

THE BENSON APPROACH/ZONE CONTROLLER reports being bandboxed with Approach and Zone but that she did not remember much about the incident. The weather was 'Green' so 'Call for Release' for all traffic was in effect. The Station-based Helimed aircraft called her, routing from North to South about 1 mile to the west of Benson. She then called ADC to request a MATZ crosser. As the Helimed was abeam Benson she observed an aircraft climbing out towards it. The ADC confirmed that an aircraft had departed the visual circuit without permission and passed the callsign. The Approach/Zone controller believed that she called the Merlin to the Helimed but could not recall if the Helimed pilot reported visual or not. Both aircraft continued without any further incident.

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

THE BENSON SUPERVISOR reports being in the Approach Room at the time of the incident, having just taken a somewhat protracted prenote for a departure to the south on behalf of the Approach controller. Due to the time elapsed since the incident, he could not recall whether the Approach and Zone positions were bandboxed; however, the Controller narrative would suggest this was the case. He remembered the Tower controller calling the Approach controller but was not aware of the reason until the call had finished. It was at this time that he was made aware of the details. He stated that he had no further information to add to the controller narrative.

THE MERLIN PILOT reports being under instruction on a night tactical-formation sortie. The green camouflaged aircraft had white upper and lower strobes and navigation lights selected on, as was the SSR transponder with Modes A, C and S. The aircraft was not fitted with an ACAS or TAS. The pilot was operating under VFR in VMC, in receipt of a Basic Service from Benson Approach at CPA. The pilot stated that he was first made aware of the incident a week after the event and, as such, could not remember events with any degree of certainty. The sortie required a high degree of planning. He called for engine and rotor start with the intention of remaining [in the visual circuit] for 30min, at which point he would continue en-route with another Merlin as a formation pair. Unfortunately the other aircraft went unserviceable and, with the amount of time it had taken waiting on the ground, it was decided to continue with the navigation route to maximise the training benefit as a single aircraft. The instructor by this point had taken charge of making radio calls and, whilst the pilot could not remember with certainty at what point the change of intentions were communicated to ATC, he was certain they did not state in the taxi call that they were 'remaining', as confirmed by the tape transcript. On climb-out, he turned right onto west to head towards the Vale at 100kt, VFR not above 500ft, within the MATZ. He remembered ATC calling the [EC135] and that he was able to report 'visual' straight away, in the right 2 o'clock and above, passing down the right-hand side. The pilot stated he was entirely happy with its position and continued with the other aircraft visual throughout, passing above and well clear by a significant distance, which he judged to have been at least 2 miles. At no point did it cause him concern, or did he feel any avoiding action was necessary; flight safety, from his point of view, was never compromised.

He assessed the risk of collision as 'Low'.

THE EC135 PILOT reports conducting a HEMS Category Alpha flight. The red and yellow helicopter had white HISLs, navigation and landing lights selected on, as was the SSR transponder with Modes A, C and S. The aircraft was not fitted with an ACAS or TAS. The pilot was operating under VFR in VMC, in receipt of a Basic Service from Benson Zone. The pilot stated he was first made aware of the Airprox 9 days after the event and so was not able to recall exact figures or provide recorded route data. He had requested and was cleared for a MATZ crossing from Oxford to the south-southwest of RAF Benson, heading 160° at 120kt. He was on zone frequency throughout and therefore did not hear ATC communications with the Merlin pilot. Both he and the HEMS crewmember, in the front left seat, saw the Merlin departing Benson in a right-hand climbing turn; they were surprised by its routing. Zone asked if he was visual, he confirmed that he was, and judged that the Merlin would pass down their right hand side. To mitigate any risk, he put in a gentle left turn and then resumed track after passing safely behind the Merlin.

He assessed the risk of collision as 'Low'.

Factual Background

The weather at RAF Benson was recorded as follows:

METAR EGUB 111550Z 10015KT 9999 -RA BKN011 11/10 Q0993 GRN NOSIG
 METAR EGUB 111650Z 10013KT 9999 -RA BKN012 11/10 Q0993 GRN TEMPO 7000 RA GRN

A transcript of the Benson Ground/Tower frequency is reproduced below:

From	To	Speech Transcription	Time
Merlin	Ground	Benson Ground good evening [Merlin C/S]	16:13:54
Ground	Merlin	[Merlin C/S] Benson Tower good evening pass message	16:13:58
Merlin	Ground	[Merlin C/S] ????? er ????? on line Bravo er currently two P O B with one in attendance, err requesting engine and rotors start, remaining for forty minutes errr before departing as a formation	16:14:03
Ground	Merlin	[Merlin C/S] roger start, surface wind one zero zero one four knots	16:14:18
Merlin	Ground	Start [Merlin C/S]	16:14:22
Merlin	Ground	Benson Ground [Merlin C/S]	16:27:49
Ground	MERLIN	[Merlin C/S] Ground go ahead	16:27:52
MERLIN	Ground	[Merlin C/S] Merlin now four persons on board, on line Bravo, request to taxi Yankee via the short, information foxtrot copied, er unfortunately we are going to be a singleton now from now on there'll be no formation flying	16:27:53
Ground	MERLIN	[Merlin C/S] roger taxi hold Bravo, now Golf with the colour code green	16:28:04
Merlin	Ground	Taxi golf colour code green err [Merlin C/S]	16:28:08
Ground	Merlin	And cloud base broken at one thousand one hundred	16:28:11
Merlin	Ground	[Merlin C/S]	16:28:14
Tower	Approach	Approach	16:28:27
Approach	Tower	Hi ????	16:28:28
Tower	Approach	No you're Approach sorry, Tower	16:28:29
Approach	Tower	Request MATZ Crosser	16:28:30
Tower	Approach	Go ahead	16:28:31
Approach	Tower	Err ??? West to South err ??? ?????? miles to the west of Benson, traffic is North West seven miles tracking south squawking zero zero five zero, Helimed	16:28:32
Merlin	Ground	[Merlin C/S] approaching ?????? to tower	16:28:33
Ground	Merlin	[Merlin C/S] roger	16:28:36
Tower	Approach	Contact	16:28:44
Approach	Tower	He's routing to Bucklebury, ??????????	16:28:45
Merlin	Tower	Tower [Merlin C/S] at hold bravo ready for departure	16:28:47
Tower	Merlin	[Merlin C/S] line up Yankee	16:28:51
Merlin	Tower	Line up Yankee [Merlin C/S]	16:28:52
Tower	Approach	What was his ??????..... not below what?	16:28:53
Approach	Tower	Seven hundred feet Q F E	16:28:56
Tower	Approach	Not below seven hundred feet Q F E	16:28:58
Approach	Tower	He's basically maintaining that altitude and that sort of heading Bucklebury area he said	16:29:00
Tower	Approach	I don't know where Bucklebury is	16:29:04
Approach	Tower	He says it's near Goring...	16:29:05
Tower	Approach	Oh ok	16:29:06
Approach	Tower	So just staying to the West I think	16:29:07
Tower	Approach	Remaining West of the airfield MATZ penetration is approved....there's one in the circuit	16:29:08

From	To	Speech Transcription	Time
Approach	Tower	Roger....Roger... Thanks	16:29:10
Tower	Approach	Tower	16:29:11
Merlin	Tower	[Merlin C/S] is now established Yankee ready for departure	16:30:17
Tower	Merlin	[Merlin C/S] runway one nine cleared for takeoff, surface wind one one zero, one four knots	16:30:20
Merlin	Tower	Cleared for takeoff [Merlin C/S]	16:30:23
NPAS Helo	Ground	Benson Ground Police [NPAS C/S] two on board becoming four, engine rotors start for a scramble to Thatcham	16:30:23
Ground	NPAS Helo	[NPAS C/S] start, surface wind one one zero, one four knots, Q F E nine eight six hectopascals, Q N H nine nine three	16:30:29
NPAS Helo	Ground	Nine eight six, nine nine three err one nine start [NPAS C/S]	16:30:39
Tower	Supervisor	Tower	16:30:46
Supervisor	Tower	Sup	16:30:47
Tower	Supervisor	Errr prenote V F R departure	16:30:48
Supervisor	Tower	Go ahead	16:30:48
Tower	Supervisor	[NPAS C/S]	16:30:49
Supervisor	Tower	[NPAS C/S]	16:30:50
Tower	Supervisor	Scrambling to Thatcham...where is it?	16:30:51
Supervisor	Tower	Reading way?	16:30:56
Tower	Supervisor	Pardon?	16:30:56
Supervisor	Tower	Reading way I think	16:30:57
Tower	Supervisor	I can't hear anything	16:30:57
Supervisor	Tower	READING WAY	16:30:59
Tower	Supervisor	Reading. Thank you	16:31:00
Supervisor	Tower	I think	16:31:01
Tower	Supervisor	Alright	16:31:03
Merlin	Tower	[Merlin C/S] carrying on to Approach	16:31:45
Tower	Merlin	[Merlin C/S] sorry I thought you were remaining for forty minutes?	16:31:48
Merlin	Tower	Errr [Merlin C/S] err apologies slight change of plan we are looking to depart out to the West for approximately ten minutes for ??????	16:31:51
Tower	Approach	Merlin who was meant to be remaining for forty minutes has just told me he's departing.	16:31:57
Approach	Tower	Three six two zero yeah, VFR West looks like	16:32:02
Tower	Approach	Yeah for ten minutes	16:32:04
Approach	Tower	Okay [Merlin C/S] is that?	16:32:05
Tower	Approach	Yeah, I'll tell him about the Helimed	16:32:07
Approach	Tower	Okay no worries, thanks, bye	16:32:09
Tower	Merlin	[Merlin C/S] Helimed Aircraft North North West four miles tracking South West three hundred feet above.	16:32:10
Other	Ground	[Other C/S] ????? ???? POB	16:32:15
Merlin	Tower	Looking [Merlin C/S]	16:32:15
Tower	Merlin	[Merlin C/S] continue with Approach	16:32:18
Merlin	Tower	Stud three [Merlin C/S]	16:32:21

A transcript of the Benson Approach/Zone frequency is reproduced below:

From	To	Speech Transcription	Time
Approach	HEMS	[HEMS C/S], traffic south, three miles, tracking west, indicating three hundred feet below, believed to be the heli, it's believed to be a Merlin	16:32:21
HEMS	Approach	Have visual with departing err to the left hand side of us	16:32:30
Approach	HEMS	[HEMS C/S] roger	16:32:34
Merlin	Approach	Benson Approach, good afternoon Vort... correction [Merlin C/S] is now airborne departing VFR to the West err requesting basic service	16:32:46
Approach	Merlin	[Merlin C/S] Benson Approach, good afternoon VFR departure to the west approved, basic service, squawk ident	16:32:52
Merlin	Approach	Basic service, squawk ident [Merlin C/S]	16:32:57
Approach	Merlin	[Merlin C/S] Benson QNH nine nine three hectopascals, request your altitude	16:33:03
Merlin	Approach	Currently at eight hundred feet, nine nine three [Merlin C/S]	16:33:09
Approach	Merlin	Roger	16:33:12
Approach	HEMS	Helime... [HEMS C/S] Charl...Wycombe Park Aerodrome is active	16:33:17
HEMS	Approach	Copied [HEMS C/S] we err hi???? ??? it	16:33:24
Approach	HEMS	Roger	16:33:27

Analysis and Investigation

Military ATM

At 1631:45 (Figure 1), the Merlin pilot reported switching to Approach and the Tower controller queried the departure. The Merlin pilot replied at 1631:51 with, “[Merlin C/S] *apologies, slight change of plan, we are looking to depart out to the west for approximately ten minutes for {unreadable}.*”

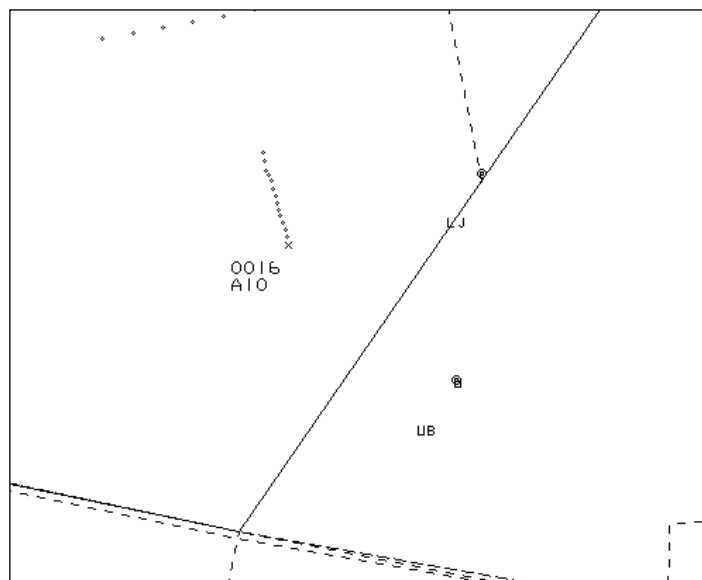


Figure 1: Merlin reports switching to Approach at 1631:45 (Helimed squawk 0016)

At 1632:10, Tower advised, “[Merlin C/S] *Helimed aircraft north, north-west, four miles, tracking south west, three hundred feet above.*” The Merlin pilot replied with ‘*looking*’; the Merlin appeared on radar replay at 1632:18 (Figure 2).

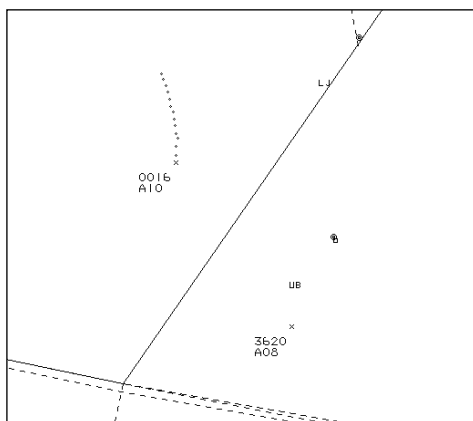


Figure 2: Merlin looking for traffic and appeared on radar replay at 1632:18

At 1632:21, Approach passed Traffic Information, “[Helimed C/S] traffic south three miles tracking west, indicating three hundred feet below, believed to be the heli...it’s believed to be a Merlin.” At 1632:30 (Figure 3), the Helimed pilot called visual.

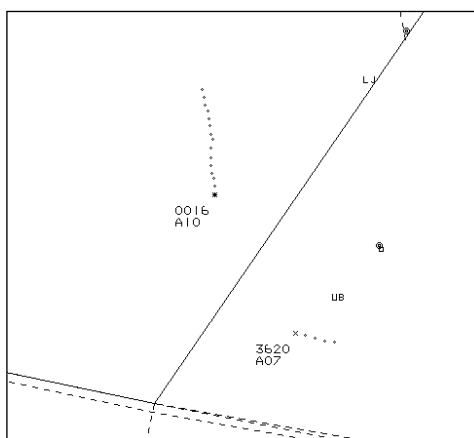


Figure 3: Helimed calls visual at 1632:30

At 1632:46 (Figure 4), the Merlin pilot called Approach for a Basic Service. At this point, the Merlin faded from radar coverage with 1.8nm horizontal separation from the EC135. The Basic Service was applied at 1632:57.

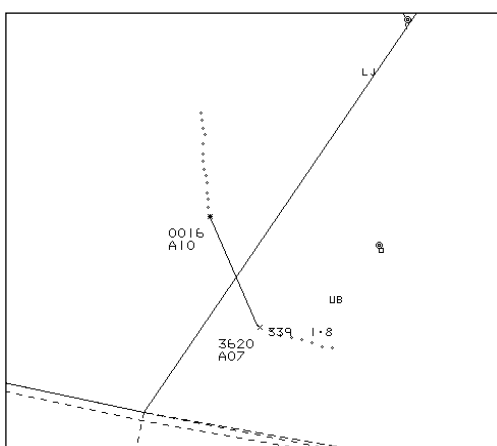


Figure 4: Merlin requested a Basic Service at 1632:46

The CPA was at estimated at 1633:16 with 0.9nm horizontal and an unknown amount of vertical separation; the Merlin trail faded and re-appeared for a squawk ident.

The Merlin pilot had provided details of the formation sortie intentions on start. As the crew were conducting start-up checks, the other aircraft became unserviceable and the crew changed their plan. Having decided not to conduct visual circuits, the crew requested to taxi but did not inform ATC of their change of intentions, for a VFR west departure. Having departed to the west, the crew were passed Traffic Information and recalled being visual with the Helimed and having adequate separation.

Given the poor visibility, the Tower controller had requested that the MATZ crosser remain to the west of the airfield to deconflict with the Merlin, expected to remain in the visual circuit to the east of the airfield. A 'Call for Release' on all aircraft departing was in force and the Tower controller was anxious to inform Approach of the breach, especially because the Merlin was closing with the Helimed. Once the Merlin had departed to the west, Traffic Information was passed at 4nm and Approach was immediately informed. Approach had seen the Merlin depart and had used information from Tower to call traffic. The aircraft were under a Basic Service but, following the unexpected Merlin departure, duty of care was demonstrated to alert each crew of the other aircraft.

The collision risk assessment from both pilots was 'Low' but the Tower controller had recalled watching the radar returns merge with 300ft height separation; the Helimed pilot reported making a left hand turn to pass behind the Merlin. The radar replay is inconclusive because the Merlin faded from radar before CPA.

The normal barriers to an Airprox of this nature would be ACAS/TAS, lookout and radar-derived Traffic Information. Information was passed to Merlin and EC135 crews at 4nm and 3nm respectively. As the aircraft were on, or likely to receive, a Basic Service, there was no requirement for ATC to pass Traffic Information, as per CAP 774. From pilot reports, both were visual; lookout appeared to have been effective. However, the Helimed pilot was less comfortable with separation and took approximately a 30° turn to the left. Neither aircraft was fitted with an ACAS or TAS and this was an absent barrier. The change of intentions of the Merlin crew was not communicated to Tower and the VFR departure to the west was unexpected; the subsequent aircraft geometry had also caused concern for the Tower controller, who filed an Airprox.

UKAB Secretariat

The Merlin and EC135 pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision³. The incident geometry was considered to be converging, and the Merlin pilot was therefore required to give way to the EC135⁴.

The Merlin radar contact faded at 1632:43 and reappeared at 1633:15. Using track interpolation it was possible to estimate the horizontal separation at CPA as 0.7nm

Comments

JHC

This event was caused by a breakdown in communication between the Merlin crew and ATC. The Merlin crew should have informed the Tower Controller that their intentions had changed and they planned to depart the visual circuit, which would have prompted the controller to seek a release from the Radar Controller. A situation then developed that the Controller subsequently considered worthy of reporting as an Airprox because she witnessed the aircraft merge on the High-Bright and was unsure of what type of service the MATZ crossing aircraft was under. Instructions to military aircrew in a MATZ are mandatory and although the onus was on the Merlin crew to communicate their intentions, the Tower Controller also had the option to instruct the

³ Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).

⁴ *ibid.*, Rule 9 (Converging).

Merlin crew to remain in the visual circuit to give time to arrange a release, which would have ensured that separation was not eroded.

The requirement for a release call in conditions of Green or worse was a local Air Traffic Order and therefore not one that the Merlin crew were aware of. If they had been made aware, they may have made a change of intentions call. JHC has directed that Benson ensure that all aircrew are made aware of the requirement for a release in Green or worse conditions.

Summary

An Airprox was reported when a Merlin and an EC135 flew into proximity at about 1633 on Tuesday 11th November 2014. Both pilots were operating under VFR in VMC, the Merlin pilot in receipt of a Basic Service from Benson Approach and the EC135 pilot in receipt of a Basic Service from Benson Zone.

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 considered the pilots' actions. They noted that the EC135 pilot was conducting a MATZ transit on a Category 'A' HEMS flight. He was in communication with Benson Zone throughout, saw the Merlin departing, expressed surprise at its routing, and made a 'gentle left turn' to pass safely behind it. For his part, the Merlin pilot had been intending to conduct a formation sortie with another Merlin and had communicated his intention to remain initially in the visual circuit to the Benson Aerodrome Controller. The Board noted that some 14min elapsed before he made a call to request taxi clearance, by which time the pilot of the other Merlin had cancelled his sortie due to aircraft unserviceability. Members agreed that it was apparent that the reporting Merlin pilot did not communicate his change of intentions to the Aerodrome Controller once the formation aspects of the sortie could no longer be achieved. They also noted JHC's comments that he would not have been aware of the 'Call for Release' requirement and so would probably not have understood the significance of not passing his revised intentions. The Merlin pilot was passed Traffic Information on the EC135 as he departed and reported 'looking' on the Tower frequency shortly before being passed to Approach. He did not state 'visual' on RT on either frequency and so the Board could not determine when he actually had the EC135 in sight. Members contrasted the Merlin pilot's assessment of separation at CPA of 'at least 2 miles' to the interpolated CPA of 0.7nm, and wondered whether this may have been indicative of the poor lighting conditions he would have been experiencing at the time.

Turning to the controllers, whilst the Board agreed in principle with the JHC comment that the Aerodrome Controller could have instructed the Merlin pilot to remain in the visual circuit, they were also of the opinion that this would have been problematic at the point of departure given that the ADC had only become aware that he was leaving the circuit at the same time as he called changing to Approach frequency; her priorities at that point were then correctly focused on quickly coordinating his departure with Approach in order to ensure avoidance with the MATZ-crosser. Members also agreed that the onus of responsibility fundamentally rested with the Merlin crew, and that it was for them to update the Aerodrome Controller in good time if their intentions changed. As such, members agreed that the cause of the Airprox had been that the Merlin pilot had departed the visual circuit, contrary to his stated intentions, and flew into conflict with the EC135. Both the EC135 and Merlin pilots were visual with each other, and the EC135 pilot reacted to the Merlin flight path; the Board determined that effective and timely action had therefore been taken to prevent the aircraft colliding. Board members considered it most unfortunate that the local 'Call for Release' procedure had not been notified to aircrew, but were heartened to note that this shortfall had since been remedied. They commented that any change to ATC procedures could have an impact on aircrew actions, and so the decision on whether or not to inform aircrew of a change needed to be considered carefully.

The Board observed that the Aerodrome Controller had filed an Airprox based on her perception of separation gleaned from the High-Brite display, concern as to the type of Air Traffic Service of which the EC135 pilot was in receipt, and uncertainty as to the height to which the departing Merlin pilot was intending to climb. Members emphasised that submission of this Airprox report had been entirely appropriate, and commended the Aerodrome Controller for her handling of a fast-changing situation in a way which maximised the remaining mitigations to mid-air collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Merlin pilot departed the visual circuit, contrary to his stated intentions, and flew into conflict with the EC135.

Degree of Risk: C.

ERC Score⁵: 2.

⁵ 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.