

AIRPROX REPORT No 2012068

Date/Time: 23 May 2012 0944Z

Position: 5411N 00102W (11nm NE
Linton-on-Ouse)

Airspace: TRA006 (Class: C)

Reporting Ac Reported Ac

Type: KC135R Tucano

Operator: Foreign Mil HQ Air (Trg)

Alt/FL: FL240 FL240

Weather: VMC HZBL VMC CLNC

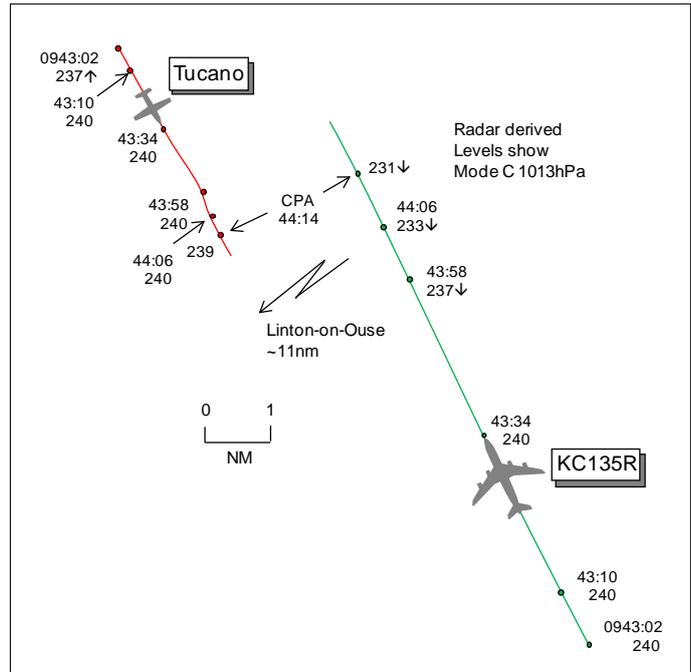
Visibility: >10km 50km

Reported Separation:

NR Nil V/3nm H

Recorded Separation:

800ft V/2.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE KC135R PILOT reports heading 340° at 390kt in the cruise at FL240 under a TS, having just switched to ScATCC Mil from LATCC Mil on 370.62MHz, squawking with Modes S and C. The visibility was >10km flying in haze between layers in VMC and the ac was coloured grey with upper and lower HISLs switched on. ScACC Mil made a traffic advisory call about traffic at the same level on a reciprocal heading so the crew looked out but could not see the ac and then looked at the TCAS display to locate it. Once located they asked for climb to FL250 to avoid it but before the controller could respond TCAS generated an RA 'descend' which was followed. They informed the controller that they were following an RA and were descending to FL230; the controller cleared them to FL230. Flying out of sun they did not see the other ac until passing abeam it. The other ac appeared to be slightly above and slightly turning away and was dark in colour and either a small business jet or small military type. It was hard to determine owing to the undetermined distance away and aspect at the time of sighting. The other flight was not heard on frequency or talking to the same controller. ScATCC Mil asked if they intended to report the incident which they confirmed. They resumed FL240 once cleared with nothing further to note during the sortie. He assessed the risk as low.

THE TUCANO PILOT reports flying an air-test sortie from Linton-on-Ouse and listening out on a discreet frequency, squawking 7006 (TRA conspicuity code) with Mode C; TCAS 1 was fitted. The visibility was 50km in VMC and the ac was coloured black/yellow with HISLs, nav and landing lights all switched on. Having climbed to FL240, heading 160° at 120kt he saw a large ac approximately 15nm away to the SE. He continued with the air-test and identified the other ac as a KC135 before it passed 3nm down his LHS co-alt. There was no risk of collision as he had maintained visual contact with it for the previous 15nm until it passed.

UKAB Note (1): TRA006 is active Mon-Fri 0730-1700UTC Summer excluding English Public Holidays but may be activated at other times by NOTAM; vertical limits FL195 to FL245. Class C requirements for the provision of ATS do not apply within an activated TRA. ATS is provided in accordance with ATSOCAS by the appropriate military or civil ATS provider. Military autonomous operations are permitted and are to be conducted under VFR. Pilots of ac are responsible for avoidance of collision in accordance with the RoA. SSR Code 7006 with Mode C should be selected and retained when vertical profiles result in operations above and below FL195 until such time as

flight within a TRA is complete. Military ac do not require a clearance to operate autonomously within an active TRA.

BM SAFETY MANAGEMENT reports that this Airprox occurred above the Vale of York AIAA, between a KC135R en-route to AARA 5 operating IFR in receipt of a TS from ScATCC (Mil) Controller 2 and a Tucano operating VFR in TRA 6.

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated.

The KC135R crew report in excess of 10km visibility in haze, between cloud layers and were under their own navigation to AARA 5. Controller 2 was under training and reported low task complexity and moderate to low workload at the time of the occurrence.

The incident sequence commenced at 0943:05 as STCA white activated between the KC135R and Tucano. The Tucano was 11.2nm NW of the KC135R, tracking SE'y, climbing through FL237. At 0943:08, Controller 2 passed TI to the KC135R flight on the Tucano stating, "...*traffic twelve o'clock, one-five miles, opposite direction, indicating same level.*" The KC135R crew did not immediately respond to the TI and, at 0943:17, Controller 2 exchanged RT with an unrelated fast-jet formation. At 0943:35, the KC135R crew requested a climb which Controller 2 authorised, instructing the KC135R to "...*climb Flight Level two-five zero*" in order that separation could be deemed between the 2 ac. During this transmission, STCA activated red; the Tucano was 6.9nm NW of the KC135R, tracking SE'y, indicating FL240. The KC135R crew did not acknowledge the climb instruction, replying that, "(KC-135R c/s) is (unintelligible) *following R-A*" which was acknowledged by Controller 2.

The KC-135R crew's response to the TCAS-RA descent instruction was visible at 0943:58 and shortly afterwards, at 0944:03, the crew reported visual with the Tucano. At this point, the Tucano was 3nm WNW of the KC135R, tracking SE'y, indicating FL240; the KC135R was descending through FL235.

The CPA occurred at 0944.14 as the Tucano passed 2.1nm W of the KC135R, indicating FL239; the KC135R was descending through FL231. The Tucano pilot reported first visually acquiring the KC135R when 15nm lateral separation existed and remained visual throughout the incident sequence. It is noteworthy that the KC-135R crew reported that the Tucano 'was not heard on the frequency that (KC135R c/s) was on and (KC135R c/s) felt like the ac was not talking to the same controller as (KC135R c/s).'

In terms of this event as an air incident, the Tucano operating VFR visually acquired the KC-135R in good time and assessed that there was no confliction. Controller 2's instructor has stated that the trainee passed TI prior to the activation of STCA-white, which might indicate a discrepancy between the RT and radar times; however, NATS engineers have stated that both systems are GPS corrected and should be synchronous. It has not been possible to conclusively prove or dis-prove the existence of a time difference between the RT and radar. That said, regardless of the activation of STCA-white, Controller 2 passed timely TI to the KC135R crew and reacted appropriately to the crew's subsequent request to climb. Given the range scale that Controller 2 would have been operating on, the disparity between the range given in the TI and that on radar is understandable. Once the crew reported that they were manoeuvring in accordance with a TCAS RA, Controller 2's ability to affect the incident sequence was removed. There are no ATM issues that require further investigation; this event effectively represents a TCAS sighting report by the KC135R crew.

HQ AIR (TRG) comments that this was a very low risk event. The Tucano pilot was visual from 15nm, assisted by TCAS 1, and the KC135 was also equipped with TCAS and in receipt of a radar service, and had planned to take vertical separation in advance of the TCAS RA. Two points are worthy of note: first, the Tucano crew might have been able to give the obviously TCAS-equipped ac a wider berth, although their own on-board TCAS 1 did not trigger a TA; second, the KC135 was on a profile where a DS would have been available and might have resulted in deconfliction advice that pre-empted the eventual RA. Information from the Tucano manual states:-

“With the undercarriage retracted the TCAS operates in Sensitivity Level B (SLB). A TA is generated when an intruder comes within 0.55nm laterally or 800ft vertically or is on a course which will intercept the host aircraft within 30 seconds. This time is reduced to 20 seconds for non-altitude reporting intruders.”

After carrying out some calculations, it has been determined that the TCAS would have been very close to generating a TA in accordance with these parameters so it is reasonable that it did not. Clearly the KC135 and other TCAS users have their units set to SLA to generate warnings much earlier. Clearly, given its normal operating environment and manoeuvrability, SLA would not be appropriate for the Tucano, and would also explain the apparent lack of consideration of the TCAS RA parameters.

HQ USAF UK comments that this was a straightforward TCAS event. It serves as a reminder to military crews that, when possible, big jets should be avoided by generous parameters.

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.

This was an unfortunate incident where, although all parties were discharging their responsibilities to maintain their own separation from other traffic through see and avoid within the TRA, the acs' flightpaths triggered a TCAS RA in the KC135 causing the Airprox. The KC135 crew were given the heads-up on the approaching Tucano at the same level and, after locating it on TCAS, they attempted to avoid it by requesting a climb from ScACC Mil. However, owing to the acs' closure rate, before the controller could approve the climb a TCAS RA was generated which commanded a descent. The RA guidance was followed and the KC135 crew visually acquired the Tucano as it passed down their LHS. Meanwhile the Tucano pilot had seen the KC135 at 15nm range and was taking visual separation against it, content that it would pass well clear on his L. However, it appears that the Tucano pilot was unaware that his flightpath would breach the TCAS 'safety bubble' around the KC135 causing its crew to comply with an RA descent. A Member opined that had TCAS not been an element of the incident, the Airprox would probably not have been filed. Another Member commented that the KC135 crew could have asked for a DS whilst transiting the TRA which almost certainly would have resulted in an earlier resolution, instigated by the controller, which should have negated any TCAS alerts/warnings.

Looking at the risk, some Members thought that this had been a benign event where normal procedures, safety standards and parameters pertained – a risk E. This view was not shared by the majority of the Board who concluded that although the Tucano pilot's visual separation and the KC135 crew's actions ensured the ac were never going to collide, with the KC135 crew complying with a TCAS RA manoeuvre, a non-standard event, a risk C classification was more pertinent in the circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The acs' flightpaths triggered a TCAS RA in the KC135.

Degree of Risk: C.