

AIRPROX REPORT No 2013067

Date/Time: 3 Jul 2013 1435Z

Position: 5409N 00116W
(6nm NNW Linton-on-Ouse)

Airspace: Vale of York AIAA (Class: G)

Reporter: RAF Linton-on-Ouse Departures

1st Ac 2nd Ac

Type: Tucano T1 2 x Hawk T1

Operator: HQ Air (Trg) HQ Air (Ops)

Alt/FL: FL45 5600ft
QFE (1010hPa)

Weather: IMC KLWD VMC CLBL

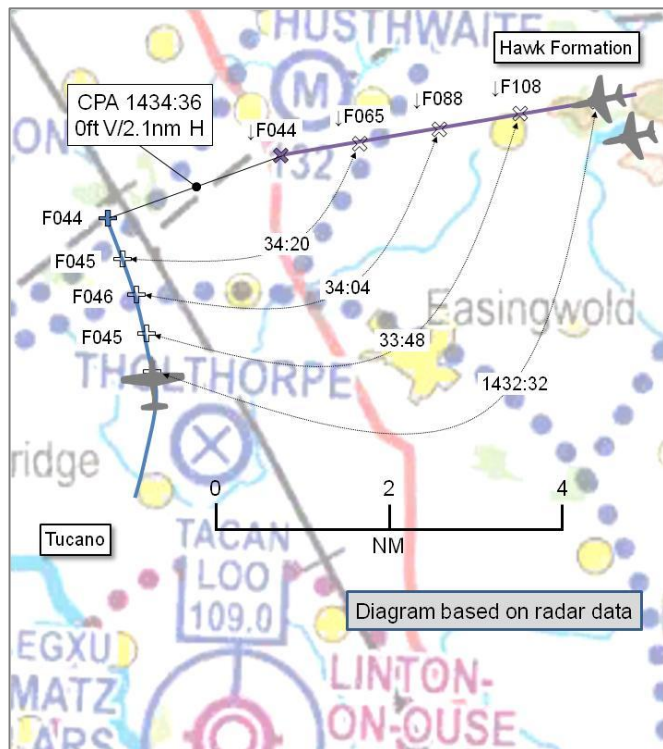
Visibility: N/A NK

Reported Separation:

Not seen Not seen

Recorded Separation:

0ft V/2.1nm H
1200ft V/0.4nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE RAF LINTON-ON-OUSE (LIN) DEPARTURES (DEP) CONTROLLER reports the Tucano pilot departed the A/D and levelled at FL45, approximately 5nm N of LIN, under a TS. DEP was in the process of ringing Leeming (LEE) ZONE to pass TI and 'hopefully hand the track to them' for its onward journey to Durham Tees Valley (DTV) A/D, for a practice diversion (PD), when he noticed a fast moving contact approximately 15nm ENE of the Tucano, at about 15000ft, which turned onto a W'ly heading, changed to a LEE RAD Squawk and begin descending. He decided to ask for TI on this contact, before commencing the handover. The LEE ZONE asked him to standby while they ascertained the intentions of the ac under RAD's control. They informed him it was descending to 3000ft. He emphasised that the Tucano was maintaining FL45 and that it appeared LEE's intention was to descend their ac through that level, whilst pointing at the Tucano, under a radar service. Whilst clarifying this, the conflicting ac noticeably increased speed, so he broke off from attempting coordination to give TI to the Tucano pilot. The LEE ac was 7 to 8nm E and 4000ft above the Tucano as he started to call the conflict. As he began transmitting, he heard LEE state their ac was expediting its descent to get below. This increased the velocity of their ac and by the time he had transmitted "traffic, right 3 o'clock" the LEE ac had closed to 3 or 4nm and its Mode C was now indicating slightly above. He tried to paint as accurate a picture of what was happening as he could on RT, whilst becoming increasingly concerned by the rate at which the LEE ac was approaching the Tucano. The Tucano pilot asked for an upgrade to a DS; the DEP couldn't climb him, as the other ac was still indicating slightly above, he couldn't descend him as he knew the other ac was in a more rapid descent and he couldn't turn him R, as this would have closed the gap even quicker. He therefore gave an avoiding action turn onto W to slow the closure of the 2 ac as much as possible. As the Tucano started to turn, the conflicting ac's Mode C started to indicate it as below that of the Tucano. The LEE SUP now talked on the landline, over the top of the other LEE controller, to state 'they were below my ac by 1000ft'. It was difficult to hear this part of the conversation, so DEP asked for confirmation that 'they were 1000ft below my ac' on Mode C. He turned the Tucano back onto N, to turn it further away from the LEE ac, and, ascertaining there were no further conflicting ac, he rang DTV and handed the Tucano over for the PD.

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

[UKAB Note(1): A combined transcript of the LIN DEP, LEE ZONE and LEE APR RTFs is reproduced below. Note that due to an inconsistency between the time-base of each recording, elapsed time from the landline opening is used:

From	To	Speech Transcription	Elapsed Time
		<i>establishing comm</i>	00:00
LIN DEP	LEE ZONE	Linton North 4 miles tracking north, squawking 4524	00:05
LEE ZONE	LIN DEP	Contact	00:08
LIN DEP	LEE ZONE	Maintaining flight level 45 on route Durham for a PD	00:09
LEE ZONE	LIN DEP	Maintaining flight level 45 on route to Durham for a PD....	00:13
LIN DEP	LEE ZONErequest traffic information please.	00:16
LEE ZONE	LIN DEP	Go ahead	00:18
LIN DEP	LEE ZONE	Linton 030 8 miles tracking West squawking 0410	00:19
LEE ZONE	LIN DEP	Erh, descending 3500ft QFE 1003 standby one...just calling your traffic now....	00:23
LEE APR	Hawk Ld	{Hawk Ld C/S} flight traffic left 11 o'clock range 5 miles crossing left right indicating 3000 feet below	00:26
LIN DEP	LEE ZONE	Thank you	00:31
LIN DEP	Tucano	[Tucano C/S] traffic right 3 o'clock crossing right left fast moving in the descent currently indicating 2000ft above.	00:32
Hawk Ld	LEE APR	[Hawk Ld C/S] flight	00:36
Tucano	LIN DEP	[Tucano C/S] deconfliction service	00:38
LIN DEP	Tucano	[Tucano C/S] roger avoiding action turn left 270 degrees. Traffic was right 3 o'clock 2 miles crossing right left, indicating slightly above.	00:41
Hawk Ld	LEE APR	Confirm height of that traffic please	00:41
LEE APR	Hawk Ld	Flight Level 45	00:43
Hawk Ld	LEE APR	[Hawk Ld C/S] flight	00:48
LEE APR	Hawk Ld	[Hawk Ld C/S] flight, stop descent 5000 feet	00:50
Tucano	LIN DEP	Left 270 degrees avoiding action Lima 64	00:51
Hawk Ld	LEE APR	[Hawk Ld C/S] flight, levelling 3500 feet now	00:53
LEE ZONE	LIN DEP	I've expedited his descent now levelling 3500ft	00:54
LEE APR	Hawk Ld	[Hawk Ld C/S] flight, roger descend to height 2000 feet for Dishforth MATZ	00:55
LIN DEP	Tucano	[Tucano C/S] previously called aircraft is now descending through your level and is expediting. I'm just co-ordinating it below you	00:57
Hawk Ld	LEE APR	2000 feet [Hawk Ld C/S] flight	00:59

From	To	Speech Transcription	Elapsed Time
LEE APR	Hawk Ld	[Hawk Ld C/S] flight, traffic's now 12 o'clock, 1 mile, crossing left right, FL 45	01:02
Tucano	LIN DEP	Copied Lima 64	01:06
LIN DEP	LEE ZONE	Request co-ordination please. 4524 maintaining flight level 45 confirm you are, you can take 1000ft below me on mode Charlie?	01:07
Hawk Ld	LEE APR	[Hawk Ld C/S] flight	01:08
LEE ZONE	LIN DEP	Standby another controller is working it	01:13
Hawk Ld	LEE APR	[Hawk Ld C/S] flight, request own navigation visual recovery	01:13
LEE APR	Hawk Ld	[Hawk Ld C/S] flight own navigation not below 2000 feet in the Dishforth MATZ, report visual with the aerodrome	01:15
LEE internal comm		[name] ... they need co-ordination on that one	01:18
LIN DEP	Tucano	[Tucano C/S numbers only] you happy right turn now back North	01:23
LEE APR	Hawk Ld	[Hawk form'n C/S] not below 2000 and visual to tower, [Hawk form'n C/S]	01:23
LIN DEP	Tucano	Right turn heading North [Tucano C/S]	01:27
LEE APR	Hawk Ld	[Hawk form'n C/S] standby	01:27
LEE SUP	Unknown	He did expedite descent called it in to traffic service, he's expedite descent to go underneath, remaining a thousand underneath	01:28
LEE ZONE	LIN DEPhe's expediting	01:30]

THE LIN SUPERVISOR reports, at the time of the Airprox, traffic levels on the Unit were medium to high but were low on DEP with only one ac on frequency. He was aware that the DEP was in contact with LEE in respect of their ac heading toward [the subject Tucano] but was confident that, with the lateral and vertical distance between the ac, a solution could be negotiated and, as a result, was conducting a handover between the LIN LARS and DIR, whose traffic levels were much higher. The DEP informed him of the situation once he had completed the handover of [the Tucano] to Durham radar.

THE TUCANO PILOT reports conducting an instructional sortie en-route to a PD at DTV. He was in the rear seat (PM) with the student (PF) in the front. The black ac had HISL selected on, as was the SSR transponder with Modes A and C. The ac was fitted with TCAS I. They were operating under IFR in cloud with a TS from LIN DEP. On passing approximately 4000ft, with the student flying on instruments in the front seat, they entered cloud. He was aware of a TCAS contact in the 1-2 o'clock position at a range of about 4nm, but showing 2-3000ft above. Seconds after they entered cloud they received a TCAS 'Traffic, Traffic' warning. He could see that the contact, now displayed in the 1 o'clock position, was descending rapidly and was approximately 1-2nm range and closing. He requested a DS but by this point the TCAS contact was indicating almost co-height, still descending and approximately 1nm away. Due to the rapid descent profile of the conflicting traffic, he felt it would be counterproductive to descend, but due to its close proximity, and the lack of fidelity of TCAS azimuth representation, he felt that a climb might also have made matters worse. LIN DEP then informed him that the contact had been expedited through his level and was under a service from LEE.

He assessed the risk of collision as 'Medium'.

THE HAWK FORMATION LEADER PILOT reports recovering to LEE, leading a close formation pair of ac. The black ac had navigation lights, nose light and HISL selected on; the lead ac SSR transponder was selected on with Modes A, C and S. They were operating under VFR in VMC between cloud layers with a TS from LEE DIR. They were cleared to descend to 3500ft on LEE QFE. Passing 5600ft, TI was passed on a contact at 12 o'clock, 5nm range and 3000ft below. As the formation was cleared to 1000ft above this height no action was taken. At about 4700ft, heading 270° at 360kt and approaching a layer of cloud, ATC was asked for the actual height of the contact which was passed as 4500ft. By this time, due to the rate of descent and the fact that the formation was briefly IMC, it was deemed safer to continue the descent rather than to attempt to climb above the traffic. As the formation was levelled at 3500ft, VMC again, ATC passed TI on the contact at 12 o'clock, range 1nm at 4500ft.

He assessed the risk of collision as 'Low'.

Factual Background

The weather at Linton-on-Ouse was recorded as follows:

METAR EGXU 031450Z 26010KT 9999 FEW028 BKN035 20/11 Q1009 BLU NOSIG

Analysis and Investigation

Military ATM

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated. A discrepancy of approx 3min 16sec was determined to exist between the LEE R/T and landline transcript and the radar replay; transcript times have been amended to reflect the radar replay timings.

The Tucano pilot reported IMC with BKN cloud at 4000ft. The Hawk formation reported being 'briefly IMC' as they passed through a 1000ft thick layer of cloud with tops 'around 4700ft' but were VMC above and below the layer. LEE APR was manned by an instructor and a trainee, operating in the band-boxed DIR/APR position due to the paucity of traffic. The instructor described their workload as moderate to low with low task complexity, providing ATS to the Hawk formation only. They reported that they had been controlling for 90min since their last break. The trainee did not add a narrative to the DASOR, nor assess their perception of the task complexity and workload. Although traffic levels at LIN were assessed by the SUP as 'high', LIN DEP was only providing an ATS to the incident Tucano, and assessed his workload and task complexity as low. He reported that he had been controlling for 2hr since the last break.

The guidance material to CAP774, Chapter 3, Para 3 states that 'pilots should be aware that a TS might not be appropriate for flight in IMC when other services are available.'

The incident sequence commenced at 1432:46, as LEE APR instructed the Hawk formation to, "*descend height 3500 ft*". This was acknowledged by the formation leader who advised LEE APR that they were, "*coming left 2-7-0 for...the avoid [Sutton Bank glider site]*". At this point, the Hawk formation was 15.3nm ENE of the Tucano, tracking WNW'ly at FL160; the Tucano was in a RH turn onto a NE'ly track, passing through N and indicating a climb through 2300ft. Figure 1 depicts the incident geometry; SSR 3A 4524 was the Tucano, SSR 3A 0410 was the Hawk formation.

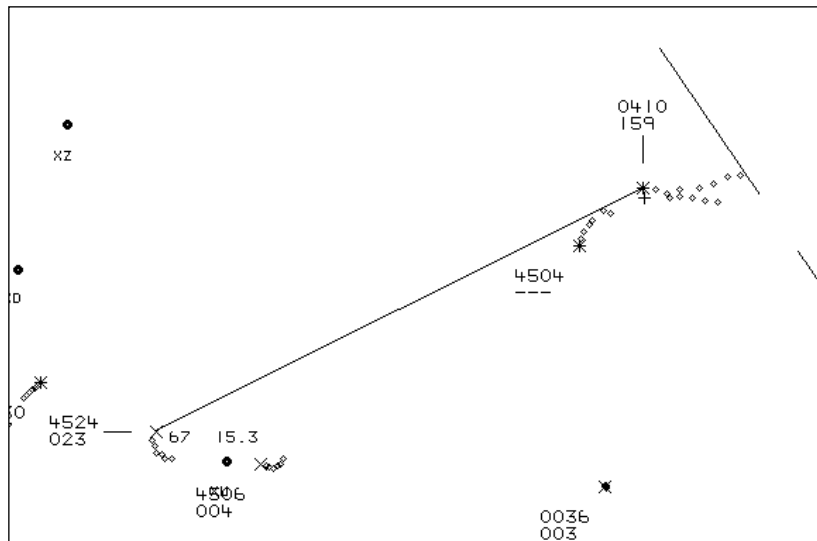


Figure 1: Incident Geometry at 1432:46.

LIN DEP reported that they had detected the Hawk formation prior to the start of the incident sequence, as it adopted a W'ly track and began squawking an SSR 3A code assigned to LEE. At 1433:42, LIN DEP contacted LEE via landline; the call was answered by LEE ZONE but monitored by LEE APR. At this point, the Hawk formation was 8.5 nm ENE of the Tucano, tracking W'ly, indicating descent through FL155; the Tucano was tracking NE'ly at FL45. LIN DEP first passed TI to LEE on the Tucano, describing it as, "*maintaining FL4-5 en-route to Durham for a P-D*", which was acknowledged by LEE ZONE; LIN DEP then requested TI on the descending Hawk formation, "*Linton 0-3-0 8 miles, tracking west, squawking 0-4-1-0*". LEE APR 'clicked out' of the conversation at about 1434:03 as LIN DEP was passing the bearing and range of the Hawk formation from LIN. LEE ZONE then continued the landline conversation with LIN DEP, replying at 1434:04, "*Err descending 3500ft Q-F-E 1-0-0-3, standby one...just calling your traffic now...*", which was acknowledged by LIN DEP. At this point, the Hawk formation was 5.9 nm ENE of the Tucano, tracking W'ly, indicating descent through FL91; the Tucano was tracking NNE'ly at FL45.

Shortly after 'clicking out' of the landline call, at 1434:07, LEE APR passed TI to the Hawk formation on the Tucano, advising them of, "*traffic left 11 o'clock, range 5 miles, crossing left-right, indicating 3000 ft below*" which was acknowledged. At this point, the radar replay depicts 5.5 nm lateral separation, with the Hawk formation indicating descent through FL85, 4000ft above the Tucano.

At 1434:14, LIN DEP passed TI to the Tucano on the Hawk formation, advising them, "*traffic right 3 o'clock, crossing right-left, fast moving, in the descent, currently indicating 2000ft above.*" At this point, the Hawk formation was 4.5nm ENE of the Tucano, tracking W'ly, indicating descent through FL72; the Tucano was tracking NNE'ly at FL45. The Tucano instructor reported being 'aware of a TCAS contact in [their] 1-2 o'clock at a range of approx 4nm but showing 2-3000ft above'.

The guidance material to CAP774, Chapter 3, Para 5 states that, 'controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5 NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary'. CAP413, Chapter 5, Para 1.6.1 states that 'whenever practicable, information regarding traffic on a possible conflicting path should [include the] distance from the conflicting traffic'.

The Tucano pilot immediately replied requesting a DS, Figure 2 depicts the incident geometry at this point at 1434:20, and was advised by LIN DEP, "*avoiding action, turn left 2-7-0 degrees, traffic was right, 3 o'clock, 2 miles, crossing right-left, indicating slightly above*" which was acknowledged.

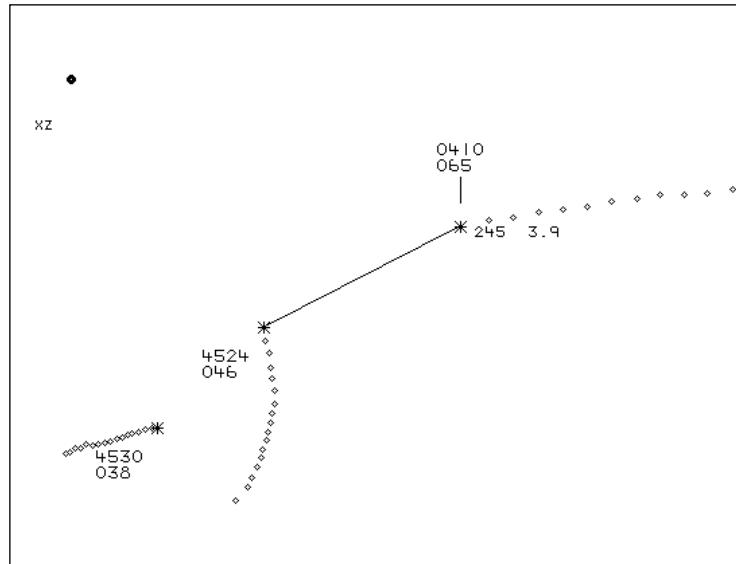


Figure 2: Incident Geometry at 1434:20.

LIN DEP provided a detailed report on their decision to issue deconfliction advice to the W, relating that they felt that they ‘couldn’t climb, as the other ac was still indicating slightly above. [They] couldn’t descend as [they] knew the other ac was in a more rapid descent. [They] couldn’t go right, as this would have closed the gap even quicker, so [they] gave an avoiding action onto west to slow the closure of the 2 ac as much as [they] could’. The Tucano instructor reported that, based upon their analysis of the information displayed by TCAS and ‘due to the rapid descent profile of the conflicting traffic [they] felt it would be counter-productive to descend but due to [the Hawk formation’s] close proximity and the lack of fidelity in the TCAS azimuth representation, [they] felt that a climb might also have made matters worse’. Extrapolation of the radar data demonstrated that, had the Tucano maintained its heading, the Hawk formation would have passed about 0.5nm behind, as it descended through 3600ft.

At 1434:22, as LIN DEP began to pass deconfliction advice to the Tucano, the Hawk formation asked LEE APR to “confirm height of that traffic please?”. It is noteworthy that this request occurred only 5sec after acknowledging the earlier TI. LEE APR advised the Hawk formation that the Tucano was at FL45 which was acknowledged 5sec later. The Hawk formation reported that, due to their ‘rate of descent and the fact that the formation was briefly IMC, it was deemed safer to continue the descent below, rather than to abruptly arrest the descent in an attempt to climb above the traffic’; this intention was not communicated to LEE APR. The LEE APR instructor prompted the trainee ‘to issue an instruction [to the Hawk formation] to stop descent at 5000 ft’ which was passed to the Hawk formation at 1434:31; however, the Hawk formation leader replied that they were, “levelling 3500 ft now”. Based upon the report of the LEE SUP, this was the point at which they moved to ‘interject with the trainee [APR] controller’; ‘the screen [APR] controller instructed the trainee to issue an instruction to stop descent at 5000ft’. The unit’s subsequent investigation determined that the SUP was aware of the developing situation but was waiting to determine whether either the trainee or instructor would act to resolve the situation. Figure 3 depicts the incident geometry at the point at which LEE APR instructed the Hawk formation to stop descent; the next sweep of the radar at 1434:34 depicted the Hawk formation indicating descent through FL46, 2.1nm ENE of the Tucano.

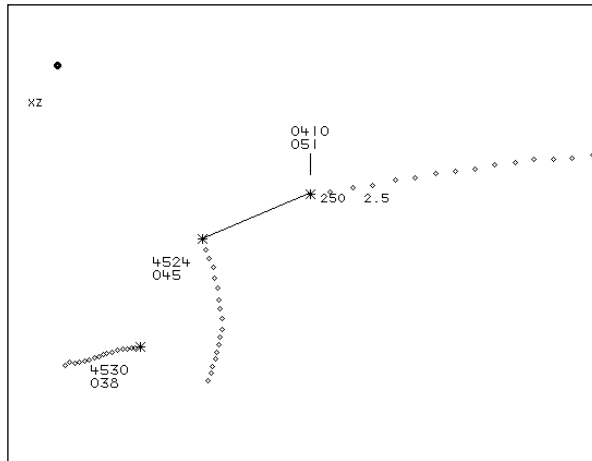


Figure 3: Incident Geometry at 1434:31.

At 1434:37, LEE ZONE advised LIN DEP, “I’ve expedited his descent, now levelling 3500 ft”. LIN DEP then immediately advised the Tucano that the, “previously called aircraft is now descending through your level and is expediting. I’m just coordinating it below you”, which was acknowledged. It is at this point that the Tucano pilot’s response to the avoiding action became visible on the radar replay, as depicted in Figure 4, about 14sec after the deconfliction advice was issued.

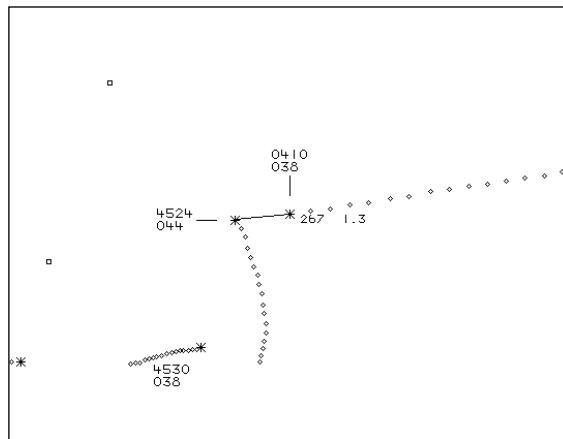


Figure 4: Incident Geometry at 1434:40.

Vertical CPA occurred at 1434:34 as the Hawk formation descended through the Tucano’s level, 2.1nm ENE of the Tucano. Lateral separation then continued to close, whilst vertical separation increased, as depicted in Figs 5 and 6. However, the situation was effectively resolved by 1434:50 (see Fig 5) and coordination agreed shortly after that between LEE SUP and LIN DEP.

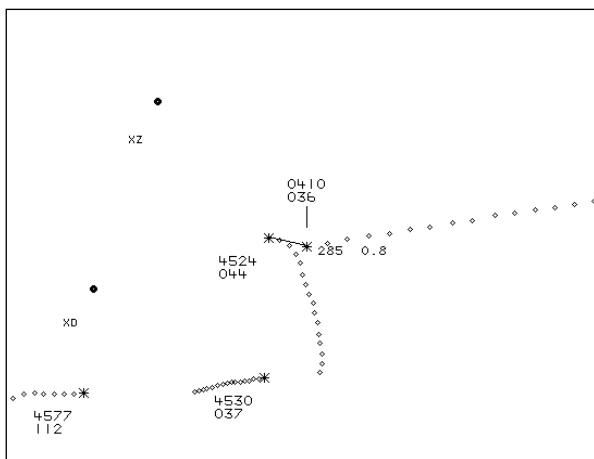


Figure 5: Incident Geometry at 1434:50.

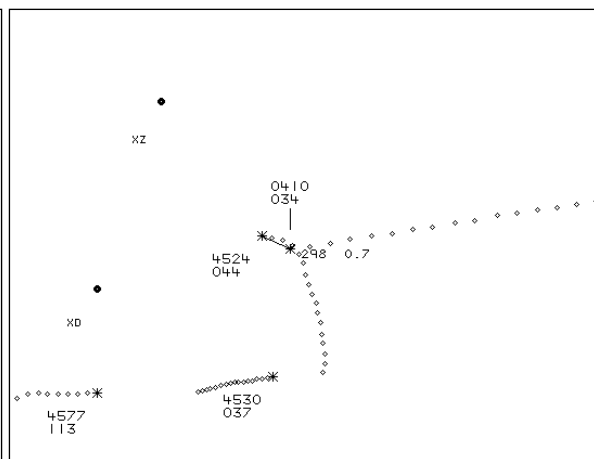


Figure 6: Incident Geometry at 1434:55.

The issue over the 'dividing line' between the responsibilities of both controllers and pilots whilst operating under a TS has received wide discussion at the UKAB and was the subject of a meeting at Aviation House on 19 Sep 13 to discuss ATSOCAS Duty of Care. However, given the steady relative bearing between the Hawk formation and the Tucano throughout the incident sequence and LEE APR's low workload, BM SPA contends that 'good practice' would have been for LEE APR to have re-assessed the situation and provided the Hawk formation with an intermediate level, stopping their descent above the Tucano. Whilst the timing of the TI by LEE APR to the Hawk formation appears to have been prompted by the landline call from LIN DEP, suggesting that they had not detected the Tucano prior to that point, given the vertical separation that existed at the point that TI was passed, an opportunity did exist for an intermediate stop level to be applied. Moreover, whilst the TI was passed before the Hawk formation was within 5nm of the Tucano, given the relative speeds and flight profiles involved, BM SPA agrees with the contention in LEE ATC's investigation that 'good practice' would have been for LEE APR to have provided earlier TI to the Hawk formation. The crux of this incident from LEE ATC's perspective was that the trainee on the APR control position was not adequately supervised. Whilst both the instructor and the SUP acted to intercede with the trainee, the intervention was too late to prevent the Hawk formation descending through the Tucano's level, on a conflicting flight path. That said, given the low traffic levels on the unit and on the APR position specifically, it is reasonable to argue that the LEE SUP should not have been expected to intervene. It is also worth highlighting that LEE APR's description of the Tucano's level as "3000 ft below" was not the best way to present this information, given that the Hawk formation was descending, and probably prompted the formation leader to request confirmation of the Tucano's height. A better course of action would have been to state that the Tucano was "at FL 45" in the TI, thus providing a definitive datum for the Hawk formation to base their assessment of the confliction upon.

LIN DEP was aware from an early stage of the potential for conflict between the Tucano and the Hawk formation and it was commendable that he contacted LEE to pass TI on the ac and to seek TI on the Hawk formation whilst providing a TS. However, whilst LIN DEP decision to describe 'their' traffic first during that landline call was understandable given the situation, the purpose was frustrated when the landline was answered by LEE ZONE, who would not have been immediately aware of the LIN DEP intent in making the call. Thus the landline liaison became protracted, serving to distract LIN DEP such that the TI to the Tucano was provided later than is required by Regulation. Given the low workload, a better solution would have been for LIN DEP to have prioritised the provision of TI to the Tucano prior to initiating the landline liaison with LEE. This may also have prompted the Tucano crew to advise LIN DEP earlier that they were operating in IMC and, possibly, to seek an upgrade to DS earlier. That said, subsequent to completing their report, LIN DEP has related that they prioritised contacting LEE over passing TI, as they did not believe that the Hawk formation would have been instructed to descend through the Tucano's level, given their conflicting flight paths. In terms of the LIN DEP decision to offer the Tucano deconfliction advice onto W, the situation posed to LIN DEP following the later than ideal TI and subsequent timing of the Tucano pilot's request for upgrade to DS, coupled with the incident geometry, was distinctly unenviable. BM SPA contends that LIN DEP decision, based upon the information available to them at the time, was both understandable and sound.

UKAB Secretariat

It is worthy of note that Section 4 (General Flight Rules) of the Rules of the Air 2007 makes no distinction as to the applicability of the rules contained therein to flight under VFR or under IFR. The responsibility for collision avoidance rested solely, and equally, with the aircraft captains, whether VMC or IMC, and the Hawk formation had right of way. The point of closest lateral separation occurred about 1min after vertical CPA, after the Tucano had turned W, as the Hawk formation overtook, also on a W'y heading, S of and below the Tucano.

Comments

HQ Air Command

Current guidance for MAA Regulations, which is anticipated to be upgraded to Acceptable Means of Compliance shortly, states, with some caveats, that aircraft in IMC should be under a Radar Service. It is considered 'best practice' to take a DS, where practicable, in accordance with advice contained in CAP774. This incident highlights the avoidable predicament a controller may be presented with following an immediate upgrade to a DS on receipt of TI; controllers need time to arrange coordination. A number of minor issues combined to make the event more alarming for all involved; an earlier call of the Tucano's level, earlier provision of an intermediate descent level to the Hawk formation, or an earlier TI call to the Tucano pilot may each have prompted different pilot actions. In the event, the Hawk leader's reaction when eventually apprised of the Tucano's level was appropriate. That said, 'best practice' for any descent through cloud should be to request a DS early.

Summary

The incident occurred 6.6nm NNW of LIN at 1430:50 on 3 Jul 13, between a Tucano and a formation of 2 Hawks. The Tucano pilot had departed LIN en-route to DTV, heading NNW and level at FL45, in receipt of a TS from LIN DEP. The Hawk formation was recovering to LEE, heading W in a rapid descent, in receipt of a TS from LEE APR.

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.

The Board first considered the pilots' actions. The Tucano pilot had levelled at FL45 on his transit to DTV. This level happened to put him in cloud and he maintained his TS. As the Hawk formation got closer he requested an upgrade to a DS but the Board opined that this reactive response to the impending conflict did not allow the controller time to implement the service and hence did not ameliorate the situation. It was further opined that, since the Tucano captain was responsible for collision avoidance outside CAS, he would have been better served by levelling off below or above cloud, in VMC, or by requesting a DS once in IMC. The Board was advised that LIN Tucano crews were now required to use a DS if 'in persistent IMC'. The Hawk formation leader was equally responsible for collision avoidance and, given the impending cloud layer, the Board felt that a DS would have been justified. It was felt appropriate to recommend that the MAA consider giving additional guidance on the benefits of a DS in IMC. The formation leader's decision to continue the descent, despite the proximity of the Tucano, was understandable, and the Board opined that he would have been much better served by the LEE APR stating the Tucano's level when passing TI, rather than a 'snapshot' of the rapidly changing altitude difference.

Turning to the controllers, the Board commended the LIN DEP on his proactive attempt to gain some degree of cooperation with LEE, despite the fact he was providing a TS and was not required to do so under the terms of that ATS. It was unfortunate that LEE ZONE answered the phone but it was acknowledged that LEE APR had also initially monitored the call. The Board were not able to ascertain why the LEE APR 'clicked out' of the call but it did appear that he had been prompted to pass TI to the Hawk formation. Board members opined that he would have been much better advised to pass an intermediate level-off request before the TI but recognised he was not required to do so under the terms of a TS. Some members opined that the LEE APR was entitled, and required, to pass a level-off instruction to the Hawk formation under the general responsibility of 'duty of care'.

After some time discussing the cause of the Airprox, the Board decided by a majority that it was due to the Hawk formation being allowed to descend into conflict. The Board also decided that there were a number of contributory factors: inappropriate ATS for the flight conditions; lack of effective

cooperation between LIN DEP and LEE APR; and lack of supervision of the LEE trainee (APR) controller. The Board also spent some time discussing the risk, with many members opining that effective and timely action had been taken to prevent collision. Ultimately, the Board voted by a narrow majority that in this case safety margins had been much reduced below the normal.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	Leeming APR allowed the Hawk formation to descend into conflict with the Tucano.
<u>Contributory Factors:</u>	<ol style="list-style-type: none">1. Inappropriate ATS for the flight conditions.2. Lack of effective ATC cooperation.3. Lack of effective supervision of the Leeming APR trainee.
<u>Degree of Risk:</u>	B.
<u>ERC Score:</u>	21 ¹
<u>Recommendations:</u>	The MAA consider giving additional guidance on the benefits of a DS in IMC.

¹ Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.