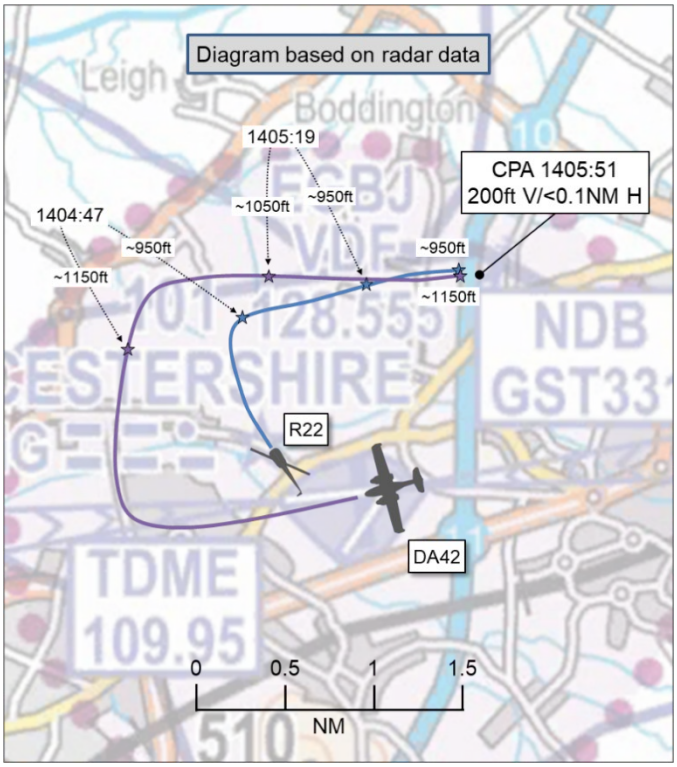
AIRPROX REPORT No 2024016

Date: 30 Jan 2024 Time: 1406Z Position: 5155N 00209W Location: Gloucestershire Airport ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	R22	DA42
Operator	Civ Helo	Civ FW
Airspace	Gloster ATZ	Gloster ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Gloster Tower	Gloster Tower
Altitude/FL	~950ft	~1150ft
Transponder	A, C, S	A, C, S+
Reported		
Colours	Red	White
Lighting	Nav, strobe	Nav, strobes, wing-tips
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	750ft	950ft
Altimeter	QFE (1027hPa)	QNH (1030hPa)
Heading	180°	150°
Speed	70kt	100kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	TA
Separation at CPA		
Reported	100ft V/30m H	200ft V/100ft H
Recorded	200ft V/<0.1NM H	



THE R22 PILOT reports that they positioned to Heli-North and requested circuits. Gloster Tower ATC cleared them to commence standard helicopter circuits based on RW27RH. Whilst flying the downwind leg, the ATCO and the pilot of the DA42 exchanged messages and agreed that the DA42 pilot would complete a short circuit.

Upon completion of their downwind leg, at 750ft, east abeam the M5 motorway, they turned right to commence base-leg. They initiated a normal descent. Almost immediately upon rolling out, the DA42 passed them from 150° high to 330° low (relative). They were unaware of the DA42's exact location/position until it had passed in front and they were, therefore, unable to take avoiding action. [The R22 pilot] passed a message to ATC via the radio stating: "[DA42 c/s] *was just 100ft above me*". The message from the Tower stated: "*The helicopter circuit is 750ft*". They completed their flight without further incident.

The pilot assessed the risk of collision as 'High'.

THE DA42 PILOT reports that they were on an IFR training flight to Gloucestershire Airport and flew an RNP approach to RW27. They then flew a low approach and go-around into the visual circuit (right-hand) for RW27. They were asked by ATC to keep their circuit tight, which they agreed to do. They commenced a descending right-hand turn onto base leg earlier than normal.

[The DA42 pilot recalls that] they had a yellow annunciation of 'Traffic' and, from memory, they saw the helicopter a few hundred feet below them before they had the annunciation. It looked like they had passed over it just after they had started the base-leg turn, therefore, would have been around 900-1000ft AGL. After passing over the helicopter, the helicopter pilot made a comment that [the DA42 had been] only 100ft above them to which ATC [reportedly] replied that they (the R22 pilot) were above the maximum altitude they're allowed to be at in the ATZ.

The pilot assessed the risk of collision as 'Low'.

THE GLOSTER TOWER CONTROLLER reports that [the pilot of the R22] reported that a DA42 overflew them 100ft above. Both were in the circuit for RW27.

Being informed of an SR22 within 10NM for finals for RW27, [the Gloster Tower controller] asked the [pilot of the DA42] (mid-downwind for RW27) if they could make a "*short circuit RW27, number 1*". They gave specific Traffic Information on the R22 in the heli-circuit (based on RW27) slightly ahead of [the DA42], and below them. They [recall that they] passed the Traffic Information both ways (i.e to the R22 pilot also). Both pilots acknowledged the Traffic Information passed to them [they recall]. The DA42 pilot eventually turned in for a 1.5NM right-base.

When the DA42 pilot was turning onto a 1.5NM final for RW27, the R22 pilot was on final for Heli-North and reported that the DA42 had overflown them by 100ft. [The Gloster Tower controller] then acknowledged it as so: "[R22 callsign] *roger, and reminder, the heli-circuit height is not above height 750ft QFE*". The R22 pilot acknowledged. The DA42 landed thereafter at 1407. The R22 pilot finished their sortie and landed at 1421.

Factual Background

The weather at Gloucestershire Airport was recorded as follows:

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METAR EGBJ 301420Z 29004KT 9999 SCT020 BKN035 08/04 Q1030
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The 'Guide to VFR flying to and from Gloucestershire Airport' on the Gloucestershire Airport website provides the following details under the section for fixed-wing aircraft:

> Accurate height keeping in the circuit is really important. Please do not descend below 1000ft until commencing base-leg. The helicopter circuit operates parallel to and inside the fixed-wing circuit up to 750ft QFE with negative RT and IFR training traffic often goes around on Runway 09 and 27 for training purposes at heights varying from 200-700 ft. Descending below circuit height can bring you into conflict with these aircraft.

The 'Guide to VFR flying to and from Gloucestershire Airport' on the Gloucestershire Airport website provides the following details under the section for helicopters:

> You will be given the runway-in-use, circuit direction and QFE as part of the joining instruction and asked to report at a range of three miles for transfer to Tower. The upper limit of 750ft is important because the fixed-wing circuit is habitually active at 1000 ft, with aircraft beginning their descent on base leg. Take care to avoid the climb out, final approach and base legs.
>
> There are four HTAs on the aerodrome: 'Heli NW', 'Heli NE', 'Heli SW' and 'Heli S'. Heli NW and NE are collectively known as 'Heli North', and if given joining instructions to Heli N, you may either approach Heli NW or NE as required.

Analysis and Investigation

Gloucestershire Airport Investigation

The Air Traffic Service was split so that there was an Aerodrome Controller and Approach Procedural Controller on operational duty in the tower. The Aerodrome Controller described the traffic workload as light throughout the incident. This seems to be an appropriate description according to Unit Training Plan definitions of traffic levels (Light: Up to five aircraft callsigns where workload is considered uncomplicated). At approximately 1400, the Aerodrome Control traffic situation had been:

- An Ikarus was about to depart RW27 to leave the ATZ to the north-west.
- The R22 pilot had taxied from southside of airfield to cross RW27 in anticipation of departing Heli-North into the right-hand heli-circuit VFR.

- The DA42 pilot on final for RW27 from an Instrument Approach (RNP) to go-around into a right-hand VFR circuit RW27 (not yet on Tower frequency).
- An AS350 helicopter shortly to join the ATZ downwind right-hand for RW27 to land at Heli-North (not yet on frequency).

Gloucestershire Airport MATS 2 Section 3, Chapter 2, 2.12.1 states:

> Information to Circuit Aircraft
>
> ADC should advise all arriving traffic and departures joining the circuit of the number of aircraft in and joining the fixed-wing and helicopter circuits. Additional position information may be passed as required to assist pilots.

Whilst [the pilot of the R22] was already in the helicopter circuit, additional position information on [the DA42] to [the pilot of the R22] was not given.

Gloucestershire Airport MATS 2 Section 3, Chapter 2, 2.13 states:

> Non-standard circuits
>
> ADC is to ensure that sufficient information is passed to both fixed-wing and helicopter pilots, to enable them to position themselves appropriately when non-standard circuits, such as low level, EFATO, glide and crosswind approaches, are in use. It may be possible to alter the pattern of the helicopter circuit to accommodate certain types of flight.

The ATCO asked [the pilot of the DA42] if they could "*make a short circuit*" and [the pilot of the DA42] said they could. This short circuit could be viewed as a non-standard circuit. The ATCO did not give sufficient information to [the pilot of the R22] on the pattern being flown by [the pilot of the DA42].

During this event [the pilot of the R22] was not given any Traffic Information either generically (about the fixed-wing circuit being active) or specifically about the position or intentions of [the pilot of the DA42].

The ATCO believed that [the pilot of the DA42] and [the pilot of the R22] crossed tracks on a base-leg abeam 1.5NM final. It is most likely (from pilot reports and ADS-B unverified data) that they were abeam approximately 0.5NM final. This suggests that [the pilot of the DA42] made a base turn sooner than the ATCO was anticipating.

The ATCO believed that the R22 may have been flying above height 750ft but the pilot's report contradicts this and unverified ADS-B data suggests the R22 was not above height 750ft.

MATS 1, Section 2, Chapter 1, 7A.1 states:

> 7A. Traffic Information and Instructions
>
> 7A.1 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:
>
> (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 UK AIP Part 3, AD-2, EGBJ AD 2.20 Local Aerodrome Regulations, Para 5, states:

> The MATS 2, UK AIP (negative R/T) and MATS 1 (pass traffic info) could be seen to be contradictory and thus could be a factor in not passing routine Traffic Information in the circuit.
>
> d) In order to reduce RT loading and avoid conflict between rotary and fixed-wing circuits, standardised phraseology and procedures are established for helicopter operations. The standardised phrases are assigned the following meanings:

‘Standard Helicopter Circuits': Circuits to/from most upwind available spot, not above 750ft QFE, negative RT, maintaining a listening watch on ADC frequency.

Under interview, the pilot of [the DA42] stated:

- [The pilot of the DA42] was on a routine IFR flight. The Instructor of [the DA42] was in the right-hand seat with the student (approx. 150 hours experience) in the left-hand seat.
- On return to Gloucester [the pilot of the DA42] flew the RNP with a low approach RW27, go-around in to the circuit. This was flown asymmetrically.
- The Instructor recalled that the controller asked them to fly a “tight circuit”.
- The Instructor doesn’t remember receiving Traffic Information about the helicopter, but thinks the student may have heard the Traffic Information given.
- As soon as [the pilot of the DA42] was asked to fly a tight circuit the Instructor stated that the turn on to base had commenced.
- When asked to "keep it tight", the Instructor was not visual with the helicopter, however they believe the student had the helicopter visual.
- The Instructor, when interviewed, stated that workload is high when given "tight circuits".
- The Instructor thought they were helping ATC by accepting a "tight" circuit.
- The Instructor believed the helicopter was 200ft below when tracks passed and that at that point [the DA42] was at 900ft QNH.
- The Instructor assessed the situation as a low risk of collision.
- The student of [the DA42] stated (on the 8th of Feb 2024) that they can't remember receiving Traffic Information about the helicopter or [the R22] (but said that may have been because the incident happened a while ago).
- The student stated that they had been asked to do a "tight circuit" and that they were aware of the helicopter as they saw it.
- The student believed that at the time they perceived the risk of collision as low as when they saw the helicopter it was sufficiently below them.
- The student believed that they were "around" 1000ft QFE (the Instructor states that they were flying downwind at 1100ft QNH).
- The statements from the pilots obtained under interview are slightly contradictory. The student believed they were around 1000ft QFE when they crossed whereas the Instructor thought they were at 900ft QNH (approximately 800ft QFE).

Under interview, the pilot of [the R22] stated:

- The pilot went on a solo flight in an R22 departing from Heli-North. Returned to Heli-South before crossing to Heli-North via X-ray for circuits.
- Cleared for helicopter circuits RW27RH in use, following a circuit pattern as trained by [the helicopter operating company]. Circuits flown at 750ft QFE as per AIP.
- Only did 2 circuits that day. During the first circuit, the pilot reported to ATC that a DA42 flew overhead them. ATC replied that the Helicopter circuit height is 750ft. This call to ATC was made when [the pilot of the R22] was on final to Heli-North at 300ft.
- The first time [the pilot of the R22] saw the DA42 was in their peripheral vision. The pilot of [the R22] described seeing a huge aircraft being 100ft above and behind right (approximately 5 o'clock position) descending to be just left of 12 o'clock at same level and 100ft ahead.
- No avoidance manoeuvre was made as there was no time to do so.
- The pilot of [the R22] recalls there was a twin in the ATZ but not aware of where the twin was before the incident.
- The pilot of [the R22] can’t remember if circuit Traffic Information was passed.
- The pilot of [the R22] recalls a phrase “short circuit” given to an aircraft on frequency.
- The pilot of [the R22] assessed the situation as a high risk of collision.

Findings and observations:

Whilst [the pilot of the R22] was mid-to-late downwind in the right-hand VFR helicopter circuit on RW27, [the DA42] was behind and above [the R22] downwind in the right-hand VFR fixed-wing circuit. On reporting downwind, [the pilot of the DA42] was asked if they could make a "short circuit" and they replied 'affirm'. [The pilot of the DA42] was given Traffic Information on [the R22]. The Instructor in [the DA42] said they were not visual with [the R22] at any stage but the student said they did see the R22 below them. [The pilot of the DA42] probably turned base-leg sooner than the ATCO had anticipated and probably started to descend. [The R22] pilot was not given any Traffic Information on [the DA42] and believed that they were overflown by 100ft and to a point 100ft ahead and to the left of them which prompted the filing of an Airprox.

CAA ATSI

The R22 pilot had [..] joined the RW27 right-hand helicopter circuit. When the pilot made the right turn onto base leg, they encountered the DA42 who was also turning base leg above them.

The DA42 pilot had [joined at] Gloucester from an IFR training flight and completed an RNP approach to RW27, followed by a low approach and go-around into the right-hand fixed-wing visual circuit. The pilot was asked by ATC to keep their circuit tight and, as such, they had commenced a descending right-hand turn onto base leg earlier than normal and sighted the R22 below them.

The pilots of both aircraft were in receipt of an Aerodrome Control Service from Gloucester Tower.

Eleven seconds after the DA42 pilot checked-in on the Tower frequency, the Tower controller made a general broadcast advising that the helicopter circuit was active RW27 right-hand. The DA42 pilot was subsequently issued with a specific warning that the helicopter circuit was active when the controller cleared the pilot for the low approach and go-around into the right-hand fixed-wing circuit. The pilot did not acknowledge the Traffic Information. Further specific Traffic Information was passed to the pilot of the DA42 on the R22 when the controller asked the DA42 pilot to keep their circuit tight. The pilot did not acknowledge the Traffic Information, however, they did sight the R22.

The R22 pilot did not receive any Traffic Information on the DA42 at any point prior to the Airprox occurring.

The helicopter circuits are stated within the Gloucester MATS part 2 as being operated autonomously and with silent RT, and the pilot is expected to maintain a listening watch on the Tower frequency.

Gloucester MATS Part 2 section 2.13. titled Non-Standard Circuits, states at paragraph 2.13.1:

> ADC is to ensure that sufficient information is passed to both fixed-wing and helicopter pilots, to enable them to position themselves appropriately when non-standard circuits, such as low level, EFATO, glide and crosswind approaches, are in use. It may be possible to alter the pattern of the helicopter circuit to accommodate certain types of flight. For example, when Runways 27 and 22 are in use, helicopters may be instructed to 'remain north' of both runways by flying an abbreviated circuit pattern.

Whilst a tight circuit is not listed in the paragraph above and, notwithstanding that the R22 pilot was expected to be maintaining a listening watch on the Tower frequency, having asked the DA42 pilot to fly a non-standard circuit pattern, it may have been prudent for Traffic Information to have been passed to the R22 pilot to warn them that the DA42 would be flying a tighter than normal circuit pattern.

The screenshots below are taken from the NATS radar replay system and the levels displayed are Flight Levels. The QNH entered into the radar display processor was 1030hPa, a difference of 459ft when converted to altitudes. The published aerodrome elevation at Gloucestershire Airport is 101ft and the RW27 threshold elevation is 87ft. The Gloucester MATS Part 2 states that helicopters operating in the RW27 helicopter circuit will be provided with the threshold QFE.

The published fixed-wing circuit height is 1000ft QFE and the published helicopter circuit height is not above 750ft QFE. Flight Level-to-height calculations indicate that the helicopter circuit height was exceeded by the R22 pilot.

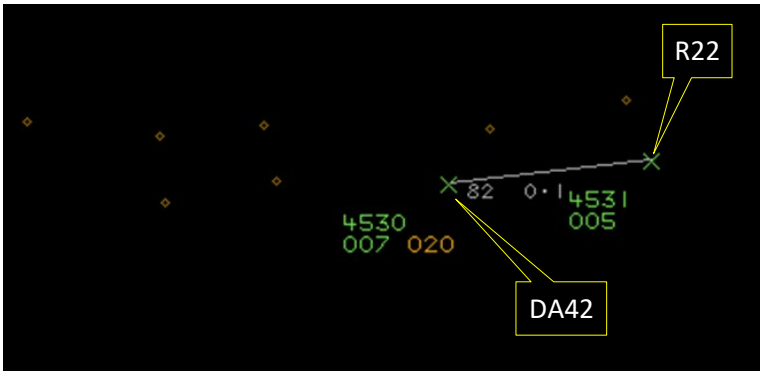


Figure 1 – 1405:42

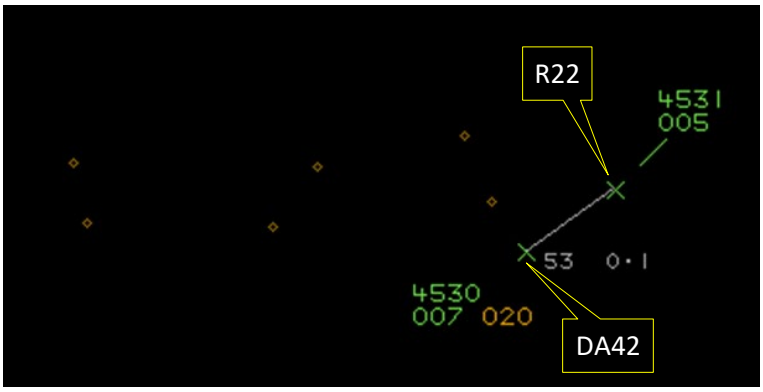


Figure 2 – 1405:46

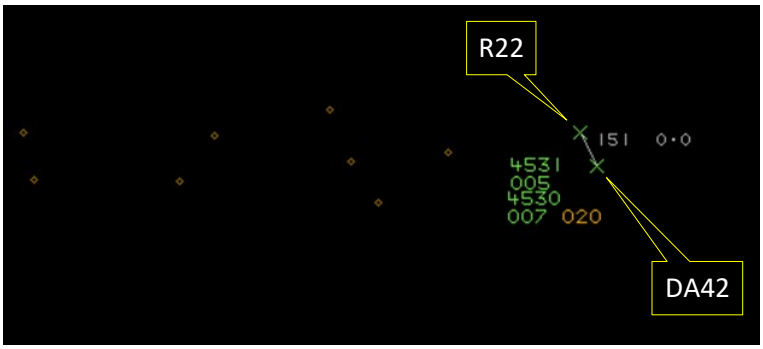


Figure 3 – 1405:50

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data (Figure 4). Both aircraft were depicted on the radar replay as having flown at Flight Levels. A suitable correction was used to determine the aircraft altitudes (based upon a QNH of 1030hPa from the METAR observed at Gloucestershire Airport 14min after CPA). The diagram was constructed and separation at CPA determined from the radar data.

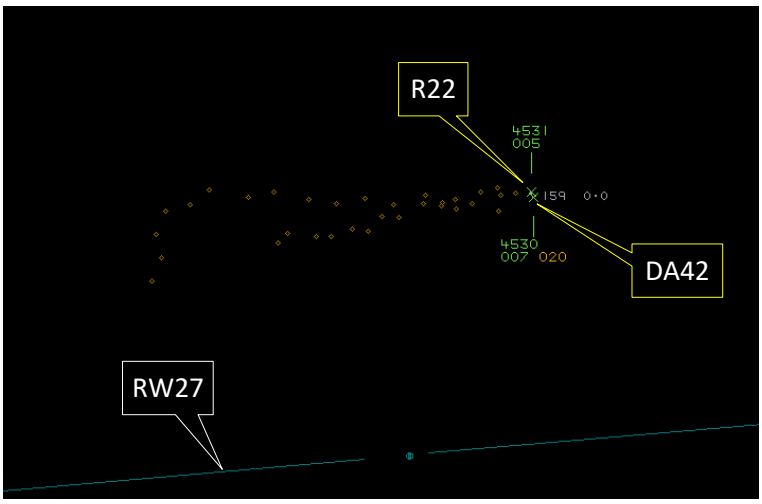


Figure 4 – CPA at 1450:51

The R22 and DA42 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] 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 operation.[2]

Summary

An Airprox was reported when an R22 and a DA42 flew into proximity in Gloucestershire Airport ATZ at 1406Z on Tuesday 30th January 2024. Both pilots were operating under VFR in VMC, in receipt of an Aerodrome Control Service from Gloster Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a transcript of the RT, a report from the air traffic controller involved and a report from the appropriate operating authority. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the pilot of the R22. Members noted that they had been conducting a right-hand circuit from Heli-North and had heard the pilot of the DA42 converse with the Gloster controller. It was therefore agreed by members that they had had generic situational awareness of the presence of the DA42 in the fixed-wing circuit (**CF6**).

Referring to the entry for Gloucestershire Airport in the AIP, members noted that the following circuit heights are provided:

Fixed-wing circuit height 1000 FT QFE. Rotary circuit height not above 750 FT QFE.

By taking the Flight Level data from the radar replay and the pressure from the nearest METAR observation, members calculated that the pilot of the R22 had exceeded the vertical limit of the helicopter circuit by approximately 100ft. It was therefore agreed that the pilot of the R22 had not complied with the published procedure (**CF4**). Members also agreed that, in the execution of their circuit, they had not remained below the maximum permitted height (**CF5**).

Members recalled the guidance provided to pilots in the 'Guide to VFR flying to and from Gloucestershire Airport' on the Gloucestershire Airport website. The guide describes that the helicopter circuit 'operates parallel to and inside the fixed-wing circuit up to 750ft QFE'. Members acknowledged that the pilot of the R22 would not have expected to have been overflown by an aircraft in the fixed-

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

wing circuit. It was agreed that the DA42 had been obscured from their view (**CF10**) given that it had been approaching from behind and above. Members had some sympathy with the R22 pilot in that to have sighted the DA42 as it had flown overhead may have been startling. It was agreed that to have visually acquired the DA42 at the moment of CPA, too late to have taken any avoiding action, had effectively been a non-sighting (**CF9**).

Members next turned their attention to the actions of the pilot of the DA42. It was noted that, from a transcript of the RT, the pilot of the DA42 had transmitted that they were "downwind to land" and, 20sec later, the Gloster controller had asked them if they were "able to make a short circuit". It was agreed by members that the phrase "short-circuit" had been non-standard phraseology and may have been interpreted by different pilots to have meant different things.

Members noted that immediately after the pilot of the DA42 had accepted the short circuit, the Gloster controller transmitted: "[*DA42 callsign*] *short circuit, you're number one, traffic er just er ahead of you but you're about to go above is a R22 in the heli circuit*". Members also noted that it had been around that time that the TAS fitted to the DA42 had provided a Traffic Alert to the presence of the R22 (**CF7**). It was agreed by members that the pilot of the DA42 had acquired late situational awareness of the position of the R22 (**CF6**) and that they had visually acquired the R22 late (**CF8**).

Members pondered whether the pilot of the DA42 had interpreted a 'short-circuit' to have meant that their downwind leg was to have been flown with a reduced lateral distance from the runway (i.e. that their circuit would have coincided with (but remained above) the helicopter circuit). Alternatively, the DA42 pilot may have interpreted the 'short-circuit' to have meant a shorter downwind leg only and that they would have turned for base leg sooner. Members noted that, in the post-event interview with the pilot of the DA42 as part of the Gloucestershire Airport Investigation, they had recalled the request as having been for "a tight circuit" and surmised that it had perhaps been the second case. Nevertheless, members noted that the downwind leg flown by the pilot of the DA42 had not been parallel to RW27 but the track had actually been flown a few degrees further right, (i.e. slowly converging horizontally towards the helicopter circuit). It was noted that the DA42 had subsequently crossed the track of the R22 at a point along the downwind leg (albeit still separated vertically) and that CPA had occurred at the end of the downwind leg before the turn for an 'early' base-leg.

Turning their attention to the actions of the Gloster controller, members noted that a pilot of a Cirrus on the final approach track had been approximately 10NM to the east. Members surmised that, for the purpose of spacing the traffic, the Gloster controller had asked the pilot of the DA42 if they could accept a 'short-circuit'. Having received a response in the affirmative, the controller had subsequently cleared the pilot of the DA42 to land. Members noted that Traffic Information on the R22 had then been passed to the pilot of the DA42. Given that the information had been passed just moments before the DA42 had actually overflown the R22, members agreed that it had been passed late (**CF2**). Some members wondered whether the controller had fully anticipated that the non-standard circuit of the DA42 would have coincided (vertically) with the track of the R22. Further, some members wondered whether the Gloster controller had been aware that the pilot of the R22 had exceeded the maximum height of the helicopter circuit. Whether or not either of those suggestions had actually been the case, members were in agreement that the controller had not detected, or had not indicated that they had detected, the potential for the DA42 and R22 to have come into conflict (**CF3**).

Members referred to the wording in the Gloucester MATS Part 2 procedure that states that:

> ADC is to ensure that sufficient information is passed to both fixed-wing and helicopter pilots, to enable them to position themselves appropriately when non-standard circuits, such as low level, EFATO, glide and crosswind approaches, are in use.

It was noted that the Gloster controller had not passed Traffic Information on the DA42 to the pilot of the R22 (**CF2**) and, as such, members agreed that they had not adhered to the procedure (**CF1**). Whilst it was appreciated the controller had attempted to ensure adequate spacing of the fixed-wing aircraft, the timing of the controller's plan had not allowed any time for the R22 pilot to have been passed pertinent Traffic Information.

A Safety Notice, produced by the Manager of Air Traffic Services at Gloucestershire Airport in response to this incident, was read to the Board. Members were heartened that the matter had been addressed swiftly and that advice for controllers had been clarified, particularly with regard to mixed circuits and non-standard circuits.

Concluding their discussion, members summarised their thoughts. Firstly, members agreed that the Gloster controller had used potentially ambiguous phraseology for a non-standard circuit pattern to assist with the spacing for an inbound aircraft. Secondly, it was agreed that the pilot of the DA42 had accepted the request for a 'short circuit' and they had altered their track which subsequently led them to have overflown the R22. Thirdly, it was agreed that the pilot of the R22 had exceeded the maximum height of the helicopter circuit. Finally, it was agreed that the Gloster controller had not identified that, as a consequence of the preceding points, the horizontal and vertical separation between the aircraft had been reduced such that it had caused the R22 pilot to have been concerned by the proximity of the DA42. Members determined that safety margins had been reduced but, ultimately, there had not been a risk of collision. The Board assigned Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2024016			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	• Situational Awareness and Action			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
4	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
5	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
	• Situational Awareness of the Conflicting Aircraft and Action			
6	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			
7	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
	• See and Avoid			
8	Human Factors	• Identification/ Recognition	Events involving flight crew not fully identifying or recognising the reality of a situation	Late sighting by one or both pilots
9	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
10	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C.

Safety Barrier Assessment[3]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because Traffic Information on the DA42 had not been passed to the pilot of the R22.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Gloster controller had not detected the potential for a conflict between the DA42 and R22.

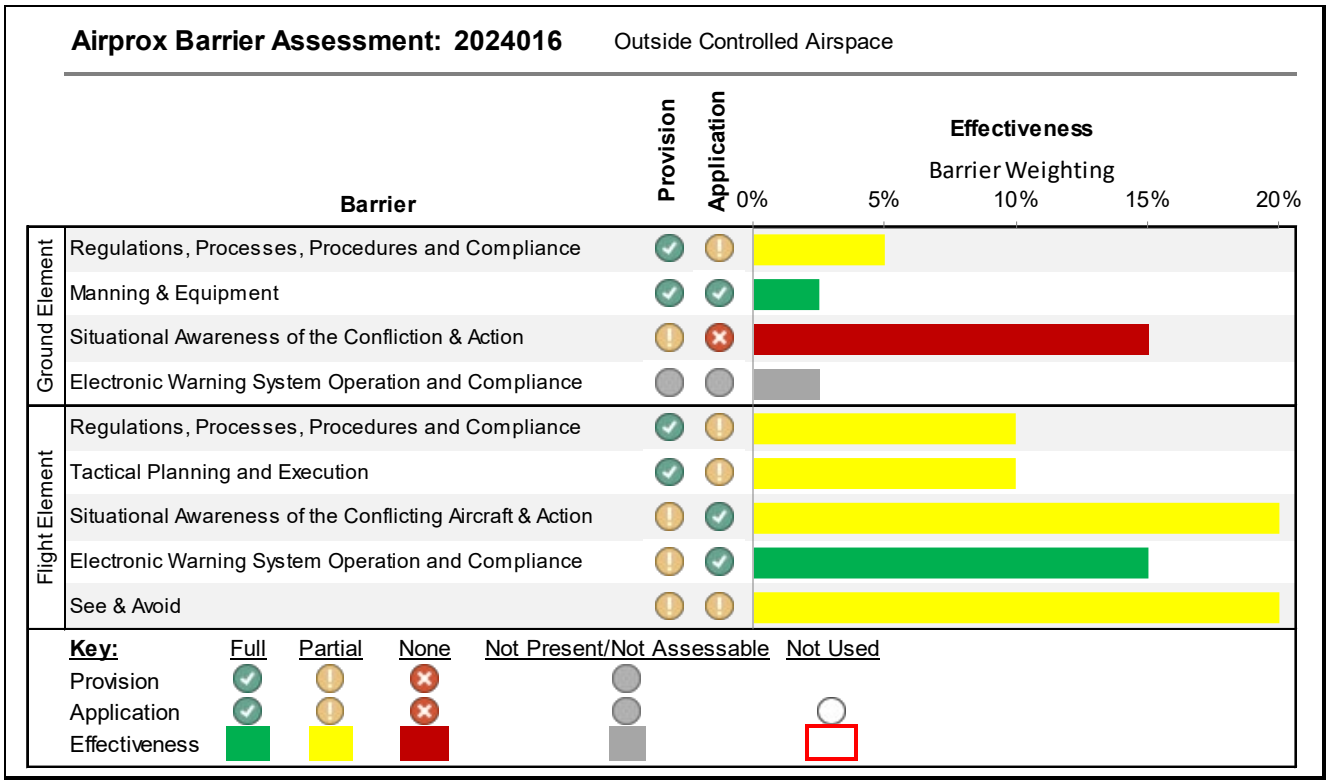
Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the pilot of the R22 had not flown their circuit in accordance with the published maximum circuit height.

Tactical Planning and Execution was assessed as **partially effective** because the pilot of the R22 had flown above the published maximum height of the helicopter circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the pilot of the DA42 had acquired late situational awareness of the position of the R22.

See and Avoid were assessed as **partially effective** because the DA42 had been obscured from the view of the R22 pilot and had not been visually acquired until the moment of CPA.



[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.