neither the pilot reported an Airprox at the time.

The Gloster Tower frequency was relatively busy during this period with both departing and arriving aircraft. The standard join for inbound VFR aircraft is via the overhead. The helicopter circuit at Gloucestershire Airport for a rotary aircraft the size of the AW109 is notified as *"operating parallel to and inside fixed wing circuits up to a maximum of 750ft QFE, approaching and departing from the (Heli Northwest) helicopter training area."* To reduce RTF loading and avoid conflict between fixed-wing and rotary circuits, standardised phrases are assigned, allowing for autonomous operations by the helicopter.

Tower controllers at Gloucestershire ATC can operate up to 1500ft without the requirement to coordinate with the Approach controller. However, the AW109 practice auto-rotations from 2000ft were co-ordinated on each occasion with the Approach controller. In the Gloucestershire ATC VCR, the Approach controller sits to the right of, and facing 90° away from, the Tower controller position. Co-ordination takes place face to face and is therefore not recorded. The ATM is available for use by Tower controllers at Gloucestershire Airport for situational awareness, and there is no requirement to constantly monitor traffic being displayed on it. The display shows aircraft as analogue primary contacts only.

In interview the Tower controller stated that it was only by chance that they had glanced at the ATM and seen that the AW109 and TB20 were in proximity to each other. This prompted the controller to pass Traffic Information again to the TB20, this time including the information on the height that the helicopter was intending to climb to. The pilot of the TB20 did not acknowledge the Traffic Information on the AW109 passed twice by the Tower controller, but in his report he stated that being notified that the helicopter circuit was active had led him to assume this was at 750ft, and that, as he was already at 1500ft, he believed that both his height and the radius of his turn was keeping him clear of that circuit. He stated that the first time he was aware the helicopter was climbing to 2000ft was when Traffic Information stating this was passed by the "radar controller," coincidental with his first sighting of the AW109 just below him. The Traffic Information was actually passed by the Tower controller before the TB20 was transferred to Approach, but at a point just before the contacts merged on the radar recording.

In the report from the AW109 pilot, they felt that the TB20 was inside the fixed-wing circuit; however, the TB20 was leaving to the west and not joining the circuit. Other than specified areas to avoid for noise abatement there are no designated VFR departure routes at Gloucestershire Airport.

Traffic Information was passed by the Tower controller to the TB20 that the AW109 was in the helicopter circuit prior to departure. During the AW109's previous practice auto-rotation, a subsequent fixed-wing departure had been passed Traffic Information on the helicopter circuit which included both the helicopter type, and the information that it was climbing to 2000ft. In interview the controller confirmed that they were not aware that the AW109 would be requesting another climb to 2000ft for a further practice auto-rotation, therefore only generic information on the helicopter circuit was passed. After the TB20 had been cleared for take-off, the AW109 then requested a climb to 2000ft for a further practice auto-rotation.

The Tower controller was providing an Aerodrome Control Service, and in accordance with CAP493 Manual of Air Traffic Services, Section 2: Chapter 1: Para 2 shall issue information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic with the objective of preventing collisions between:

a) Aircraft flying in, and in the vicinity of the ATZ;
b) aircraft taking-off and landing;
c) aircraft and vehicles, obstructions and other aircraft on the manoeuvring area.

Although;

> Aerodrome Control is not solely responsible for the prevention of collisions. Pilots and vehicle drivers must also fulfil their own responsibilities in accordance with Rules of the Air.

Also, in accordance with CAP493 Manual of Air Traffic Services, Section 2: Chapter 1: Para 7, the controller is required to pass:

> 7A.1 Traffic information and instructions to aircraft on any occasion that a controller considers it necessary in the interests of safety, or when requested by a pilot. In particular, Aerodrome Control shall provide:
>
> 1) generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;
> 2) specific traffic information appropriate to the stage of flight and risk of collision;
> *3)* timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.

UKAB Secretariat

Both 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 was considered to be overtaking then the TB20 pilot was required to give way.[2]

Summary

An Airprox was reported on 4th June 2015 at 1009 between an AW109 and a TB20. The AW109 was climbing to 2000ft for an auto-rotation and the TB20 was departing the visual circuit downwind, climbing through 2000ft. Both pilots were speaking to Gloster, the AW109 to Gloster ADC and the TB20 had just transferred to Gloster Approach.

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first discussed the actions of the AW109 pilot. He was undertaking an instructional sortie and, as is standard practice, requested each climb to 2000ft for his auto-rotations. The Board noted that he was on the same frequency as the TB20 pilot, and therefore wondered whether he had heard the TB20 pilot had been cleared to depart to the west. He reported being surprised at the positioning of the TB20, which he thought would be inside the standard visual circuit. However, the TB20 was not in the circuit, and because Gloucester does not have any fixed VFR departure routes, once cleared, the TB20 pilot could take any route that he wished. The Board noted that the ADC did pass Traffic Information to the AW109 pilot on another aircraft which was conducting an overhead join, also at 2000ft, and so they wondered whether this information may have led him to believe that it was the only traffic to affect. Notwithstanding, the helicopter member opined that, as he climbed for his autorotation, it would have been expected that the AW109 pilot would make turns for look-out which, whilst recognising that this was an instructional sortie with attendant demands on capacity, caused the Board to wonder if any were made, and their effectiveness if they were.

Turning to the TB20 pilot, the Board noted that he was cleared for take-off and given Traffic Information on the helicopter circuit being active. He didn't acknowledge the Traffic Information and, in his report, the pilot stated that he expected the helicopter to be only up to 750ft, 'normal' helicopter circuit height. The Board thought it strange that he had not known that helicopters might go higher with permission from the ADC given that it must be a regular occurrence. Irrespective, the Board noted that the AW109 pilot had asked for the climb to 2000ft after the TB20's departure clearance and when the TB20 pilot was still on the frequency; some Board members thought that even though ATC didn't directly give him this Traffic Information, he should have heard this call. As with the AW109, the Board questioned whether the TB20 pilot had adequately looked out as he made the climb to 2000ft: noting that this was a practice IFR departure, which would have meant that look-out turns would probably not be conducted by the student; the instructor had extra responsibilities to pro-actively ensure a clear flight-path. Finally, the Board noted that the TB20 pilot was eventually given Traffic Information on the AW109 just before he was told to change frequency but again he didn't acknowledge it.

The Board then discussed the actions of the Aerodrome Controller and wondered whether he had been too busy to fully appreciate the traffic situation. Controller members of the Board thought that there had been a lack of positive control of the situation which hinted at the controller being overloaded by a complex visual circuit where he was under pressure to be as flexible as possible with aircraft joining and departing regardless of how this integrated with the rest of the circuit. They opined that there did not appear to be sufficient procedures in place (such as VFR departure routes, or positive deconfliction of helicopter activities) with which to protect the circuit, or the controller. What was certain to them was that, in clearing the helicopter up to 2000ft to the north of the field whilst allowing the TB20 to depart left-hand to the west, there was always going to be the potential for the two aircraft to conflict. That the controller didn't pass timely Traffic Information to either pilot compounded the situation because neither pilot had assimilated the position of the other. When he did pass Traffic Information at a late stage to the TB20 pilot, members noted that he hadn't then obtained an acknowledgement and so had no idea whether the information had been assimilated or not. The Board were also concerned that, whilst being aware of the unresolved confliction, the controller continued to transfer the pilot to the Approach frequency contrary to standard ATC practice which was to resolve any conflictions first. The Board also thought that the instruction to switch frequency may have distracted the TB20 pilot from hearing and assimilating the Traffic Information. Taking all of this into account, the Board resolved to make a recommendation that Gloucestershire airport review airfield and ATC procedures with regard to ensuring safe and orderly flow of traffic, with particular reference to departure procedures, helicopter operations, and the temptation to be all things to all people by trying to offer ultimate flexibility at the compromise of a known, more regimented environment.

The Board then discussed the cause of the Airprox, and it was quickly agreed that ATC had allowed the aircraft to climb into conflict without passing timely Traffic Information to either pilot. The Board discussed a number of factors that may have been contributory but, in the end, decided that the root contributory factor was that the TB20 pilot had been transferred to Approach whilst in conflict with the AW109. Turning to the risk, it was agreed that because neither pilot effectively saw the confliction until CPA, any action taken had not materially affected the outcome. Therefore the risk was assessed as category A, although the incident had stopped short of actual collision, chance had played a major part in events.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: ATC allowed the aircraft to climb into conflict without passing timely Traffic Information to either pilot.

Contributory Factor: The TB20 pilot was transferred to Approach whilst in conflict with the AW109.

Degree of Risk: A.

Recommendation: Gloucester review airfield and ATC procedures with regard to ensuring safe and orderly flow of traffic.