

AIRPROX REPORT No 2010161

Date/Time: 20 Oct 2010 1333Z

Position: 5406N 00157W
(near Grimwith Reservoir)

Airspace: LFA 17 (Class: G)

Reporting Ac Reported Ac

Type: Tucano x 2 Grob Tutor

Operator: HQ AIR (Trg) HQ AIR (Trg)

Alt/FL: 250 agl 500ft
(RPS 1014mb) (RPS)

Weather: VMC CAVOK VMC NK

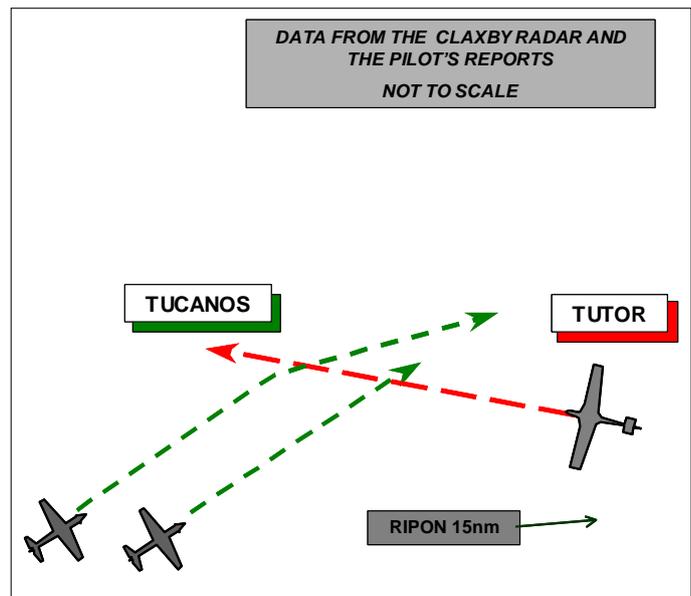
Visibility: 40km 5km

Reported Separation:

100ft V/100ft H 250ft V/200m H

Recorded Separation:

NR



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUCANO PILOT reports that he was leading a pair of black Tucano ac with all lights switched on, on a low level formation training flight; he was squawking 7001 with Mode C and TCAS 1 was fitted. The formation was heading 050° at 240kt, authorised to 250ft msd, and flying as a 'fighting wing pair', when both crewmembers noted a TCAS contact indicating +500ft and about 2nm away; it quickly disappeared from the screen [no TA was reported]. Both crews attempted to acquire the contact visually and the leader, assessing that the unknown ac was likely to be descending into low level at Grimwith Reservoir, manoeuvred his ac to the NE. His wingman adjusted his formation position (150m swept on the left and slightly higher) while simultaneously trying to acquire the 'stranger' visually. The leader then saw a military Grob Tutor, about 700m away in his 2 o'clock and assessed that maintaining his current flight path was the best option to avoid a collision. He did not have time to warn his wingman. The No 2 pilot then saw the Tutor in his 12 o'clock at about 400m and, assessing that there was a collision risk, turned right and descended with the Tutor passing slightly left and above him at an estimated range of 100ft.

He assessed the risk as being high and reported the incident to Linton on Ouse.

THE GROB TUTOR PILOT reports that he was instructing a UAS student on a low level training sortie from RAF Leeming flying at 500ft msd, squawking 7001 with Mode C and S. While heading 290° at 120kt he saw a pair of black Tucanos with strobes 1000m away approaching from low in his 9 o'clock position.

His sighting was fairly late as there was a slight haze and the Tucanos were coming from an out-of-sun direction. With minimal manoeuvre capability available to his ac and in association with the late pick-up, the best avoidance was to continue straight ahead, as the Tucanos appeared to be at 250ft and he judged that they would pass below. The Tucanos (flying in trail formation at the time) had obviously seen his ac and manoeuvred to pass behind, so he assessed the risk as being Medium.

UKAB Note (1): The Leeming METAR was:

METAR EGXE 201250Z 31012KT 9999 FEW030 08/M04 Q1019 BLU NOSIG

UKAB Note (2): Although the Tutor shows on the radar recordings, the Tucanos do not show until after the CPA. The recording verifies however, that the geometry of the incident however, is as shown on the diagram above.

HQ AIR (Trg) comments that this was a late sighting in class G airspace. The Tucano crew made good use of their TCAS SA to initiate their concentrated scan for the Tutor. The lack of fidelity of the TCAS in azimuth and its imperfect operation in the low-level environment means that the crew were unable to take any more effective avoiding action. The wingman's position change was a sensible move but had the unfortunate side effect of reducing the CPA with the Tutor. The different heights flown by the two parties reduced the risk of collision significantly although the resultant separation was less than the accepted safe minima. The Tutor is a difficult aircraft to see, however all parties saw each other with sufficient time to avoid a collision and the Tutor would have also had the option to climb away from the traffic; this would have been his only effective means of avoidance. He also appeared content that the Tucanos had taken avoiding action from 1000m away so no actual risk of collision existed; however, whilst a turn to the right would have increased the lateral separation it was clear to the leader that he was going to avoid the Tutor in height. The benefit of TCAS, albeit limited, is noted.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, radar recordings and a report from the ac operating authority.

The Board discussed the apparently conflicting and incomplete reports of the geometry of the incident and agreed the it had most likely been as displayed on the diagram above with the No2 Tucano moving from the left to the right side of his leader. An HQ Air Member observed that he was aware of the difficulty of assessing incidents when reports are brief; HQ Air was taking action to encourage pilots to submit comprehensive and accurate reports thus allowing thorough investigation.

Both the Tucano formation and the Tutor had been operation legitimately in the LFS at differing heights, the former at 250 ft and the latter at 500ft. That being the case, and since it was flying relatively slowly, Members agreed that the Tutor should have been visible to the Tucanos for some time (the same time as the TCAS warning). The rolling terrain however had most likely caused the ac (and therefore the warning) to disappear for a short time; when it had ceased to be obscured all pilots involved had seen the opposing ac as early as could reasonably be expected. Having reported that he saw the Tutor 700m away in his 2 o'clock, Members could not easily explain why the lead Tucano pilot reported that he did not have time to warn this No2 in formation on his right (probably), of its presence; one explanation might be that the Tutor had been significantly closer and therefore the ac crossing had happened in a short time period. Members agreed that the Tucano the Tutor pilot reported as turning to go behind him, was the No2 as this correlated with the Tucano pilot's report; that being the case Members assessed that the leader had passed ahead of and about 250ft below the Tutor.

When assessing the cause of the incident Members agreed that the pilots had discharged their responsibility to see and avoid their respective ac and the incident had therefore been a resolved conflict in the LFS and that TCAS had played a significant part in the Tucano crews acquiring the Tutor.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in the UKDLFS resolved by the Tucano pilots, with the assistance of TCAS.

Degree of Risk: C.