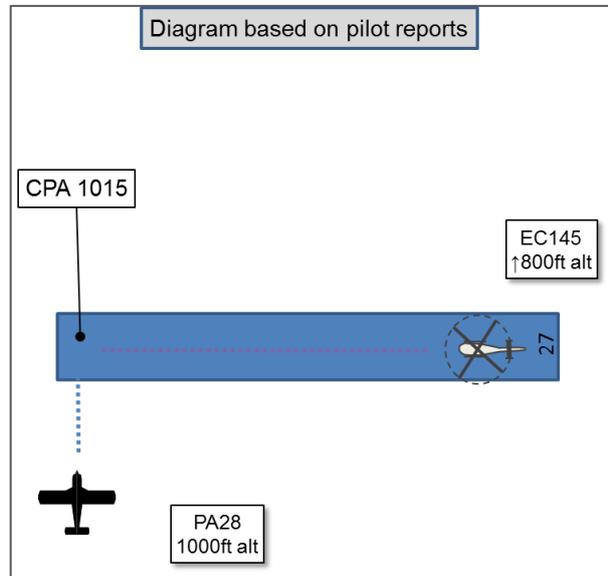


AIRPROX REPORT No 2015085

Date: 18 Jun 2015 Time: 1016Z Position: 5140N 00210W Location: Gloucester Airport (101ft)

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	EC145	PA28
Operator	Civ Trg	Civ Trg
Airspace	Gloucester ATZ	Gloucester ATZ
Class	G	G
Rules	IFR	VFR
Service	Procedural	Aerodrome
Provider	Gloster APP	Gloster TWR
Altitude/FL	NK	NK
Transponder	See footnote ¹	A, C
Reported		
Colours	Yellow	White/Green
Lighting	Strobes, nav, landing	Strobes, nav
Conditions	VMC	VMC
Visibility	10km	>10km
Altitude/FL	800ft	1100ft
Altimeter	QNH (1021hPa)	NK
Heading	270°	360°
Speed	80kt	90kt
ACAS/TAS	Other TAS	Not fitted
Alert	Unknown	N/A
Separation		
Reported	300ft V/300m H	Not seen
Recorded	NK	



THE EC145 PILOT reports undertaking an IFR go-around climb in VMC, with the student simulating IMC from a missed approach to the ILS RW27 at Gloucester. At about 800ft, the instructor had to take control of the aircraft and take avoiding action to miss a small fixed-wing aircraft which was crossing the runway centreline close to the RW09 threshold at approximately 800-1000ft. The instructor descended to 500ft and turned left slightly to avoid, before returning control of the aircraft to the student to climb back on runway heading. ATC's initial clearance for the go-around was straight ahead to 4000ft, this was changed during the initial go-around climb to turn onto heading 350° with no mention of the conflicting traffic. The fixed-wing pilot appeared to be doing a 'dead-side' join procedure, crossing from south to north to join the crosswind section of the RW27 right hand circuit.

He assessed the risk of collision as 'High'.

THE PA28 PILOT reports being informed of the Airprox 5 days after the event, that he had no knowledge of the incident before the notification, and that the positions in his report were based solely on what was reported by Gloucester ATC and in conversation with his Head of Training. Having completed a further 12 flights in the interim, he stated that his recollection of the subject flight may contain errors, particularly as he and the same student flew an identical flight detail the following day. He assumed the Airprox took place overhead or near the RW09 threshold, and that the path and altitude of his aircraft was based on what he could recall whilst flying a standard overhead join. The flight in question originated from another airport, and was a training flight to complete a navigation exercise to Gloucester Airport, a standard overhead join, followed by a touch-and-go and return to the point of departure. They were initially in contact with Gloucester Approach. As

¹ The EC145 displayed SSR transponder Modes A, C and S until approximately 1min before the Airprox, when the response reverted to a PSR only which was mostly intermittent. The SSR transponder Modes resumed approximately 1min after the Airprox.

requested, they reported at about 3nm north-northeast of the airfield, adjacent to the M5 motorway. They were then handed over to Gloucester Tower. He stated that they probably joined the overhead from the north-northeast at, or close to, 2300ft on the QNH, this being higher than the intended 2100ft. They descended on the deadside (to the south of RW27) to 1100ft QNH. He recalled that they may have descended down to 1000ft QNH but that he prompted the student to climb back to 1100ft QNH as soon as possible. He was certain they did not descend any lower than 1000ft QNH. Approaching abeam the RW09 threshold, they turned crosswind to fly over the threshold at the circuit height of 1100ft QNH. During that turn he does not recall seeing any potential conflicting traffic. On completion of the crosswind leg, they turned downwind for the circuit. He did not recall anything of note that would draw his attention to the reported incident, either visually or on the radio. The instructor noted that if the position of the Airprox was as reported, he believed a contributing factor may have been a blind spot present in his type of aircraft. Being a low-wing aircraft, visibility of the area below and abeam the aircraft in level flight was obscured by the wings. If another aircraft was below and abeam them when they were crossing perpendicular to the active runway it could quite easily have been obscured from view. However, before joining the crosswind leg he was always careful to look into the turn, and below, when turning crosswind from deadside as he was sat on the right of the aircraft with a clearer view than the student.

THE GLOSTER TOWER CONTROLLER reports the duty Air Traffic Service Assistant received a telephone call from the helicopter company Operations Director at about 1530 to advise that the EC145 pilot would be filing an Airprox on an incident which occurred in the morning. The reporter advised that the incident involved a 'light-twin' and that, after sighting the aircraft on the crosswind leg, the helicopter pilot had to descend to pass underneath it. He also advised that he estimated the aircraft to be at 800ft, and the distance between them as about 300ft. Upon looking through the flight strips, the aircraft in question was thought to be a PA28 carrying out a standard overhead join. The radar and voice recordings were replayed which confirmed the sequence of events follows: The EC145 pilot was conducting an ILS to RW27 under IFR with missed approach instructions to climb straight ahead to altitude 3000ft. The PA28 pilot was conducting a standard overhead join for RW27RH under VFR. At 1015:19, the EC145 pilot was cleared to go-around from RW27. At 1015:40, the PA28 pilot reported descending on the deadside. At 1015:47, the EC145 pilot reported going around. Due to the respective reported positions of the two aircraft, Traffic Information was not passed as overhead and deadside were obscured from view in the ADC position. Subsequently the ADC requested a position report from the PA28 pilot; however, he cancelled the request as the PA28 came into view on the crosswind leg. The ADC did not recall there being any notable confliction between the two aircraft. When the EC145 pilot returned to the Approach frequency, he reported that he had 'descended below circuit traffic' which was acknowledged; however, there was no mention of an Airprox.

Factual Background

The weather at Gloucester Airport was recorded as follows:

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METAR EGBJ 181020Z 33003KT 9999 FEW035 16/08 Q1022
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from both pilots, although the report from the PA28 pilot did not include any information useful to the investigation as there was no description of the Airprox, together with Swanwick and Gloucestershire Airport radar recordings, and RTF and transcript of the Gloster Tower and Approach frequencies. An interview was also conducted with the Gloster Tower controller. Screenshots produced in the report are provided using both the Swanwick radar and Gloucestershire Airport primary radar recordings. Levels indicated are flight levels.

The EC145 was a training flight operating IFR (VMC) conducting an ILS approach to RW27 at Gloucestershire Airport, and in receipt of a Procedural Service from Gloster Radar on frequency

128.500MHz. The PA28 was operating VFR, and in receipt of an Aerodrome Control Service from Gloster Tower on 122.900 MHz.

At 1013:50, the PA28 was approaching the Gloucestershire overhead 1.2nm to the NE at FL020 for an overhead join. The EC145 was established on a 4nm final RW27, still receiving a service from Gloster Approach (Figure 1 & 1.1).

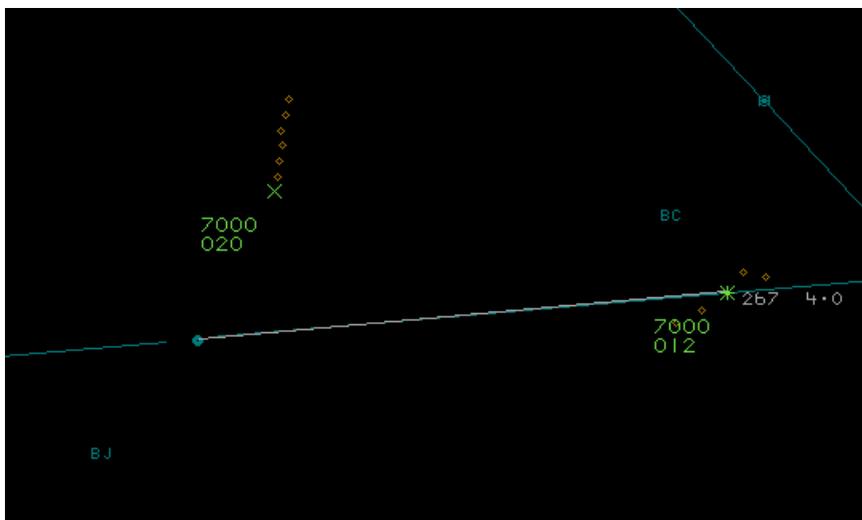


Figure 1 – 1013:50

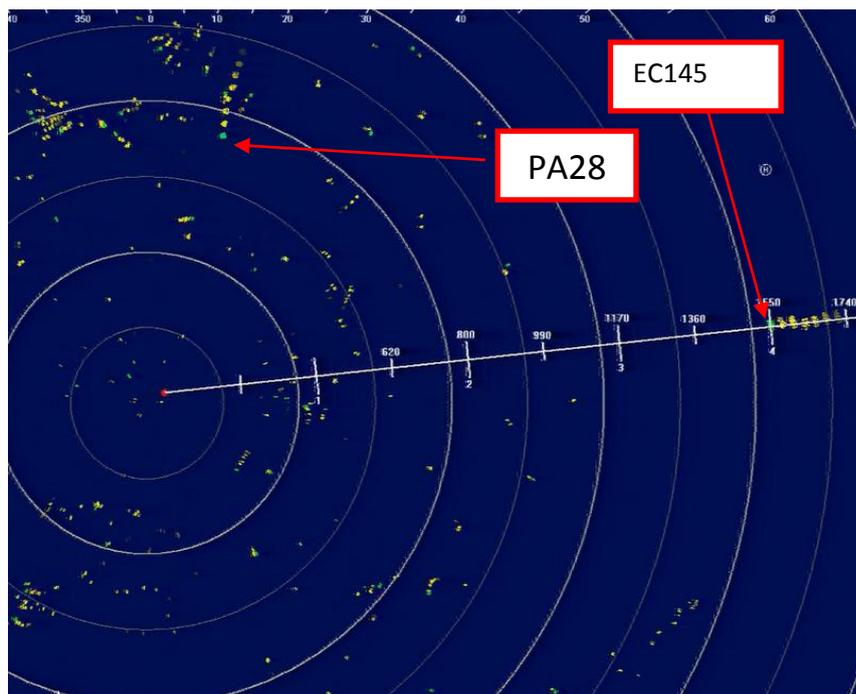


Figure 1.1

At 1014:00 the EC145 pilot reported on frequency with Gloster Tower, and reported being at 3DME. The tower controller instructed the EC145 to continue approach which was acknowledged by the pilot. At 1014:06 the PA28 pilot reported in the overhead; however, the tower controller did not reply, shortly afterwards another aircraft called for permission to taxi to which the controller did reply. At 1014:30 the southbound PA28 passed 0.5nm east of the airfield at FL019 (Figure 2 & 2.1)

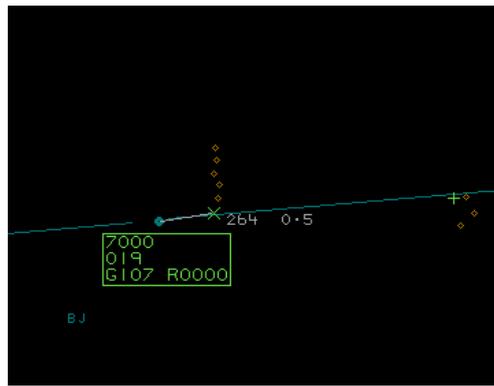


Figure 2 - 1014:30

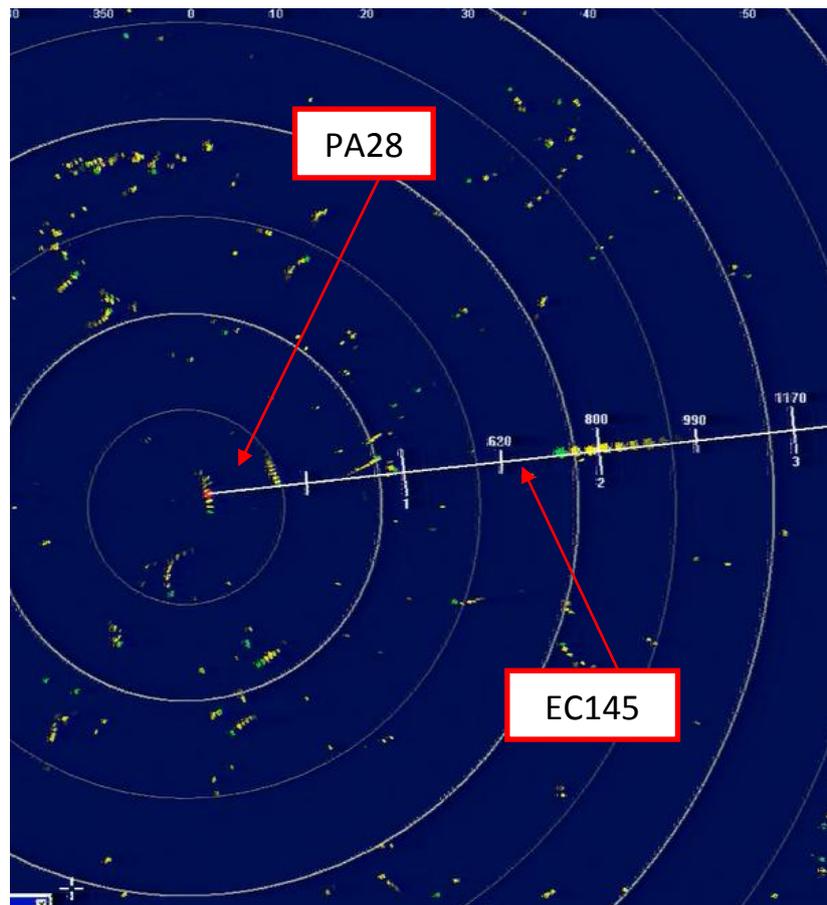


Figure 2.1

The radar return of the PA28 disappeared on the Swanwick radar recording shortly afterwards. The radar return of the EC145 also continued intermittently for a couple of sweeps before disappearing completely. On the Gloucestershire Airport primary radar recording, the tracks of the PA28 and EC145 continued to be visible. Figure 3 shows the relative positions of both aircraft when the EC145 was 1nm final.

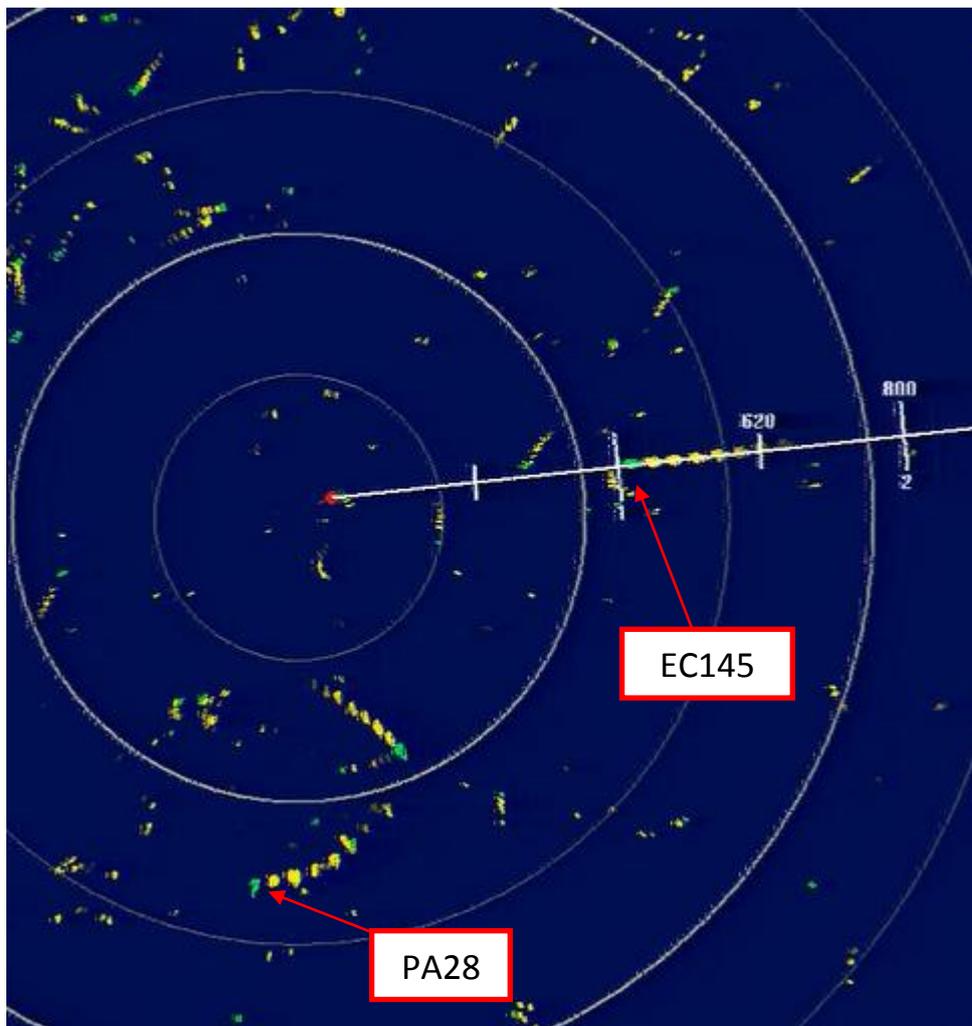


Figure 3

At 1015:25 the EC145 was cleared for a low approach. Immediately afterwards, the PA28 pilot reported descending on the dead-side, and was instructed to report downwind right-hand for RW27 by the tower controller. The Gloucestershire Airport ATC unit investigation stated that when the PA28 pilot reported descending dead-side, the unit radar recording showed the aircraft to be just upwind of the (RW09) threshold, about to turn crosswind. At 1015:43, the radar return of the PA28 re-appeared on the Swanwick radar recording, indicating FL008 (ringed in red) (Figure 4).

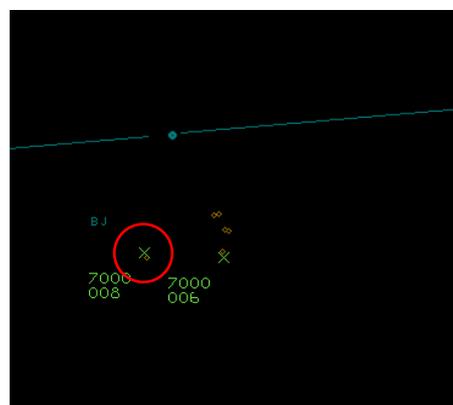


Figure 4 – 1015:43

At 1015:58 the EC145 reported going around, which was acknowledged by the tower controller who then instructed the EC145 to contact Gloster Approach. The PA28 was at this time 1nm SW of the airfield at FL008 tracking north (Figure 5 & 5.1).

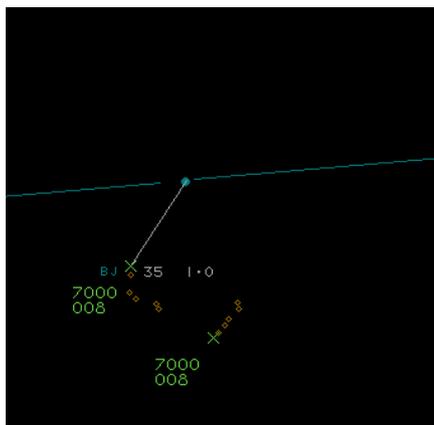


Figure 5 - 1015:58

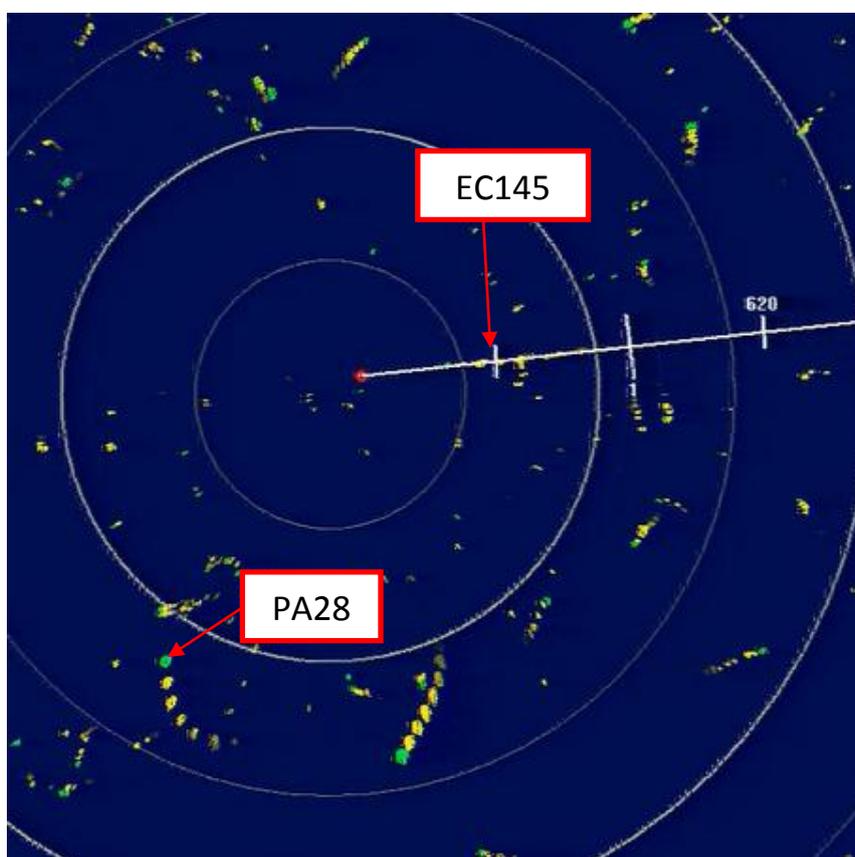


Figure 5.1

The EC145 pilot reported on frequency with Gloster Approach at 1016:10 and was instructed to make a right turn onto heading 350°. At 1016:40, the tower controller started to ask the PA28 pilot for a position report, but corrected this to advise the pilot that they were now visual with him. By this time, the PA28 was passing through the RW27 climb-out, less than 0.5nm to the west, maintaining FL009. There was no radar return for the EC145 on either radar recordings (Figures 6 & 6.1)

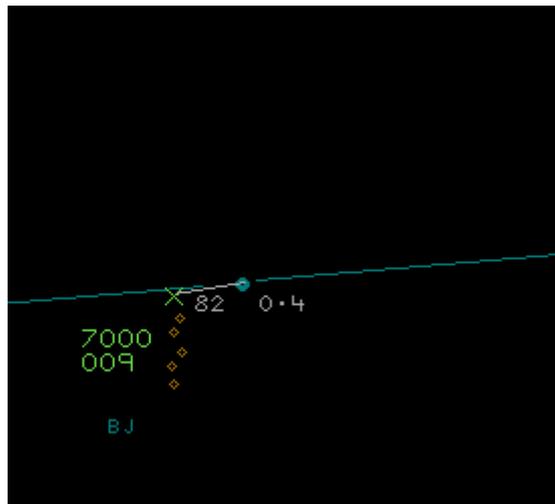


Figure 6 - 1016:40

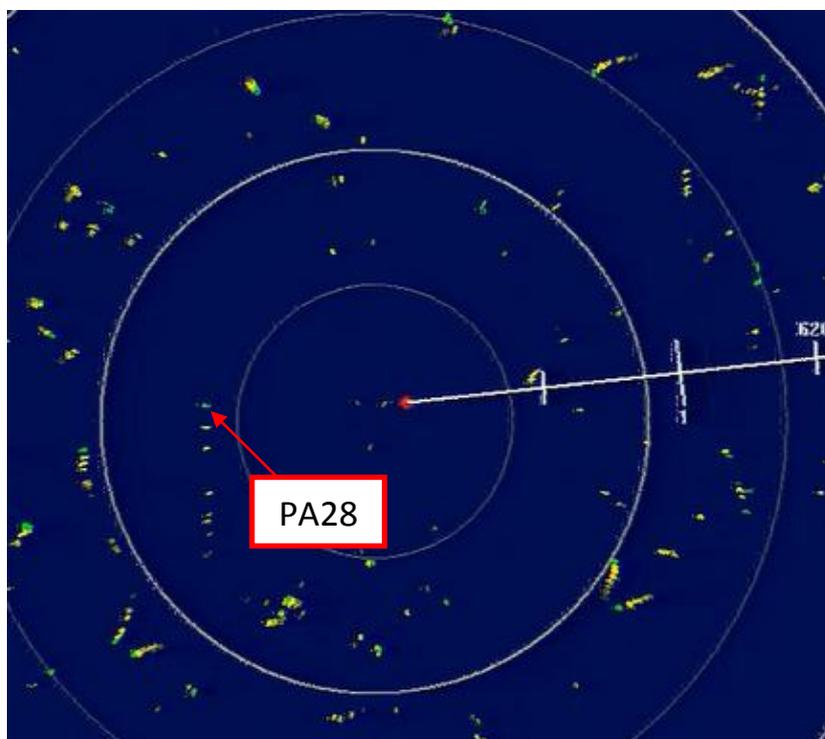


Figure 6.1

The Swanwick radar recording did not show both contacts at CPA, but the Gloucestershire Airport primary radar recording showed, in the next sweep after Figure 6.1, the reappearance of the EC145 having crossed the northbound track of the PA28 (Figure 7). Analysis of the radar recordings with an assessment of relative track and speed of both aircraft, placed them into a likely conflict at the time the PA28 crossed the RW27 climbout (1016:40 - 300ft vertically, 300m horizontally).

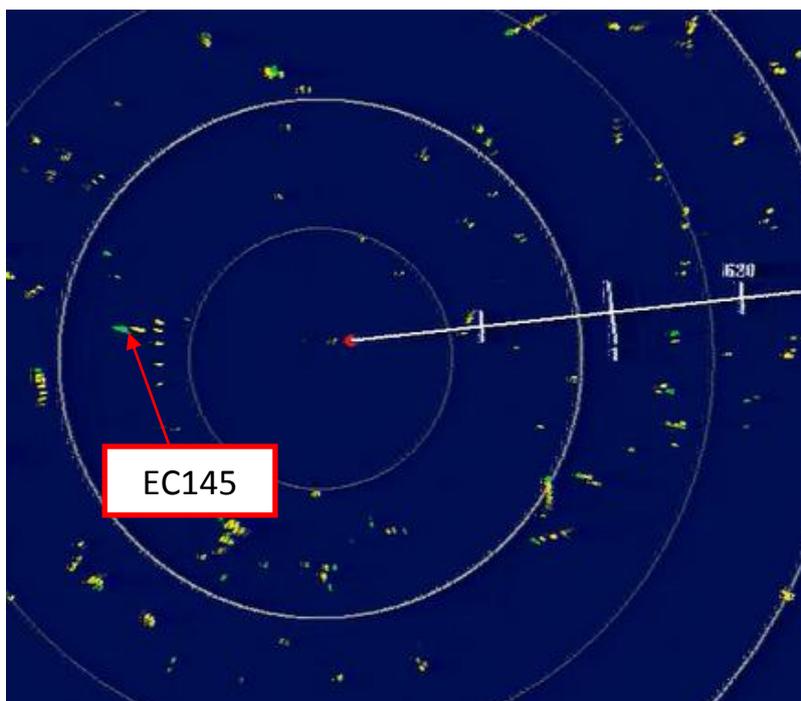


Figure 7

The pilot of the EC145, who was training a student in simulated IMC, reported having to take control of the aircraft to perform an avoiding action turn to miss the PA28, which they stated was crossing the runway centreline close to the RW09 threshold at approximately 800-1000ft. The EC145 pilot reported their altitude at the time as 600ft and that they made a descent to 500ft with a slight left turn to avoid, before handing control back to the student. The EC145 continued to track west (Figure 7.1).

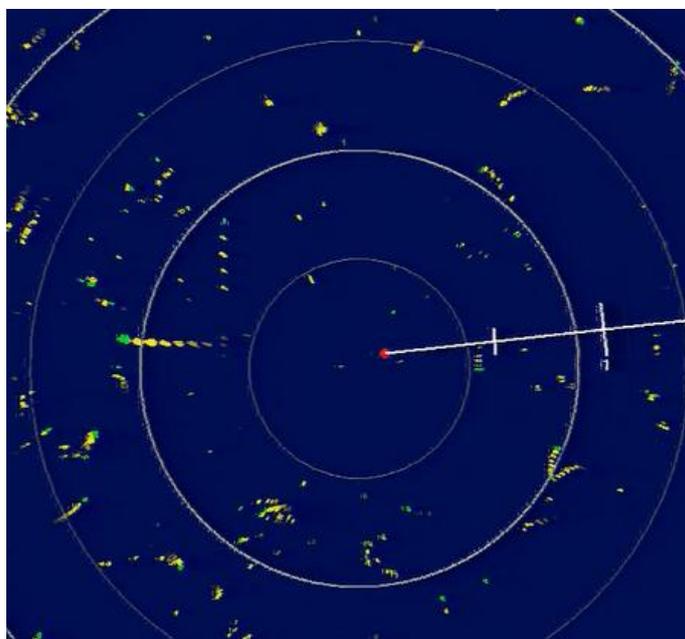


Figure 7.1

At 1017:15 the radar return for the EC145 reappeared on the Swanwick radar, now tracking north, 1.1nm SW of the PA28, indicating FL011. The PA28 continued to maintain FL009, and shortly afterwards made a right turn for the downwind leg (Figure 8).

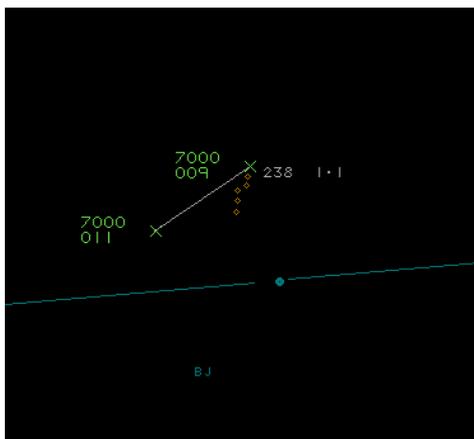


Figure 8 - 1017:15

The PA28 continued downwind right-hand, and the EC145 continued in a climb to the north (Figures 9 & 9.1).

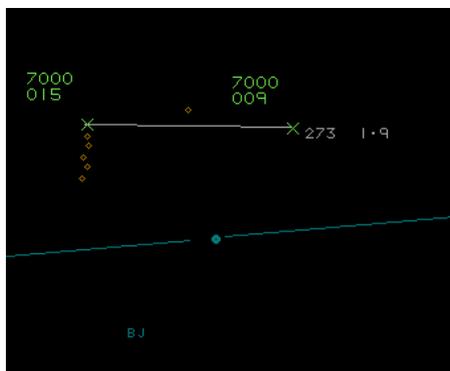


Figure 9

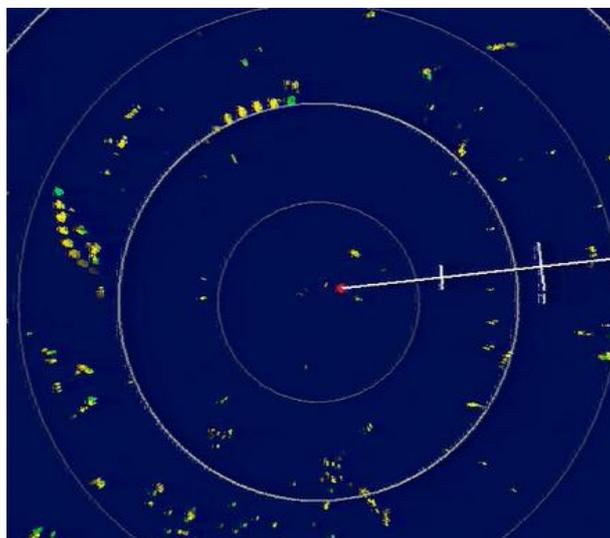


Figure 9.1

The tower controller was busy with arrivals, IFR and VFR departures, and ground movements. At interview, the tower controller stated that, although the ATM is used for situational awareness, the size of the radar-overhead, and the position of the ATC tower prevents the controller acquiring visual contact with traffic reporting in the overhead, and so they are reliant upon accurate position reports from the pilot. The controller commented that the PA28's deadside position report did not place the aircraft where they would normally expect to see it at that time. The tower controller stated that they acquired visual contact with the PA28 as it commenced its crosswind turn, and

had maintained visual contact with the EC145 throughout its approach from short-final through the go-around from the approach and subsequent transfer back to Gloster Approach. The controller had continued to visually monitor the PA28 passing above the EC145, and still did not feel there was any need to pass Traffic Information.

In the Gloucestershire ATC VCR, the approach controller sits to the right of, and facing 90 ° away from the tower controller position. Co-ordination takes place face-to-face and is not recorded. The tower and approach controllers had previously agreed a plan which involved an early transfer of the EC145 back to Approach, to allow the approach controller to turn it away from the climbout lane to allow a release on a subsequent IFR departure. This plan was adhered-to, meaning the EC145 was transferred by the tower controller before clearing the other circuit traffic. The unit report stated that the tower controller did not perceive there to be a confliction between the EC145 and the PA28 and so did not pass Traffic Information. At interview, the tower controller believed this to have still been the case and that the plan had still been valid.

The tower controller was providing an Aerodrome Control Service. In accordance with CAP493 Manual of Air Traffic Services, Section 2: Chapter 1: Para 2 controllers 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;
aircraft taking-off and landing;
aircraft and vehicles, obstructions and other aircraft on the manoeuvring area.*

Although;

Aerodrome Control is not solely responsible for the prevention of collisions. Pilots and vehicle drivers must also fulfil their own responsibilities in accordance with Rules of the Air.

Also, in accordance with CAP493 Manual of Air Traffic Services, Section 2: Chapter 1: Para 7, the controller is also required to pass:

7A.1 Traffic information and instructions 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:

- 1) generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;*
- 2) specific traffic information appropriate to the stage of flight and risk of collision;*
- 3) timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.*

The Airprox occurred in Class G airspace and both aircraft were ultimately responsible for their own collision avoidance. The tower controller considered that there was no risk of confliction and therefore no Traffic Information was passed to either aircraft. The pilot of the EC145 had not been aware of the presence of the PA28 and considered it necessary to take avoiding action. It is possible that had Traffic Information been passed to both aircraft, this may have contributed towards their situational awareness allowing each to visually acquire the other, and could have enabled them to maintain their own separation without the requirement for avoiding action.

UKAB Secretariat

The EC145 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard². SERA states that 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.

² SERA.3205 Proximity.

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

Summary

An Airprox was reported when an EC145 and a PA28 flew into proximity at 1016 on Thursday 18th June 2015. Both pilots were in VMC, the EC145 pilot operating under IFR had just switched from Gloster tower to Gloster approach frequency and the PA28 pilot under VFR and in receipt of an Aerodrome Control Service from Gloster Tower. The EC145 pilot was performing a go-around when he took action to descend below the PA28 who had conducted an overhead join and was turning crosswind.

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 EC145 pilot and noted that he was flying an IMC go-around after an IFR approach when the instructor saw the PA28 crossing the upwind threshold. The helicopter member informed the Board that, during go-around, high performance helicopters have similar performance to fixed wing aircraft and therefore have the potential to conflict with aircraft turning crosswind. In this case, had the helicopter gone around any earlier, he opined that the two aircraft would have been even closer than they were. The Board noted that, fortunately, the instructor had seen the PA28 in time to take suitable avoiding action.

Turning to the actions of the PA28 pilot, the Board noted that he was conducting an overhead join which, despite the EC145 pilot's misgivings, indicated from radar that he was at the correct circuit height as he turned crosswind. GA members noted that the PA28 is a low-wing aircraft, so the helicopter may have been obscured from view underneath the wing as he crossed above the runway. ATC members pointed out that the PA28 pilot had not been given Traffic Information on the EC145 as it went around; notwithstanding, it was noted that the PA28 was on the same frequency as the EC145 as it reported overshooting, and some members thought this should have been enough to give the PA28 pilot some situational awareness about the helicopter. Ultimately, the Board noted that the PA28 was the joining aircraft, and so it was the PA28 pilot's responsibility to integrate safely into the pattern of traffic.

The Board then spent some time discussing the merits of overhead joins. Opinion was split, with some members thinking that the overhead join was outdated, meant for an era of slow, low performance aircraft with simple circuit patterns without R/T and therefore not fit for purpose in modern busy visual circuits. Others maintained that it had its uses, especially when an airfield did not have ATC. However, all were agreed that overhead joins required positive attention to look-out from those conducting them and, on occasion, intervention from ATC to prompt a pilot to extend or orbit in order to integrate with other traffic. The Board recalled that the CAA had only recently conducted a study into visual circuits, and had deemed the overhead join fit for purpose. Notwithstanding, they also recalled a number of previous Airprox in similar circumstances where overhead joins had conflicted with circuit traffic (Airprox 2014172 and 2014169 are examples). As a result, the Board resolved to make a recommendation that there would be value in the CAA providing more guidance on overhead joins, particularly at busy airfields with mixed IFR and VFR patterns, in order to emphasise the responsibilities and potential pitfalls for pilots and ATC. They also felt that it would be beneficial for Gloucester Airport to review the suitability of overhead joins with mixed IFR and VFR traffic in order to review their specific procedures.

This discussion then led the Board to debate the actions of ATC. Controller members thought that the lack of Traffic Information was key to this Airprox and couldn't comprehend why the controller had not perceived there to be a hazard. They opined that the controller could have intervened when the PA28 pilot was still in the overhead to give Traffic Information about the EC145 making an IFR approach. Some members also thought that, although he couldn't see the position of the PA28, he should have anticipated that a conflict was likely, and could have told the PA28 pilot to remain in the overhead until the EC145 had gone around. Accepting that he was busy, it was thought that, at

the very least, he could have passed Traffic Information to both pilots to enable them to make the decision on how they could integrate with each other. The Board also noted that the reason for sending IFR traffic to the Tower frequency for overshoots was to have everyone in the visual circuit on the same frequency as the IFR traffic flies through. By sending the EC145 to Approach early, this opportunity for deconfliction had been lost.

The Board agreed that the cause of this Airprox was that ATC did not give Traffic Information to either pilot, and that a contributory factor was that the EC145 had been transferred back to the Approach frequency whilst in the visual circuit. Notwithstanding, the Board noted that, in the end, the EC1245 saw the PA28 and was able to take timely and effective avoiding action; therefore, they assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	ATC did not give Traffic Information to either pilot.
<u>Contributory Factor:</u>	The EC145 was transferred back to Approach frequency whilst in the visual circuit.
<u>Degree of Risk:</u>	C.
<u>Recommendations:</u>	<ol style="list-style-type: none">1. Gloucester review suitability of O/H join with mixed IFR and VFR traffic.2. CAA consider providing additional advice with regard to O/H joins.