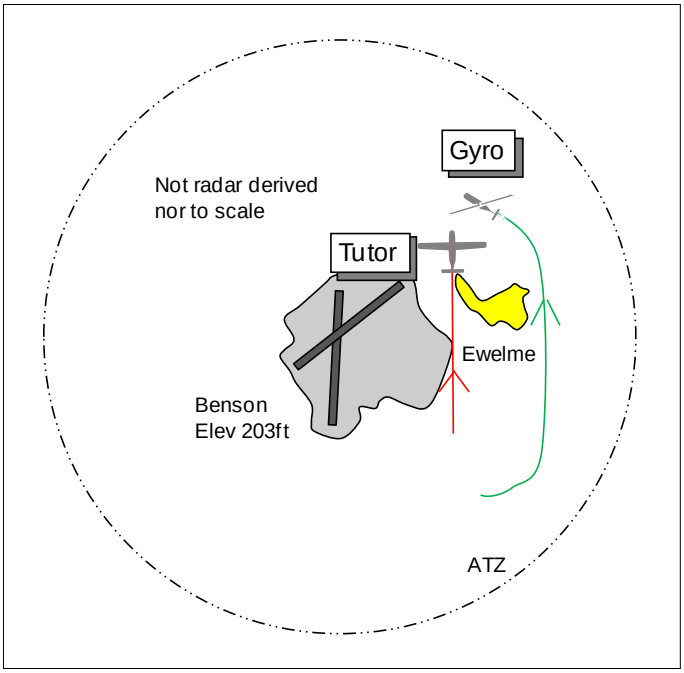
AIRPROX REPORT No 2011047

Date/Time:	8 May 2011 1431Z (Sunday)	
Position:	5138N 00105W (1nm NNE Benson - elev 203ft)	
Airspace:	ATZ	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	MT03 Gyroplane	Grob Tutor T Mk 1
Operator:	Civ Trg	HQ Air (Trg)
Alt/FL:	500ft (QFE)	800ft (QFE)
Weather:	VMC CLOC	VMC NR
Visibility:	>10km	30km
Reported Separation:	20-30m	30ft V/100yd H
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MT03 GYROPLANE PILOT reports flying a dual local sortie from Benson, VFR and in receipt of an Aerodrome Control Service from Benson Tower on 127·15MHz, squawking 7000 with Modes S and C. The visibility was >10km in VMC and the ac was coloured yellow/blue with nav and strobe lights switched on. He was flying with a fully qualified gyro pilot, who was seated in the front, with himself as Capt in the rear. They had previously carried out 1 cct with a touch and go RW19 and whilst downwind they called for a further touch and go. They were flying the wide 'flying club' cct and once they had passed to the E of Ewelme and were directly O/H a wood to the NE of Ewelme he called final for a touch and go. ATC responded "clear to land" and he started a gentle L turn and descent. He was aware that a Tutor had called downwind but could not remember ATC's response and would have thought ATC would have indicated "one ahead". He continued with his gentle L turn adhering to the oval cct doctrine. When he was adjacent to what would have been the old narrow cct his crewmate stated that they had an ac approaching from their L. Turning through heading 300° at 500ft QFE and 80mph he looked L and saw an ac, not the reported Tutor, in the downwind position on the flying club cct and at the same time saw the shadow of an ac approaching directly from his L. His crewman became more animated, informing him that it was getting closer. His crewman shouted that it was very close before taking control and commencing a steep diving turn to the R. At this point he, the Capt, spotted the Tutor closing at a similar height before it passed 20-30m above and to their L. He broadcast on the radio "he's just missed us" and believed the Tutor pilot made some response, possibly an apology. ATC then informed them that their permission to land had been revoked and he called going around, allowing the Tutor to land ahead of them. He carried out a short orbit before landing. He had not heard radio calls from the Tutor pilot when the ac was downwind asking for confirmation of his gyroplane's position and no deconfliction advice from ATC. He assessed the risk as high.

THE TUTOR PILOT reports flying a dual training sortie from Benson and in receipt of a BS from Benson Tower on 127·15MHz; the ac's transponder was switched off. The visibility was 30km in VMC and the ac was coloured white; no lighting was mentioned. The student was flying a low level cct LH RW19 and in reply to their downwind call they were told "one ahead". He then heard another ac's pilot call "final" and be cleared by ATC. By the bottom end of the downwind leg heading 010° level at 800ft QFE, despite looking intently into the expected area for the other ac, (down to the L, up the extended approach and dead ahead) neither he nor his student had him in sight. He looked R in

his 2 o'clock position and saw a blue/yellow autogyro about 100yd away and 30ft below, belly-up to him banking and descending sharply to the R, already taking avoiding action. The autogyro was operating from the Benson Flying Club in accordance with the FOB which requires an extremely wide cct for noise abatement. The ac is very slow and small, hence difficult to see. He, the Tutor Instructor, was flying a low level cct as per Tutor Instructor's/Student's Study Guide. Although both ac carried transponders, his was switched off iaw Benson SOPs whilst the autogyro pilot reported his transponder was switched on. Also his Tutor's TAS was off iaw current advice for cct work.

THE BENSON AERODROME CONTROLLER reports the Ground and Tower frequencies were bandboxed. At 1420 the Gyro pilot called for a L base rejoin to RW19 having been operating in the vicinity of Benson listening out on frequency. At the time the subject Tutor flight on was frequency conducting visual ccts and another Tutor was at the hold. The Tutor pilot called "final" for a touch and go prior to the Gyro reaching L base and was given clearance. The Gyro pilot was initially unable to see the Tutor so he orbited clear of L base and when visual, integrated into the cct L base. The Gyro pilot was given clearance for a touch and go after the Tutor finished its approach. The Tutor climbed to glide downwind and the other Tutor was lined-up for departure awaiting the Gyro to turn downwind whilst 2 other Tutors taxied. After being issued with take-off clearance, the departing Tutor's pilot asked what the Gyroplane's intentions were, to which he said that he believed it to be doing at least 1 cct. The subject Tutor's pilot called final for touch and go and was told to continue, owing to the departing Tutor pilot asking about the Gyroplane's intentions, but was then given clearance shortly thereafter. As the departing Tutor flight transferred to Approach the Gyroplane pilot called downwind to touch and go and then taxi to dispersal. Another Tutor flight at the hold was then cleared for take-off whilst the subject Tutor flight, which was about to turn downwind, requested a low-level cct which was approved. The Tutor pilot called downwind low-level for a full-stop and was told 1 ahead and a few seconds later the Gyroplane pilot called final but was briefly told to continue for a vehicle to cross the RW. About 30sec later the Tutor pilot called final and was told to continue for the Gyroplane which was still on final. A few seconds later the Gyroplane pilot called asking for confirmation of who had right of way and was told that it was him. It then became apparent that the Tutor had got close to or ahead of the Gyroplane although he was unable to determine this straightaway from their visual aspects from the Tower. The Tutor pilot apologised and asked if he could continue. The controller asked the Gyroplane pilot if he wanted to finish his approach or go around to which he replied "whatever is the easiest". By now he could see that the Tutor was ahead so he revoked the Gyroplane flight's clearance to ultimately go around and allow the Tutor make its approach. Both flights eventually made their respective approaches and taxied back.

HQ 1GP BM SM reports that this Airprox occurred at RAF Benson between a Stn-based Grob Tutor operating in the low-level visual cct and a Gyroplane, operated by the RAF Benson Flying Club, on final to RW19.

Given the low altitude of the Airprox, no radar replay was available.

Wx conditions were appropriate for visual circuit operations with VMC, 30km visibility in nil weather and FEW at 4200ft.

At 1429:05 the Gyro pilot reported, *"(Gyro c/s) downwind one nine touch and go and er then er taxi for dispersal",* which was acknowledged by TWR with, *"(Gyro c/s) surface wind one nine zero one six knots"*. At 1430:09 the Tutor reported, *"(Tutor c/s) downwind, low, full-stop"* and TWR replied, *"(Tutor c/s) one ahead surface wind one nine zero one six knots",* which was acknowledged.

Shortly afterwards at 1430:24 the Gyro pilot reported, *"…final one nine touch and go"* and, after being briefly continued due to a vehicle crossing the RW, was, *"…cleared touch and go and taxi back"* at 1430:45.

The Tutor pilot reported that as they reached the end of the downwind leg, "despite looking intently into the expected area for the other ac (down to the left, up the extended approach and dead ahead), neither of us had seen him. I looked out to the right two o'clock position and saw a blue and yellow autogyro."

At 1431:18 the Tutor pilot reported final and was instructed by TWR to, *"…continue approach",* which was acknowledged. In reply, at 1431:38 the Gyro pilot stated on freq that they were, *"…bit confused now, does that er, Tutor got right of way?"* which suggested that the Gyro pilot believed that the instruction to the Tutor to *"continue approach"* has placed it ahead of the Gyro. TWR replied, *"(Gyro c/s) negative you're number one."* Immediately after at 1431:45 the Gyro pilot is heard to say on freq, *"yeah we're just missing"* which, according to their report, was just after the CPA.

Both the Tutor and the Gyro pilots make reference to distinctive visual circuit patterns. However, the Stn Flying Order Book (FOB) only states that visual ccts are to be conducted to the E of the airfield for noise abatement, avoiding direct overflight of specific villages and that when the airfield is open 'oval (military) patterns are to be flown' by flying club ac. No mention is made of different visual cct patterns for different ac types and there is no graphical representation of any visual cct pattern within the FOB. Subsequent conversation with ATC at RAF Benson has found that the AEF/UAS operate a circuit inside Ewelme, whereas Rotary Wing and the Stn Flying Club operate a wider cct, outside Ewelme.

After the Gyro pilot's, *"just missing"* transmission the Tutor pilot then transmitted *"Tutor c/s in that case apologies err am I allowed to continue to land."* At 1431:55, the TWR controller is heard to transmit, *"Gyro c/s where are you are you happy to go first Gyro c/s or are you going to go-around."* The Gyro pilot replied, *"Yeah I think so I'll slow down as I believe there's one behind me as well I'll do whatever you want me to."* Subsequent investigation has found that given the small size and low speed of the Gyro it is known amongst ATC personnel to be incredibly difficult to see within the visual cct, more so in certain Wx/light conditions. This point is also highlighted by the Tutor pilot.

Given that both ac are station-based, it is reasonable to argue that TWR could have expected the Tutor pilot to be aware of the Gyro's cct pattern. Moreover, given that both ac had been established within the visual circuit for 10min 22sec prior to the Airprox and that they were both operating on the same freq, it is reasonable to argue that TWR could have expected the Tutor to be both aware of the Gyro and, given the circuit priorities stated on the freq, visual with the Gyro prior to turning finals. Finally, although the Hi-Brite display was available to TWR, nothing in the incident sequence would have prompted them to use it until the transmission by the Gyro at 1431:38. Given that the CPA occurred at around 1431:43, no time existed to allow them to view the Hi-Brite, assimilate the information and provide a timely warning. On the basis of these arguments and given the difficulty of the visual acquisition task for TWR in sighting the Gyro, there was no opportunity for TWR to have affected the outcome of the Airprox.

In terms of the active shortcomings within this Airprox, although the Tutor pilot knew that the Gyro was ahead of them in terms of cct priority and that they were unsighted of it, they committed their ac to the final turn. However, there are a number of latent conditions and contributory factors that can also be identified, one of which may have contributed directly to the Tutor being unable to sight the Gyro.

Akin to Airprox 085/10 between a Hawk and Tutor at RAF Leeming, a lack of graphical representation within the FOB of the disparate visual ccts may have contributed to a lack of awareness by both pilots of each other's visual cct pattern. This hypothesis is supported by the description of the Tutor pilot's visual scan immediately preceding the Airprox, which appears to have excluded the area to the R of the nose.

Notwithstanding that this appears to be an isolated incident, the operation of 2 distinct cct patterns, one inside the other, was a further latent condition and, allied with the Tutor pilot's restricted visual scan, a direct causal factor. Whilst RAF Benson has taken immediate action to stop simultaneous Tutor and flying club operations, this has not addressed the issue of the disparate cct pattern between the Tutors and rotary wing ac; consequently, a possible re-occurrence of this incident has not been prevented.

Finally, all ac types are mandated to operate to the E of the airfield for noise abatement, rather than, arguably, operational necessity or safety. This is the final latent condition which can be seen as a causal factor.

This Airprox resulted from the decision of the Tutor pilot to commit to a final turn without being visual with the Gyro ahead, which was operating in a different cct pattern.

RECOMMENDATIONS

BM SM has requested that HQ 22 (Trg) Gp provides guidance to operators on mixed cct patterns with differing ground tracks.

BM SM has requested that RAF Benson, through JHC, conducts a Stn-level review of visual cct operations including, but not limited to, the operation of dis-similar ac types and the imperative to operate solely to the E of the airfield.

SATCO BENSON reports that whilst a graphical representation of the RAF Benson visual ccts is now included within the FOB to raise awareness amongst the aircrews, ATC remain concerned that the point of confliction on the base-leg/final turn remains due to the cct.

HQ AIR (TRG) agrees that the potential for conflict caused by the fact that the dissimilar ccts overlap make them unacceptable. Lapses in lookout are inevitable so deconfliction plans based solely on maintaining visual contact between dissimilar types (speeds or patterns) are not robust. That said, the FOB did require flying club ac to conform to 'oval (military) patterns'. It would appear that the flying club pattern conformed to the letter if not the spirit of the order, which would have been included to avoid just this sort of conflict. The safe integration of Stn-based ac is an implicit responsibility of the Stn Cdr, which he discharges through the FOB. Thus, SATCO's concerns should be staffed to the Stn Cdr for resolution of safety concerns and to ensure that operational, training and other priorities are balanced appropriately.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

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

Members agreed that the underlying factor of this incident was the 2 different cct patterns which overlapped causing potential conflict in the base-leg/final area. The Gyroplane pilot was flying a wider 'oval' cct, in accordance with the procedures for Flying Club ac, and ATC had correctly issued the sequence to the Tutor pilot, *"…one ahead…",* when he called downwind. The Gyroplane pilot then called 'final' as he turned onto base-leg, which is normal when flying the military 'oval cct'. The Tutor pilot heard this call but did not assimilate that the flightpath flown by the Gyroplane would place the ac outside of, but turning towards, his tighter cct inside Ewelme. The Tutor pilot then flew into conflict with the Gyroplane on final which caused the Airprox.

The Gyroplane pilot was cognisant of the Tutor in the cct behind him and saw its shadow but was unable to see it immediately. The pilot seated in the front took control and flew a steep diving turn to the R as the Tutor passed about 20-30m away above and to their L. The Tutor pilot only saw the Gyroplane in his 2 o'clock as it was taking avoiding action, he estimated 100yd away and 30ft below. Members acknowledged that ATC had difficulty seeing the Gyroplane owing to its size and the ongoing problems with the Tutor ac showing intermittently on the Hi-Brite display. The ADC only became aware of the problem when it was brought to his attention by the Gyroplane pilot querying who had right of way after the Tutor pilot called final and was told to continue approach. Taking all of these elements into account, the Board believed that the visual sighting and prompt action taken by the Gyroplane flight was enough to remove the actual risk of collision but the ac had passed with separation margins reduced such that safety was compromised during this encounter.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Tutor pilot flew into conflict with the Gyroplane on final.

Degree of Risk: B.