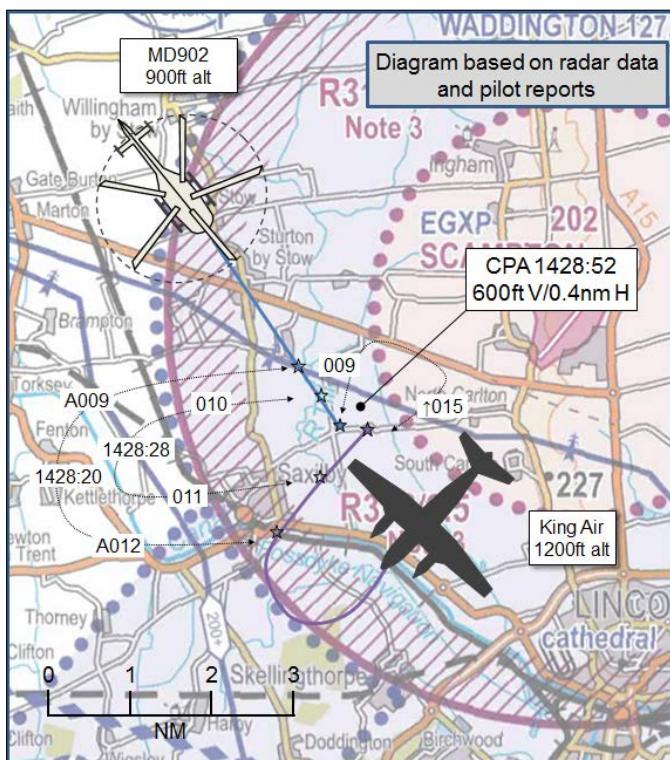


AIRPROX REPORT No 2016112

Date: 22 Jun 2016 Time: 1428Z Position: 5317N 00037W Location: Scampton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	King Air	MD902
Operator	HQ Air (Trg)	HEMS
Airspace	Scampton ATZ	
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Scampton	Waddington
Altitude/FL		
Transponder	A, C, S	A, C
Reported		
Colours	White, Blue	Blue, White
Lighting	Strobes, Nav,	Strobes, HISL,
		Nav
Conditions	VMC	VMC
Visibility	30km	25km
Altitude/FL	1100ft	800ft
Altimeter	QFE (1010hPa)	NK
Heading	040°	113°
Speed	170kt	110kt
ACAS/TAS	TCAS II	TCAS I
Alert	RA	None
Separation		
Reported	200ft V/ 0.5nm H	Not Seen
Recorded	600ft V/0.4nm H	



THE KING AIR PILOT reports that he was flying circuits at Scampton and had forgotten to set his TCAS to 'TA only', in line with Sqn SOPs in the visual circuit. He was instructing, and had given the student a simulated engine failure after take-off; once the student had rolled wings level after the upwind turn at 1100ft, the instructor noticed a TCAS contact at 1-2nm in the 10 o'clock position. He directed the student to continue on heading and they both looked for the conflict. The TCAS gave a TA with the conflict at 1nm and 200ft below. Just as he became visual with a helicopter below and in the 11 o'clock the TCAS issued a 'climb, climb' instruction. He could not ascertain the vector of the helicopter, so he took control and flew the RA using symmetric power. The TCAS called clear of conflict at 1400ft, he informed ATC, and re-established downwind at 1000ft. Prior to the event ATC had not informed him of a MATZ crosser. Subsequent communication with ATC revealed that this was a MATZ crosser that should have been not above 500ft; however, the TCAS had indicated it at 800-900ft.

He assessed the risk of collision as 'Low'.

THE MD902 PILOT reports that he had been tasked with an Air Ambulance task in Gainsborough. On returning direct to Waddington, he flew directly through R313. He couldn't recall whether Waddington were giving him a Basic Service or not: normally before transiting R313 he gives Waddington a call, and if they are not operating he transmits blind on their frequency before crossing the restricted area. On this day, he does not recall seeing another aircraft close enough to cause a concern. He had spoken to the medical crew on duty with him that day and they also could not remember seeing anything of concern.

He assessed the risk of collision as 'Low'.

THE SCAMPTON ADC reports that Waddington ATC informed him, via landline, of a MATZ crosser, a Helimed helicopter, transiting NW to SW no closer than 4.5nm to the overhead, not above 500ft. The King Air was in the circuit at 1000ft. The pilot called a simulated engine failure and extended upwind, and the next call was that he was taking action on a TCAS RA from traffic 2000ft below. Traffic information had not been passed to the King Air. He then called Waddington App, who informed him that the Helimed aircraft had been visual throughout.

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

THE WADDINGTON APP CONTROLLER reports that he wasn't made aware of the incident until 3 weeks later and so his recollection was not exact. The Helimed was on its return to Waddington from the north-west and the pilot requested a Scampton MATZ crossing. The controller called the Scampton ADC to make the request, north-west to south-east 4nm southwest at 500ft RPS, and then passed the clearance to the Helimed; however, he could not be sure that he passed the height restriction of 500ft. He gave Traffic Information on the circuit traffic to the Helimed pilot, who called visual.

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

THE WADDINGTON SUPERVISOR reports that he was reasonably busy at the time of the incident. He recalled the controller obtaining the MATZ crossing clearance from Scampton when the Helimed aircraft was 7nm NW of Scampton. He was then involved in other telephone calls and did not notice that the Mode C of the Helimed was similar to that of the Scampton circuit traffic, which had extended upwind, until the aircraft were roughly 1-2nm apart. He heard the App controller give Traffic Information to the Helimed pilot, who replied that he was visual. He queried with the controller the height of the MATZ crossing clearance agreed with Scampton, and he confirmed that it had been 500ft, but neither the Supervisor nor the controller could recall whether that had been passed to the pilot or not.

Factual Background

The weather at Scampton was recorded as follows:

METAR EGXP 221350Z 19010KT 9999 VCSH BKN020 OVC030 19/15 Q1017 WHT=
METAR EGXP 221450Z 20007KT 9999 -RA SCT017 BKN022 19/15 Q1017 WHT=

Portions of the landline and RT transcript are between Scampton Tower, Waddington App and the King Air reproduced below:

From	To	Speech	Time
Scampton	Waddington	Scampton	14:24:51
Waddington	Scampton	Waddington zone request for MATZ crossing	14:24:52
Scampton	Waddington	Go ahead	14:24:54
Waddington	Scampton	It's a helimed er northwest to southeast departure 4 miles to the southwest through your overhead at 500 feet 1012	14:24:55
Scampton	Waddington	(inaudible) sorry I didn't get that height apologies	14:25:02
Waddington	Scampton	Er 500 feet 1012	14:25:05
Scampton	Waddington	500 feet 1012 erm	14:25:06
Waddington	Scampton	So he's remaining well to the southwest he won't get in your way	14:25:09
Scampton	Waddington	Roger that's approved	14:25:12
Scampton	Waddington	This is Scampton	14:26:36
Waddington	Scampton	Waddington (inaudible) the 1 st MATZ crosser is clear so climb out restriction cancelled	14:26:38

From	To	Speech	Time
Scampton	Waddington	Roger climb out restriction cancelled	14:26:41
King Air	Scampton	[King Air C/S] simulated a asymmetric extending upwind	14:27:02
Scampton	King Air	[King Air C/S]	14:27:05
King Air	Scampton	[King Air C/S] re-joining downwind	14:28:21
Scampton	King Air	[King Air C/S] circuit clear	14:28:24
??	??	(inaudible)	14:28:38
King Air	Scampton	And we've got a TCAS RA helicopter just transiting under us 400 :feet below	14:28:41
Scampton	King Air	[King Air C/S] er that's a MATZ penetration not above 500 feet	14:28:55
King Air	Scampton	That's copied [King Air C/S] (inaudible) er TCAS RA on that one. Er we're established back in the visual circuit now	14:29:02
Scampton	King Air	[King Air C/S]	14:29:04
Scampton	Waddington	Scampton just request the altitude of the er helicopter	14:29:24
Waddington	Scampton	Yeah he's just manoeuvred he was visual with your circuit traffic at all times	14:29:27
King Air	Scampton	[King Air C/S] for your information we had minus 200 feet at 1000 feet on that TCAS contact so he was 800 feet according to our TCAS	14:31:19

Portions of the RT transcripts between Waddington Zone and the MD902 are below:

From	To	Speech	Time
MD902	Waddington Zone	Waddington Zone hello again [MD902 C/S]	14:23:49
Waddington Zone	MD902	[MD902 C/S] Waddington Zone pass message	14:23:54
MD902	Waddington Zone	[MD902 C/S] with three p-o-b we've just lifted from the incident at Gainsborough routing back to yourselves requesting a Basic Service and clearance through the south western side of romeo three one three	14:23:57
Waddington Zone	MD902	[MD902 C/S] Basic Service Waddington runway two zero QFE one zero nine report visual with the aerodrome and do you require fuel	14:24:08
MD902	Waddington Zone	Two zero one zero nine with basic service and report visual with the field and affirm fuel please [MD902 C/S]	14:24:18
Waddington Zone	MD902	[MD902 C/S] your scampton matz crossing is approved	14:25:09
MD902	Waddington Zone	??? the matz is approved thank you [MD902 C/S]	14:25:13
Waddington Zone	MD902	[MD902 C/S] traffic right two o'clock one and a half miles crossing right left is a King Air in the visual circuit at Scampton	14:28:21
MD902	Waddington Zone	Visual with that thank you two nine	14:28:29

Analysis and Investigation

Military ATM

At 1427:31 (Figure 1), the King Air has extended upwind and is climbing to circuit height. The Helimed is to the west indicating 900ft.

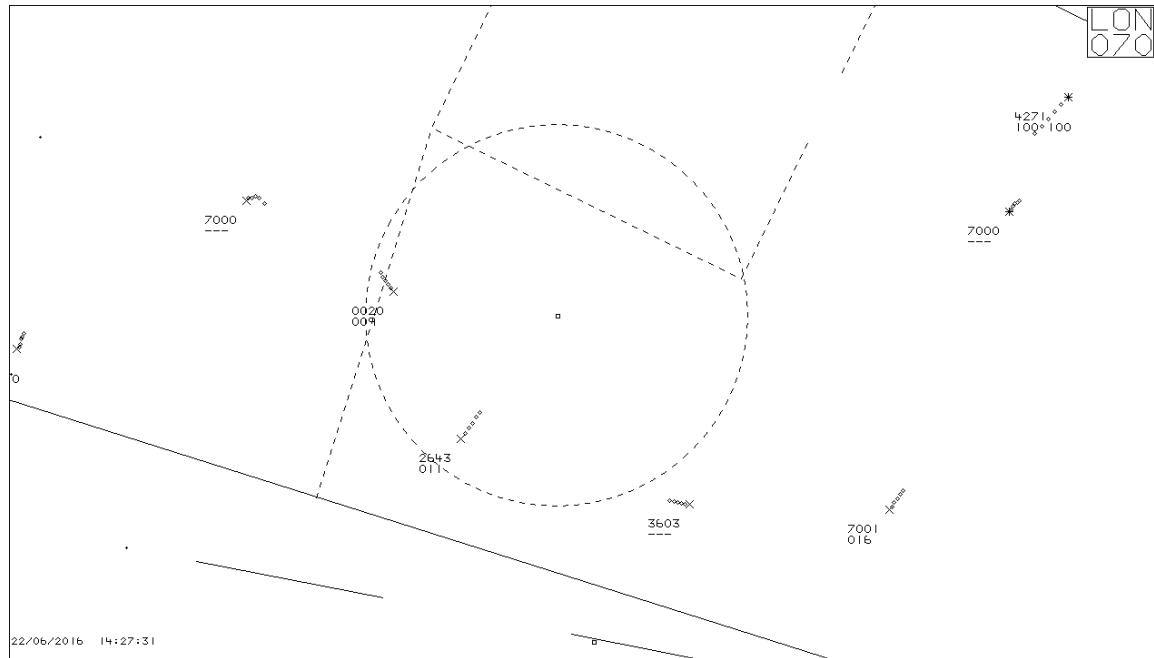


Figure 1: Geometry at 1427:31 (King Air squawking 2643; Helimed squawking 0030).

At 1427:59 (Figure 2), the King Air has initiated the right hand turn to re-join the circuit downwind. The MD902 is tracking South East through the MATZ.

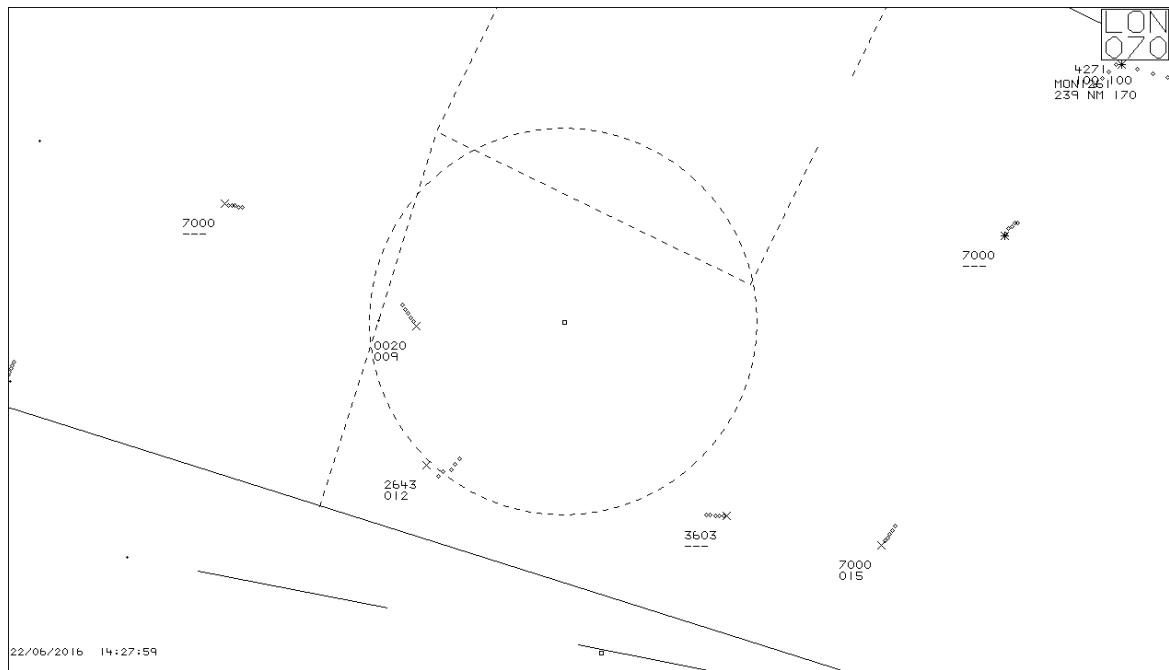


Figure 2: Geometry at 1427:59 (King Air squawking 2643; Helimed squawking 0030).

At 1428:15 (Figure 3), the King Air is 5nm out from the airfield and has left the visual circuit.

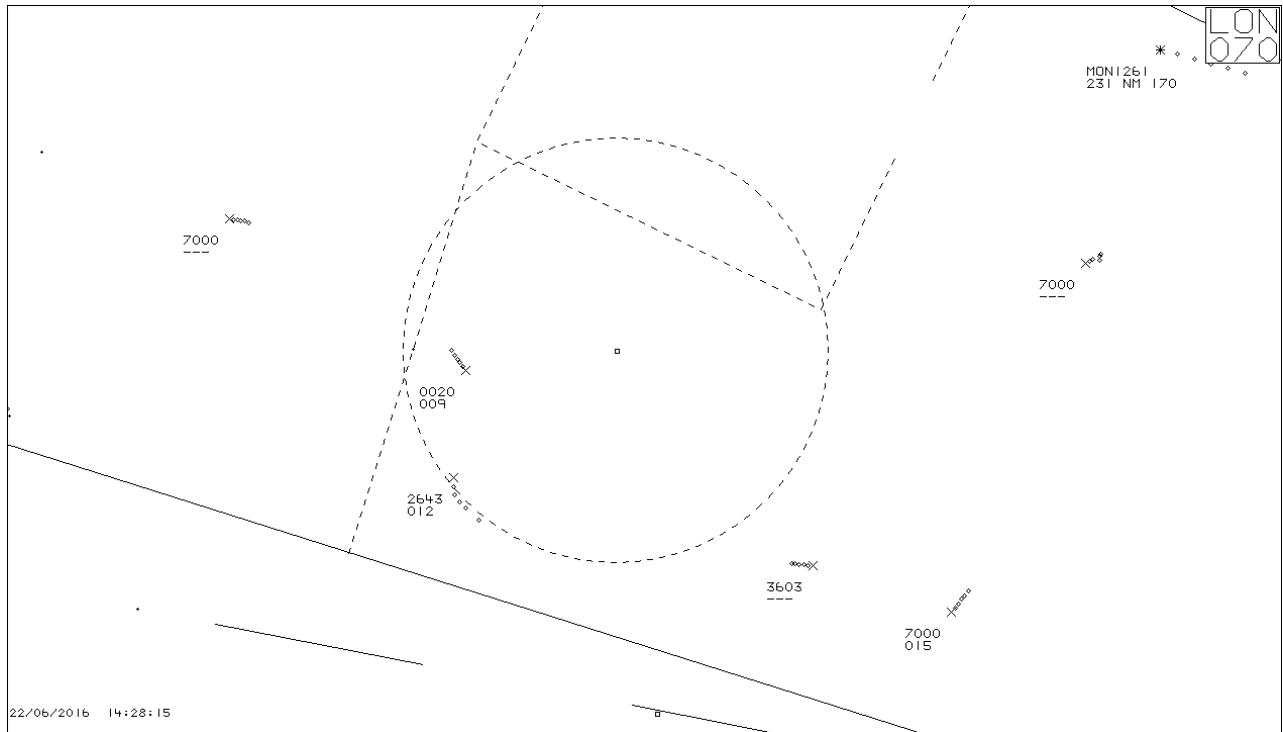


Figure 3: Geometry at 1428:15 (King Air squawking 2643; Helimed squawking 0030).

At 1428:19 (Figure 4), the Waddington Zone controller passes Traffic Information to the MD902 on the King Air, the MD902 reports visual. There is approximately 2nm and 300ft separation at this time. The King Air calls Scampton Tower re-joining down wind.

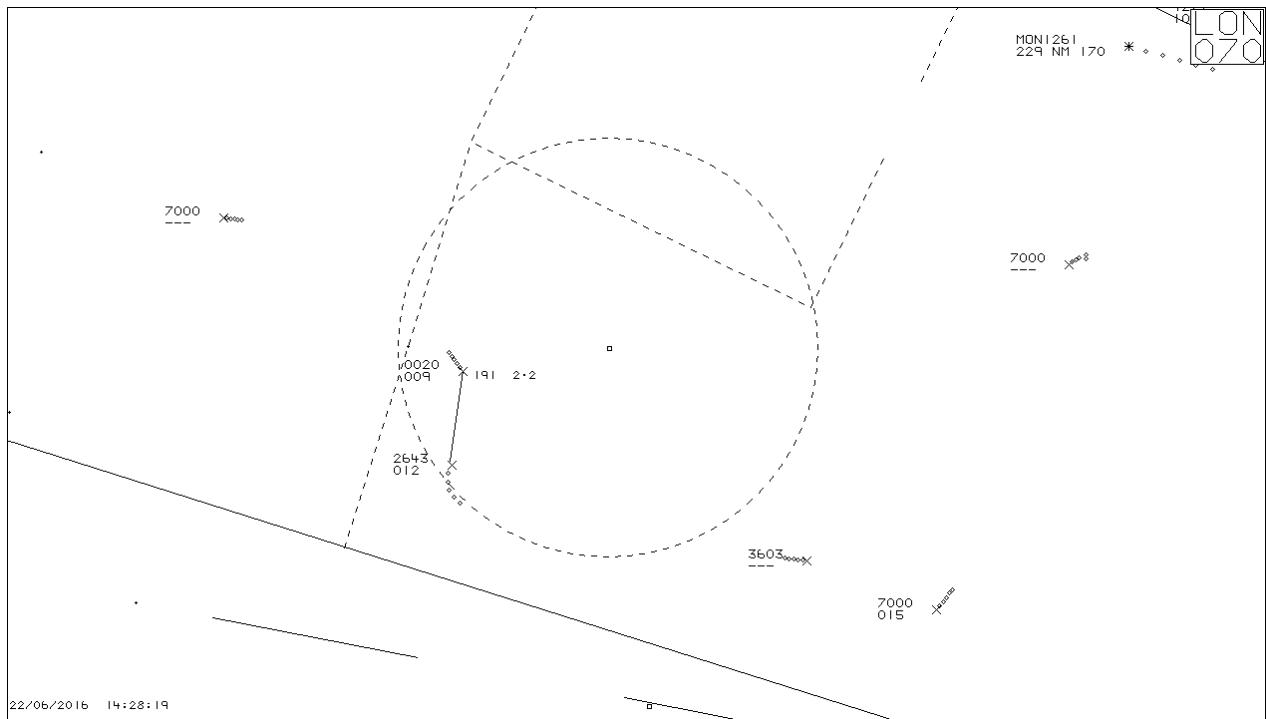


Figure 4: Geometry at 1428:19 (King Air squawking 2643; Helimed squawking 0030).

At 1428:41 (Figure 5), the King Air calls Scampton Tower with a TCAS RA. Separation indicated is 0.8nm and 100ft.

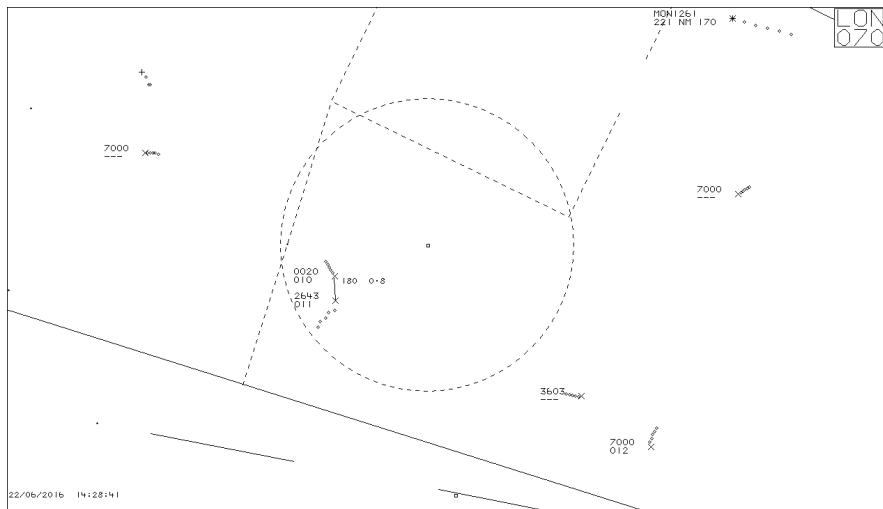


Figure 5: Geometry at 1428:41 (King Air squawking 2643; Helimed squawking 0030).

The King Air pilot reported noticing the TCAS contact at 1-2 miles in his 10 o'clock, and looked for the conflict. TCAS gave a further TA within 1nm and 200ft below; just as the pilot became visual, the TCAS issued an RA. The pilot was instructing at the time of the Airprox and was not informed by ATC of the MD902 routing through the MATZ. The Scampton Tower controller reported being informed by the Waddington controller of a Helimed transiting from NW to SW no closer than 4.5nm and not above 500ft, so he did not pass Traffic information to the King Air, who he believed was in the visual circuit at 1000ft. Shortly afterwards the King Air pilot called extending upwind due to a simulated engine failure.

The MD902 pilot reported speaking to Waddington for a Basic Service and transit through R313 (Scampton MATZ). The pilot and crew did not recall flying close enough to any aircraft to cause concern. The Waddington Zone controller reported the Helimed was returning to Waddington from the North West and required a Scampton MATZ crossing. He reported that they gave the Helimed the clearance but believe may not have stated a height restriction because 'usually the Helimed remains not above 500ft'. The controller reported calling the King Air to the Helimed who reported visual and this is confirmed in the RT transcript.

The Waddington Zone controller coordinated the transit of the MD902 through the Scampton MATZ; however, no confirmation was made that the MD902 would be at or below 500ft. CAP 413 states a pilot conducting a MATZ crossing should inform the controller of the level they wish to transit, the pilot passed his routing but no height. Under a Basic Service, the pilot is not required to maintain a specific height; however, in this instance, given that the Scampton visual circuit was active, it would have been advantageous for the controller and pilot to have established the MATZ crossing height. The Scampton Tower controller believed that the MD902 was at 500ft and routing 4.5nm to the SW. Scampton Tower does not have a Radar monitor so the controller would have been unable to track the Helimed or the extended pattern of the King Air. These factors may have led to the Scampton Tower controller having a mental model of the Helimed at 500ft and King Air at 1000ft (vertical separation) and King Air visual circuit size inside 4.5 nm (lateral separation). Standard practise for Military Tower controllers is to broadcast to all stations MATZ crossing aircraft, and minutes before another MATZ crosser had been broadcast; however, on this occasion the Helimed MATZ crosser was not broadcast.

Traffic information and TCAS were both effective barriers in this incident. Although not required under a Basic Service, the Waddington Zone controller provided Traffic Information to the MD902 pilot allowing him to acquire the King Air visually with approximately 2nm and 300ft separation. TCAS provided the King Air pilot with information and then a resolution to the conflict.

UKAB Secretariat

The King Air and MD902 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. If the incident geometry is considered as converging then the MD902 pilot was required to give way to the King Air². An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation³.

Comments

HQ Air Command

Whilst it was probably the norm to provide a height restriction for a MATZ crosser on a Basic Service, it is not a requirement, and the Waddington ATC transcript shows that no height restriction was given in this case. The fact that the Waddington approach controller inadvertently told the Scampton controller that the MD902 was given a height restriction, (quite probably an automatic response, since that is what normally happens) became a catalyst for how the events unfolded. However, despite the MD902 being on a Basic Service, the Waddington controller passed timely Traffic Information which was relevant and was contributory to resolving the situation. The Scampton controller's decision not to transmit to all stations the MATZ crosser was a judgement made on, what turned out to be, incorrect information. It should be noted that Scampton Tower does not have an Air Traffic Monitor (HIBRITE) to help controllers build a picture from radar information, and therefore is totally reliant on information passed from other agencies or from their own lookout. The Traffic Advisory on the King Air's TCAS helped the crew become visual with the MD902, and the crew followed the mandatory Resolution Advisory instruction. In the end both aircraft were provided information by different sources which enabled the situation to be resolved.

The RAF have conducted an investigation into the incident and some useful human factor lessons have been learnt, with recommendations (yet to be confirmed) which will enable the situation to be improved if it were to occur again.

Summary

An Airprox was reported when a King Air and a MD902 flew into proximity at 1428 on Wednesday 22nd June 2016. Both pilots were operating under VFR in VMC, the King Air pilot in receipt of an Aerodrome Service from Scampton ADC and the MD902 pilot in receipt of a Basic Service from Waddington.

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 King Air pilot. He was flying a simulated emergency, which meant that he needed to extend his visual circuit and, being unaware of the MATZ crosser, knew of no reason not to extend upwind. Members noted that he had left RA selected on his TCAS, and that he had been able to respond to the RA as a result; that being said, they also noted that he had spotted the helicopter visually at about the same time, and so the annunciation and response to the RA was not a critical element since, presumably, he would have reacted anyway to the visual sighting. As an aside, Airline members commented that in multi-engine commercial aircraft it was standard practice to select TA-only during the response to an engine failure because it was likely that

¹ SERA.3205 Proximity.

² SERA.3210 Right-of-way (c)(2) Converging.

³ SERA.3225 Operation on and in the Vicinity of an Aerodrome.

RA recovery parameters could not be met. In summary, without any Traffic Information from ATC, there was little else the King Air pilot could have done to avoid the conflict.

For his part, the Board noted that the MD902 pilot had called Waddington ATC and asked for the MATZ crossing, although some Board members noted that he did not adhere to the phraseology in CAP413, which dictates that a pilot should state the level he requires for the MATZ crossing; that being said, it was also noted that neither did the controller ask for this information. Having been given clearance to cross without any height restriction, members commented that there was no reason for the pilot to remain below 500ft. Indeed, a helicopter member of the Board noted that, as HEMS aircraft, the exemption to fly below 500ft is only applicable whilst the aircraft is on task, not when positioning back to base. A discussion then ensued about the validity of ATC asking aircraft to transit 'not above 500ft' overland given that this could then result in aircraft flying below their legal minima, although it was recognised that this semantic point was not germane to the Airprox itself. Returning to the circumstances of the incident, members noted that the MD902 pilot had been given Traffic Information on the King Air by Waddington, and had reported visual with it. This prompted a further discussion about whether, having been visual, the pilot should have given the King Air a wider berth. Clearly, the MD902 pilot was happy with the separation, but the King Air pilot was not, especially since he was single-engine at the time and with more limited manoeuvre options. The Board noted that it was the avoiding action by the King Air pilot that had ensured the CPA was 600ft and 0.4nm; shortly before he took avoiding action the separation was just 100ft and 0.8nm. Albeit this was based on SSR height readouts (with associated tolerances of +/- 200ft), members wondered why the MD902 pilot had not acted to ensure greater separation, especially since he was required to give way to the King Air.

The actions of the controllers were then discussed. The Board thought that it was unfortunate that the Scampton ADC had not broadcast the MATZ crosser. Even though he hadn't thought it would be a factor, the subsequent events demonstrated that unforeseen circumstances can quickly change a traffic scenario. Had he called the MATZ crosser, the King Air pilot might not have elected to conduct his practice emergency at that time or, even if he had, he would have known to look for the traffic. Turning to the Waddington Approach controller, members noted that he did not ask the MD902 pilot what height he wished to transit at, although he did subsequently tell the Scampton controller that it would be not above 500ft. The Board thought that because this was a regular route flown by the HEMS aircraft, he probably assumed it would follow the standard routing. Having thought that he had passed the restriction onto the pilot, (in fact he had not), noticing that the MD902 was higher than expected and that the visual circuit traffic had extended, he did pass Traffic Information, which subsequently enabled the pilot to see the King Air.

In determining the cause of the Airprox the Board agreed that, because he had received Traffic Information, had reported visual and was required to give way to the King Air, the cause of the incident was that the MD902 pilot had flown close enough to the King Air to cause its pilot concern. However, the Board considered that there were a number of contributory factors: firstly, that the Scampton ADC did not broadcast Traffic Information on the MATZ crosser; secondly, that there was inaccurate information passed between the Waddington and Scampton controllers regarding the MATZ crosser; and finally that the Waddington controller thought that he had passed the height restriction of 500ft to the MD902 pilot, but in fact had not. However, the risk was assessed as Category C, there was no risk of collision both because the MD902 pilot was visual with the King Air and the King Air pilot had taken timely and effective avoiding action.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The MD902 pilot flew close enough to the King Air to cause its pilot concern.

- Contributory Factors:
1. Scampton Tower did not broadcast Traffic Information on the MATZ crosser.
 2. Inaccurate information between Waddington and Scampton regarding the MATZ crosser.
 3. The Waddington controller thought they had passed the MD902 pilot a height restriction of 500ft but, in fact, had not.

Degree of Risk: C.