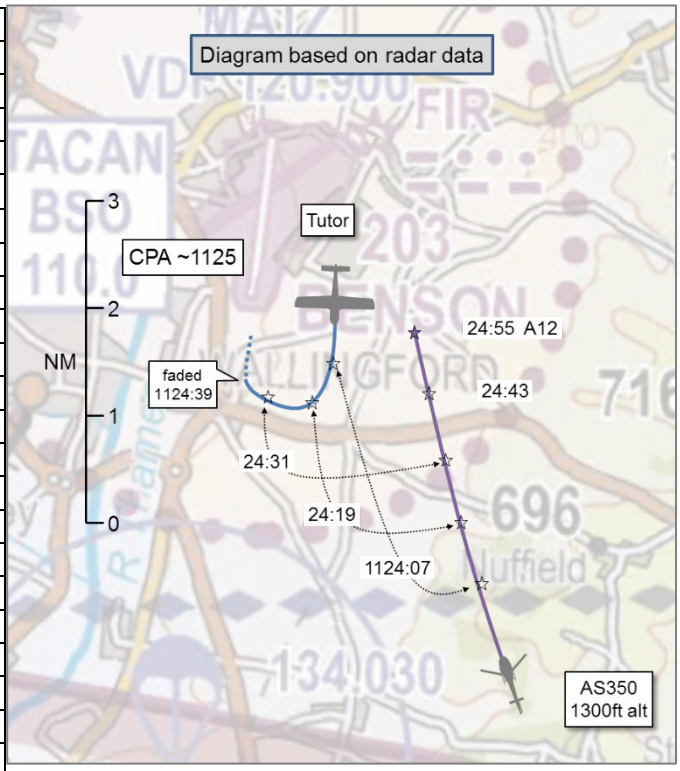
## AIRPROX REPORT No 2018304

Date: 17 Nov 2018 Time: 1124Z Position: 5135N 00104W Location: RAF Benson - elev 203ft

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | Tutor | AS350 |
| Operator | HQ Air (Trg) | Civ Helo |
| Airspace | ATZ | ATZ |
| Class | G | G |
| Rules | VFR | VFR |
| Service | ACS | None |
| Provider | Benson | N/A |
| Altitude/FL | 1200ft | 1300ft |
| Transponder | A,C,S | A,C,S |
| **Reported** | | |
| Colours | Blue/white | Multi coloured |
| Lighting | Strobe | NK |
| Conditions | VMC | VMC |
| Visibility | 8km | 7km |
| Altitude/FL | NK | 1000ft |
| Altimeter | QFE (1020hPa) | NK |
| Heading | 010° | 254° |
| Speed | NK | 60kt |
| ACAS/TAS | TAS | Unknown |
| Alert | None | Unknown |
| **Separation** | | |
| Reported | 1nm H | Not seen |
| Recorded | NK (200ft V/0.3nm H[1]) | |




**THE GROB TUTOR PILOT** reports recovering to Benson at the end of a sortie. The wind was easterly and an inversion had trapped a lot of haze. Combined with the low winter sun, the visibility in a southerly direction, while technically 8km was difficult. Benson were on RW01 and so the final approach to the runway was with the sun behind him and in good visibility. On approaching the runway, he noticed an AS350 helicopter flying very fast at approximately 500ft agl directly up the downwind leg. Knowing there were other aircraft in the circuit approaching in the opposite direction, he immediately called on the Tower frequency to make Air Traffic Control and other users aware of the helicopter. The Local controller and the pilots of 2 aircraft downwind both then confirmed visual with the helicopter. He continued his approach and landing and then observed the helicopter. It effectively followed the perimeter of RAF Benson and was clearly inside the ATZ. It flew between Benson and Ewelme village, very fast, descending, and appeared to land just outside the airfield perimeter. As a helicopter pilot and instructor, the manoeuvre could be described as a cross between a 'gate approach' and a 'downwind quickstop'. He advised ATC that in his opinion he felt the manoeuvre had been dangerous and clearly inside the ATZ. While the risk of collision was low with his own aircraft, he considered there had been a risk of collision with other aircraft in the visual circuit because the AS350 pilot had flown against the downwind leg at high speed.

He assessed the risk of collision as 'Low'.

**THE EUROCOPTER AS350 ECUREUIL PILOT** reports that he was inbound to land at a private site between the villages of Benson and Ewelme. He had visited this site on numerous occasions. En-route he was in contact with Farnborough Radar, in receipt of a Basic Service. They advised him, he recollected, that the Benson Zone was shut. He made 2 calls to Benson LARS with no reply. As he got

[1] Although the separation at CPA from the Grob Tutor is not known, the AS350 subsequently flew past another aircraft on the downwind leg at the separation stated.

closer to the airfield he made blind transmissions on the Zone frequency with regard to his movements. At no time did he see any other aircraft active, on the ground or in the vicinity of the ATZ. He was aware that the ATZ is H24; however, with no reply he assumed that it was not active. Upon landing he received a call from the LARS frequency informing him to call the Tower frequency. He then also received a call on frequency from the pilot of an aircraft in the vicinity advising him that he should have called the Tower frequency. He suggested that Pooleys be amended so that weekend pilots using Benson ATZ either listen out on the LARS frequency and/or any pilots going nearby be advised to make calls on the Tower frequency.

**THE BENSON TOWER CONTROLLER** reports that there were 3 aircraft on frequency. The Tutor (downwind) notified her that a helicopter was flying in the ATZ in the opposite direction to the circuit traffic (i.e. flying south-north). The pilots of two other aircraft on frequency heard this call and reported visual. The helicopter was seen flying at high-speed, low-level, into Ewelme, along the airfield boundary. She selected the Zone frequency and made a blind call to any helicopter operating at Ewelme. The AS350 pilot responded and she informed him that he had just flown through an active ATZ. The pilot said he had made calls on the Zone frequency and that Farnborough had told him that Benson was closed. He asked what to do in future, and notified her that he would be departing later that day. She informed him that the Zone frequency was not routinely monitored at weekends and to try Benson Tower. She then liaised with Farnborough. They informed her that they did not tell him Benson was closed but said they had told the AS350 pilot that they could not see any traffic on radar and to contact the Zone frequency.

She perceived the severity of the incident as 'High'.

**THE FARNBOROUGH APPROACH/LARS WEST CONTROLLER** reports that the AS350 pilot contacted him south of Lasham, reporting that he was routeing to a private site in the Benson MATZ. Because it was a weekend, there were no Benson squawks visible on the radar. He commented that, from his experience, the Zone was rarely active at weekends, although the ATZ was H24. As he recalled, the AS350 pilot asked if Benson was active. He replied that he did not think so because he could not see any squawks on the radar. As the AS350 pilot had reported that he was going to land in the MATZ, he was not concerned about them entering the ATZ. However, as the AS350 approached the edge of the MATZ, he asked the pilot for clarification of his landing site. The AS350 pilot reported that his landing site was near the end of one of the runways. At this point he asked the pilot to squawk 7000 and free-call Benson Zone. Whilst on a break, he was informed that Benson had called and asked him to contact them. When he spoke to them, they said that the AS350 had flown straight through their circuit, which was busy, without speaking on the Tower frequency. Apparently the AS350 pilot had informed Benson that Farnborough had said that Benson was closed. He confirmed that he had said that he did not think Benson was active but to contact the Zone frequency. The Benson controller said that the Zone frequency was not manned at weekends but suggested she might recommend that it should be monitored. If the AS350 pilot had stated early on that he was landing in the ATZ he would still have asked him to contact the Zone frequency because he did not have the Tower frequency available and, anyway, he assumed that, if the circuit was active, the Zone frequency would have been monitored.

## Factual Background

The weather at Benson was recorded as follows:

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METAR EGUB 171050Z 06005KT 9999 FEW013 09/06 Q1027 BLU NOSIG=
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## Analysis and Investigation

### Military ATM

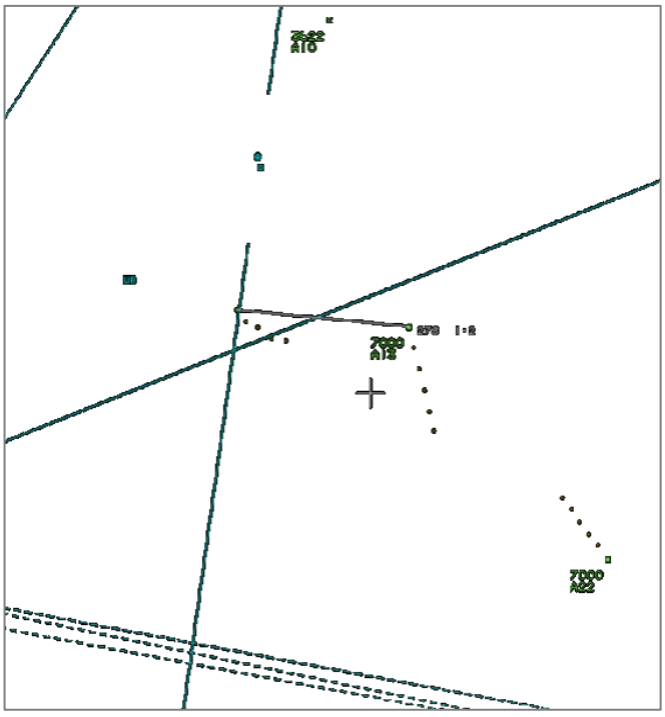
The Tutor had returned to Benson following a cadet flying sortie and was established downwind for RW01. The AS350 was on a transit flight to a private site within the Benson ATZ. Prior to the incident, the AS350 pilot was receiving a Basic Service from Farnborough LARS and had asked if

Benson was active. Due to a lack of observed activity on radar, Farnborough had informed the AS350 pilot that they did not believe Benson to be active but suggested that they freecall Benson Zone. During weekend flying, the Benson Zone frequency is not monitored and, having received no R/T response, the AS350 pilot entered the Benson ATZ and was observed by the Tutor pilot flying the wrong way downwind at approximately 500ft.

Analysis of the tape transcript provided by Benson indicates that the AS350 pilot attempted to call Benson Zone on four separate occasions (starting approx 6min prior to CPA), the final two messages gave the intentions of the AS350 pilot as landing at a private site at the end of RW24. The final message coincided with the Tutor pilot becoming visual with the AS350 and warning other circuit traffic as well as the Benson Tower controller of its presence. CPA was measured as 1.2nm and 100ft [UKAB note: this CPA was measured with respect to the reporting Tutor aircraft but in fact the AS350 came within 0.3nm and 200ft of another aircraft in the visual circuit after this 'CPA'].

At the time of the incident, the Benson Tower controller was operating within extant procedures. The Benson Zone frequency was not being monitored because there was no requirement to do so. The AIP and the military British Isles and North Atlantic (BINA) publication entry for Benson both stated that the Benson ATZ was H24 and aircraft were to avoid the ATZ if there was no contact with Benson Zone on 120.900 MHz. This effectively meant that at weekends no aircraft would be able to enter the ATZ as the Zone frequency was not being monitored. Subsequent to this incident, Benson have requested a change to both documents to include a call on the Benson Tower frequency if an aircraft intends to land within the ATZ, otherwise to keep clear.

At 1124:45, the Tutor pilot (squawk 3720) reported that there was a helicopter (squawk 7000) 1nm east of him going northbound opposite to the downwind leg.



1124:45.

**UKAB Secretariat**

The Tutor 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[2]. An aircraft operated on or in the

[2] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation[3].

The UK AIP[4] states: *'Benson ATZ is a circle 2nm radius centred on RW01/19, with an upper limit of 2000ft. It is a Government aerodrome, operating H24. All aircraft are to avoid the ATZ if no contact with Benson Zone as recreational flying, Air Ambulance and Police helicopters operate H24'.*

The Rules of the Air 2015[5] states: *'An aircraft must not fly, take off or land within the ATZ of an aerodrome unless the commander of the aircraft has complied [with certain regulations]; if the aerodrome has an air traffic unit the commander must obtain the permission of that unit to enable the flight to be conducted safely within the ATZ'.*

## Comments

### HQ Air Command

This Airprox occurred during a period of busy weekend of Tutor and flying club activity at RAF Benson. At the specific point of the Airprox, the protection that the ATZ afforded the Tutor pilot negated a requirement to plan to avoid. The AS350 pilot had planned to transit to a landing site within Benson ATZ and probably planned to seek permission to enter the ATZ via R/T. However, in the course of his flight he compiled the mental model that 'Benson Zone was shut', reinforced by the lack of response to his calls on the Benson Zone frequency. Despite his efforts, the UK AIP states that 'All aircraft are to avoid the ATZ if no contact with Benson Zone'. A telephone call to Benson ATC prior to getting airborne may have better informed his SA and avoided this Airprox.

Benson ATC was manned, but due to the nature of operations on the day, only the Tower frequency was in use. Due to the Tutor pilot using this frequency and the AS350 pilot using the Zone frequency, the ANSP barrier, although available, was not effective. Moreover, it is unfortunate that Benson traffic squawks were not visible to the Farnborough controller. It is not apparent why this was the case – Benson squawks can clearly be seen on the NATS radar replays. Anyhow, this caused the Farnborough controller to 'not think' that Benson was active. Regardless, the decision by the AS350 pilot to fly into the ATZ at 500ft along the downwind leg of Benson's only runway was flawed.

The Tutor pilot's first indication of the proximity of the AS350 was when he spotted the helicopter flying along the downwind leg, reinforcing that a good lookout is often the key barrier to reducing the risk of MAC. Although the Tutor is fitted with TAS, the pilot states that he did not receive a TAS indication of the AS350. The Tutor pilot showed sound airmanship in calling the Traffic Information to ATC and the other aircraft in the circuit were then able to increase their separation as a result. The AS350 pilot did not spot any of the other three aircraft in the Benson circuit.

Due to this Airprox, a thorough local investigation has taken place at RAF Benson and the following recommendations have been made:

Amending the wording in the Mil and Civil AIP for Benson's ATZ to include instructions to contact the Tower if an aircraft needs to land within the ATZ, otherwise to remain clear.

Better liaison with Farnborough ATC.

Procuring a new DATIS machine to transmit on Benson Zone frequency when not staffed, including instructions on what to do if entry to the ATZ is required.

## Summary

[3] SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 15.
[4] ENR 2. 2-1. Other Regulated Airspace.
[5] Rule 11.

An Airprox was reported when a Tutor and an AS350 flew into proximity within the Benson ATZ at 1124hrs on Saturday 17th November 2018. The Tutor pilot was operating under VFR in VMC, the AS350 pilot was operating under VFR in VMC. The Tutor pilot in receipt of an Aerodrome Control Service from Benson, the AS350 pilot was not in receipt of an ATC Service, but had been trying to contact Benson on the Zone frequency, which was not monitored at weekends.

## PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, the controllers involved and the appropriate ATC and operating authorities.

The Board first noted that Benson is situated within an ATZ which was published as being operational H24. Although the AIP instructed pilots who wished to enter the ATZ to call on Zone frequency first, the Airprox occurred on a Saturday; at weekends the Zone frequency was not monitored and only the Tower frequency was in use. Some members wondered whether Benson should have been monitoring their Zone frequency given the requirement to call on this frequency before entry, but controller members commented that the Benson circuit was often busy at weekends and the controllers would not want to be distracted by trying to monitor calls on the Zone frequency.

The Board then looked at the actions of the AS350 pilot, who was routing to a private landing site within the Benson ATZ. He had been in contact with Farnborough LARS and had asked the controller if Benson was active. The controller had responded by informing the pilot that he did not think so because he could not see any squawks on his radar display. The NATS advisor commented that although the NATS area radars showed Benson squawks, the Farnborough controller was using a local airfield-based radar which, due to high ground between Farnborough and Benson, would not have shown any squawks in the Benson circuit. It was apparent to the Board that the AS350 pilot had misinterpreted the Farnborough controller's call concerning Benson's inactivity and this was considered to be a contributory factor to the Airprox. Subsequently, recognising that the AS350 pilot's plan was to enter the Benson ATZ, the Farnborough controller instructed him to free-call the Benson Zone frequency which, at the time, was the only frequency which was displayed at his position. Controller members opined that they would have expected the Farnborough controller to have had local knowledge that Benson would be a busy airfield at weekends, and they wondered how effective liaison between Farnborough and Benson was in understanding each other's working practices and procedures.

On approaching Benson the AS350 pilot had tried on two occasions to contact Benson on the Zone frequency, without response because it was not being monitored. He subsequently made two 'blind calls' on the frequency stating his intentions, detailing his landing site. Although the Board was sympathetic that the only frequency published to request entry into the Benson was the Zone frequency, it was nevertheless apparent that the AS350 pilot had entered the Benson ATZ without permission, which was a requirement under Rule 11 of the Rules of the Air 2015. Board members considered that, in planning to land at the location he did, the AS350 pilot should have been well aware of Benson's ATZ and AIP entry and, if not, should at least have contacted Benson before flight to ascertain their actual status. Furthermore, the AS350 pilot would have been well advised to have planned an alternative method of gaining entry into the ATZ before he entered (i.e. by ensuring he had the Tower frequency available) if contacting the Zone frequency was not successful.

Turning to the actions of the Tutor pilot, members noted that he had been carrying out a circuit to RW01. He reported that on approaching the runway he noticed the AS350 flying very fast directly up the downwind leg, at about 500ft. The Board commended him for immediately informing ATC of its presence, which led to both the controller and the pilots of the other two aircraft in the circuit obtaining visual contact with the helicopter.

In determining the cause of the Airprox the Board quickly agreed that the incident occurred because the AS350 pilot flew into an active and promulgated ATZ without permission. Turning to the risk, although the Tutor pilot was concerned about the presence of the AS350, it was apparent from his report that this concern was more about the proximity of the helicopter to other traffic in the circuit because the AS350 had passed about 1nm away from him (but within 0.3nm from the next aircraft in

the circuit, on a reciprocal track). For his part, the Board were surprised that the AS350 pilot had not seen any of the aircraft in the Benson circuit, especially because he would have had the sun behind him as he tracked north. Some members wondered whether this was because he had become task-focused on looking for his landing site to the expense of lookout for other aircraft. Ultimately, although it was considered that there had not been a risk of a collision because the pilots of the Benson circuit traffic had obtained visual contact with the AS350, the Board agreed that safety had been degraded by the unexpected presence of an unknown helicopter in the ATZ. Accordingly, the Airprox was assessed as risk Category C.

The Board was heartened to hear that, since the Airprox, Benson has recommended: amending the wording in the Military and Civil AIPs concerning Benson's ATZ, to include instructions to contact the Tower if an aircraft needs to land within the ATZ, otherwise to remain clear; conducting better liaison with Farnborough (which, according to the NATS advisor, has already taken place); and procurement of a new DATIS machine to transmit on Benson Zone frequency when not staffed, including instructions on what to do if entry to the ATZ was required.

## PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The AS350 pilot flew into an active and promulgated ATZ without permission.

Contributory Factor: The AS350 pilot misinterpreted the Farnborough controller's call concerning Benson's inactivity.

Degree of Risk: C.

Safety Barrier Assessment[6]

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

**ANSP:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially available** because the Benson Zone frequency was not being monitored despite the AIP requiring pilots to contact this frequency prior to entry to the ATZ.

**Situational Awareness and Action** were assessed as **partially available** because the AS350 would have shown on the Benson ATM (the assumption was made by the Board that the ATM was switched on and serviceable) but was **ineffective** because the controller had not monitored the equipment at the time.

**Flight Crew:**

**Regulations, Processes, Procedures, Instructions and Compliance** were assessed as **ineffective** because the AS350 pilot entered the Benson ATZ without permission.

**Tactical Planning** was assessed as **ineffective** because the AS350 pilot was not aware of Benson's activity and did not plan an alternative method of gaining entry into the Benson ATZ if contacting the Zone frequency was not successful.

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

**Situational Awareness and Action** were assessed as **not available** because neither ATC nor other pilots in the Benson circuit were aware of the presence of the AS350 until the Tutor pilot obtained visual contact with the helicopter and reported its position on the R/T.

**Warning System Operation and Compliance** were assessed as **partially available** because only the Tutor was equipped with an electronic warning system, and that did not provide its pilot with an alert.