AIRPROX REPORT No 2014155

Date/Time: 28 Aug 2014 1056Z

Position: 5154N 00212W (1.3nm W Gloucestershire Airport- elevation 101ft)

Airspace: Gloucester ATZ (*Class*: G)

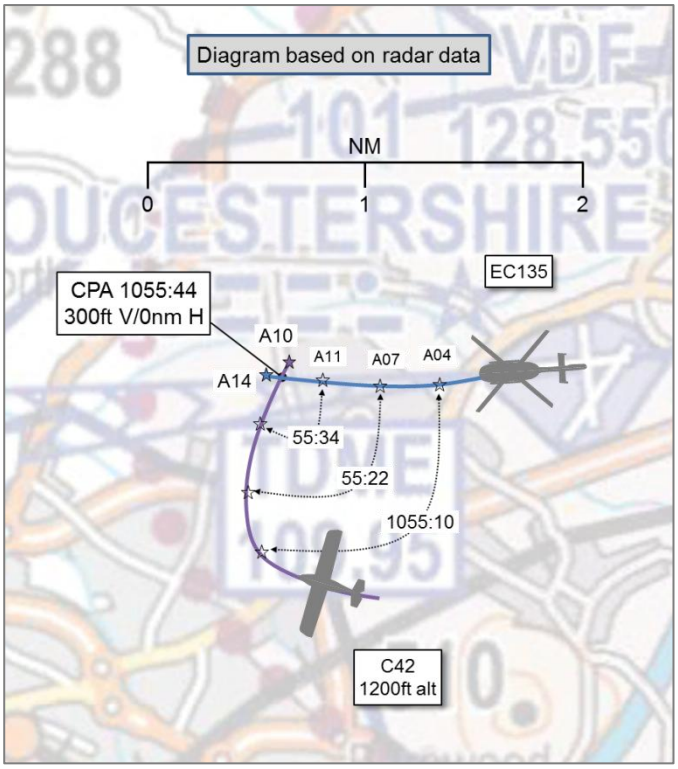
	Aircraft 1	*Aircraft 2*
Type:	EC135	C42
Operator:	Civ Trg	Civ Trg
Alt/FL:	1500ft QNH (1009hPa)	1500ft QFE
Conditions:	VMC	VMC
Visibility:	>10km	>10km

Reported Separation:

500ft V/0.75nm H 0ft V/400m H

Recorded Separation:

300ft V/<0.1nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EUROCOPTER EC135 PILOT reports that he was operating a training flight under VMC from Gloucestershire airport (GLO). He was receiving a Basic Service from the Aerodrome controller. The pink, grey and 'iridescent green' helicopter had HISL (white strobes), navigation and anti-collision lights illuminated; SSR Modes A, C and S were selected. TCAS II was fitted. Simultaneous runways were in use at GLO; RW22 for fixed-wing circuits and RW27 for instrument traffic. After departure on a DISIT27 (training-only, local procedure) SID for an instrument-training flight, he heard GLO Tower advise another aircraft that was turning downwind in the fixed-wing circuit of his track. Subsequently, as his student passed 700ft QNH he regained visual contact with an aircraft he had previously seen departing RW22 and monitored its progress; its relative bearing remained constant and he advised his student (who was using IF screens and could not see out) that he was following through on the controls. As they passed approximately 1500ft QNH in the climb their TCAS gave a Traffic Advisory (1nm same altitude). He took control of the helicopter and executed a maximum rate climb until he could see that their flight-path was taking them well above the fixed-wing. They did not receive a Resolution Advisory. He gave control back to the student just as Tower were handing them over to Approach; he mentioned on the frequency that he would "probably be filing an Airprox". With hindsight he should have been clearer about his intention to do so; he followed up post-flight with a telephone call to ATC. He assessed that there was no risk of collision in this instance because he had good visual contact with the other aircraft and he was able to take appropriate action in time to avoid it. However, he had filed the report as he considered that the other pilot, having departing instrument traffic in his right 1-2 o'clock closing at the same altitude throughout, could have precluded any need for avoiding action on his part by turning or changing altitude.

He assessed the risk of collision as 'None'.

THE IKARUS C42 MICROLIGHT PILOT reports that he was on a local VFR training flight at GLO under VMC carrying out a circuit training sortie using the active RW22 with a right-hand circuit. His aircraft was coloured white; no strobes or lights were fitted; SSR Code 7000 was

selected; it was not equipped with a TAS. He was carrying out repetitive circuits with touch-and-goes. Whilst climbing out on the crosswind leg, they heard ATC giving departure, then take-off, clearance to the helicopter pilot for a westerly departure from RW27. However, ATC did not ask the pilot of the helicopter if he had the C42 visual at any time. ATC told the C42 pilot that an EC135 was departing westbound, climbing, and he replied that they were not visual. From this point until they acquired visual contact, he believed that, due to the helicopter's colouring that blended it in with the background in the prevailing light conditions, sighting was difficult. In his opinion, it was more probable that the pilot of the helicopter could have sighted their aircraft as they were above his horizon at all times, although the helicopter pilot was never asked if he was visual with them. They turned onto downwind, still looking for the helicopter. His student at this time was having difficulty levelling the aircraft and was climbing slowly above circuit height, and he himself was occupied looking to the right and down for the helicopter. As he was telling his student to descend back to 1000ft, they both saw the helicopter as it rose above the horizon line; he took control of the aircraft, pulled the power back, pushed the stick forward and rapidly descending through 300ft to pass below it. He considered that any turning action would have been ineffective in minimising a collision because of the helicopter's close range at the time. Following their evasive manoeuvre, they heard the helicopter pilot report the Airprox on the radio and he determined that he would also report one when they landed. Because the helicopter was on his right he realised that under the Rules of the Air he was required to give way to it. However, at close range, *turning* to avoid would, in his opinion, have exacerbated an already close situation between the two aircraft. He considered that by descending rapidly in a straight line he took the correct action to avoid the helicopter and to keep it in sight until no further risk of conflict was present.

He assessed the risk of collision as 'High'.

THE GLO AERODROME CONTROLLER reports that the C42 pilot was on a circuit detail on RW22RH at 1000ft QFE. The EC135 pilot was on an IFR local detail departing RW27 straight ahead to 3000ft QNH. Before departure, the EC135 pilot was informed that the RW22RH circuit was active. As the C42 pilot was on crosswind, he was given Traffic Information on the departing EC135. As the EC135 went through about 1000ft, the pilot reported that he would need to file an Airprox on the C42, having needed to take avoiding action by climbing. Later, by telephone, the pilot of the C42 reported that he had taken avoiding action by descending 200ft and had found it difficult to sight the EC135, commenting that its colour scheme made the helicopter difficult to see.

Factual Background

The GLO weather was:

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METAR EGBJ 281050Z 19010KT 9999 SCT020 20/14 Q1009 (QFE1005)
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Analysis and Investigation

CAA ATSI

The CAA ATSI had access to Gloster RTF and area radar recordings together with written reports from the Aerodrome controller and both pilots. The Airprox occurred at 1055:47, 1.3nm west of GLO, within Class G airspace of the GLO ATZ which consists of a circle of 2nm radius centred on RW09/27 and extending to a height of 2000ft above the surface (elevation 101ft), between an EC135 and a C42. The EC135 pilot was conducting an IFR instrument training flight departing from RW27. The student was using IF screens and the instructor was monitoring the flight. The C42 pilot was operating under VFR and was conducting visual right-hand training circuits on RW22.

The UK AIP AD 2.EGBJ-10 at paragraph (a), dated 14 Nov 2013, states for GLO:

> 'Fixed-wing circuit height 1000 ft QFE. Rotary circuit height not above 750 ft QFE. Runway 04, 09 and 18 LH circuit, Runway 22, 27 and 36 RH circuit. Direction may be varied by ATC.'

For illustrative purposes, an extract from the Google Earth mapping tool shows the airfield and estimated circuit patterns of the two aircraft. (Figure 1.)

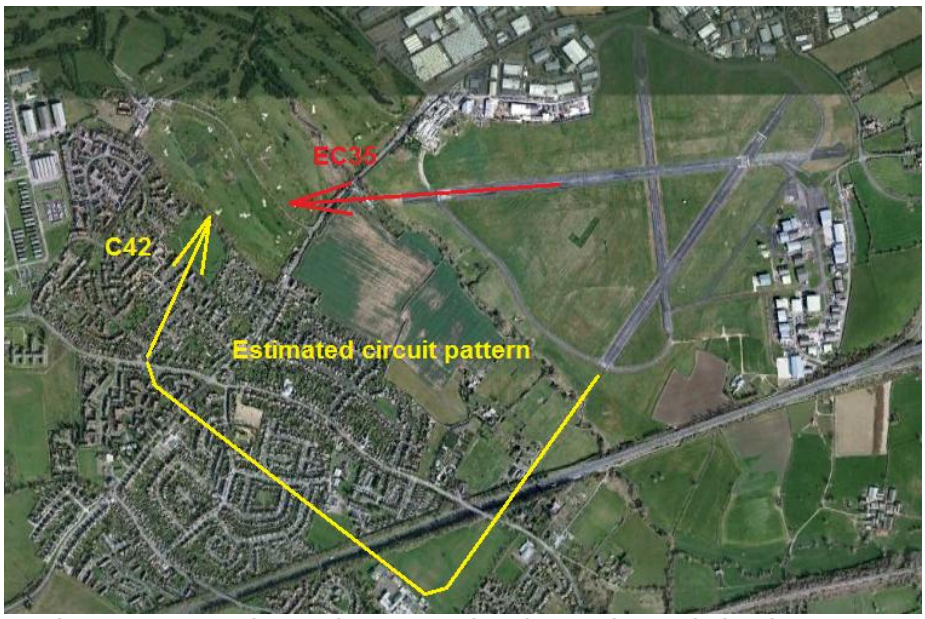

Figure 1 – Google Earth extract showing estimated circuit pattern

The C42 pilot was established in the right-hand circuit pattern for RW22 and, at 1051:02, reported on final. The C42 pilot was cleared for a touch-and-go and, shortly afterwards, at 1051:20, the EC135 pilot requested taxi clearance. The controller replied *"*[EC135 C/S] *taxi holding point x-ray, wind one seven zero degrees one zero knots, two two circuit active"*. The EC135 pilot responded *"Taxi holding point x-ray, two two active* [EC135 C/S]*"*. The controller then provided departure instructions *"*[EC135 C/S] *hold at x-ray, after departure????? two seven departure, climb to altitude four thousand feet"* which was acknowledged correctly. The EC135 pilot was cleared to line up RW27 and, at 1054:10, was cleared for take-off.

Meanwhile, the C42 pilot was climbing on runway heading after a touch-and-go and, at 1055:00, started a right turn onto the crosswind leg. The Aerodrome controller advised *"*[C42 C/S] *Eurocopter is departing IFR from runway two seven"* and the C42 pilot responded *"Er roger the traffic* [C42 C/S]*"*.

At 1055:10, the EC135 appeared on the radar recording. The distance between the two aircraft was 1.2nm. (Figure 2.)

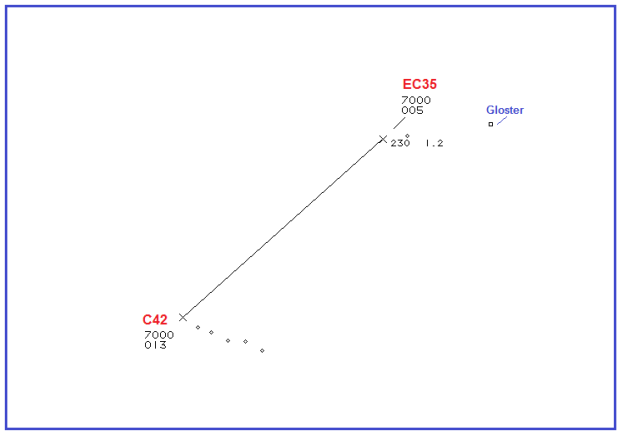

Figure 2 – Swanwick MRT at 1055:10

The aircraft continued to converge until, at 1055:42, the distance between them was 0.2nm. The EC135 was indicating FL014 and the C42 FL013. (Figure 3.)

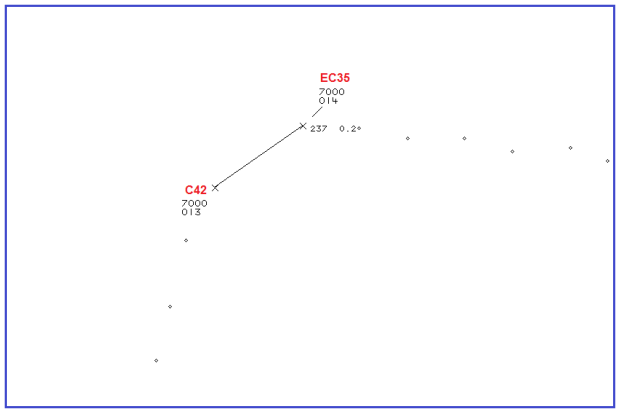

Figure 3 – Swanwick MRT at 1055:42

The next sweep of the radar, at 1055:46, showed the C42 at FL012 and the EC135 at FL015. The distance between the two aircraft was less than 0.1nm. (Figure 4.)

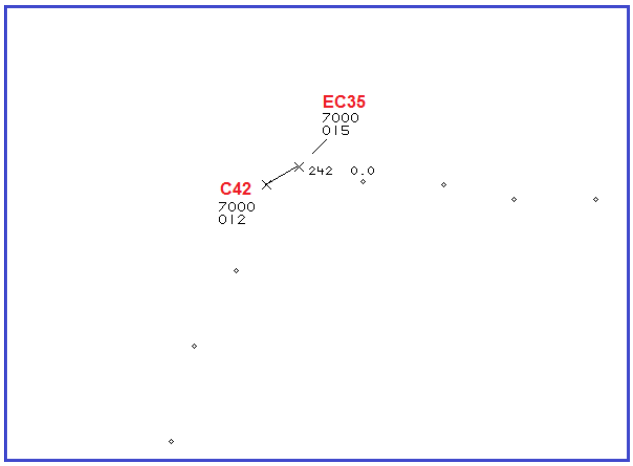

Figure 4 – Swanwick MRT at 1055:46

The CPA is estimated to have occurred shortly afterwards, at 1055:47, when the EC135 passed 300ft above the C42. The next sweep of the radar showed the two aircraft diverging at a range of 0.1nm and vertical separation of 500ft. (Figure 5.)

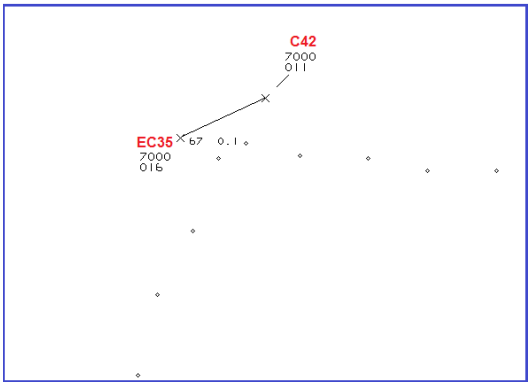

Figure 5 – Swanwick MRT at 1055:50

At 1055:51, the EC135 pilot was instructed to contact Approach; he responded *"Er* [EC135 C/S] *er copy to approach, I may have to file er on the er downwind traffic there, er he took no avoiding action, I had to climb".* This was acknowledged by the controller and the C42 pilot transmitted *"Er* [C42 C/S] *we're downwind and we descended er to avoid".*

When the EC135 pilot taxied he was advised that the RW22 circuit was active but no information was given regarding the circuit direction. The UK AIP states that RW22 circuits are right-hand but can be varied by ATC. Both pilots were in receipt of an Aerodrome Control Service and CAP493 (The Manual of Air Traffic Services (MATS) Part 1), Section 2, Chapter 1, paragraphs 1.4 and 1.23, state:

> 'Aerodrome Control shall issue information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic with the objective of: Preventing collisions between: aircraft flying in, and in the vicinity of, the ATZ…
> …Note: Aerodrome Control is not solely responsible for the prevention of collisions. Pilots and … must also fulfil their own responsibilities in accordance with Rules of the Air.
> 'Traffic information and instructions shall be passed to aircraft on any occasion that a controller considers it necessary in the interests of safety, or when requested by a pilot. In particular, Aerodrome Control shall provide:
> Generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;
> Specific traffic information appropriate to the stage of flight and risk of collision;
> Timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.'

The C42 pilot's right-hand circuit was likely to be in conflict with the EC135 making an IFR departure. The controller missed an opportunity to pass specific Traffic Information to the EC135 pilot regarding the C42, which was commencing a right-hand circuit and likely to be in potential conflict, and to pass timely instructions as necessary to either delay the departure of the EC135 or ask if the EC135 pilot had the other traffic in sight before giving take off clearance.

UKAB Secretariat

Both pilots shared an equal responsibility to avoid collision and not to fly into such proximity as to create a danger of collision[1].

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

Summary

The Airprox occurred within Class G airspace of the GLO ATZ, whilst both pilots were being provided with an Aerodrome Control Service. The EC135 pilot was departing from RW27 and the C42 pilot was operating in the RW22RH circuit. Although he was given generic information about the RW22RH circuit being active, before being cleared for take-off the EC135 pilot was not given its pattern direction, and was not informed about the presence of the C42 which would potentially cross the climb-out from left to right. The pilot of the C42 was issued with Traffic Information about the departing EC135 when he was on the crosswind leg. As the two aircraft converged, the EC135 pilot received a TCAS TA and the C42 sighted the EC135 as it appeared above the horizon. Both pilots took avoiding action; the EC135 pilot increased his rate of climb and the C42 pilot descended.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots and the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board noted that GLO ATC were operating on two runways at the time of the Airprox. It was pointed out that this was not an unusual occurrence at GLO, but that it clearly required careful synchronisation by ATC. The EC135 pilot was departing from RW27 under IFR for a training procedure and the C42 pilot was in a right-hand visual circuit to RW22. It was readily apparent to the Board that the notional circuit pattern and departure track of the two runways offered potential for the projected flight paths of the aircraft to cross as the EC135 departed.

The actions of the EC135 pilot were discussed first. It was noted that the flight was an IFR training flight climbing straight ahead to 3000ft, and that IF screens were in place for the student. The pilot reported that he had seen an aircraft departing RW22 (the C42), and a Civil Helicopter member reasoned that this probably occurred as the EC135 taxied and that its pilot would not necessarily have been able to continuously monitor the C42 pilot's progress further into the circuit. He would, however, have been aware of the circuit direction being used on RW22 because it was broadcast on the Automatic Terminal Information Service (ATIS) and the pilot had reported receiving the latest information. The EC135 pilot reported that, after take-off, he heard ATC pass Traffic Information about his departure to a pilot who was turning downwind. The Board noted that he reported sighting this aircraft, the C42, as the helicopter was passing 700ft. Aware of the impending confliction, he had informed his student, who would not have been able to see the C42 that he was 'following through on the controls'. Members were somewhat surprised that the instructor did not take control at this point rather than allowing his trainee to continue to climb the helicopter on track towards the C42. [UKAB post-Board note: In subsequent correspondence with the EC135 instructor it became clear that he had initially thought that they would climb above the C42 before a confliction occurred. However, the C42 pilot then appeared to climb above circuit altitude so the EC135 instructor then took control to convert from a standard IF climb to a maximum rate climb.] Recognising that this was an IFR training sortie, the Board wondered if the EC135 pilot thought that, because he was operating under IFR, he would have priority over VFR traffic in the circuit. Civil ATC members confirmed that in certain circumstances IFR flights might be given priority, but there is no procedure that guarantees it. In this instance, whether the EC135 pilot was operating under IFR or VFR should have made no difference to the way the situation was controlled.

Turning to the C42 pilot's actions, a Civil ATC member confirmed that the C42 pilot made a correct decision to continue downwind as instructed by ATC. Other than his responsibility to 'avoid collision and not to fly into such proximity as to create a danger of collision', he was under an Aerodrome Control Service and was not required to take any other action, except

avoiding action, unless he received a revised clearance from ATC. Given that he did not see the EC135 until just before the Airprox, the Board determined that there was little else he could do other than actively search for the EC135 and ask ATC for more Traffic Information and assistance as required.

The Board then discussed the ATC aspects of the Airprox. The controller had three options: to pass specific C42 Traffic Information to the EC135 pilot prior to departure so that the EC135 pilot could deconflict himself; wait until the C42 had cleared the EC135's departure route before clearing the pilot for take-off; or actively synchronise the C42 with the EC135's departure by giving the C42 more explicit control. In the event the controller did none of these as the situation developed. It was apparent that, although the controller passed Traffic Information to the C42 pilot, he did not inform the EC135 pilot about the presence of the C42. Civil ATC members commented that not only should the controller have passed Traffic Information to the EC135 pilot, but also it would have been prudent to establish that he had the C42 in sight before clearing him for take-off. Being aware of the presence of the C42 would have allowed the EC135 pilot to take appropriate action to avoid the flight path of the other aircraft. The Board considered that the cause of the Airprox rested on the controller's actions in that he had cleared the EC135 pilot to depart into conflict with the C42. The lack of Traffic Information to the EC135 pilot was considered to be a contributory factor.

The Board wondered whether the procedures used at GLO during mixed runway operations were robust enough to prevent this type of incident occurring in future. Consequently, it was decided that a recommendation should be made to GLO to consider reviewing their mixed runway procedures. Turning to the risk, it was considered that effective actions had been taken by both pilots to prevent the aircraft colliding; consequently, the Airprox was categorised as Risk C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Gloucester ATC cleared the EC135 pilot to depart into conflict with the C42.

Contributory Factor: Lack of Traffic Information to the EC135 pilot.

Degree of Risk: C.

ERC Score[2]: 2.

Recommendation: Gloucester considers reviewing their mixed runway procedures.

[2] 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.