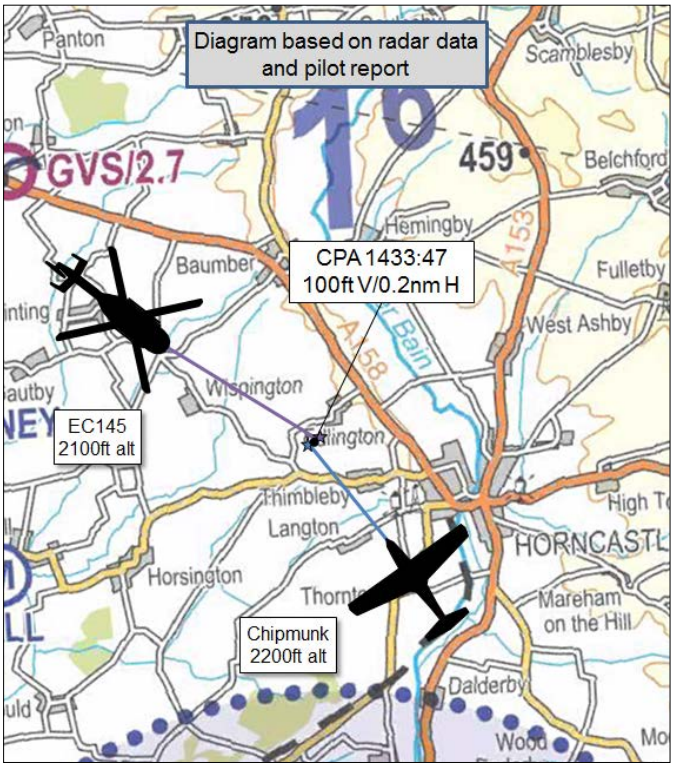
AIRPROX REPORT No 2016250

Date: 29 Nov 2016 Time: 1433Z Position: 5313N 00009W Location: 2nm NW Horncastle

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Chipmunk	EC145
Operator	HQ Air (Ops)	Civ Exec
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	Not reported
Service	Traffic	
Provider	Coningsby	
Altitude/FL	2200ft	2100ft
Transponder	On/C, S	
Reported		
Colours	Not reported	Black, Yellow
Lighting	Not reported	Not reported
Conditions	VMC	
Visibility	>10km	
Altitude/FL	Not reported	
Altimeter	QFE (1033hPa)	
Heading	360°	
Speed	Not reported	
ACAS/TAS	PowerFLARM	
Alert	RA	
Separation		
Reported	200ft V/0.25nm H	NK
Recorded	100ft V/0.2nm H	



THE CHIPMUNK PILOT reports that he was in the climb on a Chipmunk conversion sortie when the PFLARM alarm sounded. He looked over the handling pilot's shoulder to see that the system had entered "RWR" mode which means there is an imminent threat of collision. The indication was in the 12 o'clock high at 0.9nm closing. He advised the handling pilot to level off. He then spotted a helicopter at ¼nm in his 12:30 about 200ft above. He entered a left turn to further break the collision. The helicopter passed down the right-hand side and gave no indication that it had seen them. This occurred at approximately 1433:40L. He was under a Traffic Service and asked ATC if they had seen the traffic, they reported that their work load was high so had not seen the potential collision. Had the PFLARM alarm not alerted him to the helicopter he believes that the chance of collision would have been exceptionally high.

He assessed the risk of collision as 'High'.

THE EC145 PILOT did not submit a report.

THE CONINGSBY DEPARTURES/LARS CONTROLLER reports that he was working both Departures and LARS during the time of the Airprox; he had a formation and a single aircraft on Departures, and 4 aircraft on LARS. On Departures, the formation were on a SID North approximately 10nm north of Coningsby in trail, and the single aircraft was just getting airborne on a SID East profile. On LARS, the Chipmunk was general handling approximately 10nm north of Coningsby, well below the formation; one of the other LARS tracks was en-route to Wickenby clear to the north of the Chipmunk; the third LARS track was routing north to Humberside, clear to the east of the Chipmunk; and the fourth LARS track was 20nm SE en-route to Norfolk. Moments before the Airprox he climbed the formation when they were clear of a MATZ crossing aircraft and called conflicting traffic which was wearing Waddington's squawk tracking north east; this traffic was indicating higher than all his LARS tracks and the formation was climbing clear of its indicated level.

At the same time, all the Mode C labels to the north were overlapping each other and he was trying to rotate the labels to keep identity on the tracks; because there were 7 tracks in a circumference of 10nm this was not possible. To free up capacity, he free-called the LARS track going to Humberside as it was clear to the north and got the formation to Squawk 6040 to start the handover to Swanwick to further increase capacity. As the Radar picture started to clear, the Chipmunk asked him if he had any SA on the track to the east of them by half a mile within 200ft. He then called the traffic to them as 'pop up traffic' as he could now see it wearing the Coningsby Basic Service squawk but not yet talking to him; this track was the Waddington track which was handed over to Approach. The Chipmunk informed him that they will be reporting an Airprox as a result. At the same time, both the formation and single aircraft on the Departures frequency were asking for a radio check. He acknowledged the Chipmunk and responded to the radio checks. He began the handover to Swanwick and Approach was also informing him of the handover they had taken from Waddington. He then asked approach to take VHF so he could focus on handing aircraft over to Swanwick because he was reaching capacity. He took VHF back when both VHF and Departures frequencies had settled.

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

THE CONINGSBY SUPERVISOR reports that she did not witness the incident because she was dealing with an issue on the telephone at the back desk away from the radar consoles.

THE CONINGSBY APPROACH CONTROLLER reports that he was training in the Approach position. Due to the high traffic level he had taken the VHF LARS frequency until roughly 5 minutes prior to the incident. The VHF frequency was handed back to the departures controller as the intensity had dipped again. A MATZ transit was flying through the overhead at 2500ft on the Barnsley pressure so a climb-out restriction of 2000ft QFE was in force. A formation had been released under the climb-out restriction and were climbed when clear of the MATZ transit. Shortly after, his instructor had told the Departures controller to call a Waddington track to the north by 5nm showing slightly above the level of the formation. There was a moderate amount of traffic to the north of Coningsby within 10nm so a lot of capacity was sapped trying to work out the position and heights of all the traffic due to overlapping squawks. Shortly after this, Waddington rang to hand over a track to the NW of Coningsby by 8nm tracking east that had been called to the formation. He took the handover to reduce the workload of the Departures controller. The Chipmunk was manoeuvring to the east of the Waddington track by approximately 3nm indicating 500ft below. As the track handed over from Waddington was under a Basic Service and there was separation from the Chipmunk, he felt no need to ensure that the Chipmunk had been called during the handover. By the time the Waddington track had come across to Coningsby Zone frequency and he had had time to hand the track over to the Departures controller (due to his high workload) it was already indicating the same level as the Chipmunk and the primary radar returns were within a mile of each other. He was not listening to the VHF LARS frequency so did not hear the Chipmunk call an Airprox. He saw the 2 tracks were then on a diverging heading.

Factual Background

The weather at Coningsby was recorded as follows:

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METAR EGXC 291350Z 26004KT CAVOK 05/01 Q1034 BLU NOSIG
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Analysis and Investigation

Military ATM

An Airprox occurred on 29 Nov 16 at approximately 1430 hrs UTC, 7nm N of Coningsby, between a Chipmunk and an EC145. The Chipmunk was receiving a Traffic Service (TS) from Coningsby LARS, operating bandboxed as Departures/LARS, and the EC145 was being transferred from Waddington LARS to Coningsby LARS.

Portions of the tape transcripts between the Coningsby Deps/LARS (callsign Zone) controller and the Chipmunk are below:

From	To	Speech Transcription	Time
Deps/LARS	[Chipmunk C/S]	Coningsby Zone, good afternoon, [Chipmunk C/S] airborne, currently 500 feet.	1426:34
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] Coningsby Zone identified 500 feet on the QFE 1-0-3-3, traffic service.	1426:39
Deps/LARS	[Chipmunk C/S]	On the QFE 1-0-3-3, traffic service and looking for climb 4000 feet when able.	1426:47
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] [small pause] Roger, maintain not above height 500 feet, I'll get you climbing as soon as I can.	1426:52
Deps/LARS	[Chipmunk C/S]	Roger, not above 500 feet, [Chipmunk C/S]	1427:00
Deps/LARS	[CIVIL A/C 1 C/S]	Coningsby Radar, [Civil A/C 1 C/S], we're approaching Fenland, would like to change to 1-2-2 decimal 1-2-5	1427:44
[CIVIL A/C 1 C/S]	Deps/LARS	[Civil A/C 1 C/S] roger, traffic south of Fenland 3 miles believed to be in the er Fenland circuit, free call Fenland 1-2-2 decimal 1-2-5, squawk 7000, good day.	1427:52
Deps/LARS	[CIVIL A/C 1 C/S]	7000 and change frequency, good day and thank you very much.	1428:01
TWR	Deps/LARS	Departures.	1428:13
Deps/LARS	TWR	Tower, after [Mil A/C 1 C/S], request release [Mil A/C 2 C/S] flight.	1428:14
TWR	Deps/LARS	[Mil A/C 2 C/S] flight, er climb out restriction 2000 feet and are released after the Razor.	1428:17
Deps/LARS	TWR	Climb out restriction 2000 feet and released after the [Mil A/C 1 C/S], Tower.	1428:22
Deps/LARS	[Chipmunk C/S]	[Chipmunk C/S] point Golf, request climb er ??	1428:28
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] climb now er height 4000 feet, report one minute to completion.	1428:31
Deps/LARS	[Chipmunk C/S]	Wilco [Chipmunk C/S]	1428:36
Deps/LARS	[CIV A/C 2 C/S]	[CIV A/C 2 C/S] requesting frequency change to Humberside 1-1-9 decimal 1-2-5	1428:40
[CIV A/C 2 C/S]	Deps/LARS	[CIV A/C 2 C/S] roger, standby for handover.	1428:48
Deps/LARS	[CIV A/C 2 C/S]	Roger, [CIV A/C 2 C/S]	1428:53
GND	Deps/LARS	Departures.	1430:19
Deps/LARS	GND	Ground, request release in turn [Mil A/C 3 C/S]	1430:20
GND	Deps/LARS	[Mil A/C 3 C/S] flight er	1430:21
Deps/LARS	GND	Just a singleton mate	1430:22
GND	Deps/LARS	Just a singleton?	1430:24
Deps/LARS	GND	Yeah, just [Mil A/C 3 C/S]	1430:25
GND	Deps/LARS	After the [Mil A/C 2 C/S]?	1430:27
Deps/LARS	GND	Is released climb out restriction and released in turn	1430:28
GND	Deps/LARS	Released in turn affirm	1430:31
Deps/LARS	GND	In turn thank you	1430:32
GND	Deps/LARS	Cheers	1430:32
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] er traffic south east 2 miles tracking north indicating similar level believed to be a Tutor working Cranwell	1430:48
Deps/LARS	[Chipmunk C/S]	[Chipmunk C/S] visual	1430:56
Deps/LARS	[CIV A/C 3 C/S]	[CIV A/C 3 C/S], we've got 12 miles to run to Wickenby, request frequency change to them now 1-2-4 decimal, correction, 1-2-2 decimal 4-5-0	1431:06
[CIV A/C 3 C/S]	Deps/LARS	[CIV A/C 3 C/S], remain this frequency, multiple tracks to affect. I'll let you go when closer to Wickenby.	1431:19
Deps/LARS	[CIV A/C 3 C/S]	That's copied, stay with you then.	1431:25

From	To	Speech Transcription	Time
Unknown	Deps/LARS	{Ringing tone}	1431:34
Deps/LARS	[MIL A/C 2 C/S]	Coningsby Departures, Triplex airborne level 2000 feet SID north.	1431:48
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S], Coningsby Departures identified, climb to height 2000 feet, traffic service.	1431:50
Deps/LARS	[MIL A/C 2 C/S]	Traffic service er [MIL A/C 2 C/S] request to point out MATZ crosser, looking to climb when able.	1431:56
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S], MATZ crosser is in the overhead, I'll just get [MIL A/C 2 C/S]-3 clear and then give you a climb.	1432:01
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S], now er, all tracks clear of that er MATZ crosser climb now flight level 1-5-0.	1432:13
Deps/LARS	[MIL A/C 2 C/S]	In the climb 1-5-0, Triplex.	1432:18
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S], traffic 12 o'clock 4 miles manoeuvring indicating similar level now believed to be a light aircraft, your climb, rate of climb will take you clear.	1432:39
Deps/LARS	[MIL A/C 2 C/S]	[MIL A/C 2 C/S] request unrestricted climb flight level 1-5-0	1432:49
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S] unrestricted climb is approved 1-5-0	1432:52
Deps/LARS	[MIL A/C 2 C/S]	[MIL A/C 2 C/S]	1432:55
Deps/LARS	[MIL A/C 3 C/S]	Coningsby Departures [Mil A/C 3 C/S] airborne levelling 2000 feet.	1433:00
[MIL A/C 3 C/S]	Deps/LARS	[Mil A/C 3 C/S] Coningsby Departures, MATZ crosser now south 2 miles tracking south no longer a factor, climb flight level 150	1433:05
Deps/LARS	[MIL A/C 3 C/S]	Climb flight level 1-5-0 [Mil A/C 3 C/S]	1433:13
Deps/LARS	[CIV A/C 2 C/S]	[CIV A/C 2 C/S], requesting frequency change to Humberside 1-1-9 decimal 1-2-5	1433:17
[CIV A/C 2 C/S]	Deps/LARS	[CIV A/C 2 C/S], roger, squawk 7000 free call Humberside 1-1-9 decimal 1-2-5, good day.	1433:25
Deps/LARS	[CIV A/C 2 C/S]	Squawk 7000 and free call er Humberside, thank you very much, [CIV A/C 2 C/S].	1433:32
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S] squawk 6-0-4-0 [Wrong frequency]	1433:42
[MIL A/C 2 C/S]	Deps/LARS	[MIL A/C 2 C/S] squawk 6-0-4-0	1433:52
Deps/LARS	[Chipmunk C/S]	Coningsby, [Chipmunk C/S], did you er have er any SA on that er rotary traffic that's just passed down our right hand side? [Same time as Deps/LARS transmits on UHF]	1433:53
Deps/LARS	[MIL A/C 2 C/S]	Squawk 6-0-4-0 [MIL A/C 2 C/S]	1434:00
Deps/LARS	[EC145 C/S]	Coningsby good afternoon [EC145 C/S]	1434:02
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S], apologies working multiple frequencies, er that traffic is now eastbound er tracking south indicating similar level, pop up traffic.	1434:06
Deps/LARS	[Chipmunk C/S]	Yeah we saw it, OK	1434:14
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] apologies	1434:17
Unknown	Unknown	Didn't see anything in that bubble	1434:24
Deps/LARS	[Chipmunk C/S]	Er be advised [Chipmunk C/S] be reporting an Airprox on that then	1434:25
[Chipmunk C/S]	Deps/LARS	[Chipmunk C/S] roger, only see a garble of squawks er due to traffic loading.	1434:28
Deps/LARS	[MIL A/C 2 C/S]	[MIL A/C 2 C/S] levelling flight level 1-5-0	1434:31
Swanwick	Deps/LARS	Coningsby Departures, traffic inf, er handover Cobra, [MIL A/C 2 C/S].	1434:34
Deps/LARS	Swanwick	Ah, standby, just transfer to East North East.	1434:37
Deps/LARS	Swanwick	{Ringing tone}	1434:42
Deps/LARS	Swanwick	Swanwick Mil North East	1434:44
??	Deps/LARS	Standby mate	1434:47

From	To	Speech Transcription	Time
Swanwick	Deps/LARS	Coningsby er traffic, er standby [One second pause] handover [MIL A/C 2 C/S].	1434:49
Deps/LARS	Swanwick	[MIL A/C 2 C/S]	1434:52
Swanwick	Deps/LARS	Is er Coningsby north {stepped on by Deps/LARS VHF below} eight miles tracking 0-1-0. Can you take VHF please? [Request for Approach to take Deps/LARS VHF]	1434:53
Deps/LARS	[EC145 C/S]	Coningsby, good afternoon, [EC145 C/S]	1434:54
[EC145 C/S]	Deps/LARS [Answered by Approach]	[EC145 C/S], Coningsby er Zone, basic service	1435:00
Deps/LARS	APP	Are you getting busy?	1435:01
APP	Deps/LARS	Yeah	1435:02
Deps/LARS	[EC145 C/S]	Basic service [EC145 C/S]	1435:04

Figures 1-7 depict the positions of the Chipmunk and EC145 at pertinent times, particularly when instructions or information was passed. The radar analysis pictures are taken from a replay utilising the Claxby feed, which is not the feed used by either controller, therefore does not necessarily represent what was seen by them at the time.

At 14:28:22 (Figure 1), the Coningsby Deps/LARS controller, who already had the Chipmunk on frequency, instructed the Coningsby Tower controller that a departing formation of Typhoon were released.

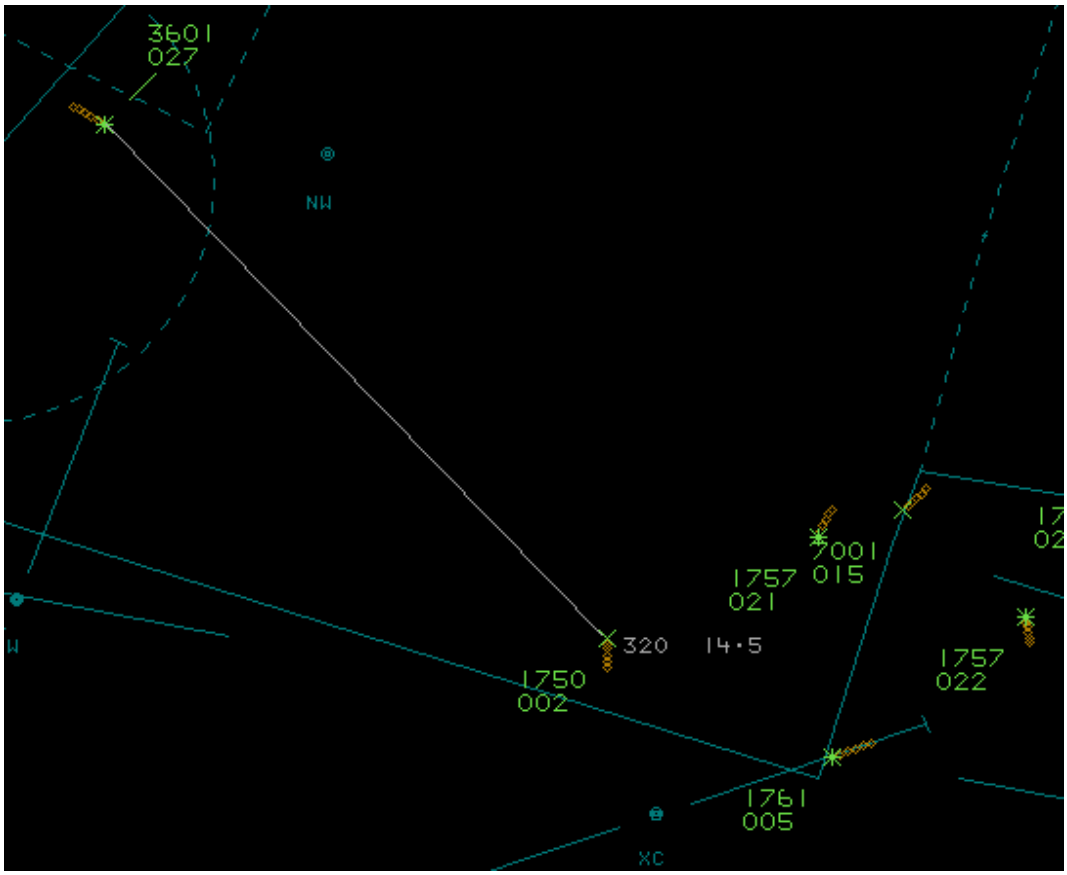

Figure 1: Geometry at 14:28:22 (Chipmunk SSR 1750; EC145 SSR 3601)

At 14:30:48 (Figure 2), the Coningsby Deps/LARS controller passed Traffic Information (TI) to the Chipmunk on traffic 2nm SE, tracking north, indicating similar level, believed to be a Tutor.

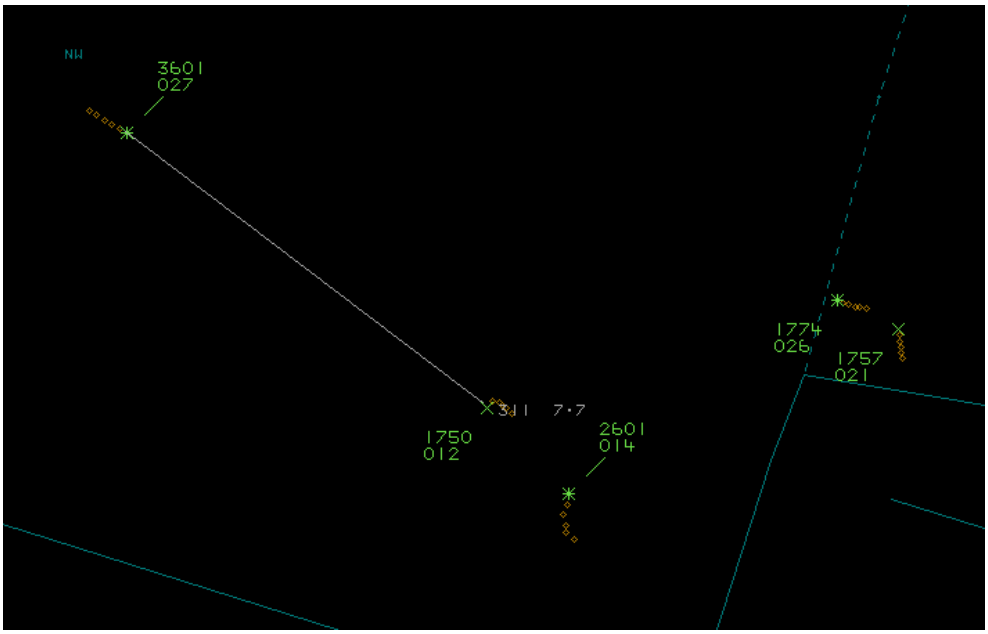

Figure 2: Geometry at 14:30:48 (Chipmunk SSR 1750; EC145 SSR 3601)

At 14:31:48 (Figure 3), the departing formation of Typhoons checked in on frequency with Coningsby Deps/Zone. Multiple transmissions between the formation and the Deps/LARS controller followed over the next 70 seconds.

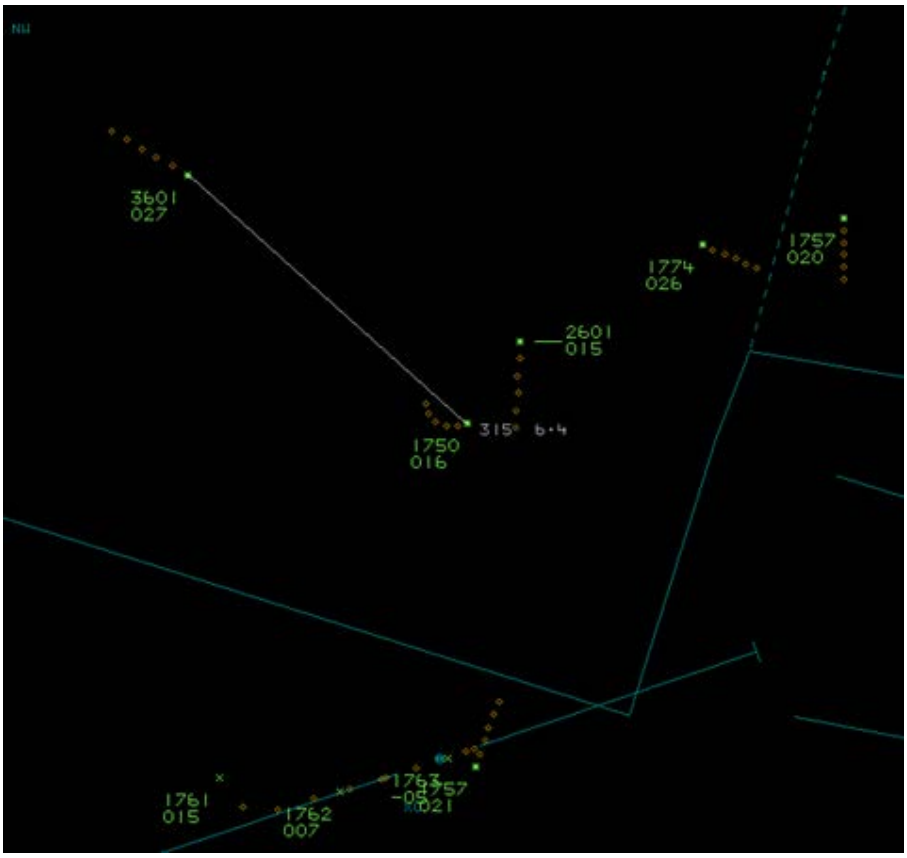

Figure 3: Geometry at 14:31:48 (Chipmunk 1750; EC145 3601; lead Typhoon 1761)

At 14:32:13 (Figure 4), the departing formation of Typhoons were informed that they were clear of a MATZ crosser and instructed to climb to FL150.

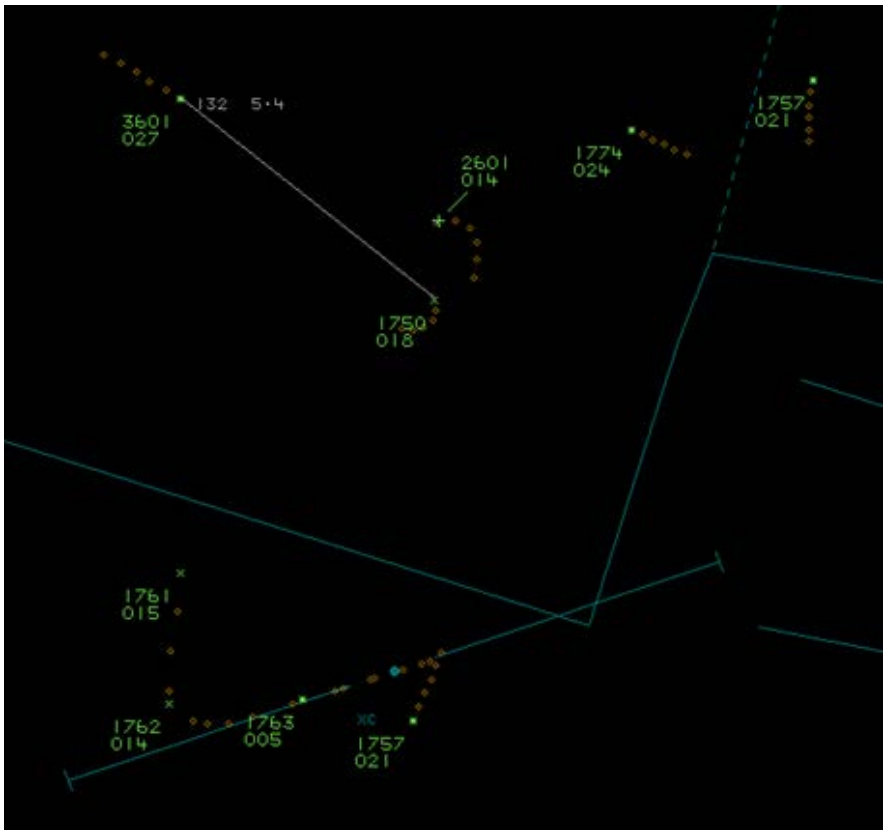

Figure 4: Geometry at 14:32:13 (Chipmunk 1750; EC145 3601; lead Typhoon 1761)

At 14:32:45 (Figure 5), TI was passed to the Typhoons on traffic in the 12 o'clock, 4nm, manoeuvring, indicating similar level. No TI was passed to the Chipmunk. At this time, Coningsby Approach began taking a handover, on behalf of Coningsby Deps/LARS, to transfer control of the EC145 from Waddington Zone to Coningsby Zone frequency.

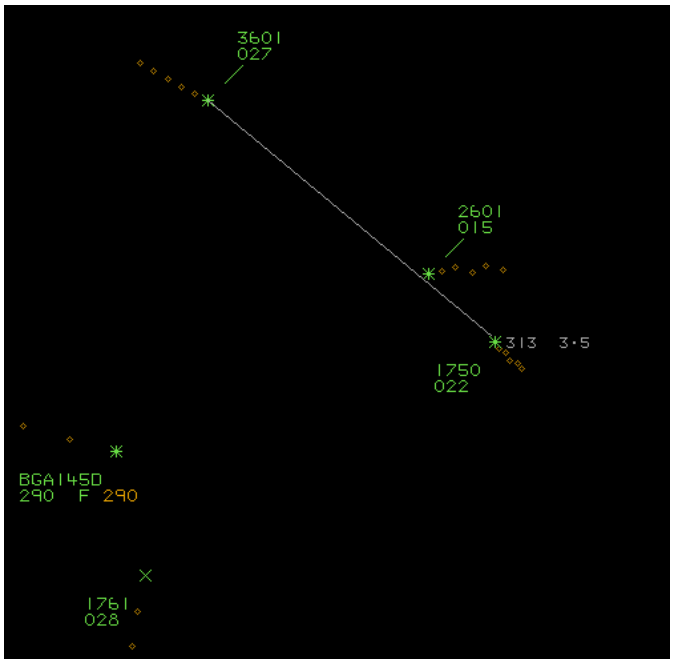

Figure 5: Geometry at 14:32:45 (Chipmunk 1750; EC145 3601; lead Typhoon 1761)

At 14:33:30 (Figure 6), Coningsby Deps/LARS released a Basic Service (BS) transit to Humberside. There was still no TI passed to the Chipmunk. The Coningsby Approach controller did not ask during the handover if TI on the Chipmunk had been passed to the EC145.

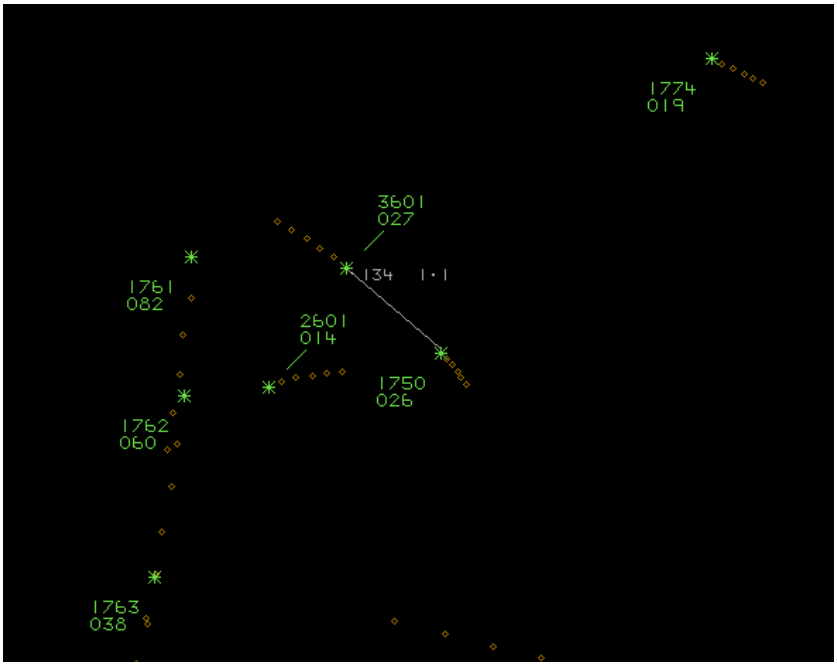

Figure 6: Geometry at 14:33:30 (Chipmunk 1750; EC145 3601; lead Typhoon 1761)

At 14:33:48 (Figure 7), the Waddington Zone and Coningsby Approach controllers completed the handover of the EC145, with no mention of the conflicting Chipmunk, which had passed at CPA 0.2nm and same altitude. The Coningsby Deps/LARS controller was instructing the formation of Typhoons (on UHF) to change squawk in order to hand over to Swanwick (Mil) at the same time as the Chipmunk pilot asked the controller (on VHF) if they had Situational Awareness (SA) on the rotary traffic that had passed down their right hand side. The EC145 checked in on VHF before the controller responded to the Chipmunk, describing the traffic as 'pop up'.

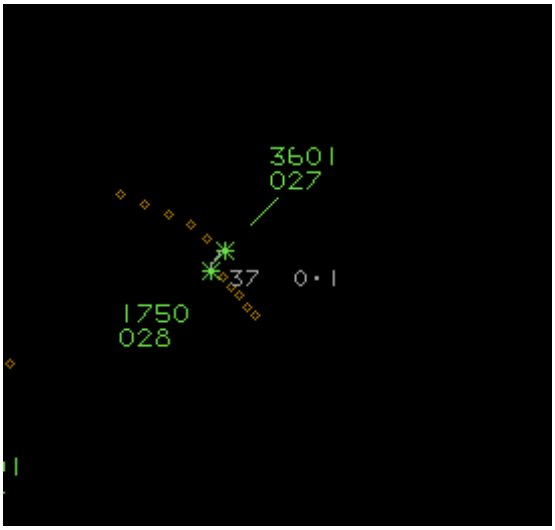

Figure 7: Geometry at 14:33:48 (Chipmunk 1750; EC145 3601)

The Coningsby Deps/LARS controller was operating bandboxed, with 2 speaking units on Departures frequency and 4 speaking units on the LARS VHF frequency. His workload and task

complexity were described as med-high. He reported that, in the time leading up to the Airprox, he was actively controlling the departing aircraft, which had been restricted by a MATZ crosser and required handover to Swanwick (Mil). He described that, due to high traffic density to the north of Coningsby, labels were overlapping and obscuring mode C information, so he rotated them to try to improve SA. Trying to increase capacity, he free-called an aircraft to Humberside and began handing over a departing Typhoon formation to Swanwick (Mil). When the Chipmunk enquired about the rotary traffic, the Coningsby Deps/LARS controller saw the conflicting traffic, now displaying a Coningsby LARS squawk but not yet in radio contact, for the first time and called it as 'pop up'. The controller reported that both departing tracks were calling for radio checks, the Chipmunk was asking about the traffic and the Approach controller was informing him of another aircraft about to call. He asked the Approach controller to take LARS VHF as he was reaching capacity and wanted to focus on safely handing over the departing aircraft.

The Coningsby Approach controller was under training and, due to high traffic levels on Departures, had been working the VHF LARS frequency until a few minutes prior to the Airprox. They reported being surprised that the Supervisor was content for LARS to be passed back to the Deps controller but complied. The Approach controller reported that their instructor had pointed out conflicting traffic to the Deps/LARS controller, which was then called to the departing formation of Typhoons. When Waddington Zone rang to hand over a BS transit, the Coningsby Approach controller decided to take the handover on behalf of the Deps/LARS controller in order to alleviate their workload. The Approach controller reported that, because the EC145 was under BS and had separation from the Chipmunk, he deemed that there was no need to enquire about or pass TI during the handover. He attempted to digitally point out the rotary traffic to the Deps/LARS controller, but delayed the information due to their apparent capacity. By the time the EC145 called on LARS VHF and the Approach controller had been able to inform the Deps/LARS controller, separation was already much reduced.

The Coningsby Supervisor reported that, at the time of the Airprox, they were involved in a telephone conversation with Station Operations in order to resolve an issue. The phone was positioned on the back desk, meaning that the Supervisor could not see the radar consoles. Though she assessed the Deps/LARS controller workload as high, she believed that the Approach controller had the capacity to manage the room. Personnel were being rotated through control positions to allow all controllers to have adequate breaks. The LARS task was being carried out by Approach during departure waves and by Departures when the majority of the wave was complete. In this instance, another controller, who had been on a break, had been called back to take LARS as a separate position, but arrived after the Airprox had occurred.

Although the Coningsby Deps/LARS controller had seen the EC145 under control of Waddington, because it was above all of his LARS traffic he did not deem it to be a factor. By the time the confliction increased between the EC145 and the Chipmunk, the traffic density in the area, both LARS tracks and Typhoons, was high, making it difficult to interpret Mode C information. In taking a handover on behalf of Deps/LARS, the Approach controller removed the additional SA and potential prompt that would have been available to the Deps/LARS controller had they taken the handover themselves. During the time leading up to the Airprox, the Deps/LARS controller passed TI to the Chipmunk only once, despite there being several aircraft operating within 5nm/3000ft that should have been called.

Working bandboxed, with a formation of Typhoons and a singleton departing, both requiring hand over to Swanwick(Mil), the Deps/LARS controller's attention was focused on these aircraft rather than being divided between all aircraft receiving a radar service. When the Approach controller pointed out traffic in confliction with the Typhoons, this may have further pushed focus onto the Typhoons.

The Deps/LARS controller did not inform the Chipmunk that they may receive reduced TI due to high traffic density or high controller workload.

Although there was enough manpower to have a dedicated LARS controller in position, the requirement was not identified until too late. The Supervisor considered that combining the Deps/LARS position was manageable but the Approach controller had reservations, showing the subjectivity of workload. It is also disappointing that the Approach controller did not voice their doubt. The fact that the Deps/LARS controller was not able to provide TI to the Tutor suggests that they were operating beyond their capacity well before they realised and began to offload traffic.

A Unit Occurrence Investigation highlighted several points for wider dissemination. In particular it has been agreed that, once a bandboxed Deps/LARS controller is working 5 aircraft, the Supervisor should be informed in order that they can assess whether the task should be split out, or refused if another controller is not available. The Training team is considering how best to teach controllers to recognise when they or a colleague are reaching capacity, along with what actions should then be taken. Finally, as manning precludes there being a dedicated LARS controller at all times, a trial is being conducted where in BLU/WHT weather conditions [military weather colour codes] there is a nominated LARS controller, and when the weather is GRN or worse the controller is nominated as Director instead.

UKAB Secretariat

The Chipmunk and Helicopter pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right[2].

Comments

HQ Air Command

This Airprox was subject to a detailed ATM investigation which identified, amongst other things, that it is very difficult to assess when a controller is overloaded, and in particular, for a controller to identify overload in themselves. The high volume of traffic that the Deps / LARS controller ended up with meant that they were focused on trying to organise the labels and squawks to provide a readable picture, despite having called the EC145 traffic to the formation that they were also working. Following the investigation, several actions were taken which include the local standards team agreeing a threshold number of aircraft to be under control of a combined Deps/LARS controller, thus taking judgement away from the decision and also a local training package covering equipment manipulation. A reminder to caveat a traffic service due to workload has also been emphasised.

The pilots of the Chipmunk were fortunate to have PFLARM, which even though its performance is limited, on this occasion was the final barrier remaining. The Chipmunk has limited forward visibility and it is standard procedure for pilots to occasionally weave to increase visibility under the nose, however this is not foolproof and, with the helicopter directly ahead of the Chipmunk, there would have been no sight line change. With both ATC Service and lookout having failed as barriers, the PFLARM warning saved the day.

Summary

An Airprox was reported when a Chipmunk and a Helicopter flew into proximity at 1433 on Tuesday 29th November 2016. Both pilots were operating under VFR in VMC, the Chipmunk pilot in receipt of a Traffic Service from Coningsby. The EC145 pilot did not submit a report.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(1) Approaching head-on.

Information available consisted of reports from the pilot of the Chipmunk 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 began their discussions by looking at the circumstances relating to the Coningsby controller's workload. A military member commented that, as a result of this incident, Coningsby had identified the need to identify when a controller is reaching capacity, and have introduced a system to prevent a recurrence by stipulating a maximum number of speaking units [aircraft] a controller will work before the Supervisor will open another consol or instigate other methods to contain or reduce the traffic levels. The Board agreed that very often a controller can be too busy to realise when their workload is approaching capacity and therefore the responsibility relies on the team as a whole to identify any potential overload scenarios; members were heartened to hear of this modification to the unit's operating procedures. The military member went on to explain that the Traffic Service had not been limited because the controller's workload had meant that, paradoxically, there had not been enough time to make such a call.[3] Board members commented that had it been reduced then this may have alerted the Chipmunk pilot to the possibility of late Traffic Information, but that most pilots would recognise that a controller was busy by the tempo of the radio calls and would thus be likely to expect a reduced service anyway. Notwithstanding, members felt that the Chipmunk pilot had a reasonable expectation that ATC would provide him with information on the other aircraft, and the fact that the controller did not assimilate the conflict or pass Traffic Information was a contributory factor.

The Board were disappointed that the Approach controller had been aware of his colleagues' traffic levels but did not act on the information or alert the Supervisor to the situation. In response, the military member said that there was an issue with manning levels and that although Supervisors endeavoured to ensure controllers had breaks between traffic peaks, this often resulted in bandboxed frequencies and a higher traffic level for individual controllers. Unfortunately, in this instance, the Supervisor had been distracted with other tasks and did not recognise the increase in the controller's workload early enough to manage the situation. Some members commented that Supervisors were there to supervise; the fact that they might otherwise be distracted by other tasks was a cause for

[3] CAP774, 1.10 states the following circumstances where a reduction in traffic information may be passed:

There may be circumstances that prevent controllers/FISOs from passing timely traffic information and/or deconfliction advice, e.g. high workload, areas of high traffic density, unknown aircraft conducting high energy manoeuvres, or when traffic is not displayed to the controller or is obscured by surveillance clutter. Controllers/FISOs shall inform the pilot of reductions in traffic information along with the reason and the probable duration; however, it may not always be possible to provide these warnings in a timely fashion.

In high workload situations, which may not always be apparent from RTF loading, controllers/FISOs may not always be able to provide timely traffic information and/or deconfliction advice. High workload situations may not necessarily be linked to high traffic density.

High traffic density can cause difficulty interpreting ATS surveillance system data and may affect RTF loading or controller/FISO workload to the extent that the controller/FISO is unable to pass timely traffic information and/or deconfliction advice on all traffic.

Where aircraft are operating close to the lateral and/or vertical limits of solid ATS surveillance system cover, or close to a radar overhead, there is the potential for conflicting traffic to be detected late. Similarly, there is potential for aircraft to be undetected or detected late in known areas of poor surveillance performance, permanent echoes, weather clutter or when the controller suspects the performance of the ATS surveillance system is degraded.

Surveillance clutter may be generated by: weather, anomalous propagation, ground/sea returns, birds, wind turbine effects, and radar countermeasures such as chaff. In areas of clutter, the ability to detect conflicting aircraft is reduced.

Where primary radar is unavailable, and SSR alone is used to provide an ATS, non- transponding aircraft will not be detected; therefore ATC will not be able to warn pilots of their proximity.

concern. In the end, the Board agreed that a contributory factor in the incident was that neither the controllers nor supervisor had assimilated that the workload was too high for bandboxed operations.

The Board turned to the actions of the EC145 pilot but were frustrated and disappointed that he had not submitted a report because this would have enabled the Board to gain a more balanced perspective on the situation regarding both his actions and if he saw the Chipmunk. The Board surmised that because the radar replay did not show the EC145 pilot carrying out any actions to alter course or height, he had probably not seen the Chipmunk.

The Board then looked at the actions of the Chipmunk pilot. They agreed that his forward visibility might have been somewhat reduced due to the aircraft climbing, but that this would be a known issue to the Chipmunk pilot who would presumably have employed mitigating lookout techniques and was probably much of the reason he had opted for a Traffic Service. Members noted that, in the absence of such Traffic Information from ATC, the Chipmunk pilot had been alerted to the presence of the EC145 by his PFLARM which had proven invaluable in this instance. Notwithstanding, the primary means of collision avoidance in Class G airspace was see-and-avoid, and it was clear that the Chipmunk pilot had seen the EC145 late. Notwithstanding this late sighting, the Board were satisfied that his actions in levelling off and then manoeuvring left had averted the risk of collision.

The Board then considered the cause and risk of the incident. Members quickly agreed that the Chipmunk pilot had seen the EC145 late, and that the EC145 pilot had probably not seen the Chipmunk at all. Turning to the risk, some members thought that the Chipmunk pilot's manoeuvre should be considered as an emergency avoiding action with safety much reduced below the norm (Category B). However, the majority view was that although safety had been degraded, the Chipmunk pilot's level off after receiving the PFLARM warning, and then a left turn, had amounted to timely and effective controlled actions and that there had been no risk of collision; accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: A late sighting by the Chipmunk pilot and a possible non-sighting by the EC145 pilot.

Contributory Factor(s): 1. The high workload of the Coningsby LARS controller resulted in him neither recognising the potential conflict nor passing Traffic Information to the Chipmunk pilot.

2. The controllers and Supervisor did not assimilate that the work-load was too high for bandboxed operations.

Degree of Risk: C.

Safety Barrier Assessment[4]:

The Board decided that the following key safety barriers were contributory in this Airprox:

ATC Strategic Manning and Planning was considered to be only **partially effective** because Coningsby had reduced the number of controllers on console which resulted in bandboxed

[4] Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace). The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Inapplicable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident. The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.

operations and the high workload of the controller. This was exacerbated by the Supervisor not identifying the controller workload through distraction by other tasks.

ATC Conflict Detection and Resolution was considered to be **ineffective** because the controller did not reduce the Traffic Service and did not pass TI to the Chipmunk through not identifying the confliction.

Flight Crew Situational Awareness was also considered to be **ineffective** because although the Chipmunk was generically aware of the traffic in the area, he had not had specific Traffic Information on the EC145. The EC145 pilot was on a Basic Service with Waddington but had not been informed of the Chipmunk in his area.

See and Avoid was considered to be only **partially effective** because the Chipmunk pilot saw the EC145 late and the EC145 pilot probably did not see the Chipmunk.