

AIRPROX REPORT No 2014049

Date/Time: 8 Apr 2014 1458Z

Position: 5124N 00325W
(St Athan)

Airspace: Cardiff CTR (Class: D)

Aircraft 1 Aircraft 2

Type: Tutor EC145

Operator: HQ Air (Trg) NPAS

Alt/FL: 650ft NK
QFE (1015hPa)

Conditions: VMC VMC

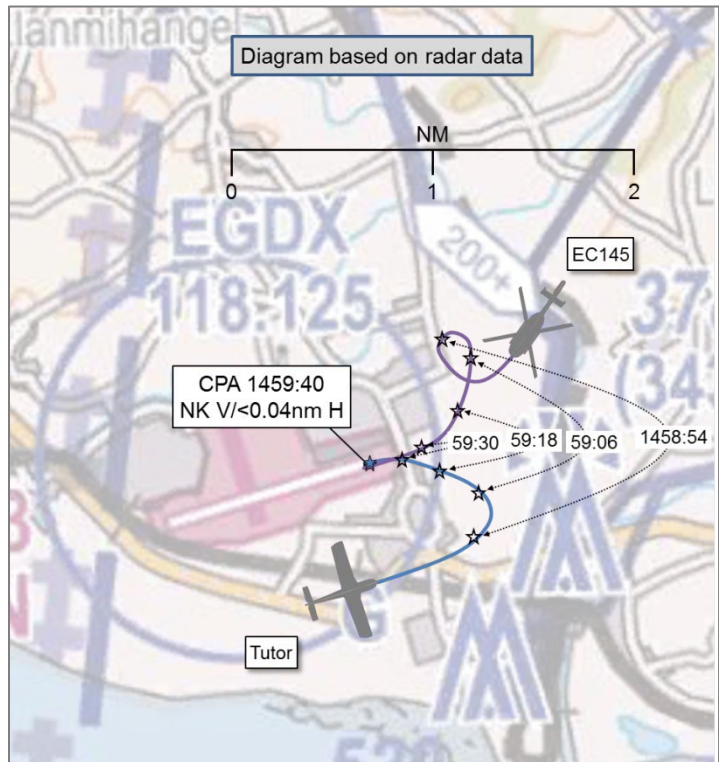
Visibility: 30km >30km

Reported Separation:

100ft V/0.5nm H NK

Recorded Separation:

NK V/<75m H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TUTOR PILOT reports operating under VFR in VMC, and in receipt of an Aerodrome Control Service from St Athan TWR as he started to turn final for RW26. The predominantly white aircraft's lighting state was not reported, the SSR transponder was on with Modes A, C and S selected, and the aircraft was fitted with a TAS. Before he could give the 'final' radio call he heard the police helicopter pilot transmit '[C/S], straight in, final'. This was the first call he had heard from the helicopter pilot; he was not visual with the helicopter. The police helicopter pilot was instructed to orbit as the Tutor pilot was number one for landing. The police helicopter pilot said he would orbit right in order to avoid the Tutor, and that he was visual with the Tutor. The Tutor pilot received a TAS warning and saw the helicopter shortly after, in a right turn away from the runway, at about 500-600ft and '1 mile final'. The Tutor pilot was at about 650ft on the final turn at that point, and tightened his turn to increase horizontal separation. He considered going around, but felt uncomfortable doing so because the 2 aircraft were at a similar level; going around would have put him belly-up to the helicopter, (also in a hard right turn and so also belly-up), and he would have lost visual contact. The Tutor pilot was informed that he was number one and the helicopter was instructed to continue holding. Now comfortably visual with the helicopter turning away from him on the deadside, the Tutor pilot continued to land. The helicopter followed in behind him and passed directly overhead the threshold at around 150-200ft as he was flaring to land. The Tutor pilot stated that he had elected to continue his approach so that he remained visual with the helicopter at all times, and kept his flight path as standard and predictable as possible as the number one aircraft to land. The Tutor pilot was concerned that if he had been required to go-round for whatever reason during the landing and rollout phase it may have put the aircraft in a compromising position due to the helicopter pilot following him closely on approach as number two aircraft to land.

He assessed the risk of collision as 'Medium'.

THE EC145 PILOT reports recovering to St Athan post-tasking. The helicopter lighting and SSR transponder states were not reported. The aircraft TAS/ACAS state was not reported. The pilot was operating under VFR in VMC, in receipt of an Aerodrome Control Service from St Athan TWR. The pilot was working Cardiff APR as the ATC agency during the initial recovery. At some distance from St Athan traffic information was passed on a Tutor aircraft in the St Athan visual circuit. The helicopter crew were visual with this aircraft as it was acquired with the onboard police camera system. He was transferred to St Athan TWR where he was asked to position number two to the

Tutor, which he perceived was mid-point downwind on a left-hand circuit to RW26. The helicopter pilot's approach heading was towards the threshold, roughly a right-base join and, due to the closing speed, it became apparent that he would arrive ahead of the Tutor; he requested to become 'number one'. This was not approved, and he was asked to make a left-hand orbit in his current position. He elected to make a right-hand orbit for reasons of airmanship, away from the Tutor, which would have been turning towards him; the [right] turn kept the two sides of the circuit separate. He then positioned to the rear of the Tutor, in its port quarter. The pilot noted that the Tutor was visual to him and his crew at all times, and was tracked with the onboard police camera system. It was established that the Tutor pilot was landing from his approach and, once safely on the ground, the helicopter pilot continued to the police unit and landed. The pilot stated that no unusual comments were made by any crew members about the flight, and that the crew were satisfied with the service supplied by Cardiff ATC and the procedure for transfer to the visual circuit.

He assessed the risk of collision as 'None'.

THE ST ATHAN ADC reports that a Tutor was warned inbound by Cardiff from the west, shortly after a Police helicopter was warned inbound from the east. He asked Cardiff to position the helicopter for a downwind join behind the Tutor. He observed the Tutor enter the downwind leg but was still unaware of the position of the Police helicopter. As the Tutor was late downwind, the helicopter pilot called a mile from the end of the runway and asked to be fed in first. From the ADC's position in the Runway Caravan it looked like the Tutor should still be number 1, so he instructed the helicopter pilot to do an orbit and the Tutor pilot to land after he called on finals. The helicopter pilot then made an approach behind the Tutor and landed on dispersal without further incident.

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

THE ST ATHAN SUP reports that she did not witness the incident.

THE CARDIFF ADC reports being informed of an Airprox occurrence the day after the incident. He had been mentoring a trainee in the TWR position. Cardiff was using RW30 and the 'VFR Block' was active. St Athan RW26 was active. The Police helicopter, inbound to St Athan, entered the Cardiff CTR from the north, VFR not above altitude 1500ft. When the helicopter was about 3nm west of the Wenvoe TV Mast, the trainee coordinated its arrival with St Athan TWR. The St Athan ADC requested that the helicopter join downwind and said he had one Grob Tutor joining VFR. After the phone call the mentor questioned the trainee about his understanding of the coordination. He told the trainee to ring back to St Athan and ask if the Police helicopter was to join right-hand or left-hand downwind. The St Athan ADC said left-hand downwind. The trainee passed these joining instructions to the helicopter pilot and passed Traffic Information about the Tutor. The mentor then passed what he considered to be more accurate Traffic Information. The helicopter pilot reported visual with the Tutor and said he would be well ahead of it. The mentor then told the trainee to instruct the helicopter pilot to report that he would be ahead of the Tutor to St Athan TWR, and transfer him to St Athan local. The helicopter pilot was transferred to St Athan TWR when he was about 1nm north of the Cardiff RW30 climb-out lane. As the helicopter pilot had reported visual and well ahead of the Tutor, the mentor did not perceive there to be a confliction. He could see both aircraft out of the VCR window and, after the EC145 pilot had been transferred, he noticed the helicopter turn left, he recalled, and hold off to the north as the Tutor turned onto left-base for RW26. The mentor presumed that the EC145 pilot was following instructions issued by St Athan TWR.

Factual Background

The weather at St Athan was recorded as follows:

METAR EGDY 081450Z AUTO 26019KT 9999 FEW022/// 11/05 Q1022

St Athan Tower were temporarily conducting operations from the Runway Caravan whilst repairs were made to damage to the control tower.

Analysis and Investigation

Military ATM

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated.

The RAF St Athan Aerodrome Controller (ADC) reported a 'low' workload and was providing a service to the two aircraft involved in the Airprox. The ADC recalled the Tutor pilot being warned inbound from the west and the Police helicopter being warned in from the east. The ADC requested that the Cardiff controller position the Police helicopter for a downwind join, behind the Tutor. The Tutor was observed downwind but the ADC was not aware of the position of the helicopter. As the Tutor was in the late downwind position, a call was received from the helicopter pilot at a mile from the end of the runway, with a request to be fed in first. From the control position in the Runway Caravan, the controller considered the Tutor to be first for landing and the helicopter was instructed to orbit. The Supervisor agreed with workload assessment and the incident was perceived to have a 'medium' severity.

The Tutor pilot joined the visual circuit at 1455:18, via a downwind join, see Figure 1 below.

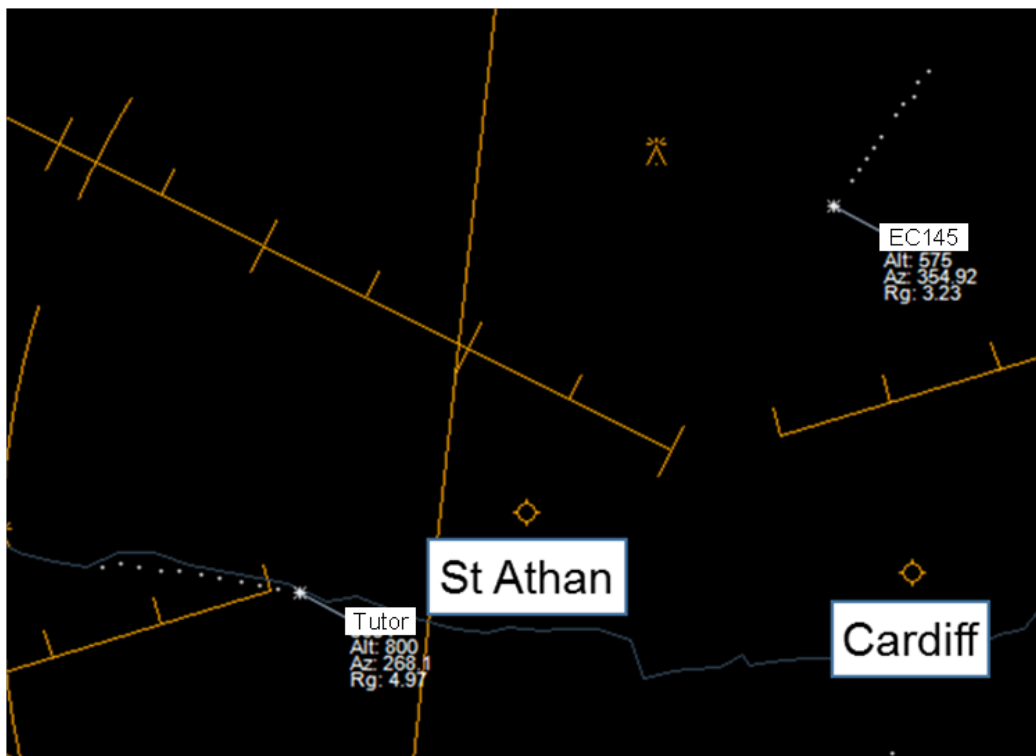


Figure 1: Aircraft geometry at 1456:53

At 1457:20, the Tutor pilot declared downwind and Tower replied with, "[Tutor C/S] *surface wind 290 12 knots*". At 1457:53, the helicopter pilot called St Athan Tower, "*Tower [EC145 C/S] {unintelligible} downwind traffic, we're almost finals, are you happy if I continue ahead?*". Figure 2 depicts the aircraft geometry at 1457:48.

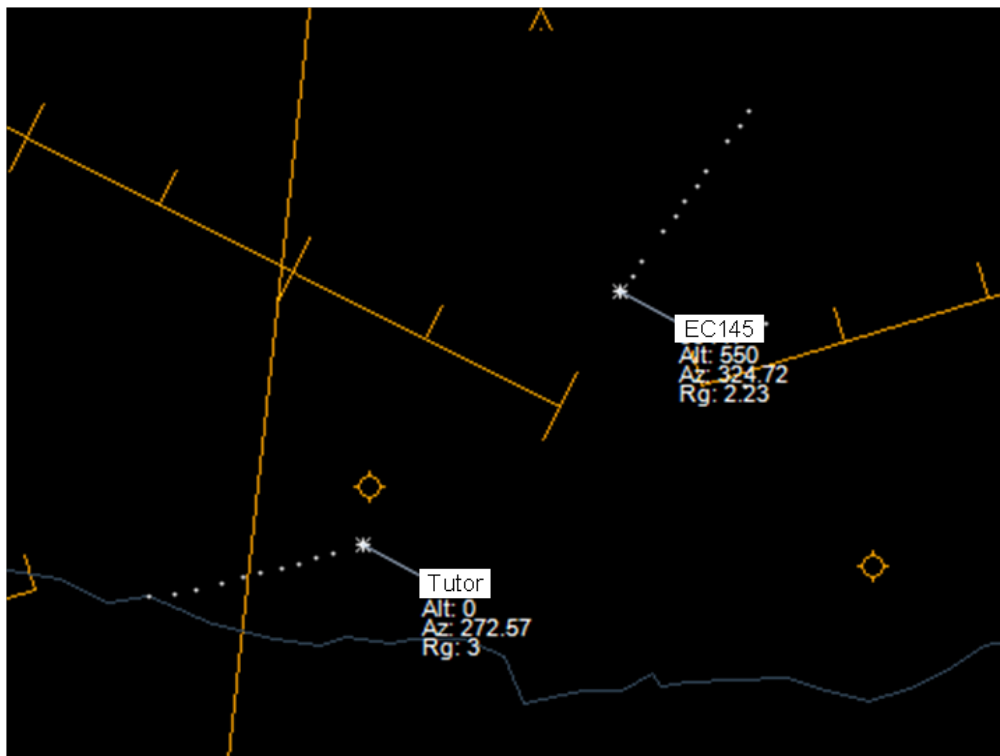


Figure 2: Aircraft geometry at 1457:48.

At 1458:03, the ADC replied, “[EC145 C/S] *negative, if you can do a left-hand orbit er the Tutor is number one*”. At 1458:08, the helicopter pilot replied with, “*Roger, it’s going to be a right-hand orbit, left would be unsafe that traffic*”. The Tutor pilot commented at 1458:14, “[Tutor C/S] *visual and I’ll turn late*”. The ADC confirmed to the Tutor pilot at 1458:17, “[Tutor C/S] *er you are number one*”, see Figure 3 below:

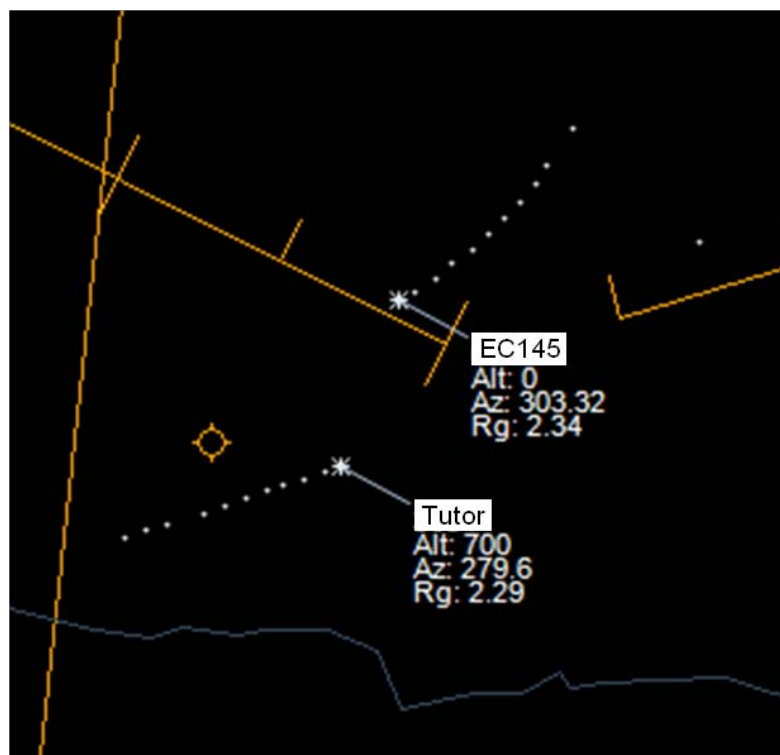


Figure 3: Aircraft geometry at 1458:17.

The ADC issued a clearance to land for the Tutor pilot at 1458:32, see Figure 4 below:

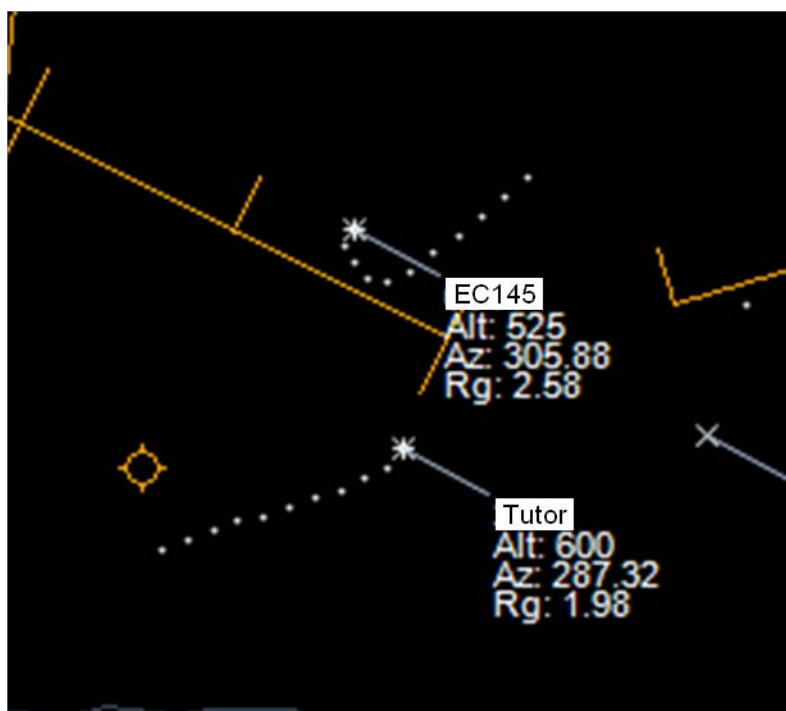


Figure 4: Aircraft geometry at 1458:32.

The helicopter pilot made a right-hand orbit whilst the Tutor continued onto finals. At 1458:46, the ADC transmitted, “[EC145 C/S] if you er can park behind the Tutor, happy for you to make your approach south side to the dispersal.”, see Figure 5 below. The helicopter pilot replied with, “[EC145 C/S] roger behind and remain south side, is he going around or landing off this approach?”. At 1458:57, the ADC confirmed, “He’s landing off this approach er and will maintain on runway till you’ve passed”.

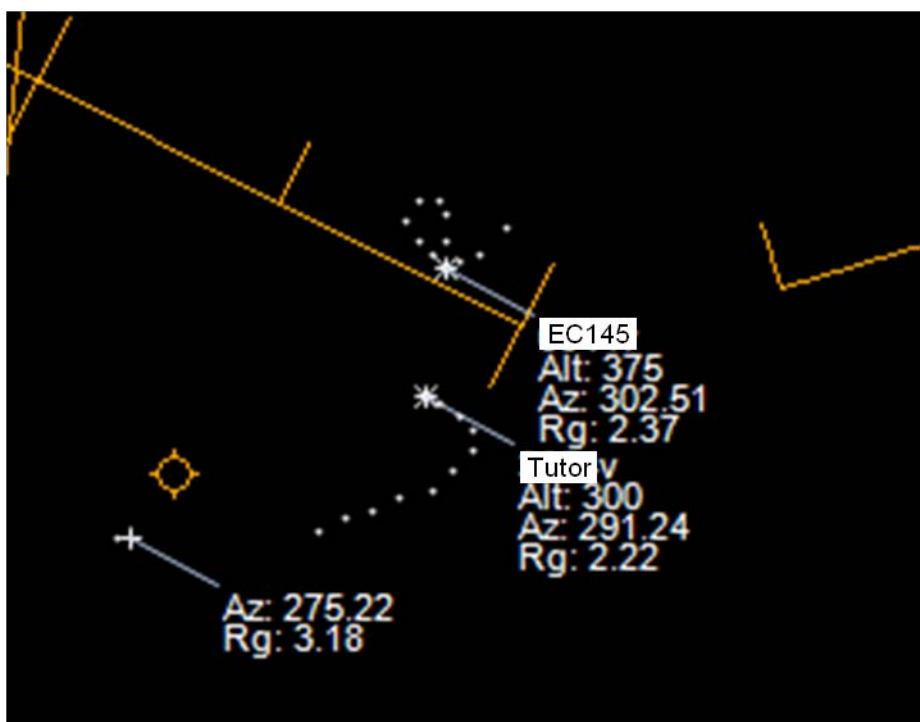


Figure 5: Aircraft geometry at 1458:46.

At 1459:15, the helicopter pilot followed the Tutor onto final approach, see Figure 6 below:

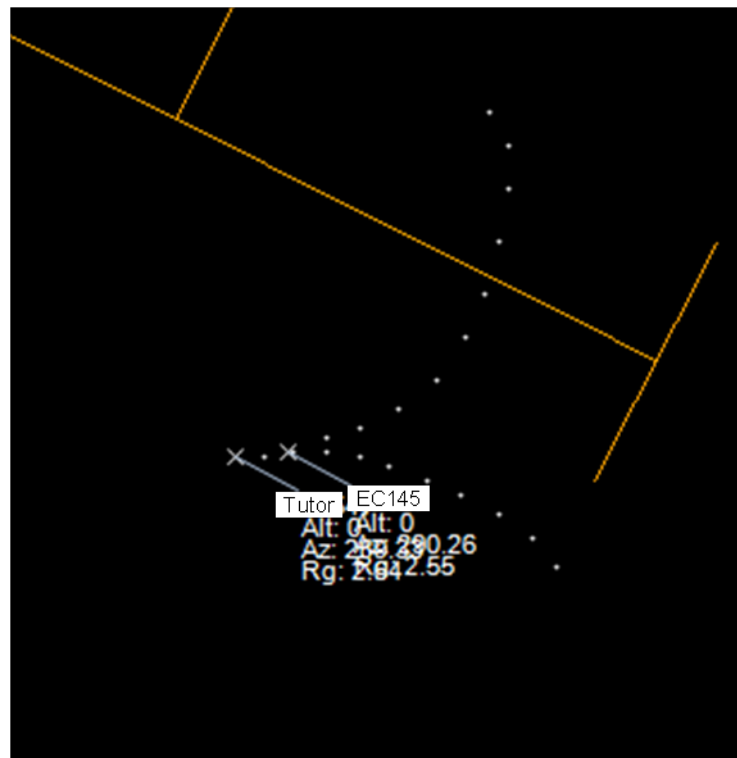


Figure 6: Aircraft geometry at 1459:15.

Analysis of events indicates that the St Athan ADC formulated a plan of recovery and articulated it to the Cardiff controller. It was expected that the helicopter pilot would route to the south and join downwind behind the Tutor, or go straight for left-base if the Tutor was clear. The ADC remained visual with the Tutor in the visual circuit but was unaware of the position of the helicopter. To add context to the later sighting than normal, St Athan were temporarily controlling from a Runway Caravan following damage to the control tower. The ADC's position from the Caravan was lower down than in the tower VCR and this therefore restricted the distance of view; furthermore, the temporary control tower did not have a Hi-Brite, and the ADC could not use it to search for the helicopter's position. The ADC had been searching to the south for the helicopter and only became visual as the pilot called final from the north. Despite the late sighting of traffic resulting from a late call to join, the ADC felt that the Tutor was still number one and the order of recovery remained as instructed. To the ADC's credit, the late call from the helicopter pilot led immediately to an instruction to enter a left-hand orbit to avoid the Tutor, but the pilot preferred a right-hand turn to maintain separation.

The Cardiff controller liaised with the St Athan ADC for clarification on the join instruction, called Traffic Information to assist the helicopter pilot in gaining visual with the Tutor, and rightly requested that the helicopter pilot contact the St Athan ADC for any changes to the order of recovery. However, the late handover point left the St Athan ADC instructing an avoiding turn on the initial call.

The first call from the helicopter pilot to the St Athan ADC was to join, requesting a straight-in approach as number one, rather than a downwind join, as number two. The helicopter pilot believed that he could recover ahead of the Tutor and positioned for a straight-in approach to RW26, from a north-easterly recovery, rather than a downwind join as instructed. The Standard Operating Procedure at St Athan is for Police helicopters to route direct to dispersal on departure and recovery for expedition, and it is not common for a visiting pilot to fit in with other circuit traffic. For further context to the pilot's actions, the nature of the join may have been misconstrued or misunderstood, and the quicker and more familiar approach may have been straight-in and direct to dispersal. The pilot was not station based and it is not known what level of familiarity he had with local procedures.

Many of the barriers to collision prevailed, including Traffic Information. However, the procedure may not have been clear for all parties, and was based upon a join positioning from the south, to route behind the circuit traffic. The lookout was good from the helicopter pilot but it was less effective for the St Athan controller and Tutor pilot because they were uncertain of the position of the helicopter (on an unexpected recovery profile), and because of limits to visual acquisition whilst operating from the alternative Visual Control Room. Subsequent manoeuvring by the helicopter pilot was such that the Tutor pilot felt that the safety of the aircraft may have been compromised.

ATSI

The Airprox occurred when the Tutor pilot approached short final. Both crews were operating VFR in the St Athan Local Flying Zone, within Class D controlled airspace, and in receipt of an Aerodrome Control Service from St Athan Tower. The EC145 had approached from the northeast and the Cardiff controller initiated coordination with St Athan giving an accurate position check of '3nm west of the Wenvoe TV mast' (which is situated 5nm northeast of Cardiff). Coordination was agreed and the Cardiff controller then instructed the EC145 pilot to position downwind left-hand for RW26 behind the Tutor in the circuit. The EC145 pilot reported visual with the Tutor and the Cardiff controller again advised the EC145 to position 'behind the Tutor'. The EC145 pilot believed that he was likely to be ahead of the Tutor and Cardiff instructed him to contact St Athan Tower. The Cardiff ATSU reported that earlier in the day single fixed-wing aircraft had been operating from St Athan, re-joining from the east via the 'quarry and chimneys' and believed that the St Athan controller might have had an expectation that the EC145 would position similarly. For expedition, the standard procedure for the EC145 helicopter operation would normally be to route direct to and from dispersal and this might have led to a degree of expectation by the EC145 pilot. St Athan was operating without a Hi-Brite¹ and Cardiff accept that a further report to St Athan on the position of the EC145 might have assisted the situational awareness of the St Athan controller. Within Class D airspace both pilots are expected to comply with any instructions which the appropriate air traffic control unit may give².

The EC145 crew contacted St Athan Tower and were instructed to orbit and position behind the Tutor. The EC145 pilot completed a right hand orbit and the Airprox occurred subsequently when both aircraft were on very short final for RW26.

UKAB Secretariat

Both pilots shared an equal responsibility to avoid collision and not to fly into such proximity as to create a danger of collision³. Both pilots were required to comply with any instructions which the appropriate air traffic control unit may have given, notwithstanding their primary duty of collision avoidance. Playback of the Cardiff radar recording showed the EC145 closing to a range of 0.08nm (150m) astern and slightly to the left of the Tutor before the contact faded at 1459:38. The EC145 reappeared at 1459:42, 0.04nm (75m) ahead and slightly to the left of the Tutor. The Tutor was observed on radar replay for the duration of its landing run and its pilot reports that the EC145 flew over him as he was in the landing flare.

Comments

HQ Air Command

The Tutor pilot's original report did not refer to the Traffic Information received from ATC whilst the aircraft was downwind, to which he responded 'visual and I'll turn late'. The subsequent decision to turn finals and begin the approach to land was therefore done with situational awareness of the helicopter to the north. A go-around from the first half of the finals turn would have provided

¹ Display of the radar picture, used for situational awareness, but not calibrated for controlling.

² Rules of the Air 2007 (as amended), Rule 30 (Maintaining continuous watch and complying with air traffic control instructions).

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

positive deconfliction. Notwithstanding, with the helicopter captain visual throughout the Tutor's turn, approach and landing, visual separation was maintained at all times. Overall, this appears to be a case where the Tutor captain felt uncomfortable by the proximity of the EC145 and that there appears to have been negligible risk of collision.

Summary

An Airprox was reported when a Grob Tutor and an EC145 flew into proximity in the St Athan visual circuit at about 1459 on Tuesday 8th April 2014. Both pilots were operating under VFR in VMC and both were in receipt of an Aerodrome Control Service from St Athan TWR.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included 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 noted first that, although the aircraft had become proximate to each other around the final/base-leg area when the EC145 commenced its orbit, the pilots were visual with each other's aircraft at the time, and the Airprox event actually occurred later as the Tutor pilot was flaring for landing and the EC145 pilot flew past it.

The Board then considered the ATC aspects of the Airprox. They noted that the ATC tower at St Athan had been damaged, and that the Tower controller was operating from a 'Runway Caravan', which is a specially adapted and equipped lorry with a viewing cupola on the roof and appropriate radios and communication equipment installed. This is a pre-prepared method of operating when the Tower suffers any failure and, although the controller has a slightly reduced look-out and no Hi-brite, it does not affect the level of service provided. Notwithstanding, it appeared to the Board that, without the Hi-brite, the controller would have found it harder to assess the exact positions of the aircraft and this may have contributed to his decision to sequence the Tutor ahead of the EC145 and his instruction that the EC145 pilot should join down-wind. Members noted that here appeared to be some confusion in the St Athan controller's mind as to the location of the EC145 given that he was searching for it to the south when it was, in fact, arriving from the northeast (and had been reported as such by Cardiff). Members wondered if the Cardiff controller could have positioned the EC145 more effectively; it was noted from the transcript that the Cardiff controller had twice instructed the EC145 pilot to position behind the Tutor and, although the instruction to join downwind may have appeared odd to the EC145 pilot considering his position, in Class D airspace, the pilot was required to follow the instructions he received or explain why he could not. Nonetheless, the Board agreed that the EC145's subsequent orbit should have allowed sufficient separation from the Tutor on final approach to be achieved.

Turning to the Tutor pilot's actions, the Board noted that he had seen the EC145 as he turned onto final approach and some members wondered if he might have been better served by having gone around at that point. Whilst it was agreed in the subsequent discussion that this would have been a valid course of action, the Tower controller had informed him that he was No.1 in the landing sequence and it was, therefore, also entirely reasonable for him to proceed with his approach as instructed on the understanding that it was the EC145 pilot's responsibility to sequence appropriately behind him.

As for the EC145 pilot, members remarked that he was obliged to either comply with the instructions given by ATC or explain why he could not and make his intentions clear to the Tower controller. The EC145 had wanted to land ahead of the Tutor but, when the Tower controller refused this request and an orbit was required to allow the Tutor to go ahead, the EC145 pilot had sensibly elected to turn right instead of left, and informed the Tower controller before turning. Nevertheless, it was agreed that the EC145 pilot should have then allowed more space behind and when flying past the Tutor, particularly considering the potential effects of helicopter down-wash on a light aircraft.

The Board agreed that the cause of the Airprox was that the EC145 pilot had flown close enough to the Tutor to cause its pilot concern, and that his decision to try to renegotiate the order of landing at a late stage rather than comply with ATC's downwind joining instructions was a contributory factor in him flying his aircraft into proximity with the Tutor. Notwithstanding, because the EC145 pilot maintained visual contact with the Tutor throughout, the Board agreed that there was no risk of collision, and assessed the Degree of Risk as C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The EC145 pilot flew close enough to the Tutor to cause its pilot concern.

Contributory Factor(s): The EC145 pilot attempted to renegotiate the order of landing at a late stage.

Degree of Risk: C

ERC Score⁴: 2

⁴ 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.