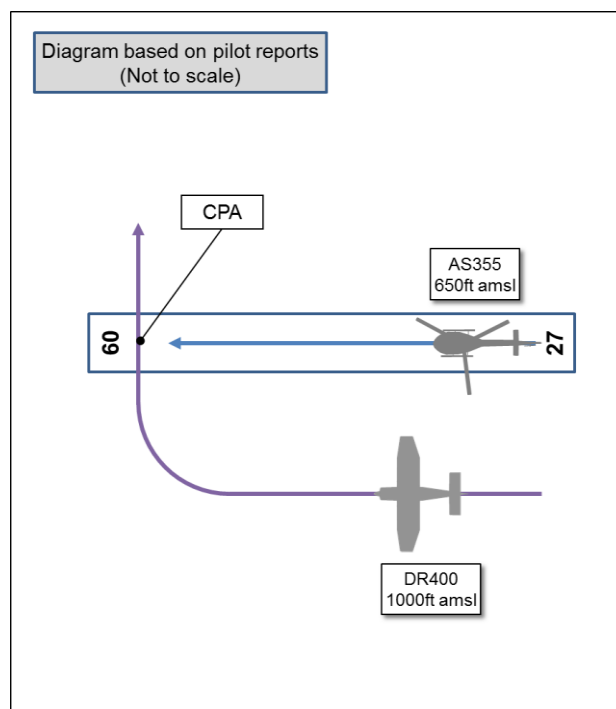


AIRPROX REPORT No 2014169**Date/Time:** 10 Sep 2014 1127Z**Position:** 5153N 00209W
(Gloucester Airport Visual Circuit)**Airspace:** Gloucester ATZ (**Class:** G)**Aircraft 1** **Aircraft 2****Type:** AS355 Helicopter Robin DR400**Operator:** Civ Comm Civ Club**Alt/FL:** 650ft 1000ft
QNH (1021hPa) QNH (1021hPa)**Conditions:** VMC VMC**Visibility:** 10km Good Visibility**Reported Separation:**

50ft V/25m H 60ft V/NK H

Recorded Separation: NK V/NK H**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

THE AS355 PILOT reports operating an IFR training flight, in VMC, squawking SSR Mode 3/A. The crew were under a high workload, with the PH¹ wearing 'foggles' to simulate IMC and the instructor maintaining look-out and monitoring the instruments. The crew had been in contact with Gloster Approach earlier on, but were in contact with Gloster Tower at the time of the Airprox; the Captain recalled that he was in receipt of a Procedural Service. They had been cleared for an instrument approach to RW27, followed by a go-around, and informed by Gloster Tower that there was 'another aircraft turning right off RW22'; they were heading 270° at 80kt, and 650ft when, 'on the go-around', 'one of the engines was brought to idle' to simulate a single-engine failure. The instructor then saw a fixed-wing aircraft, possibly inside the airfield boundary, 'very close' and 'just above' their helicopter; it was flying cross-wind to RW27, heading north at around 700ft. The AS355 instructor took control and initiated a 'fast decent' to avoid flying up into the other aircraft. The AS355 pilot did not assess the risk of collision but assessed that the main contributory factors for this Airprox were: the AS355 crew were operating under a high workload, under IFR, whilst the light-aircraft was being operated VFR in VMC; Two runways were in simultaneous operation.

THE DR400 PILOT reports flying a green and white aircraft on a local flight under VFR, with the strobe light illuminated and Squawking SSR Modes 3/A and C. The pilot was in contact with Gloster Tower and had agreed an overhead join for RW27RH. He had descended on the dead-side and, as he was levelling at the circuit height of 1000ft, flying cross-wind above the up-wind end of the runway, he saw a helicopter below and to his right. The helicopter was crossing his path at a right-angle and it was clear to him that it would pass beneath his DR400, and so he did not take any avoiding action.

He assessed the risk of collision as 'Low'.

THE GLOSTER TOWER CONTROLLER reports that the AS355 was going around from an approach to RW27, IFR on-track to the west and climbing to 3000ft and the crew had been passed Traffic Information on the DR400 and a PA28, which was following the DR400. The DR400 pilot was executing a standard over-head join for RW27 and had been passed Traffic Information on the AS355, specifically that it would be carrying out a go-around for an IFR climb-out. When the AS355 was 'on climb-out', the controller saw that the DR400 was on its cross-wind leg, around 50ft away from the helicopter. The pilot of the AS355 then reported that he wished to file an Airprox.

¹ Pilot Handling

Factual Background

The weather at Gloucester at 1120 was recorded as:

METAR EGBJ 101120Z 12004KT 100V160 7000 FEW030 20/13 Q1021

Analysis and Investigation

CAA ATSI

The CAA ATSI had access to Gloster RTF and area radar recording together with written reports from the Aerodrome controller and the pilot of the DR400. Clee Hill radar was out of service for maintenance and neither aircraft showed on the remaining radar sources. The radar equipment at Gloucester is limited and would not have shown the aircraft overhead the airfield.

Gloster ATSU were providing split Aerodrome and Approach control services without the aid of surveillance radar. The UK AIP AD 2.EGBJ-10 (14 Nov 2013) AD2.22, states:

Paragraph 1(b):

VFR Arrivals: Arriving VFR flights are to establish communications with ATC at least 5 minutes prior to ETA for overhead and at not less than 5 DME. Fixed wing aircraft will normally be instructed to make a Standard Overhead Join. Pilots wishing to join for downwind, base leg or straight-in approaches should request 'Direct Join' on initial contact. Direct joins may be issued with a vertical restriction e.g. not below 1500ft QFE, to facilitate circuit integration. Such a restriction does not absolve pilots from the requirement to remain in VMC at all times. Inbound flights should avoid Instrument Approach let-down areas and departure climb outs at all times.

Paragraph 3(a):

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

The AS355 pilot was being positioned right-hand by Gloster Radar for an ILS approach to RW27. At 1120:00 the AS355 pilot was turned onto right-base descending to 2000ft. At 1120:30 the DR400 pilot called Gloster Approach overhead Tewkesbury at 2000ft, and requested re-join. The Approach controller instructed the DR400 pilot to make a standard overhead join for a right-hand circuit on RW27 with QFE 1018hPa, to report at three miles.

The pilot of a PA28 (not involved in the Airprox), which was northwest of the airfield, also requested re-join. The PA28 pilot was also cleared to join overhead, and Traffic Information was passed to both the PA28 and DR400 pilots regarding each other. At 1123:30 the AS355 established on the localiser and its pilot was instructed to report at 4nm DME. At 1124:00 the DR400 pilot reported at 3nm, was transferred to Gloster Tower and, shortly afterwards, at 1124:28, the AS355 pilot was also transferred to the Tower.

The 1124:30 the DR400 pilot contacted the Tower reporting at 2nm. The DR400 pilot was instructed to report downwind and was passed Traffic Information regarding the inbound AS355 *"(DR400)c/s IFR traffic is a twin squirrel two miles final runway - three mile final runway two seven to go around climbing er IFR"*. This was acknowledged by the DR400 pilot *"Er roger (DR400) c/s"*.

At 1125:05 the AS355 contacted the Tower and the following RTF exchange occurred:

AS355 *"(AS355) c/s erm with you"*
 Tower *"(AS355) c/s Gloster Tower continue approach number one - traffic joining overhead a Robin and a Cherokee"*
 AS355 *"Continue Approach (AS355) c/s"*
 PA28 *"Gloster Tower (PA28) c/s inbound the overhead two thousand feet one zero one eight"*

Tower “(PA28) c/s Gloster Tower er fixed wing circuit active report downwind Squirrel is two mile final runway two seven going around climbing IFR”
 PA28 “Report downwind two seven righthand looking for the squirrel (PA28) c/s”
 Tower “(AS355) c/s runway two seven cleared low approach wind light and variable”
 AS355 “Cleared low approach (AS355) c/s”

At 1126:30 the AS355 pilot reported “(AS355)c/s is going around er limited performance” which was acknowledged by the Tower controller.

At 1127:10 the AS355 pilot called the Tower and, when asked to pass message, advised “Just like to file an Airprox with an aircraft that’s just cut across in front me approximately 50ft”. The controller initially responded to another aircraft on final and then acknowledged the AS355 pilot’s call before transferring the AS355 back to Gloster Approach.

Radar recording did not show the two aircraft in the circuit and it was not therefore possible to show the exact geometry of the two aircraft when they came into proximity.

The DR400 pilot had been instructed to make a standard overhead join for RW27 right-hand and would be expected to look-out (see & avoid) for other traffic. The controller had instructed the DR400 pilot to report downwind and passed Traffic Information on the AS355, which was positioned on a three-mile final for a go-around. Guidance for joining overhead can be found in the UK AIP² and CAP 413³. The CAA Safety Sense Leaflet 6e (Jan 2013) provides some guidance on joining overhead:

‘Keep a good lookout, using others’ radio calls to help identify all traffic joining or already in the pattern. Give way to aircraft already in the pattern.’

The CAA GA Safety Poster on the standard overhead join (2009) states that when turning crosswind:

‘Watch for aircraft taking off, as they could pose a hazard’.

The controller had instructed the DR400 pilot to report downwind; an intermediate call from the pilot in the overhead, or letting down on the dead-side, may have served to provide additional positional awareness to the controller and other pilots in or joining the circuit. However, the controller had not requested, nor had the DR400 pilot initiated such a call.

The AS355 was going around and therefore it is likely that its climb profile may have been higher than for a normal departure. The AS355 pilot had reported going around with limited performance, but it was not clear what effect the limited performance would have had on the AS355’s climb profile. The DR400 pilot was advised about the AS355, which was approaching 3nm final for the go-around. However, the DR400 pilot’s written report does not make any mention of sighting the AS355 until approaching crosswind at 1000ft.

Both pilots were in receipt of an Aerodrome Control Service. CAP493 - The Manual of Air Traffic Services (MATS) Part 1⁴, states:

‘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.’

² CAP413, Page 3, Para 4.5

³ UK AIP GEN 3.3-5 (3 APR 2014), 3.7.5.2

⁴ MATS Part 1, Section 2, Chapter 1, Paragraph 1.4

The Gloster MATS Part 2⁵, states:

'ADC should advise all arriving traffic and departures joining the circuit of the number of aircraft in and joining the fixed wing and heli circuits. Additional position information may be passed as required to assist pilots.

The controller had passed Traffic Information to both the DR400 pilot and AS355 pilot on each other. The DR400 pilot did not see the AS355 until joining crosswind at 1000ft, and reported that the AS355 was 60ft below.

UKAB Secretariat

Both pilots had equal responsibility for avoiding collisions and for ensuring that they did not fly into such proximity to other aircraft as to create a danger of collision.⁶

Summary

An Airprox was reported between a DR400 and an AS355 helicopter, overhead Gloucestershire Airport, within the Class G airspace of the Gloucester Aerodrome Traffic Zone (ATZ), which consists of a circle of 2 nm radius centred on the longest notified runway (09/27) and extending to a height of 2000ft above the surface (elevation 101ft). The DR400 pilot was flying under VFR in VMC, the AS355 crew were flying under IFR in VMC and the PH was wearing goggles to simulate IMC. The pilots of both aircraft were in receipt of an Aerodrome Control Service from Gloster Tower and had been passed Traffic Information on each-other's aircraft.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both aircraft, transcripts of the relevant RT frequency, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

Turning first to the actions of the pilots, the Board was informed by a helicopter member that, during a single-engine go-around, the instructor would have been subject to a very high workload. The helicopter would climb at a moderate rate, and the instructor would have to focus more of his attention on monitoring the student's actions and the engine instruments. The Board then discussed who had priority in the visual circuit and commented that although the AS355 crew were flying IFR, that in itself does not confer priority over VFR traffic. Members then noted that Rule 12 of the Rules of the Air requires pilots to conform to the pattern of traffic formed by other aircraft intending to land, but agreed that, with the conflict having occurred after the AS355 had gone around and with the DR400 having turned cross-wind, Rule 12 could not be used to give a clear idea of which pilot should have given way or had right-of-way. There was then some discussion about whether both aircraft were technically even within the visual circuit because the AS355 was flying through the circuit and the DR400 had not yet reached the downwind leg. The Board therefore agreed that there was no clear priority in this case with respect to operations in the visual circuit, but that both pilots had a clear responsibility to avoid collision with other aircraft and the DR400 pilot was, in a converging case, required to give way to the AS355 which was on his right as he crossed the runway and attempted to integrate into the visual circuit. Although not a requirement, the Board also agreed that a 'descending deadside' call from the DR400 pilot would have been helpful in building both the AS355 pilot's and the Tower Controller's situational awareness.

The discussion then turned to the actions of the Tower Controller. The Board noted that Traffic Information had been passed by him to both pilots on the other aircraft's positions, but that both pilots had not fully assimilated that information into coherent situational awareness. Notwithstanding this Traffic Information, the Board noted that Gloster Tower was manned by an Air Traffic Controller

⁵ MATS Part 2, Section 3, Chapter 2, Paragraph 2.11.1

⁶ Rules of the Air 2007, Rule 8, Avoiding Aerial Collisions

(rather than a FISO) and members agreed that, as such, the Tower Controller had a responsibility to sequence aircraft in the vicinity of the aerodrome; they agreed that he could have been more positive in deciding which aircraft had priority. Although the pilots had essentially flown into conflict with each other, the Board agreed that the Tower Controller had allowed the situation to develop, and could have done more to improve matters; they concluded, therefore, that the cause of the incident was that the Gloster Tower Controller had allowed the pilots to fly into conflict. It was clear to the Board that the encounter had been very close, and that the DR400 pilot had not seen the helicopter until it was too late to take any action; the Board agreed that safety margins had been much reduced, but members noted the last minute avoiding action by the AS355 instructor and therefore assessed the Degree of Risk as Category B.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Gloster Tower controller allowed the pilots to fly into conflict.

Contributory Factor: The DR400 pilot did not integrate effectively into the visual circuit.

Degree of Risk: B.

ERC Score⁷: 20.

⁷ 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.