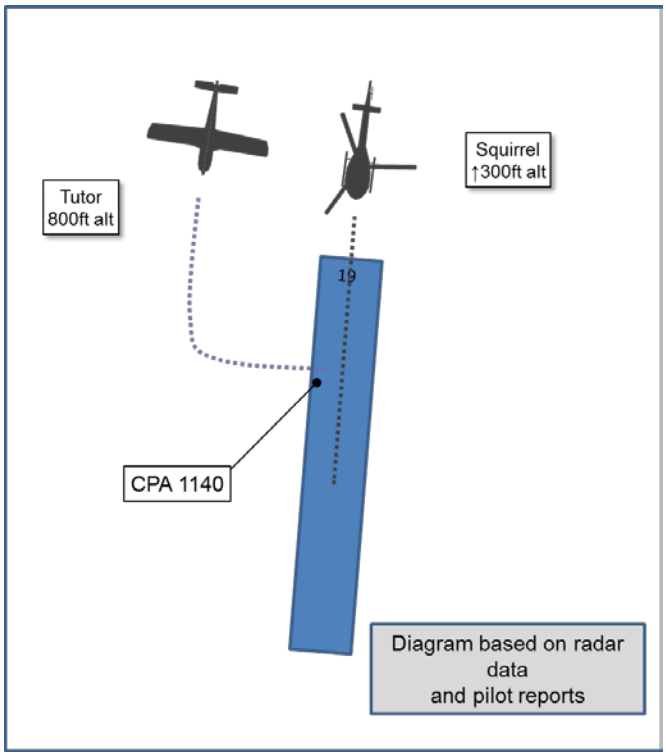
AIRPROX REPORT No 2015221

Date: 4 Dec 2015 Time: 1140Z Position: 5137N 00105W Location: RAF Benson

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Squirrel	Tutor
Operator	HQ AAC	HQ Air (Trg)
Airspace	Benson ATZ	Benson ATZ
Class	G	G
Rules	IFR	VFR
Service	Traffic	Aerodrome
Provider	Benson PAR	Benson ADC
Altitude/FL	NK	FL010
Transponder	A,C	A,C,S
Reported		
Colours	Black, Yellow	White
Lighting	HISLs, Nav, Landing.	HISLs
Conditions	VMC	VMC
Visibility	20km	20km
Altitude/FL	200ft	800ft
Altimeter	QFE (1020hPa)	QFE (1013hPa reported)
Heading	190°	190°
Speed	90kt	120kt
ACAS/TAS	TAS	TAS
Alert	Information	None
Separation		
Reported	500ft V / 3-500m H	500ft V
Recorded	NK	



THE SQUIRREL PILOT reports that he was in the latter stages of a PAR at RAF Benson when the Non-Handling Pilot (NHP) mentioned a Tutor approximately 500m ahead on the right-hand-side and flying parallel to the active runway at 7-800ft. The Tutor was then seen to start to drift towards the runway. As the Squirrel reached decision height at 170ft, the pilot transmitted 'go-around' to the Talkdown Controller, who acknowledged and told him to change to the Approach frequency. The climb was initiated but the NHP noted that the Tutor was about to encroach the runway at 600-800ft and about 3-400m ahead of the Squirrel. The pilot levelled the Squirrel at 300ft, and told the Talkdown Controller about the Tutor and that he intended to remain on the talkdown frequency. At the mid-runway point, the Tutor banked 30° to the left and rolled out on a heading of east. The Squirrel pilot then initiated the climb as per the go-around instructions. At no stage during the final approach were they told about the Tutor by ATC. Although the TAS was giving indications that another aircraft was in proximity, they had assumed it was under the control of Benson ATC. The pilot opined that there would have been a high risk of collision during the go-around had the weather been marginal and he hadn't stopped his climb.

He assessed the risk of collision as 'High'.

THE TUTOR PILOT reports that he did not consider this to be an Airprox event. He was deadside in the visual circuit, having joined through initials. ATC had advised about radar traffic and he was visual with the Squirrel going around from radar. He ensured he stayed in front and above him at a circuit height of 800ft so that he could keep visual at all times, and so that the Squirrel pilot could see him. He estimated the helicopter to be at 300ft, and he remained 500ft above it during his turn onto the downwind leg.

He assessed the risk of collision as 'None'.

THE BENSON ADC reports that the Squirrel was on a radar approach, whilst Tutor aircraft were recovering visually. One Tutor (non-Airprox) was in the circuit when the radar traffic was approaching 5 miles. A second Tutor then requested a join and was given airfield details and passed the position of the circuit and radar traffic. Shortly afterwards, the Squirrel on radar was given clearance at 3 miles to low approach, with one Tutor downwind and one yet to call initials, circuit information on the radar clearance was given as 'one in'. Once the Tutor pilot had called initials, he was updated with the position of the radar traffic, now at about 1.5nm. There was no request for an early break from the Tutor pilot. The Squirrel was completing his low-approach and the Tutor broke from the deadside to downwind no further than halfway down the runway; it flew over the top of the Squirrel with an estimated 500ft between them. The Squirrel was seen to stay level at 300ft down the whole length of the runway before climbing at the RW01 threshold.

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

Factual Background

The weather at Benson was recorded as follows:

METAR EGUB 041050Z 21014KT 9999 FEW023 BKN040 10/07 Q1027 BLU TEMPO SCT023 WHT=

Portions of the tape transcript between Benson Talkdown, Benson Tower, the Tutor pilot and Squirrel pilot is below:

FROM	TO	SPEECH	TIME
Tutor c/s	Tower	Benson Tower {Tutor c/s} for visual recovery from the south west with golf 1020	11:38:03
Tower	Tutor c/s	{Tutor c/s} Benson Tower join runway 19 one in and radar traffic approaching three miles	11:38:10
Tower	Talkdown	{Squirrel c/s} cleared low approach one in	11:38:40
Talkdown	Squirrel c/s	{Squirrel c/s} cleared low approach one on (?) acknowledge	11:38:42
Talkdown	Squirrel c/s	Cleared low approach {Squirrel c/s}	11:38:44
Tutor c/s	Tower	{Tutor c/s} right initials	11:39:50
Tower	Tutor c/s	{Tutor c/s} one downwind and radar traffic approaching one mile final	11:39:52
Talkdown	Squirrel c/s	Passing decision height half a mile	11:40:38
Tutor c/s	Tower	{Tutor c/s} deadside	11:40:38
Squirrel c/s	Talkdown	Talkdown er {Squirrel c/s} is er on the er go around er not climbing at present due to aircraft in the overhead	11:40:54
Talkdown	Squirrel c/s	{Squirrel c/s} continue with Benson Approach 376.65	11:41:04
Squirrel c/s	Talkdown	Can you just make a note that fixed wing crossing the???? centreline	11:41:07

Analysis and Investigation

Military ATM

The Squirrel pilot reported being in the late stages of a PAR with Benson Talkdown when the Non-Handling Pilot (NHP) mentioned a Tutor 500m ahead at 7-800ft in height, drifting towards the runway. The Squirrel initiated the 'go-around' climb and was told to switch to the Approach frequency; the Tutor pilot encroached onto the runway at 6-800ft, 3-400m ahead, and the Squirrel

levelled-off at 300ft, informing the Talkdown Controller. At the time the clearance to the Squirrel crew was given for the low approach (3nm finals), the Tutor pilot had not called at Initials and was not included in the clearance because it was not technically part of the visual circuit. TAS had provided the Squirrel pilot with some information on the joining Tutor; however, the Squirrel pilot felt that there was a high risk of collision had there been marginal weather conditions.

The Tutor pilot was deadside in the circuit and was visual with the Squirrel, having received Traffic Information from ATC. The Tutor pilot reported being aware of the Squirrel climbing out for a further radar approach and stayed in front and above the Squirrel at circuit height of 800ft. The Tutor pilot was visual throughout and estimated the Squirrel was at 300ft and a 500ft height separation. The standard join at Benson would include a transit deadside and a traverse of the upwind threshold to the liveside; a break into the circuit is generally conducted at faster speeds and involves breaking across the runway at any point.

The Aerodrome Controller recalled the clearance for the Squirrel to low approach at 3nm with a non-Airprox Tutor in the visual circuit and the Airprox Tutor not yet at Initials (and so the clearance included the circuit state of '1 in'). The Tutor was seen to break approximately half way down the runway with no request for an early break (over the runway threshold rather than the upwind threshold). The Tutor broke over the top of the Squirrel, and the Squirrel pilot was seen to stay level at approximately 300ft for the length of the runway, prior to climbing out.

The Tutor pilot was visual with the Squirrel 500ft below and felt that there was sufficient separation to cross the runway from deadside. The Squirrel pilot was not as comfortable with the separation and had wanted to continue climb from 300ft for another IFR approach but felt that the Tutor crossing ahead prevented this. The Aerodrome Controller reported that the Tutor turned overhead the Squirrel preventing the IFR departure climbing further. As the Tutor was already established in the visual circuit, the Tutor crew were responsible for separation against the IFR traffic. The Aerodrome Controller should sequence the mixed arrival and departure of visual and instrument traffic and should provide Traffic Information on any occasion that a controller considers it necessary in the interests of safety.[1] On this occasion, the IFR traffic was allocated the runway for a low approach, the correct circuit state was passed and information was passed on the IFR traffic at 3 and 1nm finals. Separation was estimated at 500ft by the Aerodrome Controller with a 'medium' severity rating.

The Tutor crew were always visual with the Squirrel but manoeuvred in a way to cause concern for a crew who could have been climbing under an IFR departure. Post-incident, the unit reinforced the need for crews to advise of their intention to break over the runway at the Initials call e.g. 'Initials for the break'. If the controller has the capacity, they can pass the information on visual circuit traffic to the Talkdown Controller; the controller also has the option of requesting a standard join.

UKAB Secretariat

The Squirrel and Tutor pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[2]. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[3].

[1] MAA Regulatory Article 3261 Aerodrome Services.
[2] SERA.3205 Proximity.
[3] SERA.3225 Operation on and in the Vicinity of an Aerodrome.

Comments

HQ Air Command

This incident highlights the issue of integrating IFR procedures into a visual circuit environment. In accordance with the RAF Benson Defence Aerodrome Manual [1], the Tutor pilot conducted a standard join, through initials, maintaining visual contact and separation from the radar traffic. The pilot chose to initiate his turn, from dead to liveside, at the mid-point of the runway in order to maintain visual contact for both aircraft and achieve adequate separation from the Squirrel conducting a missed approach; a turn onto the downwind leg at the upwind threshold or upwind half of the circuit would have eroded vertical separation further. Although an opportunity existed for the Tutor pilot to inform ATC of his intention to turn earlier than expected for a standard join [2], this is not likely to have had an impact on the outcome; the Squirrel was not operating on the Tower frequency and there is no requirement for the Tower controller to inform Talkdown of circuit traffic after clearance for low approach had been provided.

It appears that the Squirrel pilot was unaware of the Tutor aircraft as it passed down his right-hand-side and was concerned as the aircraft turned across his flightpath. It is unclear from the report from Benson ATC whether the Talkdown controller was aware of the Tutor aircraft joining through initials. Had the Talkdown controller observed a conflicting radar contact and deemed that it was a hazard, it is expected that Traffic Information would be provided together with suitable action for collision avoidance, if required, in accordance with MAA RA3291 – Precision Approach Radar. Although Traffic Information had not been passed to the Squirrel pilot, TAS provided situational awareness of an approaching aircraft. Ultimately, both aircraft were visual with each other as that Tutor manoeuvred to join the circuit. As a result, the potential for collision was minimal.

JHC

This is the second DASOR raised concerning a similar incident at RAF Benson (the previous incident wasn't filed as an Airprox). The surprise of the Squirrel crew over the Tutor manoeuvre was the key issue which led to the concerns being raised. Whilst it is accepted that in reality there was little risk of collision because the Tutor was visual with the Squirrel at all times, this event could have been prevented by removing the surprise element, i.e. had traffic information on the 'joining' (pre initials) traffic been passed to the Squirrel via Talkdown. Nevertheless, we understand that an amendment has now been made to procedures that will hopefully make such events less likely.

Summary

An Airprox was reported when a Squirrel and a Tutor flew into proximity at 1140 on Friday 4th December 2015. The Squirrel pilot was operating under IFR in VMC and was in receipt of a Traffic Service from Benson PAR, the Tutor pilot was operating under VFR in VMC and in the visual circuit.

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 role of ATC in this event. The Tutor hadn't yet joined the visual circuit when the 3-mile clearance was given to the Squirrel, so the Squirrel pilot didn't receive any Traffic Information on it. Members wondered whether the Talkdown controller would have been able to see the joining Tutor on the radar and could have called it to the Squirrel pilot. RAF ATC members assured the Board that the nature of the thin radar beam on the PAR meant that the Tutor would have been highly unlikely to show up in both azimuth and elevation, and that the criteria for the Talkdown Controller to give Traffic Information was that the conflicting traffic should be seen on both

elements of the radar. Members did wonder whether the Director/Approach controller should have been looking out for traffic on behalf of the Talkdown Controller, but again were told that the joining height of the Tutor, against the height of the Squirrel descending on PAR, was such that Traffic Information was not deemed appropriate in this situation. Given that an aircraft like the Squirrel would take some time to get from 3-miles to the runway threshold, and that in this time the visual circuit state could change significantly, the Board wondered whether there was scope for the Tower controller to pass updates. Current RAF practise is that traffic going-around in the visual circuit would be called to the Talkdown controller by the ADC, but traffic joining through initials wouldn't; the Board were informed that Benson were investigating this with a view to changing their procedures. This led the Board to discuss more widely the procedures at RAF Benson, with some members wondering whether the procedures were at fault for not being robust enough to integrate IFR and VFR traffic. There had been an almost identical incident at Benson a year before that had been reported as an incident rather than an Airprox, and members commented that similar incidents where IFR and VFR traffic have failed to integrate effectively had been reported at a number of military airfields. The Board was informed by RAF members that the MAA had put in place a visual circuit working group, and that this group was currently reviewing the whole gamut of visual circuits practises, including radar traffic integration.

Turning to the Squirrel pilot, the Board noted that he was a visitor to Benson and members thought that this may have meant that he was unfamiliar with the Benson procedures, causing him to become concerned when he saw the Tutor because he was unsure of its intentions. Although he was aware of the Tutor, first through his TAS and later visually, some members felt that it was his uncertainty about the intentions of the Tutor pilot that had concerned him, rather than the actual proximity of the other aircraft. Nevertheless, the Board agreed that he had clearly felt it necessary to take action, arrest his climb, and fly the length of the runway at 300ft, despite being cleared for the Missed Approach Procedure; this was an indication of the level of concern that he felt.

For his part, the Board noted that the Tutor pilot was visual with the Squirrel at all times and, having been given Traffic Information from the ADC as he joined through initials, was aware that it was going to conduct a Missed Approach profile. He therefore elected to turn early, rather than at the upwind runway threshold, so that he deconflicted with the Squirrel that he knew would climb. However, the Board thought that he had nevertheless been unwise to turn in front of the Squirrel which had priority as an aircraft conducting an instrument approach. Pilot members opined that because the Squirrel pilot was on a different frequency (the Tutor on Tower, the Squirrel on Talkdown), the Tutor pilot should have realised that his actions would unnerve the Squirrel pilot, who was unaware of his intentions or whether the Tutor pilot was visual with him. Some members thought that better options would have been to break earlier to go behind the Squirrel if that had been possible, extend upwind until the Squirrel had climbed above circuit height thus allowing him to cross below, or ultimately, a safer, if unexpeditious, option was to re-position back to initials.

There was some discussion about the cause of the Airprox. Some Board members opined that the Tutor pilot had flown into conflict with the Squirrel which had priority as instrument traffic, whilst others thought this was somewhat unfair because he had adhered to the Benson procedures; in the end it was agreed that it had been the Tutor pilot's positioning that had caused the Squirrel pilot concern. Turning to the risk, the Board noted the Squirrel's pilot assessment of a high risk of collision, but thought that this was influenced by his concern that if the weather was marginal there could have been a different outcome. In fact, looking at the event itself instead of the 'what ifs', the Board noted that because both pilots were visual with each other, that there was consequently no risk of collision, and that the Squirrel pilot's decision to delay his climb and remain at 300ft meant that timely and effective action had been taken.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tutor plot flew close enough to cause the Squirrel pilot concern.

Degree of Risk: C.