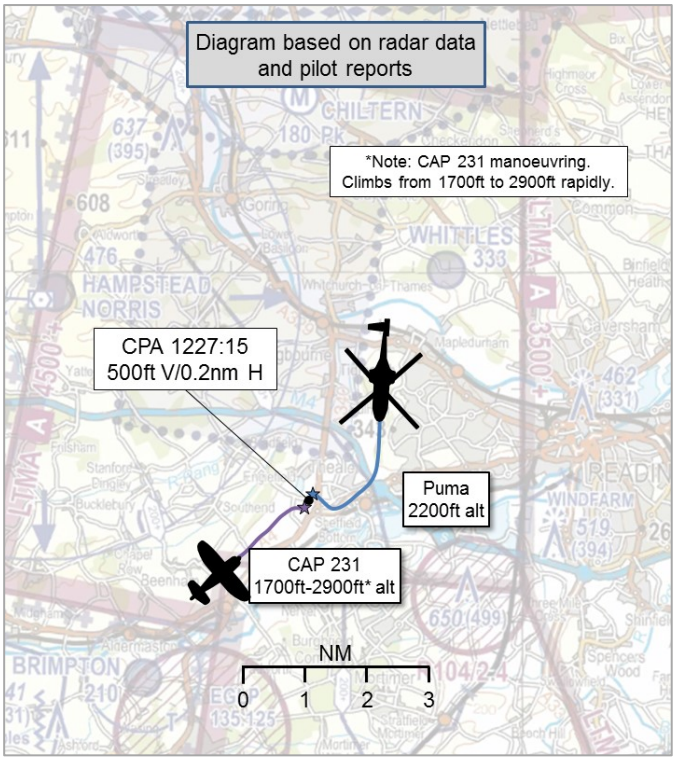
AIRPROX REPORT No 2018027

Date: 23 Feb 2018 Time: 1227Z Position: 5126N 00106W Location: 6nm SE CPT

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Puma	CAP231
Operator	HQ JHC	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Listening Out
Provider	Benson	White Waltham
Altitude/FL	2200ft	1700ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Green	Red, Yellow
Lighting	Not reported	Not reported
Conditions	VMC	VMC
Visibility	10km	>10km
Altitude/FL	2500ft	600ft-3000ft
Altimeter	QFE (1015hPa)	NK
Heading	300°	Manoeuvring
Speed	120kt	Not reported
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
Separation		
Reported	0ft V/<1nm H	0ft V/300m H
Recorded	500ft V/0.2nm H	



THE PUMA PILOT reports that he was entering the holding pattern for the COPTER TAC 01 procedure at RAF Benson when an aerobatic aircraft (CAP231) was seen to the south, which was suspected to be close enough to the hold to conflict with the procedure. He broke off the procedure with a turn to the west and informed ATC. The decision was made to use an alternate joining procedure for the hold that would put the CAP231 between the 12 and 9 o'clock to the Puma so that the crew could ascertain if the CAP231 would affect the hold. The CAP231 then became visual to the crew approximately 1min prior to hold entry, was observed throughout the turn, and was assessed by the crew as being far enough from the hold that it would not affect the procedure (approximately 2-3nm from the hold turn). The HP was also monitoring the trainee and the crewman was monitoring an additional light-aircraft that had passed approximately 3nm down the left side of the Puma. On completing a further hold, the HP was looking for the CAP231 and saw it as they were approximately 2/3 around the inbound turn, just as the TAS assessed it as within 1nm. When seen, the CAP231

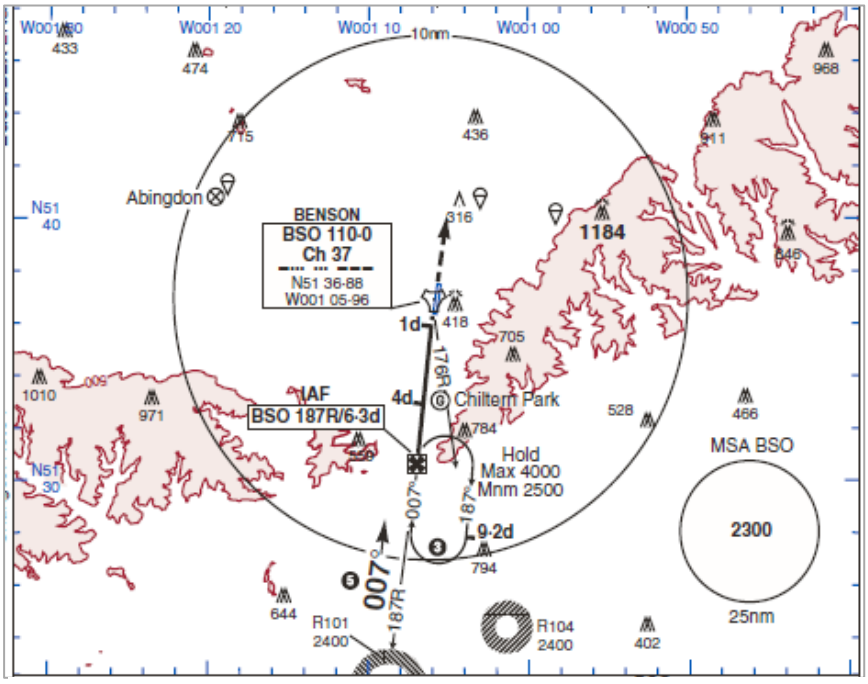


Figure 1: RAF Benson COPTER TAC 01

was vertical, climbing in an aerobatic manoeuvre. The aerobatic aircraft had been seen conducting various aerobatic manoeuvres, so the crew were unsure which way the CAP231 would manoeuvre because it appeared not to be aware of the proximity of the helicopter. The Airprox was reported to ATC over the radio stating the approximate location and time.

He assessed the risk of collision as 'Medium'.

THE CAP231 PILOT reports that he was practicing a competition aerobatic sequence at one of his regular practice spots, just to the south of the Benson MATZ. He was flying a warm-up figure and in a vertical climb when he first saw a helicopter transiting east-to-west abeam and south [he recalled] of his practice site. He deemed the other aircraft to be no conflict and so completed the top part of his figure, a push-over to vertical down, keeping the other aircraft in sight. He then pulled to level flight at roughly the same height as the transiting helicopter and decided to turn towards but behind it. The helicopter was now ahead of him, and to keep it in view he flew a climbing turn (partial barrel-roll) keeping the Puma in view at all times. This turn, although initially towards the conflicting aircraft, took him above and behind the Puma with it in sight throughout the manoeuvre until he was well behind it and had turned onto a reciprocal heading.

Figure 2: CAP 231 pilot gpx file track log

He assessed the risk of collision as 'None'.

THE BENSON CONTROLLER reports that he was operating bandboxed Approach/Director with 1 aircraft on frequency, the Puma. The Puma was in the TACAN hold, level at 2500ft, QFE 1015. Due to lunchtime manning, a decision was made to ask the Puma pilot if he was content for his TACAN approach to be unmonitored and from 7nm continue with Benson Tower; the pilot confirmed his compliance. Multiple contacts had been called to the Puma whilst establishing and in the TACAN hold. Prior to the Airprox, Traffic Information was given on an aircraft conducting what appeared, through track observation and Mode C, to be aerobatics within the southern stub of the MATZ [Note: The CAP231 pilot subsequently provided a gpx file of his flight, and neither it nor the area radar recordings show his aircraft entering the MATZ stub. However the Benson radar display may be configured differently depending on range scale selected, which could have given the impression that the CAP231 entered the MATZ stub]. He suggested the Puma pilot manoeuvre to the west if not visual, which resulted in the Puma leaving the hold. He perceived that the aircraft conducting the aerobatics eventually departed the southern stub, and the Puma re-established in the hold. Further traffic was called, including traffic just south of the southern stub. Mode A and Mode C became intermittent on the unknown aircraft, with occasional intermittent/faint primary contacts and the last update that he recalls showing the aircraft operating below the Puma. He called further traffic to the Puma NE tracking SW and the Puma pilot responded by reporting an Airprox with the aircraft to the south. Approximately 20 secs after the Airprox was declared, the Mode A and Mode C of the other aircraft became visible showing it co-alt with the Puma. Lateral separation at the time of the Airprox was unknown.

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

THE BENSON SUPERVISOR reports that she was sat next to the approach controller whilst they were controlling the Puma inbound. She was monitoring the radar screen and the controller called all relevant traffic accurately to the Puma. One track was seen to be manoeuvring close to, and on some occasions, in the southern stub and the Mode C readout was often intermittent. The Puma pilot then reported an Airprox on frequency. They monitored the unknown aircraft as it then started to manoeuvre

to the east of the southern stub. It was transponder equipped and squawking 7004, although the Mode A and C were not always showing. She spoke to Oxford radar who are equipped with Mode S and they informed her of the registration.

Factual Background

The weather at Benson was recorded as follows:

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METAR EGUB 231150Z 08013KT 9999 SCT030 03/M05 Q1021 BLU NOSIG
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Analysis and Investigation

Military ATM

Analysis of the tape transcript and radar replay is provided below. The screen shots below are provided by NATS radars and are not indicative of the radar picture seen by the Benson Approach controller at the time.

Figure 3 shows the Puma (3625) and the CAP231 (7004). Traffic Information is passed on the CAP231 as well as the 7000/A16 and 7000/A20 tracks.

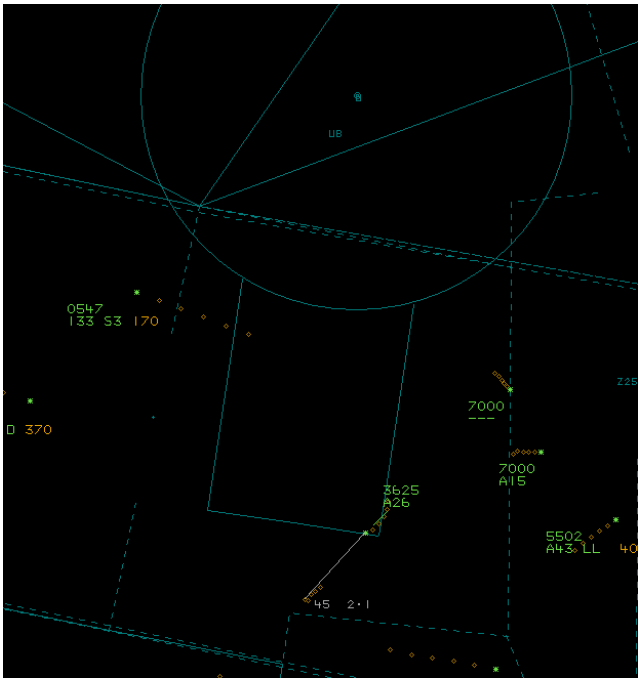

Figure 3. 12:19:06

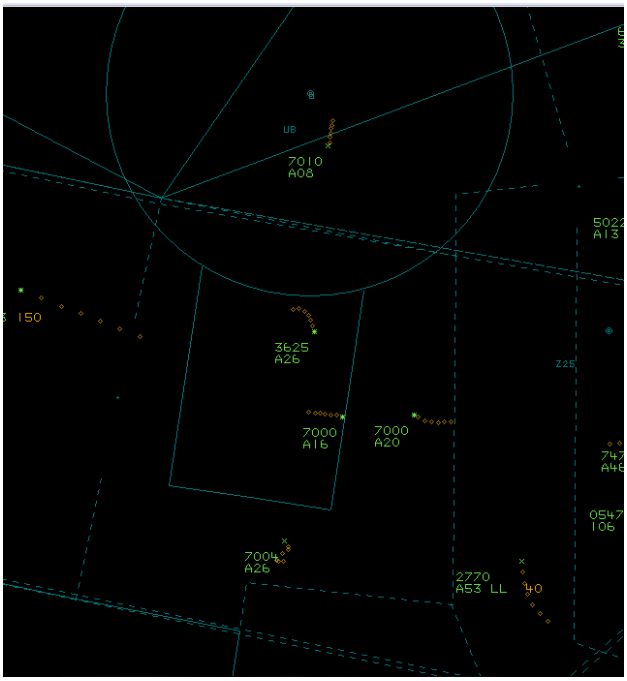

Figure 4. 12:21:21

As the Puma proceeded round the TACAN hold, the Traffic Information on the CAP231 was not updated. However, the Benson investigation noted that the CAP231 radar return was intermittent. Figure 4 shows the Puma during the hold, the CAP231 has faded from radar.

Having completed a hold (Figure 5), the Puma was cleared for the procedure. At this time, the CAP231 was manoeuvring 2.4nm away from the Puma. The Mode C of the CAP231 was lost due to the rapid change in altitude. No Traffic Information was passed.

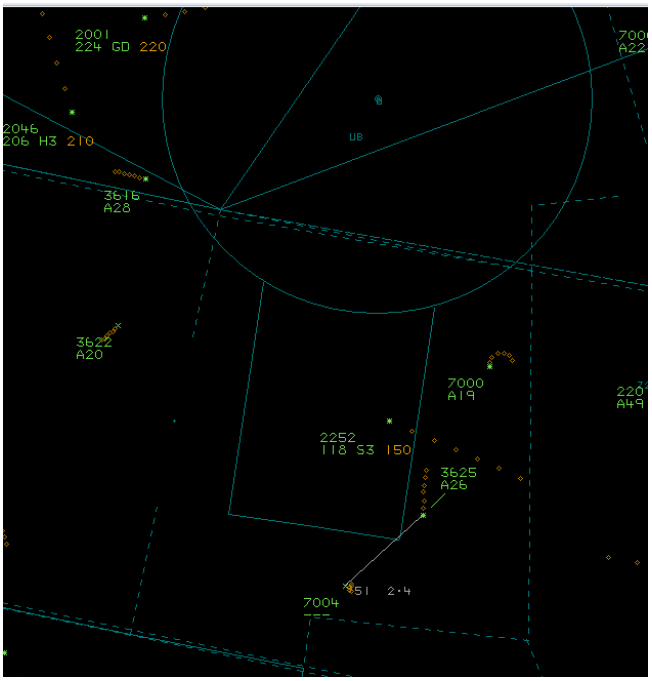

Figure 5. 12:26:11

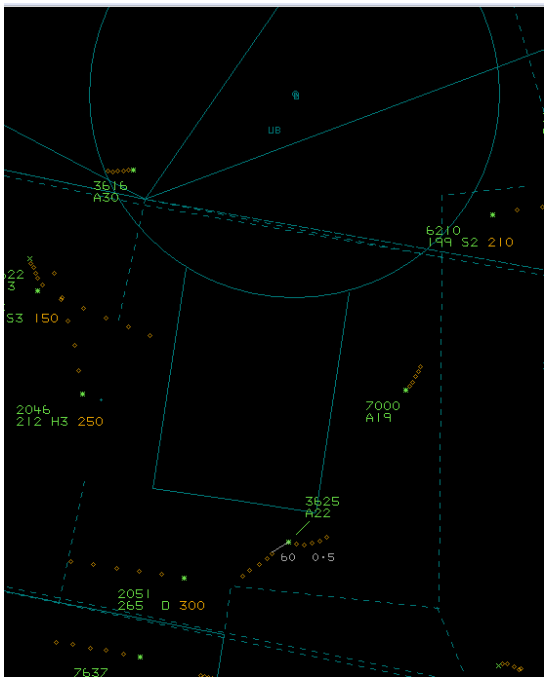

Figure 6. 12:27:15

As the Puma commenced the inbound turn (Figure 6), Traffic Information was passed on the 7000/A19 track to the NE of the Puma, no Traffic Information was passed on the CAP231. At this point the Puma and CAP231 were 0.5nm apart.

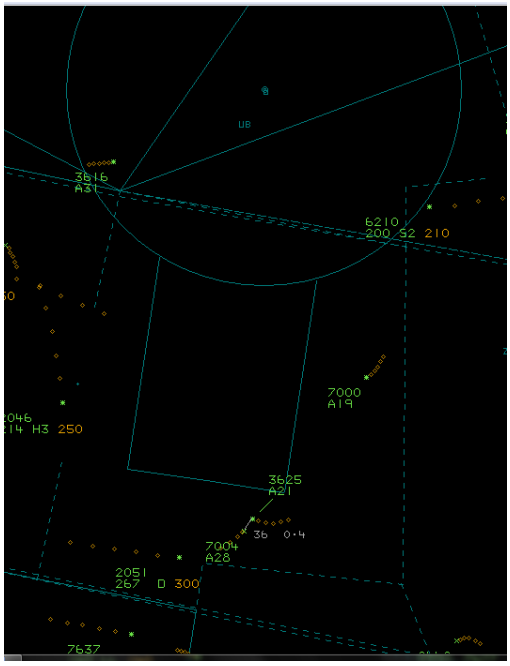

Figure 7. 12:27:24

The Puma reported the Airprox having received a TAS alert. The radar replay (Figure 7) shows a CPA of 0.4nm and 700ft [Note: Using a different radar, UKAB determined the minimum separation at CPA as 500ft V/0.2nm H].

In the time leading up to the Airprox, the Benson Approach Controller was working two aircraft (including the incident Puma). Analysis of the tape transcript indicated that traffic information was routinely passed to the Puma on the two 7000-squawk aircraft operating to the SE of Benson but was only passed once (12:19:06) on the CAP231.

Given the abundance of Traffic Information passed to the Puma on other aircraft, it is reasonable deduction, backed up by the unit investigation, that the CAP231 was not consistently showing on the Benson radar. Therefore, the controller fulfilled their responsibilities for the provision of a traffic service as defined in CAP 774.

UKAB Secretariat

The Puma and CAP231 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].

[1] SERA.3205 Proximity.

Comments

JHC

JHC assess that the Puma crew acted appropriately for the scenario they were presented with. They were under an appropriate service and flight regime for their task. Once presented with an initial potential conflict and an aircraft possibly affecting the airfield's published holding pattern, they modified their plan in consultation with ATC and attempted to keep that aircraft visual and out of conflict. Whilst it is difficult to ascertain from the transcript where the Puma is in the holding pattern in relation to aircraft information reports from ATC, the crew utilised available assets (including rear crew lookout and TAS) to assist with deconfliction. Whilst established on the inbound turn in the hold, due to the apparent unpredictable nature of the civilian aircraft conducting aerobatics the crew was correct in its action to log an Airprox.

Albeit positioned within Class G airspace throughout, JHC feel that it would have been prudent for the CAP231 to listen out on a Benson Frequency given their operations on a northerly runway that day. This could have added to all operators' SA and afforded some level of predictability to other airspace users in the immediate area.

Summary

An Airprox was reported when a Puma and a CAP231 flew into proximity to the south of RAF Benson at 1227hrs on Friday 23rd February 2018. The Puma pilot was operating under IFR in VMC and the CAP231 pilot was operating under VFR in VMC, the Puma pilot in receipt of a Traffic Service from Benson and the CAP231 pilot not in receipt of a service but listening to White Waltham.

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 first by looking at the actions of the CAP231 pilot. They agreed that the radar recordings and his gpx file verified that he had not entered the Benson MATZ, but noted nonetheless that the configuration of the Benson radar display may have led the Benson controllers to believe the CAP231 had entered the MATZ. The Board also noted that the Military AIP is now available[2] to all airspace users for their flight planning, albeit at the time of this Airprox this information was not freely available. Members therefore wondered how much the CAP231 pilot could have appreciated that his choice of aerobatic operating area was on the extended centre-line of RAF Benson, and whether this had been factored into his plan. In this respect, the Board agreed that it would have been prudent for the CAP231 pilot to have contacted Benson Zone to inform them of his presence prior to carrying out his aerobatics so that they could also pass him information about their traffic's intentions. Notwithstanding, members also noted that the CAP231 pilot was squawking 7004 (the aerobatic squawk), which should have made clear to the RAF Benson controllers his intention to conduct dynamic manoeuvring, and that their aircraft would be better served by being vectored away from his operating area if possible. With respect to the proximity of the Puma, the Board felt that although the CAP231 pilot was visual with the Puma and had modified his manoeuvres to avoid it, he could not know that the Puma crew were visual with him (especially due to his dynamic manoeuvring), and could not therefore guarantee that the Puma crew might not unwittingly manoeuvre towards his aircraft. As a result, members agreed that it would have been more prudent for the CAP231 pilot to have stopped his aerobatic practice on sighting the Puma and wing-waggled to demonstrate to the Puma crew that he was visual with them rather than to try to fit his manoeuvres around the Puma.

The Board then turned to the actions of the Puma pilot. They agreed that the Puma crew had sensibly broken off his first approach due to the position of the CAP231 but were surprised that they did not

[2] The military AIP (UK MILAIP) is available at: https://www.aidu.mod.uk/Milflip/index.php.

break off the subsequent approach where the CAP231 was in a similar position. Notwithstanding the Puma crew had believed that the CAP231 did not pose a threat when they commenced the procedure's turn, the unpredictable nature of the CAP231's aerobatics, and their uncertainty that the CAP231 pilot was visual with them, meant that they would probably have been better served by either terminating or modifying the procedure.

The Board then looked at the actions of the Benson controller. They noted that the Airprox took place during a period of reduced manning but did not believe that this had any impact upon the Airprox. Some members thought that the controller could have passed more Traffic Information, but the majority of members agreed that once the Puma crew had reported visual with the CAP231 then it was incumbent upon them to request an update on the CAP231 if they had lost sight with it rather than the controller to continue to pass Traffic Information (albeit if the controller believed there to be a risk of collision then he should have passed updated Traffic Information to the Puma crew). Some members wondered if the position of the hold at Benson, in a busy region of airspace, could be better situated to take account of what was a known popular route for GA aircraft with a number of avoids nearby that funnelled aircraft in this area; however, without detailed knowledge of the airspace design constraints in that area the Board stopped short of recommending that a change be considered.

Noting that both aircraft's pilots were entitled to operate where they had, members felt that the key to avoiding this incident was better communication. Not only could the CAP231 pilot have informed Benson Zone of his intentions (and received Traffic Information from them), the Board felt that liaison between Benson and local airfields could be improved to make them mutually aware of each other's daily operations and any potential impact of GH/aerobatic areas. The Board therefore resolved to recommend that Benson and local airfields engage in liaison to improve coordination of their activities both on a daily basis and through the wider forum of local regional airspace user groups.

Turning to the cause and risk of the Airprox members agreed that the CAP231 pilot had been visual with the Puma throughout but had probably flown too close for the comfort of its crew, who did not know if the CAP231 pilot had seen them. Some members thought therefore that the cause was that the CAP231 pilot had flown close enough to cause concern, whilst others thought that, given the separation ultimately achieved, the incident was best described as the Puma pilot being concerned by the CAP231's proximity. The latter view prevailed, although all members agreed that it had been contributory that the CAP231 pilot had not verbally communicated his intentions to Benson ATC. Turning to the degree of risk, the Board determined that, although safety had been degraded, the CAP231 pilot had been visual with the Puma throughout and therefore there had been no risk of collision; accordingly, they agreed that the risk had been Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Puma pilot was concerned by the proximity of the CAP231.

Contributory Factor(s): The CAP231 pilot did not verbally communicate his intentions to Benson ATC.

Degree of Risk: C.

Recommendation(s): Benson and local airfields engage in liaison to improve coordination of activities.

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:

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

Flight Crew:

Situational Awareness and Action were assessed as **partially effective** because neither pilot effectively used the available SA to avoid each other.

See and Avoid were assessed as **partially effective** because although each pilot was visual with the other aircraft, the closer than desirable separation between them was enough to cause concern to the Puma crew.