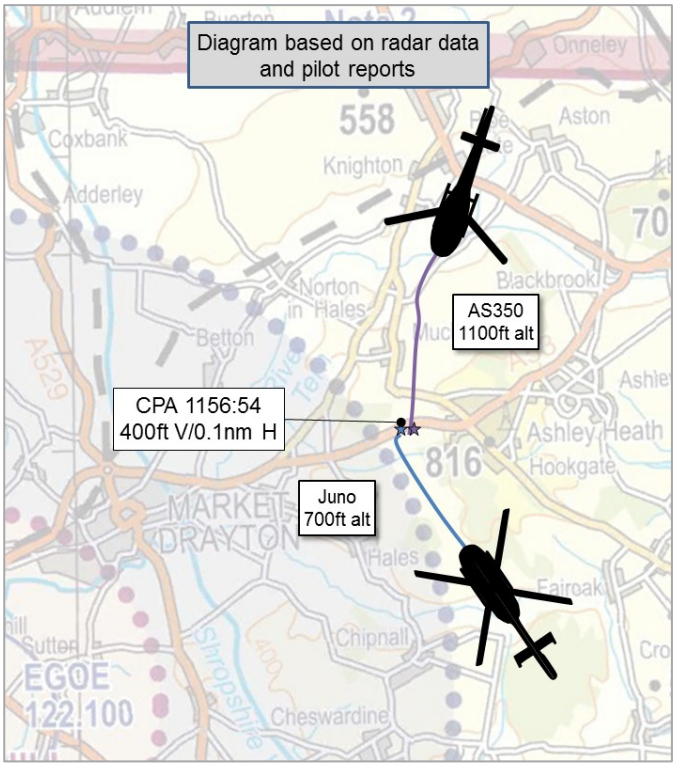
AIRPROX REPORT No 2018223

Date: 20 Aug 2018 Time: 1156Z Position: 5255N 00224W Location: 2nm NE Market Drayton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Juno	AS350
Operator	HQ Air (Trg)	Civ Helo
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Shawbury	Shawbury
Altitude/FL	700ft	1100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Black, Yellow	Blue, Silver
Lighting	HISL, Nav, Landing	Strobe, Landing, Position
Conditions	VMC	VMC
Visibility	5km	>10km
Altitude/FL	700ft	1000ft
Altimeter	QNH (1019hPa)	NK
Heading	Turning right	NK
Speed	NK	NK
ACAS/TAS	TCAS II	TCAS I
Alert	None	TA
Separation		
Reported	200ft V/200m H	300ft V/<0.5nm H
Recorded	400ft V/0.1nm H	



THE JUNO PILOT reports that he had navigated to the Follies Confined Area (CA) at medium-level whilst dealing with occasional showers; the crew positively identified the area and began an area recce to be flown at 800ft QNH giving 250ft agl. As the aircraft was rolled right to begin the first orbit, the captain saw a blue and white civilian Squirrel helicopter appear in the cockpit window. The Squirrel was in the 10 o'clock approximately 200ft above and 200m laterally displaced. Nothing was seen on ACAS throughout the incident nor were there any audio warnings. On sighting the Squirrel, the HP kept it above and in front of the aircraft as it departed the operating area. Once content the Squirrel was no longer a threat the captain called ATC to report the Airprox and continued with the training serials.

He assessed the risk of collision as 'Medium'.

THE AS350 PILOT reports that the incident was nearly a month ago and a lot of flights had been performed since, including several in the vicinity of the Airprox, which didn't help recollection of the finer details, heading/barometric pressure settings etc of that day. The Juno was seen a few miles ahead of his track towards his landing site and initially looked like it might pass to the starboard, Shawbury LARS passed Traffic Information on it soon after. The Juno was not on frequency and he assumed it was working a UHF frequency. The Juno crossed ahead of his track to his port side and it appeared that it would pass well clear. It then decreased it's heading and it became apparent that it would pass close to his aircraft and slightly above. He maintained course and speed whilst preparing for a descent if necessary. He surmised that it was likely from the Juno's flight-path that the Juno pilot hadn't sighted him so he kept a close eye on it as it crossed above and behind his aircraft.

He assessed the risk of collision as 'Low'.

THE SHAWBURY LARS CONTROLLER did not submit a report.

THE SHAWBURY APPROACH CONTROLLER reports that he was speaking to 2 aircraft in the radar training circuit at Shawbury whilst also working 2 aircraft on the Low-Level frequency. The LARS controller informed him that he had a Squirrel on Radar at 1000ft in the LFA routing to a private site near Market Drayton. The LARS controller had not yet identified the aircraft but believed it could be a faint non-squawking return to the north of a Juno near Follies. As the contact believed to be the AS350 tracked south, the LARS controller called the Juno to the AS350 pilot; the AS350 pilot then reported visual with the Juno. At the same time, the Approach controller transmitted to the Juno operating at Follies "Traffic believed to be you has traffic north half a mile tracking south, believed to be a Squirrel, visual with you". The AS350's allocated squawk then appeared on the radar screen. After the two tracks had diverged, the Juno declared an Airprox with a Squirrel on the Low-Level frequency.

He perceived the severity of the incident as 'Low'.

THE SHAWBURY SUPERVISOR reports that he did not witness the incident. He believes the controllers did everything that he would expect regarding passing Traffic Information, especially as neither the Juno or the Squirrel was positively identified, and both were under a Basic Service (BS). After listening to the RT recordings both pilots did report visual with the other aircraft.

Factual Background

The weather at Shawbury was recorded as follows:

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METAR EGOS 201150Z 24010KT 9999 FEW023 SCT035 BKN060 21/16 Q1019 BLU NOSIG
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Analysis and Investigation

Military ATM

The Juno was conducting confined area training to a local site and was completing a recce of the area prior to landing. The Juno was in receipt of a Basic Service on the Shawbury Low-Level frequency which was bandboxed with the Shawbury Approach task. The Squirrel was on a transit flight from Barton to a private site near Market Drayton and was receiving a Basic Service from Shawbury Zone. The Squirrel had requested a Traffic Service, but Shawbury Zone were unable to identify the Squirrel either via a Squawk or a positive radar return.

Shortly before the incident occurred, the Shawbury Zone controller, aware that the Juno was operating in the Market Drayton area, informed the Shawbury Approach controller about the Squirrel. Although still not positively identified, there was a faint primary radar return which the Zone Controller (correctly) believed to be the Squirrel. Aware of the potential confliction, the Shawbury Zone controller passed Traffic Information to the Squirrel and shortly afterwards the Shawbury Approach Controller passed Traffic Information to the Juno.

Figures 1-2 show the positions of the Juno and Squirrel at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the Clee Hill Radar, which is not utilised by RAF Shawbury, therefore is not representative of the picture available to the controllers.

Figure one, timed at 1156:04, was the point at which Traffic Information was passed to the Squirrel. As the Squirrel was not formally identified this was passed as 'traffic believed to be you'. The Squirrel thanked the controller for the Traffic Information but did not report visual.

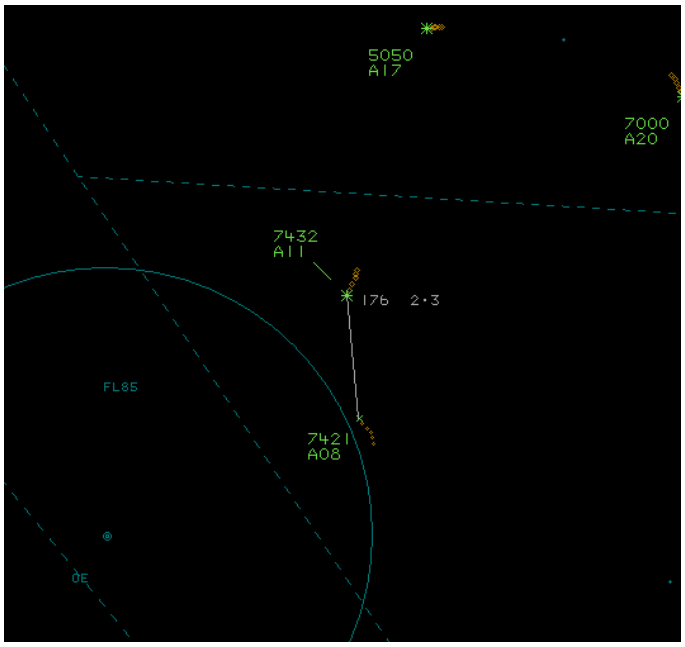


Figure 1

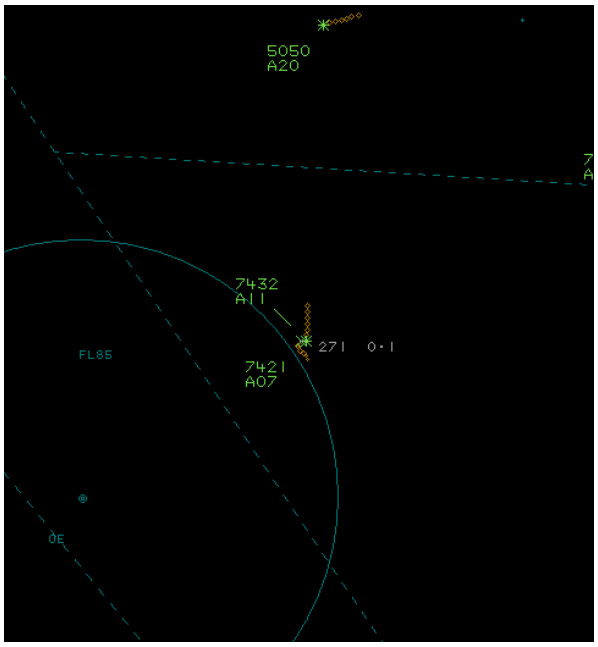


Figure 2 - CPA

Traffic Information was passed to the Juno some 43 seconds later although the Juno did not report visual with the squirrel until CPA, which occurred some 9 seconds later. CPA was recorded as 0.1nm and 400ft indicated.

Although neither the Squirrel nor Juno were formally identified by their respective controllers there was sufficient liaison between the two controllers to allow them to pass Traffic Information to their aircraft and thus discharged their duties appropriately. Although the Juno pilot reported being visual only at CPA, the Squirrel pilot reported being visual with the Juno for 'a few' miles and prior to the Traffic Information passed by the Zone Controller.

UKAB Secretariat

The Juno and AS350 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 Juno pilot was required to give way to the AS350[2].

Comments

HQ Air Training

A number of barriers were available to prevent this Airprox; however, some proved only partially effective. It is also important to note that the opening sentence of the AS350 narrative suggests the pilot had some difficulty in recalling the details of the event. The AS350 pilot also states that the Juno was expected to pass 'slightly above' and then 'crossed above' their aircraft which is contrary to the ATM trace and the Juno pilot's account. It is entirely possible that the AS350 pilot is recalling a different event.

The AS350 pilot is commended for seeking a Traffic Service from Shawbury. Unfortunately, this was unavailable because the AS350 couldn't be positively identified by the Shawbury LARS controller - believed to be due to the AS350 being below Shawbury's radar cover. Both aircraft received and acknowledged Traffic Information on each other. The AS350 was passed TI, reported visual at 3nm, and continued to progress towards the point where the Juno pilot declared an Airprox. The Juno only received TI 7 seconds before CPA and reported visual 2 seconds after CPA.

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(2) Converging.

Both aircraft were fitted with TCAS and the Clee Hill radar replay shows that both aircraft were squawking. The Juno pilot states that nothing was seen on their TCAS throughout the incident and there was no audio warning. So, although TCAS was fully available, it proved ineffective for the Juno pilot for unknown reasons. In the case of the AS350, TCAS effectiveness cannot be assessed. This led to lookout being the last barrier available to the Juno crew and it is unfortunate that due to the task being undertaken 'attention was focussed on the ground'. As the AS350 reported letting down shortly after CPA it is also possible that its pilot's attention was divided between the Juno and on identifying their own landing site. No avoiding action was taken by the Juno pilot as 'once visual, the flight paths of the aircraft caused a natural deconfliction'. The AS350 pilot states that course and speed were maintained.

In the absence of any available barrier during the planning stage, this incident provides a reminder that TCAS and EC cannot be relied upon in isolation as a means of deconfliction. A good lookout combined with timely and effective avoiding action remains paramount, especially in busy Class G airspace.

Summary

An Airprox was reported when a Juno and an AS350 flew into proximity at 1156hrs on Monday 20th August 2018. Both pilots were operating under VFR in VMC, the Juno pilot in receipt of a Basic Service from Shawbury Approach and the AS350 pilot in receipt of a Basic Service from Shawbury LARS.

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 began by looking at the actions of the AS350 pilot. Given the mismatch between his description of the Juno flying above him and the radar replay showing it was below by 400ft, the Board concluded that his recollection was probably of a different incident. As such, although they agreed that he had tried to recall as much as he could, they could not rely on his report for specific details. Notwithstanding, the Board acknowledged that he had tried to obtain a Traffic Service but that this had been reduced to a Basic Service due to the intermittent nature of the AS350's radar track. Some members wondered whether he could have flown at a higher altitude to increase his radar conspicuity, especially since he was visual with the Juno orbiting. Others opined that he may have been reducing his altitude in preparation for landing at his destination site and so would be reluctant to fly higher. Irrespective, given that he had received Traffic Information and was visual with the Juno, the Board wondered why he had continued to track towards it when he could have slowed down or positively altered his track. Some members thought he may have been focused on setting up his approach to his landing site, although it was equally possible that he considered the achieved 400ft vertical and 0.1nm horizontal separation as adequate.

The Board then turned to the actions of the Juno crew. They agreed that their attention was likely focused on the ground and that, when they saw the AS350 late following Traffic Information from Shawbury, this may have startled them, especially because they had not received a TCAS warning and were relying on lookout. As a result, their estimation of the resultant vertical separation was closer than was the case.

The Board then turned to the actions of the Shawbury controllers. They agreed that, with both aircraft contacts appearing intermittently, the controllers had done well to identify the conflict and pass Traffic Information to both aircraft, especially given that both were under only a Basic Service at the time.

The Board then considered the cause and risk. Noting that the AS350 pilot had received TI and was visual with the orbiting Juno, and that the Juno pilot had no SA until the Shawbury controller had passed TI, they agreed that the practical onus for ensuring sufficient separation lay with the AS350 pilot. Some

members thought that he had not acted sufficiently to avoid the Juno and that he had therefore flown into conflict. Others felt that with 400ft vertical separation there had not been a conflict and that the AS350 pilot had simply flown closer to the Juno than the Juno pilot might have wished (taking into account the likely startle-factor of suddenly seeing the AS350). The latter view prevailed and the Board decided that the incident was probably best described as the AS350 pilot flying close enough to the Juno to cause its pilot concern. Turning to the risk, the Board agreed that although there had been no risk of collision, safety had been degraded because the AS350 pilot did not know whether the Juno pilot was aware of him, and he would have been better advised to have given the Juno a wider berth in case it's pilot had manoeuvred unexpectedly. Therefore, they agreed that the risk of collision was Category C.

Finally, the Board noted that neither aircraft's TCAS seemed to alert to the other aircraft, and that that this emphasised that electronic conspicuity was not an unfailing panacea for collision avoidance.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The AS350 pilot flew close enough to cause the Juno pilot concern.

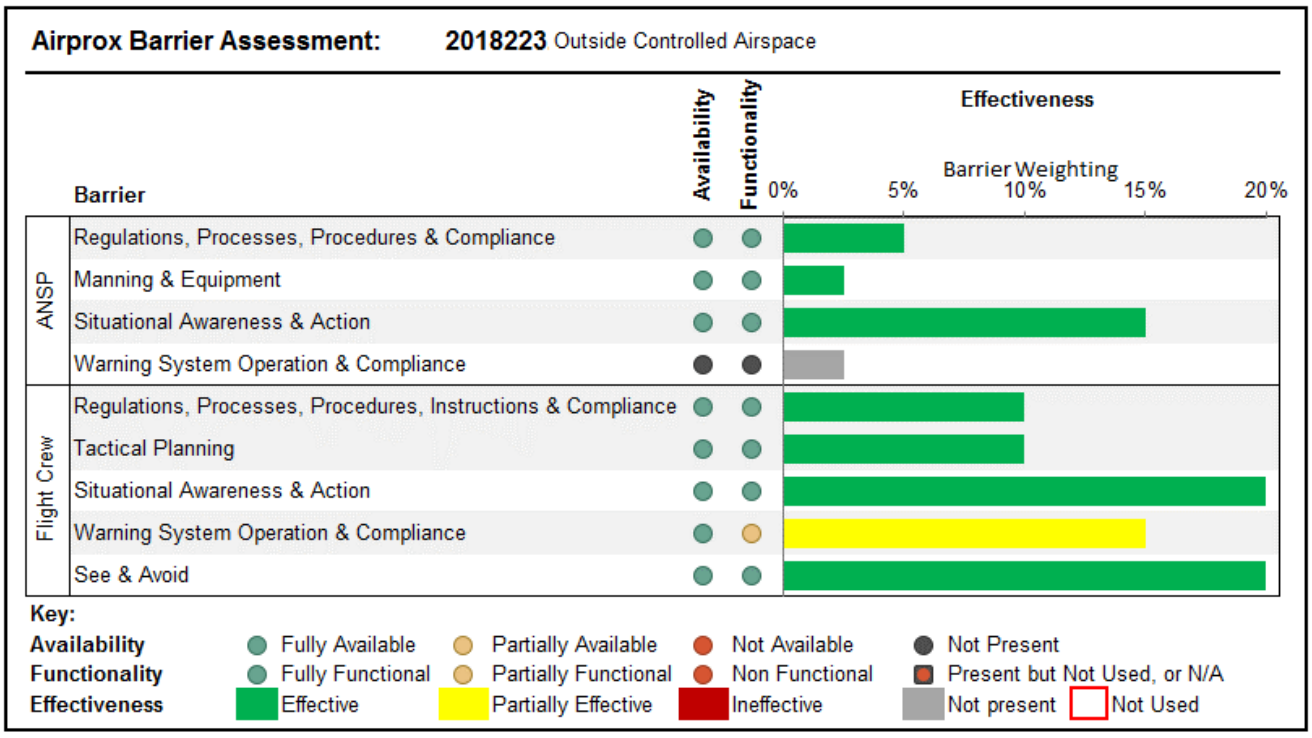
Degree of Risk: C.

Safety Barrier Assessment[3]

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

Flight Crew:

Warning System Operation and Compliance were assessed as **partially effective** because the Juno's TCAS II did not alert the Juno crew to the proximity of the AS350.



[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.