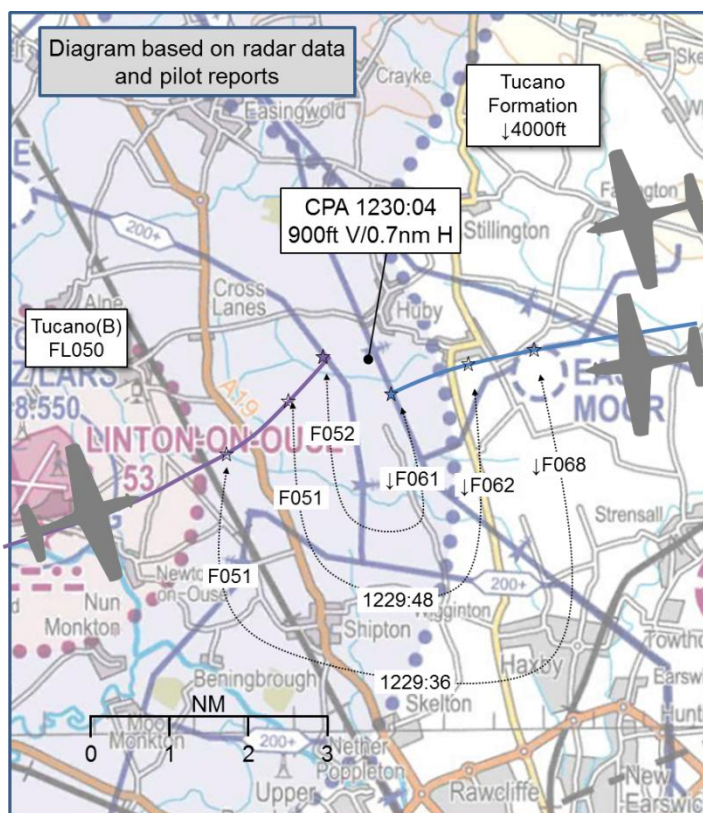


AIRPROX REPORT No 2015076

Date: 29 May 2015 Time: 1230Z Position: 5404N 00108W Location: 4nm NE Linton on Ouse

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	2 xTucano	Tucano
Operator	HQ Air (Trg)	HQ Air (Trg)
Airspace	N Yorks AIAA	N Yorks AIAA
Class	G	G
Rules	VFR	IFR
Service	Traffic	Traffic
Provider	Linton	Linton
Altitude/FL	FL61	FL52
Transponder	A,C,S	A,C,S
Reported		
Colours	Black/Yellow	Black/Yellow
Lighting	Strobes, Nav, landing lights.	Strobes, Nav, landing lights.
Conditions	VMC	VMC
Visibility	15km	>10km
Altitude/FL	5700ft	NK
Altimeter	QFE (1000hPa)	
Heading	265°	070°
Speed	180kt	150kt
ACAS/TAS	TCAS I	TCAS I
Alert	TA	TA
Separation		
Reported	1200ft V/0.5nm H	1000ftV/2nm H
Recorded	900ft V/0.7nm H	



THE TUCANO FORMATION PILOT reports he was the lead of a formation of two Tucanos. They were receiving a Traffic Service from Linton Zone for a cloud break. The cloud was broken layers with reasonable gaps in between, within which the visibility was good. Descent was commenced at 7500ft, approximately 6nm from Linton. An initial clearance to 4000ft was given by the Zone controller. On approaching 6000ft, both aircraft received a TCAS TA, indicating traffic was moving left-to-right in the 1 o'clock position at 4500ft. No Traffic Information had been passed by the controller. The formation stopped descent at 5700ft and the controller was informed. The conflicting traffic was seen first at 0.75nm, reducing as it passed left-to-right beneath the formation. He considered that, had it not been for the situational awareness given by the TCAS, a high risk of collision was likely.

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

THE TUCANO (B) PILOT reports that he was asked to submit his report 11 days after the event and therefore his recollection was sketchy as it was not a particularly memorable event. He was on an instructional sortie to teach TACAN holds and ILS approaches. On departing Linton they had been cleared own navigation for the TACAN hold, climbing to FL50. There were good breaks in the cumulus cloud so they were under a Traffic Service. As they approached the 069° radial (the correct outbound radial for the initial approach fix) they received Traffic Information on a pair of Tucanos, in the 1 o'clock position, above, but descending. These corresponded with traffic seen on the TCAS. The student and instructor continued to monitor the TCAS vertical separation, whilst also looking out for the traffic. A few seconds later they received a TCAS TA as the contact continued to descend towards them, but almost immediately the student spotted the pair of Tucanos, 1000ft above in the 2

o'clock position. Avoiding action wasn't necessary, but the student elected to ease a few degrees to the left to aid separation (although the instructor believed that even without this, they still would have passed behind). As he did so, the Tucanos appeared from behind the canopy arch and instructor also became visual. He couldn't recall how close the traffic passed, but remembered not being concerned by their proximity. The pair passed behind and his student continued to the TACAN hold.

He assessed the risk of collision as 'Low'.

THE LINTON ZONE CONTROLLER reports that the formation called approximately 8nm east of Linton at 7000ft, with the intention of descending to low-level to the west of Linton. They had requested a Traffic Service and so the controller gave a squawk and identified them. The instruction to set QFE 1000hPa was given in preparation for the subsequent descent. RW28RH was in use at the time, so he immediately called the Tower controller to place a climb-out restriction of 3000ft QFE, with the intention that this would allow the formation to initially descend to 4000ft. The controller leaned across to the Departures controller to inform him that a climb-out restriction was in place, and pointed out the formation to the east. He then called the Approach controller and informed him of the MATZ overflight, gave traffic information on the formation, and advised that there would be a climb-out restriction of 3000ft in place until his aircraft were well clear to the west. During this time he received a call from Dishforth Tower wanting to pre-note a Dishforth departure, but he told them to "stand-by". The formation then asked whether they had traffic south-west of their current position, he called the traffic, which was about 3nm north-east of Linton, which he now believes was above the 3000ft climb-out restriction. The formation self-imposed a stop descent of 5700ft, and informed the controller that they would be filing an Airprox as he had cleared them to a height below that of conflicting traffic. Once clear of the traffic they continued the descent and went en-route. The controller noted that he believed that all aircraft climbing out would be not above 3000ft QFE, and was not made aware of any conflicting traffic which was already above that height.

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

THE LINTON APPROACH CONTROLLER did not file a report.

THE LINTON SUPERVISOR reports that traffic levels on the unit were very low. Ironically he was taking a telephone call from CFS Cranwell regarding circuit integration at the time of the incident, he was therefore at his workstation taking notes on the telephone call when he looked up and noticed two aircraft transiting towards each other at different levels - the westerly one climbing and the easterly descending, although he recalls that there was at least 1500ft between them at the time. He stood up to ensure the Zone controller was aware of the traffic, but as he did so the Departures controller also stood up blocking his way. He pushed across the departures controller and, because the Zone controller was transmitting, pointed to the traffic that he was concerned about. The controller acknowledged his actions, and so the Supervisor went back to his workstation and observed both aircraft turning away. The Zone controller subsequently explained that the Tucano formation would be filing an Airprox.

Factual Background

The weather at Linton was recorded as:

METAR EGXU 291150Z 36004KT 9999 SCT015 10/06 Q1002 WHT TEMPO 29016G26KT FEW020 BLU

Analysis and Investigation

Military ATM

The Airprox occurred on 29 May 15 at 1230, 4nm NE of RAF Linton-On-Ouse between a single Tucano under a Traffic Service with Linton Approach and a pair of Tucanos (callsign Cordite) under a Traffic Service with Linton Zone.

Portions of the transcript between Linton Approach and Tucano (B) is below:

From	To	Speech Transcription	Time
Tuc	APP	Linton Director, {Tucano c/s} airborne passing 1000ft climbing FL 50 TS	1225:54
APP	Tuc	{Tucano c/s} Linton Director identified TS climb FL 50	1226:03
APP	Tuc	{Tucano c/s} own navigation TACAN hold	1226:20
APP	Tuc	{Tucano c/s} traffic north east 10 miles tracking west at FL 75	1228:26
Tuc	APP	Looking {Tucano c/s}	1228:33
Zone	App	Zone with a MATZ over flight, there's a COR ¹ 3000ft on or against the 4531 east of Linton 6 miles tracking west	1229:21
App	Zone	Contact	1229:30
Zone	App	Descending to 4000ft QFE looking for low level descend once west of Linton	1229:31
App	Zone	Erm roger and you're going to go, you're obviously going to descend lower once your about 5 miles west or something like that	1229:36
Zone	App	Affirm yeah	1229:40
Tuc	App	And {Tucano c/s} we've got traffic coming left 030 degrees	1229:50
App	Tuc	{Tucano c/s} roger improve course traffic is erm east 1 mile track west 1000ft above descending	1229:58

Portions of the transcript between Linton Zone and Cordite formation is below:

From	To	Speech Transcription	Time
Cordite	Zone	Erm Cordite, pair of Tucanos currently 12 miles east of field 7000 ft looking for a TS and a cloud break to low level 15 miles west of Linton	1227:41
Zone	Cordite	Cordite identified TS	1228:13
Zone	Cordite	Cordite set Linton QFE 1000	1228:25
Cordite	Zone	1000 set Cordite	1228:29
Cordite	Zone	Cordite ready for descent	1228:40
Zone	Cordite	Cordite standby	1228:41
Zone	Local	Zone COR 3000 ft QFE	1228:44
Local	Zone	COR 3000 ft QFE	1228:47
Zone	Local	With a pair of Tucanos east to west over the top not below 4000 ft QFE until 5 miles west	1228:50
Local	Zone	Roger	1228:55

¹ Climb-out restriction.

From	To	Speech Transcription	Time
Zone (open mic)		Copied that {controller name}? 3000 I'll get my pair down to 4 over the top	1228:59
Zone	Cordite	Cordite descend initially not below height 4000 ft	1229:07
Cordite	Zone	Descend initially not below height 4000 ft cordite	1229:11
Cordite	Zone	Zone have you got traffic 1000 ft below us	1229:44
Zone		Linton Approach, Dishforth Tower	1229:47
Zone	Cordite	Cordite affirm traffic left 2 miles tracking north east indicating FL 50	1229:48
Cordite	Zone	Cordite stopping descent 5700 ft	1229:53
Cordite	Zone	Cordite visual with that traffic now	1229:57
Zone	Cordite	Cordite roger visual with that traffic descend to height 4000 ft	1230:00
Cordite	Zone	We will be filing an Airprox against that traffic erm because you descended us through their level into confliction	1230:15

At 1228:26 (Figure 1), Approach called traffic as, “*traffic north east 10 miles tracking west at FL75.*”

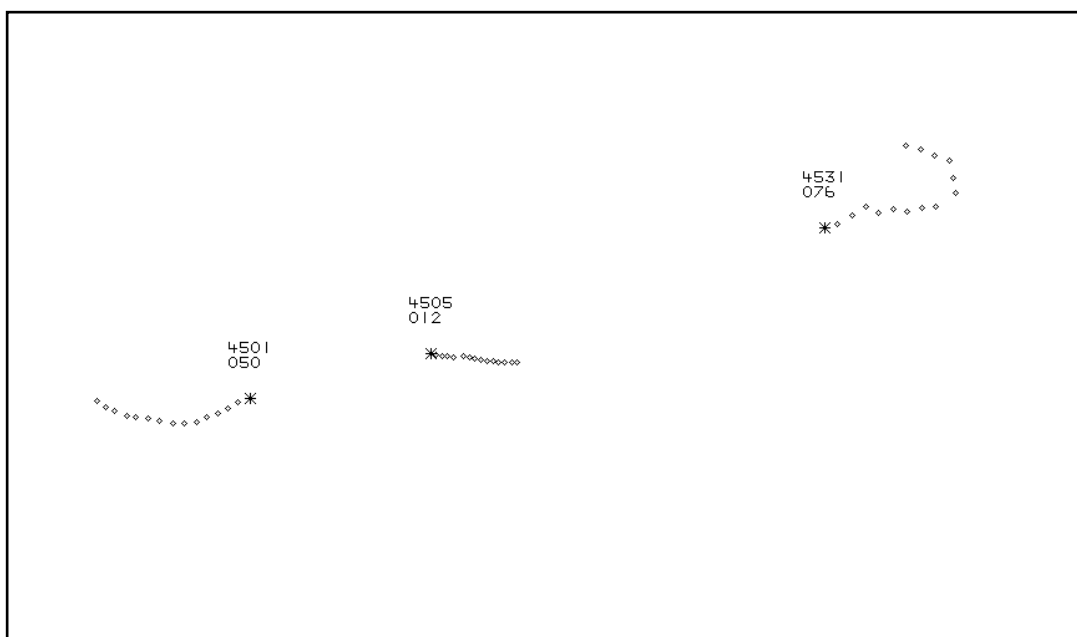


Figure 1: Traffic Information at 1228:26 (Cordite 4531; single Tucano 4501).

At 1229:07 (Figure 2), Zone descended Cordite to not below 4000ft Linton QFE 1000 hPa.

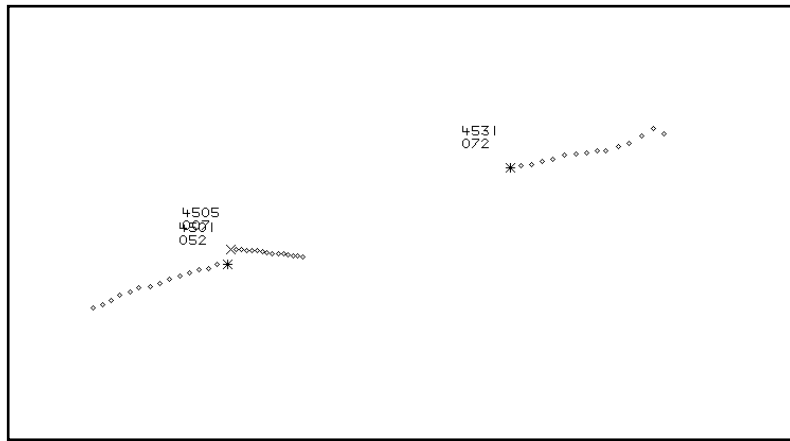


Figure 2: Geometry as Cordite stopped in descent to 4000ft at 0929:07.

At 1229:21 (Figure 3), Zone placed a climb-out restriction with Zone of 3000ft against the 4531 squawk.

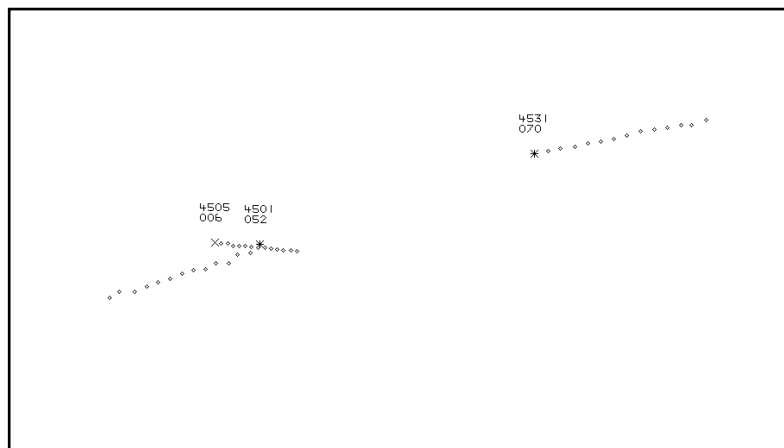


Figure 3: Climbout restriction at 1229:21.

At 1229:48 (Figure 4), Zone called traffic "2 miles tracking north east indicating FL 50." Tucano (B) transmitted to Approach at 1229:50, "we've got traffic coming left 030 degrees."

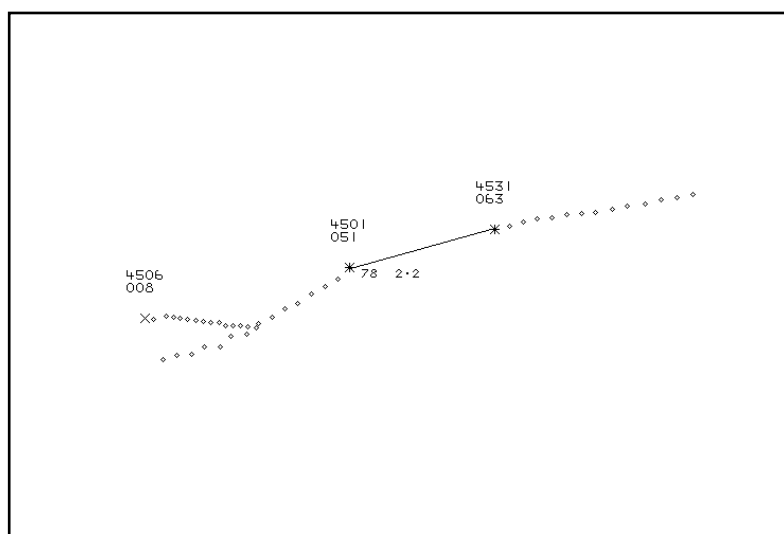


Figure 4: Traffic Information at 1229:48.

Cordite called visual with Tucano (B) at 1229:57 (Figure 5).

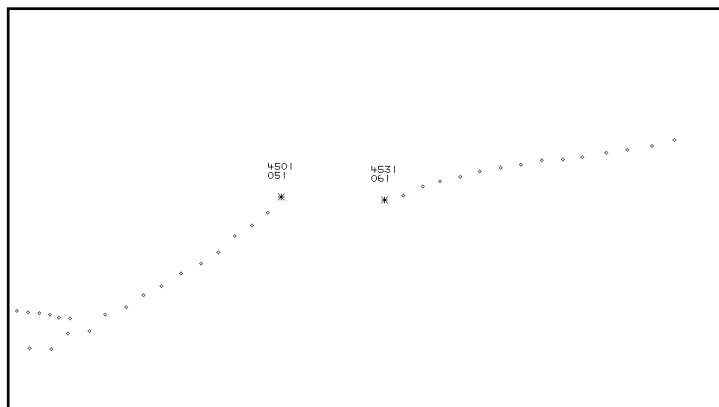


Figure 5: Cordite called visual at 1229:57.

The CPA was estimated at 1230:06 (Figure 6).

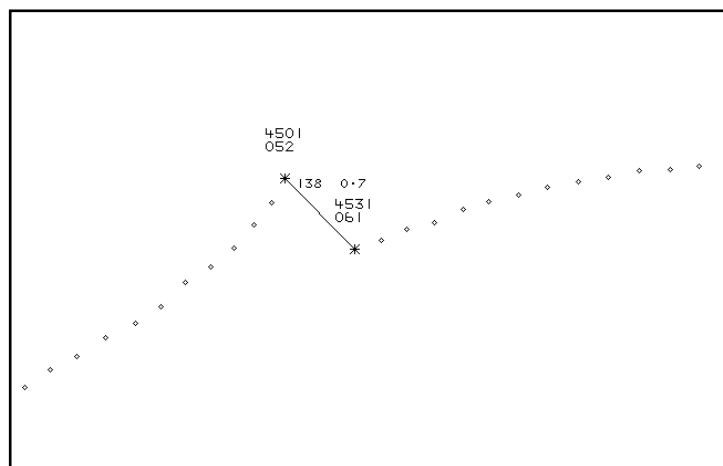


Figure 6: CPA at 1230:06.

The chart at Figure 7 shows the position of the TAC RW28 at Linton.

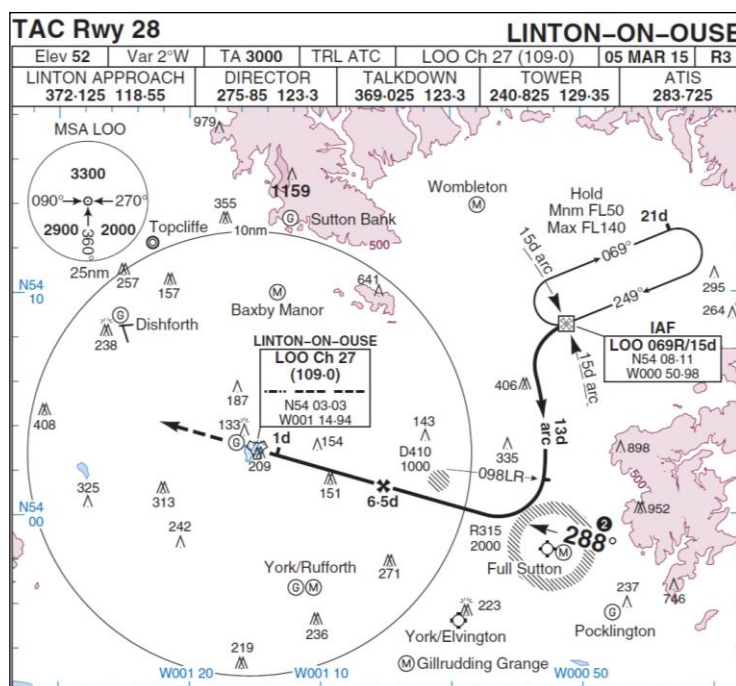


Figure 7: Linton TAC RW28.

Linton App controller applied a Traffic Service to Tucano (B) and approved an own navigation climb to FL50 for the TACAN hold. The single Tucano had climbed out for a TACAN hold (Figure 7) and had turned to the left for the IAF, which meant that it flew through the radar overhead. ATC would normally expect a more direct right hand turn from RW28 to position for the hold; however, the Tucano had been instructed to follow 'own navigation', and had turned left. Traffic Information was given at 10nm when Cordite formation were at FL75. Zone called App with a climb-out restriction and identified Cordite to him when it was 6nm east of Linton, in the descent to 4000ft. No update was provided by App to Tucano(B) as the formation began their descent, and Tucano(B) called visual at 2nm, declaring a left turn 30°.

Following a request for a descent 15nm west of Linton, Linton Zone placed the formation on the QFE of 1000hPa and, 42 seconds later, approved a descent to 4000ft. Zone passed the 3000ft climb-out restriction to the ADC and then informed App, along with Traffic Information on Cordite. By the time that Zone had passed the 3000ft climb-out restriction, Tucano (B) was at FL50. Zone did not pass any Traffic Information to Cordite and the formation subsequently asked whether there was traffic 1000ft below, 22 seconds prior to CPA. The request for information from Cordite prompted Zone to then pass Traffic Information on Tucano (B) indicating FL50 at 2 nms, 18 seconds prior to CPA. The radar replay demonstrates that the Tucano was in the radar overhead and it is believed that it did not appear on radar to the Zone controller before this time. The Zone controller recalled that Tucano (B) first appeared as Cordite informed him of traffic 1000ft below.

Tucano (B) reported spotting the formation on TCAS at the same time as the Traffic Information at 7nm and was visual by 3nm (actual Traffic Information was at 10nm). The instructor/student were not concerned about the conflict; a 10° turn was initiated but it was not considered avoiding action because the crew were content that safe separation existed. Cordite formation had a TCAS alert inside 2nm and were visual at less than 1nm. However, Cordite felt that they had been cleared to descend into conflict as they were cleared to 4000ft against the other aircraft at FL50.

The Unit investigation considered that Tucano (B) was lost in the radar overhead at FL50 as the aircraft had taken the long routing for the TACAN hold. Likewise, Cordite picked a routing close to the radar overhead which could have obscured other traffic from ATC. App passed Traffic Information at 10nm but no update was offered despite the closing geometry. Zone did not pass any Traffic Information to Cordite until the aircrew questioned the conflict, but did pass Traffic Information on Cordite to App and Tower. The control team did not limit [the service] for the radar overhead as this is not required locally.

The experienced App controller may have considered that everything was in place because he had a track at FL50 and the climb-out restriction had been agreed below this height. The initial Cordite request was for a cloud break descent 15 miles west of Linton and the Zone controller had started the descent to 4000ft whilst still to the northeast of Linton; good practice may have been to keep Cordite level until clear of the busy part of the MATZ. Again, with a climb-out restriction in place, the Zone controller probably lost Cordite in the radar overhead but had been satisfied that any climb-outs were 1000ft below. The Zone controller started the formation descending earlier than requested but was attempting to assist the crews with a cloud break descent whilst protecting the MATZ. The App controller may have made the assumption that Cordite were not a factor prior to his track routing back through the overhead. However, Tucano (B) was already above 3000ft when the restriction was put in place and neither controller were acting upon the information that had been available to them on radar. The radar replay suggests that both tracks were likely to be on converging headings with Cordite descending through the level of the Tucano.

CAP774, Chapter 3.5, states that, "the controller shall pass Traffic Information on relevant traffic, and shall update the Traffic Information if it continues to constitute a definite hazard." Despite losing traffic in the overhead, it is probable that the information was not assimilated by the App controller or that the controller expected the Tucanos to descend when further west. The Zone controller had distractions in the shape of two landline conversations and a free-call from Dishforth but the overall workload was low. The Unit felt that there was a lack of appropriate

action and awareness by both controllers and the issue would be highlighted with a Standards Bulletin and better Team Resource Management.

The barriers to an Airprox consisted of ACAS, radar-derived Traffic Information and see-and-avoid. ATC had applied Traffic Information at 10nm and a climb-out restriction but the team did not use the information fully and allowed the situation to develop. The routing of both crews had taken them close to the radar overhead, thus introducing the potential for the controllers to lose sight of conflicting traffic. TCAS did provide both crews with situational awareness and this eventually aided visual acquisition.

UKAB Secretariat

Both pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². If the incident geometry is considered as head-on, or nearly so, then both pilots were required to turn to the right³, if the incident geometry is considered to be converging then Tucano(B) pilot was required to give-way⁴, which he did.

Comments

HQ Air Command

This incident highlights the requirement for all personnel to maintain appropriate situational awareness (SA) when involved in the safe operation of aircraft within the wider aerodrome traffic environment. In this instance, a breakdown in communication between the Linton Zone and Approach controllers resulted in a formation of 2 Tucanos being cleared through the level of a similar type manoeuvring for an instrument approach.

Following a review of the available documentation, it is evident that the Zone controller believed that he had sanitised the area in which he would descend the Tucano pair by imposing a climb out restriction. However, he was not informed by the Approach controller of the potential for Tucano (B) to conflict with the descending aircraft, as it was already operating above the restriction; Tucano (B) may not have been visible to the Zone controller as it manoeuvred through the radar overhead. The failure of the Approach controller to pass relevant Traffic Information may have been due to distraction leading to an inability to assimilate the information passed from Zone. Distraction may also have prevented the Zone controller from recognizing the potential confliction, as he was diverted by landline coordination at key moments during the event.

Given the prevailing weather conditions, both pilots had chosen an appropriate ATS for the activities conducted. However, the choice of both crews to manoeuvre through the aerodrome overhead may have complicated the controllers' ability to provide an appropriate service and may have contributed to the incident; greater positive control may have prevented this from occurring. Notwithstanding, the maintenance of SA by both crews, through the use of TCAS, aided visual acquisition and prevented a more serious outcome.

Summary

An Airprox was reported on 29th May at 1230 between a single Tucano and a formation of two Tucanos. The formation was receiving a Traffic Service from Linton Zone and had been cleared to descend to 4000ft QFE; the controller imposed a climb-out restriction on Linton aircraft and believed that would protect his aircraft from traffic departing Linton. Tucano (B) was receiving a Traffic Service from Linton App and was already climbing for the TAC hold and passing FL50; Linton App passed Traffic Information on the conflicting formation at a range of 10nm. Both pilots received TCAS alerts, and both became visual with the conflicting traffic.

² SERA.3205 Proximity.

³ SERA.3210 Right-of-way (c) (1) Approaching head-on.

⁴ SERA.3210 Right-of-Way (c) (2) Converging.

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 first looked at the actions of the Tucano formation; they noted that the crew had called for a cloud-break whilst they were to the east of Linton, heading west. Whether they expected to be able to descend through the overhead, or whether the Zone controller was trying to be helpful by allowing them to descend early was not clear, but the Board highlighted that planning to descend through cloud very close to or through, the radar overhead is rarely best practice due to likely loss of radar contact. As it transpired, the formation did not receive Traffic Information from the controller because it was likely that the conflicting traffic was not showing on his radar screen. Nevertheless, in the end the Board noted that the pilots had been alerted to the possible conflict by their TCAS, and had used that information wisely in electing to level-off above the height of the other Tucano.

The Board noted that the pilot of Tucano (B) was less concerned by the incident. He had received Traffic Information from the Approach controller and so was primed to look for the other traffic, eventually seeing it and deciding it wasn't a factor. Again TCAS played a part in providing further situational awareness on the formation, and the Airprox as a whole highlighted the value of TCAS.

The Board then looked at the actions of the controllers. They opined that the Zone controller had probably thought he had done enough to protect his aircraft; he had notified Tower and Departures, put a climb-out restriction in place, and had provided Traffic Information to the Approach controller. The Board noted that the wisdom of descending aircraft through the radar overhead was mentioned in the unit investigation, and they reiterated this, although recognising that circumstances sometimes dictated otherwise. The Board also noted that, although local orders stated that controllers didn't need to tell pilots that the ATS would be limited when passing close to the radar overhead, it was felt that this could have acted as a timely reminder that more robust look-out may be required in these circumstances. Turning to the Approach controller, the Board wondered why he had not realised that his aircraft would be a factor when the Zone controller passed Traffic Information on the formation. Some members wondered if he might have momentarily forgotten his aircraft was there due to distraction, or because he couldn't see it on his radar as it transited through the radar overhead. More likely they thought, it may also have been that he simply didn't assimilate that Zone intended to descend the formation through the overhead because to do so was not a normal occurrence. The Board were disappointed that an oversight by Linton meant that there was not a report from the Approach controller, and so the controller's reasoning could not be determined. However, what was not in doubt was that by not informing Zone that his traffic was already through the level of the climb-out restriction, the Approach controller had introduced risk of conflict.

When determining the cause of the Airprox, the Board quickly agreed that it was that Linton ATC had not sufficiently synchronized the Tucano formation with Tucano (B). The risk was assessed to be Category C; timely actions were taken to prevent a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Linton ATC did not sufficiently synchronize the Tucano formation with Tucano (B).

Degree of Risk: C.