

AIRPROX REPORT No 2012108

Date/Time: 24 Jul 2012 1544Z

Position: 5337N 00002W
(4nm NNE Grimsby)

Airspace: London FIR (Class: G)

Reporting Ac Reported Ac

Type: Tucano Spitfire Mk26

Operator: HQ Air (Trg) Civ Pte

Alt/FL: 1000ft approx 1500ft
(RPS 1012hPa) (NK)

Weather: VMC CLBC VMC CAVOK

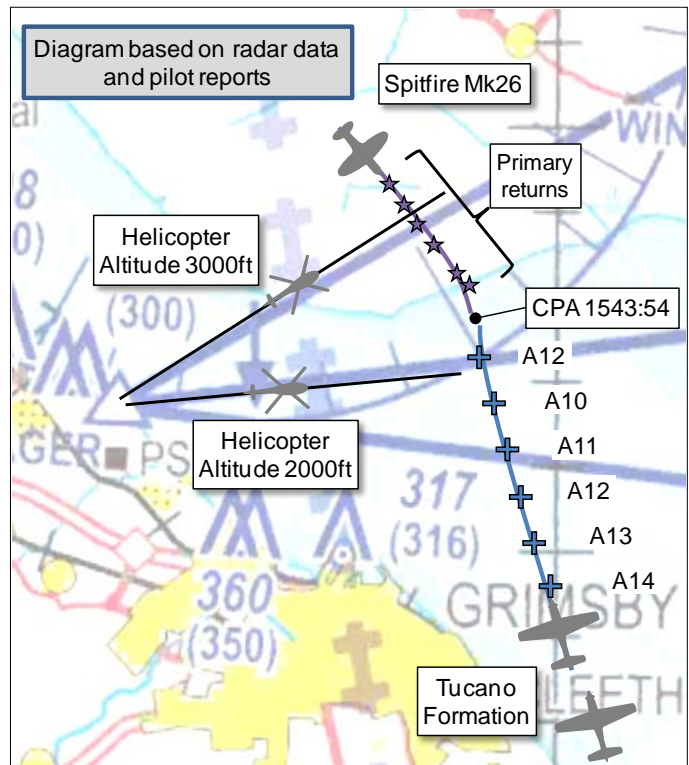
Visibility: 10km 30km

Reported Separation:

500ft 0ft V/200m H

Recorded Separation:

NK V/0.25nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUCANO PILOT reports instructing a navigation exercise, operating under VFR, leading a pair of Tucano ac. The ac were black and yellow in colour, with external lights and HISLs on. The SSR transponder was selected on in both ac with Modes 3/A and C and the low-level conspicuity code selected [7001]; Mode S is not fitted although the ac is fitted with TCAS, which was selected on. As the formation approached the Humber Estuary heading 347° at 240kts [the number 2 ac maintaining trail formation 0.4nm behind the leader] the student pilot [PF] spoke to Humberside APP [119.125Mhz], established a BS and climbed to altitude 1500ft [RPS 1012hPa]. The formation was advised of two helicopters at 6nm range heading E under a service from Humberside [APP], one at altitude 2000ft and the other at altitude 3000ft. The formation pilots descended to altitude 1000ft in order to increase separation from the helicopters and the PF advised Humberside APP of their change in altitude. The lead crew became visual with the first helicopter at a range of 2-3 miles in their 10 o'clock position and 1000ft above. The lead crew became visual with the second helicopter at a range of about 3 miles in their 1 o'clock position and 2000ft above them. One of the helicopters advised on RT that he had seen another ac 'just N of the Humber at about 1000ft heading S'. Humberside APP relayed this to the Tucano pilots, calling a potential contact in their 12 o'clock at a range of 1 mile. Almost immediately after this call the lead crew became visual with an ac in their 12 o'clock position at close range. The student pilot called "break right" to the formation whilst initiating a hard turn to the R. The Tucano pilot stated that had they not initiated avoiding action they would have passed within 200ft of the other ac, which he identified visually as a Spitfire. The other ac did not appear to take any avoiding action, and did not indicate on their TCAS.

He assessed the risk of collision as 'Medium'.

THE SPITFIRE MK26 PILOT reports conducting a ferry flight to position the ac for its new owners. The ac was painted in a camouflage colour scheme with beacon and wing-tip strobes on.

[UKAB Note(1): The Spitfire Mk26 is a sub-scale replica Spitfire.]

The SSR transponder was selected on with the VFR squawk and Modes 3/A and C. An ACAS was not fitted. At the departure A/D it was apparent that RT contact on the ground was quiet but satisfactory. After T/O, and on first contact with [an ATSU], it became apparent that his

transmissions could be heard, but that he could not hear received transmissions due to the increased engine noise at cruise power. The ac route was modified such that he remained clear of CAS. The pilot commented that he 'always works ATC in order to allow them and other ac to be aware of [his] presence'.

On reaching [an intermediate refuelling stop] he found that by throttling the engine back it was possible to 'obtain the airfield and TI by radio'. On departure for the destination A/D he set course for the OTR beacon, planning to remain clear of CAS by routeing via North Coates. While in the cruise, at 140kts, he saw two helicopters approximately 200ft higher than himself. He turned R approximately 30°, heading 170°, to increase separation and remain clear of the wake turbulence. He then saw two black and yellow Tucanos on his R in close formation at a range of approximately ¼nm to ½nm. He continued the R turn to increase separation. Before they passed through his 12 o'clock position they started a L turn towards him and he assumed they wanted to "take a look". The distance between them reduced to approx 200m but their tracks were now parallel. The pilot noted that he would normally be 'working Humberside ATC' in that area and that the [effective] loss of RT meant that the 'increased SA that it offers' had been lost.

He did not consider reporting this occurrence because they were all flying under VFR outside CAS where "see and avoid" principles were in operation and he believed they had seen each other in plenty of time.

He assessed the risk of collision as 'Low'.

ATSI reports that the Airprox occurred at 1543:54 UTC, 12.5nm NE of Humberside Airport, within Class G airspace, between a Spitfire MK-26 (Spitfire) and a Shorts S-312-Tucano-T1 (Tucano-A) flying in formation with a second Tucano (Tucano-B).

The Tucano formation were operating VFR on a navigation training exercise and were in receipt of a BS from Humberside Radar [119.125MHz]. Tucano-A was the formation leader. The Spitfire was operating VFR on a ferry flight and was not in receipt of an ATS.

CAA ATSI had access to RTF and radar recording of Humberside Radar, area radar recordings, written reports from both pilots and a written report from the Humberside Radar controller.

The weather for Humberside is provided:

METAR EGNJ 241520Z 20007KT 180V250 9999 FEW048 28/13 Q1016=

[UKAB Note(2): The 1550 METAR for Humberside was reported as:

METAR EGNJ 241550Z 18005KT 110V240 9999 FEW049 28/13 Q1016=]

At 1513:08, the Tucano formation contacted Humberside Radar for a BS whilst routeing S across the Humber at altitude 2000ft. At 1520:54, the formation reported changing frequency to Waddington.

At 1537:40, the Tucano formation again contacted Humberside Radar and reported, "[Formation C/S] *pair of Tucanos two P O B er low low level navex two fifty feet wishing to route south to north to the east of Grimsby for the estuary and request Basic Service ??????*" The controller asked the formation to report abeam Grimsby and agreed a BS, passing the Barnsley RPS as 1012hPa.

At 1538:14, two departing helicopters contacted Humberside Radar and a TS was agreed as they tracked to the NE of Humberside.

At 1539:50, the controller transmitted, [Formation C/S] *what level will you be climbing to once you've crossed the Humber I've got two helicopters outbound at two and three thousand feet.*" The formation reported an intention to climb to 1500ft on 1012hPa. The northerly helicopter climbed to 3000ft and the southerly to 2000ft.

At 1542:23 the formation reported abeam Grimsby and the controller advised, [Formation C/S] *thank you my helicopters are er northwest of you by six miles and northeast bound lowest at level two thousand feet,*” which the formation acknowledged.

At 1542:27, area radar showed the Tucano formation, 13nm east of Humberside tracking N at FL009. An unknown primary radar contact (believed to be the Spitfire) was shown 11.1nm NE of Humberside Airport, tracking SE. The distance between the Tucano formation and Spitfire was 9.2nm. The controller provided TI to the two helicopters regarding the Tucano formation and about the unknown contact [the Spitfire], which was S bound crossing the N coast of the Humber estuary.

At 1542:54, the Tucano formation reported descending to 1000ft. At 1543:00, the S’ly of the two helicopters, at altitude 2000ft, reported sighting the unknown traffic on the coast about 1000ft below him. At 1543:16, the controller advised, “...[Formation C/S] *then that traffic’s north of you by three miles southbound just crossing the coast er estimated at a thousand feet by the helicopter.*” There was no response from the Tucano formation.

At 1543:33, the controller transmitted, “[Formation C/S] *did you copy the traffic on your nose range of a mile and a half opposite direction believed to be about a thousand feet unverified.*” The formation responded, “*and visual with both [Formation C/S]*” and then at 1543:45, “[Formation C/S] *break right.*” As the formation started the R turn, the Humberside radar showed the Spitfire commencing a R turn onto a S’ly heading, as shown in picture 1 below. For clarity, a black line and arrow has been added to highlight the track of the Spitfire. The Tucano formation is shown flying 0.4nm in trail.



Picture 1: 1543:45 - Humberside radar

At 1543:54, the Humberside radar showed the Spitfire passing 0.25nm (CPA) NW of the formation, as shown on picture 2 below. For clarity, a black line and arrow has been added to highlight the tracks of the Spitfire and Tucano formation leader.



Picture 2: 1543:54 - Humberside radar

At 1544:28, the Tucano formation reported going to their en route frequency.

The Spitfire was not in receipt of an ATS at the time of the Airprox. The Tucano formation was in receipt of a BS from Humberside Radar. CAP 774, UK Flight Information Services, Chapter 2, Page 1, Paragraph 1, states:

‘A Basic Service is an ATS provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. This may include weather information, changes of serviceability of facilities, conditions at aerodromes, general airspace activity information, and any other information likely to affect safety. The avoidance of other traffic is solely the pilot’s responsibility.’

The controller provided a warning to the Tucano formation when the unknown contact was in their 12 o’clock position at a range of 3nm. However there was no immediate response from the Tucano formation and the controller again provided a warning when the Spitfire was at a range of 1.5nm. This very likely aided the SA of the Tucano formation, resulting in them sighting the Spitfire and taking avoiding action when the formation leader transmitted “*Break Right.*”. In Class G airspace, the pilots are ultimately responsible for collision avoidance and should consider service provision to be constrained by the unpredictable nature of this environment

The Airprox occurred when the Tucano formation and Spitfire flew into proximity, which caused the Tucano formation to take avoiding action. The Humberside controller passed a warning to the Tucano Formation, which very likely aided the Tucano formation in acquiring a visual sighting of the Spitfire.

HQ AIR (TRG) commented that the Tucanos received an excellent service from the Humberside controller and that the TI received was instrumental in them achieving a visual sighting. The sighting passed by the helicopter crews must also be recognised as a useful factor in the building of SA. It is likely that the Spitfire sighted the Tucanos first and remained in a position to take further avoiding action. That said, he also stated that the Tucanos turned towards him in what he perceived to be an

attempt to “take a look”; no such turn by the Tucanos is apparent on the radar picture and the reaction of the Tucano pilots implies that they only became visual at a late stage, thus the miss distance selected by the Spitfire might be viewed as inappropriate. It is apparent that the Spitfire’s transponder return was not seen, either on the Humberside radar or the Tucanos’ TCAS. As a result, a further mitigation was nullified, in addition to the Spitfire’s effective loss of radio comms.

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 photographs and video recordings, reports from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

The Board initially commented on the likely activity in the lead Tucano cockpit in the moments leading up to the Airprox. The Mil RAF Members opined that the RT transcript indicated the student (PF) had either confused or simply not heard the Humberside controller’s first TI call on the Spitfire Mk26 and was visual with the two helicopters above him but not with the conflicting traffic at his level. If the instructor had heard the calls correctly then there was a distinct possibility he was attempting to build the student’s SA in the moments prior to the Airprox.

The Spitfire Mk26 pilot saw the conflicting Tucanos in his R turn, albeit at close range, before the Tucano crews saw him and commenced avoiding action. Pilot Members were of the view that the Spitfire Mk26 pilot’s assessment of the risk of collision as ‘Low’ was not consistent with a first sighting at a range of ¼ to ½nm, which the Board considered to be a late sighting, and a reported separation of 200m. At the closing speeds and first sighting range reported, the Spitfire Mk26 pilot had approximately 5sec at best to effect any avoidance. Board Members opined that he had an opportunity to increase the miss-distance and that it was the late sighting and last ditch avoiding action of the Tucano pilot that increased the miss-distance from an assessed 200ft to an assessed 500ft. Overall, the Board were of the opinion that safety margins were reduced below the normal.

The Board were unable to determine why the Spitfire Mk26 transponder did not appear on the Humberside radar picture or activate the Tucanos TCAS. It was unfortunate that this information was not available, especially as the Tucano formation had just descended to increase separation on the helicopter traffic and inadvertently to the same height as the Spitfire Mk26.

Finally, all Board Members commended the Humberside controller on his outstanding performance. Whilst the Tucano crews may well have been better served with a TS rather than a BS, the controller’s timely and persistent traffic warnings to the Tucano crews was instrumental in preventing a much more serious outcome to this incident. The Board opined that his actions serve as an exemplar to all controllers.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Late sightings by the pilots in both aircraft.

Degree of Risk: B.