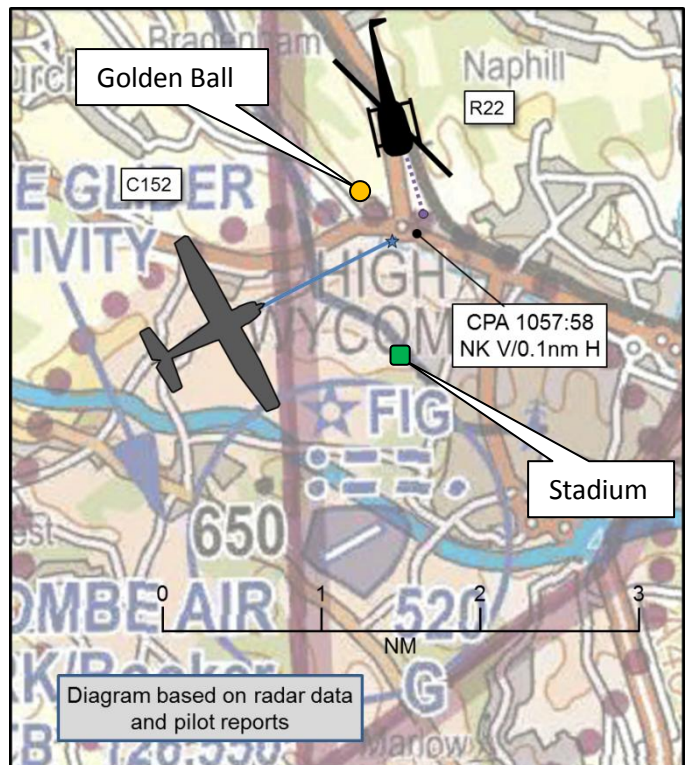


**AIRPROX REPORT No 2016087**

Date: 22 May 2016 Time: 1057Z Position: 5138N 00048W Location: 2nm NE Wycombe airfield  
Elevation 520ft

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	C152	R22
Operator	Civ Trg	Civ Club
Airspace	Wycombe ATZ	Wycombe ATZ
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Aerodrome
Provider	Wycombe	Wycombe
Transponder	A	
Reported		
Colours	Blue/red	White
Lighting	NK	Strobe
Conditions	VMC	VMC
Visibility	10km	20km
Altitude/FL	1000ft	750ft
Altimeter	QFE (988hPa)	QFE (989hPa)
Heading	060°	180°
Speed	90kt	60kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	50ft V/Nil H	150-250ft V/250ft H
Recorded	NK V/0.1nm H	



**THE CESSNA 152 PILOT** reports that he was flying the RW24 right-hand circuit at 1000ft QFE. An R22 helicopter was inbound and the pilot could not repeat the landing instructions; he took 4 attempts to read back the QFE. The controller asked the pilot if he was familiar with Wycombe airfield. The pilot replied negative, and was instructed to join under the fixed-wing circuit, no higher than 750ft QFE. The R22 pilot flew at the C152's height and only just descended under his aircraft by a small margin. In his opinion, the R22 pilot was not at 750ft.

He assessed the risk of collision as 'High'.

**THE ROBINSON R22 PILOT** reports that he had just made a position report at the 'Golden Ball' [UKAB Note: a White Waltham VFR reporting point] and was at 750ft on QFE 989hPa, heading for the stadium, and joining the helicopter circuit under normal procedures. On seeing a fixed-wing aircraft that seemed close to his right, he immediately descended to 600ft. This was about half-way between the stadium and the 'Golden Ball'. He then carried on abeam the stadium to point November; RW24 was active. The other pilot did a touch-and-go.

He assessed the risk of collision as 'Medium'.

**Factual Background**

The weather at Heathrow was recorded as follows:

METAR EGLL 221020Z AUTO 28005KT 200V330 9999 SCT022 16/10 Q1007 NO SIG=

Both pilots reported that their respective aircraft were fitted with SSR Modes A and C. However, radar recordings show only the Mode A of the C152 and no transponder information from the R22.

CAP 493 (Manual of Air Traffic Services Part 1) states<sup>1</sup>:

*'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.*

*MATS Part 2 shall detail local procedures for the integration of aircraft in the vicinity of the aerodrome.,*

## Analysis and Investigation

### CAA ATSI

ATSI had access to reports from both pilots and the area radar recordings. Screenshots produced in this report are provided using the area radar recordings. All times UTC. Due to a watch handover that was taking place at Wycombe, coincident with the Airprox occurring, two Aerodrome controllers were involved; therefore, both the outgoing and incoming controllers were interviewed by ATSI.

The C152 (code 7000) with one instructor and one student on board, was operating VFR on a training flight in the visual right-hand circuit on RW24 at Wycombe Air Park. The C152 pilot was in receipt of an Aerodrome Control Service from Wycombe Tower.

The R22 pilot was inbound to Wycombe Air Park from the north and was operating VFR. The R22 was not transponding and, therefore, could not be positively identified. However, a primary radar contact, possibly the R22, was observed, the track of which was broadly consistent with the reports from both pilots involved in the Airprox. The R22 pilot was also in receipt of an Aerodrome Control Service from Wycombe Tower.

The majority of the ATC staff at Wycombe are not accredited meteorological observers. The weather at 0800, as it was entered into the ATC watch-log, is reproduced below, it is not known whether this was an official or an unofficial observation.

EGTB 28005KT 9999 SCT010 ///// Q1007=

At 1051:06, the R22 pilot called Wycombe Tower reporting at Princes Risborough (6.9nm north of Wycombe Air Park) and requesting the airfield information. This was a part simultaneous transmission, with the callsign of the R22 being partially blocked by the Aerodrome controller who transmitted a line-up clearance to another aircraft.

At 1053:40, the R22 pilot called again; the controller passed the fixed-wing runway in use which was RW24, that Helicopter Training Area (HTA) November was also in use (Figure 1) and the QFE of 988hPa. This information was read back by the R22 pilot apart from the QFE, which was read back incorrectly as 998hPa. The R22 pilot reported that he had just passed Princes Risborough. The controller then cleared the R22 pilot to join "...low-level into November", requested the R22 pilot to check the QFE and passed the correct QFE again. The R22 pilot again incorrectly read back the QFE as 998hpa and stated that he was "unfamiliar with the airport as well". Once again the Aerodrome controller passed the QFE to the R22 pilot which was then correctly read back.

<sup>1</sup> Section 2, Chapter 1, Aerodrome Control, Page 4.

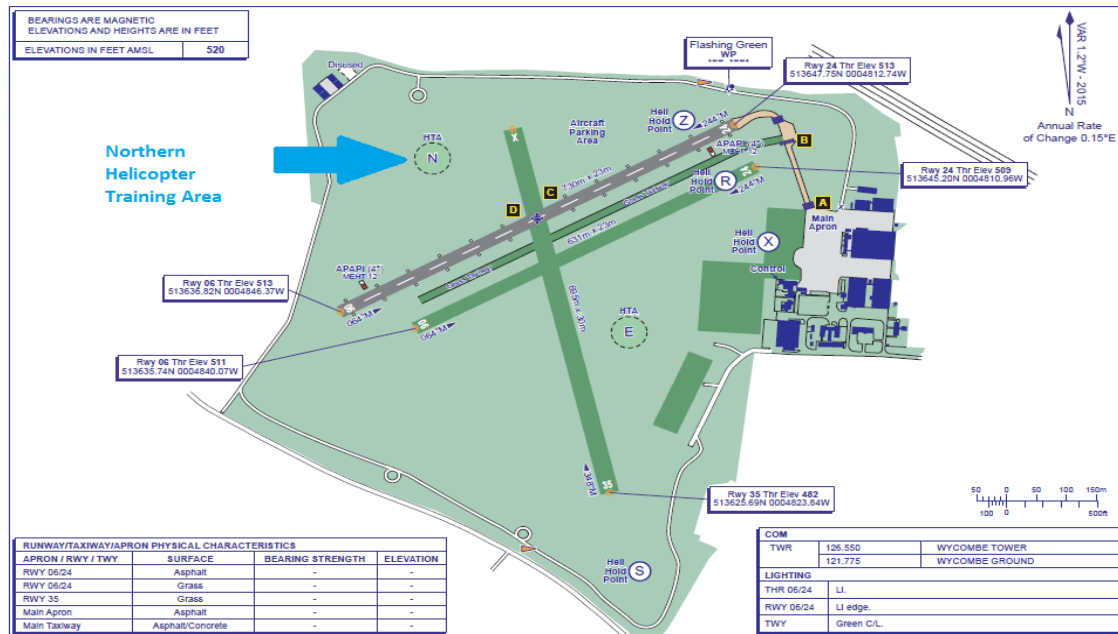


Figure 1.

At 1054:26, the controller questioned the R22 pilot about his level of familiarity with Wycombe Air Park. The R22 pilot responded saying that he was unfamiliar with the airport, although he had previously visited once before.

At 1054:34, the controller issued a more detailed joining clearance to the R22 pilot, instructing him to “join the circuit at 750ft QFE 988hpa to remain below the fixed-wing-circuit”. The R22 pilot read back the height restriction correctly but once again had difficulty in reading back the correct QFE. The controller again passed the correct QFE, and this was correctly read back by the R22 pilot.

At 1056:30 (Figure 2), the C152 pilot reported downwind RW24 for a touch-and-go. At this time the primary radar contact, believed to be the R22, was 3.2nm north of Wycombe Air Park. In reply the controller instructed the C152 pilot to “report final number one”.

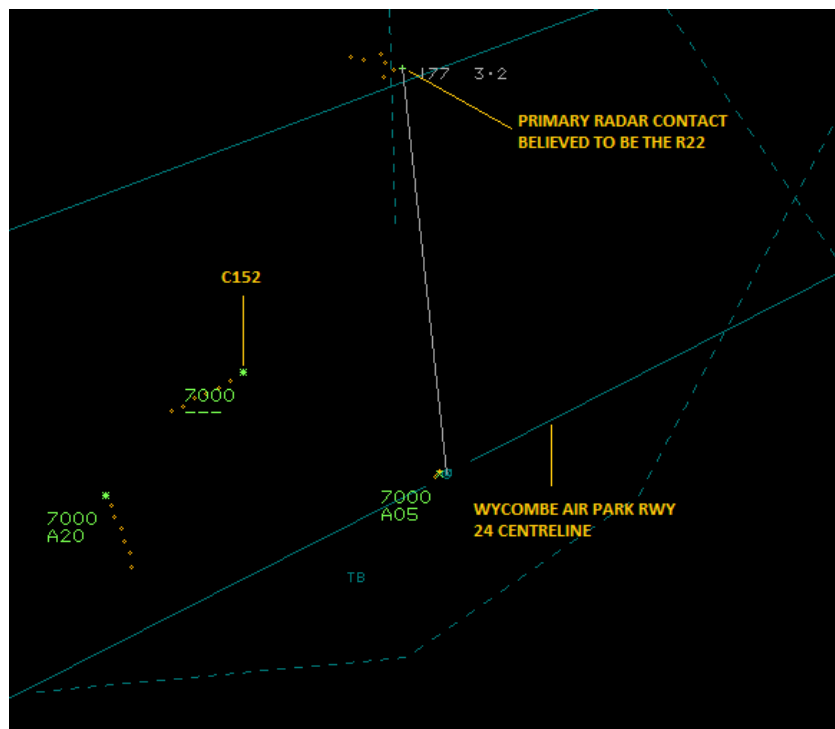


Figure 2 – Swanwick MRT at 1056:30.

At 1057:53 (Figure 3), the R22 pilot reported at the 'Golden Ball' (2.15nm north of Wycombe Air Park) with the "circuit in sight". Coincident with the R22 reporting at the 'Golden Ball' there was a watch change occurring in the Visual Control Room (VCR). The outgoing controller instructed the R22 pilot to remain north of RW24 at all times and passed Traffic Information on another helicopter which was on the ground at HTA November. After this transmission, the incoming controller took over control of the watch.

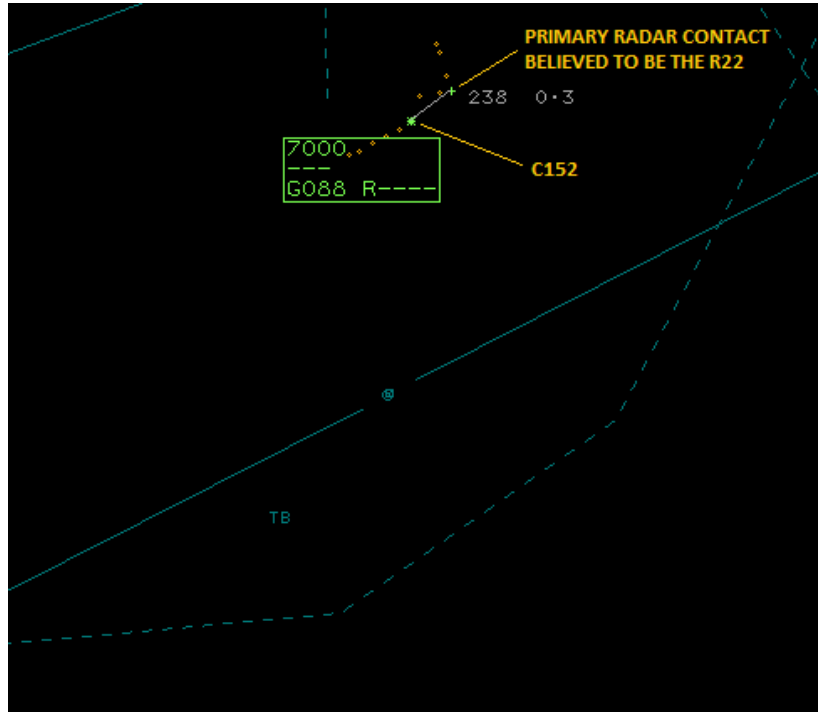


Figure 3 – Swanwick MRT at 1057:53.

At 1057:55 (Figure 4), the primary radar contact believed to be the R22 was 2nm north-east of Wycombe Air Park.

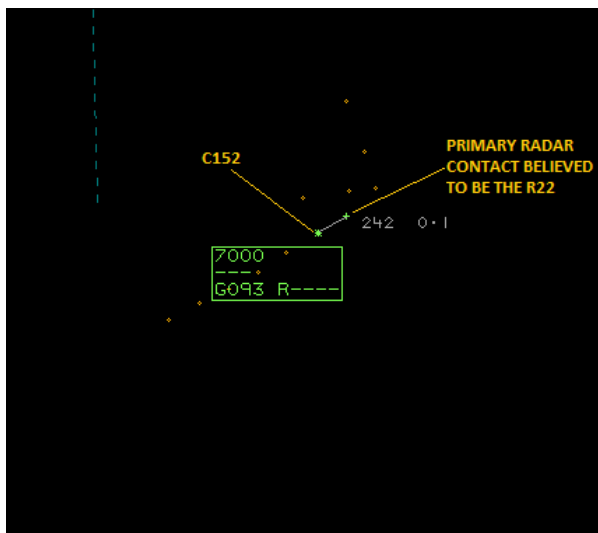


Figure 4 – Swanwick MRT at 1057:55.

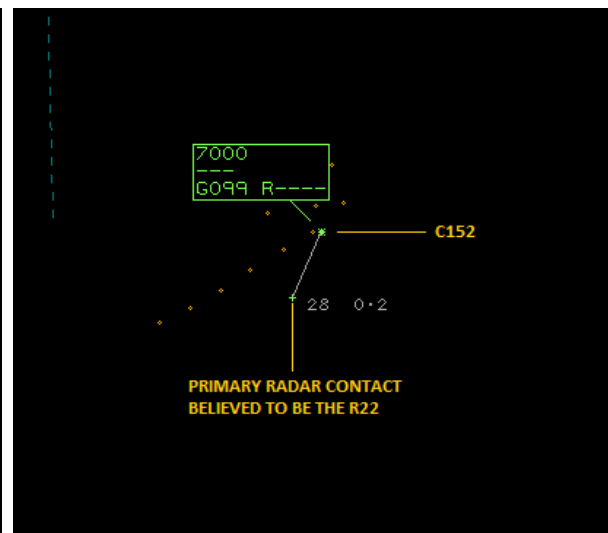


Figure 5 – Swanwick MRT at 1057:58.

The CPA between the primary radar contact believed to be the R22 and the C152 occurred between 1057:55 and 1057:58 (Figure 5) with a minimum horizontal distance of less than 0.1nm.

Wycombe Air Park is a busy General Aviation aerodrome situated in Class G (uncontrolled) airspace. Wycombe has a complex mixture of fixed-wing, helicopter and glider traffic and is extensively used for pilot training. The aerodrome is equipped with a single asphalt runway (06/24), and two additional grass runways. There are also two HTAs. HTA North is situated to the north-west of the mid-point of the asphalt runway. HTA East is situated to the east of the grass RW35. Wycombe Air Park is somewhat unusual, in having 'variable' fixed-wing circuits for noise abatement reasons. The fixed-wing circuit height is published as 1000ft and the helicopter circuit as 750ft. The aerodrome is strictly Prior Permission Required (PPR) and inbound visiting pilots are required to have obtained a PPR briefing explaining the specific aerodrome and noise abatement procedures in use at Wycombe before flying into the aerodrome. PPR briefings are not generally provided by ATC staff as telephone calls are filtered by the local flying training organisation's reception staff, who have been tasked with this function. In order to assist visiting pilots, Wycombe Air Park has also placed links on its website to 'YouTube' videos which explain the circuit procedures in use.

The Wycombe Aerodrome Traffic Zone (ATZ) is a circle, 2nm radius centred on the longest notified runway (06/24) from the surface to 2000ft. At aerodromes with an ATC unit, all movements within the ATZ are subject to the permission of that unit; aircraft will comply with instructions given by RTF and maintain a listening watch.<sup>2</sup> The 'Golden Ball', which sits atop the Church of St. Lawrence, is situated on West Wycombe Hill to the north of the aerodrome, just outside the ATZ. This very prominent feature is commonly used as a reporting point for arriving traffic from the north.

At interview, the outgoing controller explained that when the fixed-wing circuit on RW24 (Figure 6) is active, inbound helicopter pilots from the north are normally issued with a clearance to join low-level into HTA November. The inbound R22 pilot was initially passed this clearance. As the R22 pilot approached the aerodrome however, the controller, who was not familiar with the R22's callsign, suspected that he was visiting Wycombe, and, therefore, issued a more detailed joining clearance than is routine. The controller specified that the R22 pilot was to join at 750ft on the Wycombe QFE, thereby, in the Wycombe Tower controller's mind, giving some assurance that the R22 would be de-conflicted from the fixed-wing circuit traffic. Indeed, the controller included the phrase "...to remain below the fixed-wing circuit" as part of the R22 pilot's joining clearance. The clearance, including the height restriction, was correctly read back by the R22 pilot.

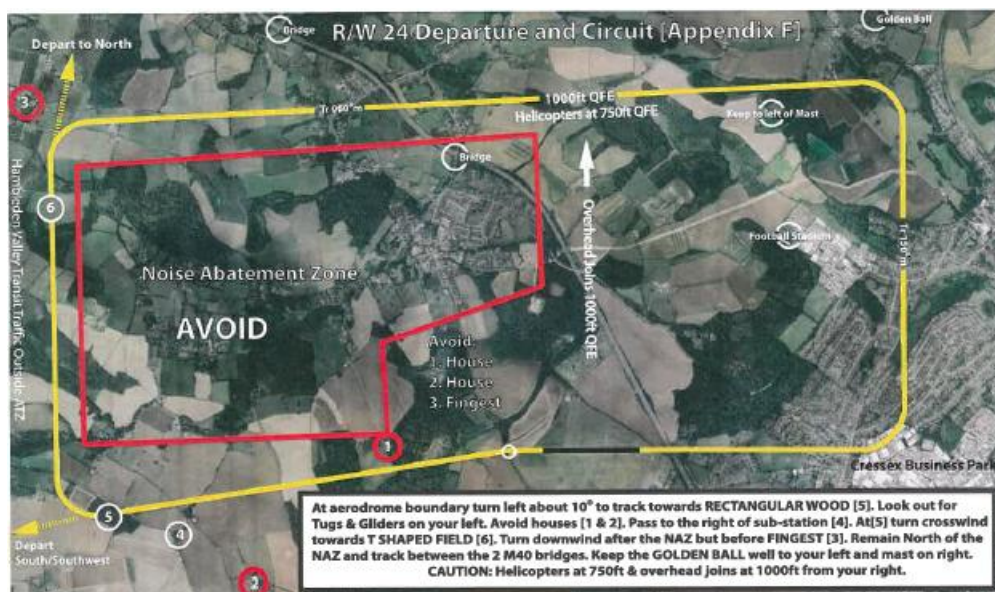


Figure 6 – Wycombe Air Park MATS Part. 2 Appendix F.

<sup>2</sup> CAP 493: Manual of Air Traffic Services Pt.1 Section 1 Chapter 2 Para 6.1 ATZ



As the R22 approached Wycombe, the pilot incorrectly read back the QFE a total of three times, in each case the incorrect read-back was detected and corrected by the controller. Obtaining a correct read-back of the QFE from the R22 pilot took the controller almost a minute of R/T time and three additional transmissions.

Although general Traffic Information regarding the fixed-wing circuit being active was passed, specific Traffic Information, regarding the position of the C152 in the circuit, was not passed to the R22 pilot. At interview, both the outgoing and incoming controllers were questioned, in general terms, about helicopter arrival procedures and the provision of Traffic Information. Both stated that it was routine, with helicopters joining the helicopter circuit, not to pass specific Traffic Information on traffic operating in the fixed-wing circuit on RW24 and vice versa. The Wycombe Air Park Manual of Air Traffic Services Part 2<sup>3</sup> states that:

*Helicopters leaving or joining the rotary circuit are to be given traffic information with regard to the helicopter and fixed wing circuits. When R/W 24/06 is in use helicopters must not join the rotary circuit through the fixed wing crosswind or base legs.*

There is a significant disparity between the R22 pilot's report, in which he states that he was flying level at 750ft on the QFE and the report from the C152 pilot. The C152 pilot stated that the R22 was flying at 1000ft at the time the Airprox occurred. During interview, a discussion was had with the outgoing controller regarding the possibility of an altimeter setting error on the part of the R22 pilot. The R22 pilot had, prior to the Airprox, incorrectly read back the QFE and as previously stated, this had been corrected by the controller. Due to the fact that the R22 pilot was not transponding at the time of the Airprox no further information regarding the R22's height was available.

According to the R/T transcript, correlated with the area surveillance recordings, the outgoing controller appeared to have handed over the watch to the incoming controller just after the CPA had occurred. The outgoing controller described at interview that the first time he was aware that an Airprox had occurred was when he spoke to the Flying Instructor of the C152 on the ground after returning to the aerodrome after his break. The incoming controller, at interview, could not recall having witnessed the Airprox.

At interview, the outgoing controller described never having acquired the inbound R22 visually before completing the watch handover and leaving the VCR. He went on to explain that it was normal for the Aerodrome controller to not become visual with an inbound helicopter (particularly smaller types such as the R22) until such time as the helicopter was already south of (and therefore inside) the fixed-wing downwind position in the circuit. Because of the procedure for helicopters to route inbound at low-level, and therefore, underneath the fixed-wing circuit, he described that it was normal for the controller to concentrate on other operational tasks, as some vertical distance between joining helicopters and the fixed-wing circuit traffic was expected to exist. He went on to describe that fixed-wing traffic in the visual circuit tend to route inside (i.e. south of) the 'Golden Ball', and inbound helicopters tend to route via the 'Golden Ball'.

Wycombe Air Park has no co-located approach control unit, and the VCR is not equipped with any kind of surveillance equipment (e.g. an Aerodrome Traffic Monitor); therefore, there is a reliance on the part of the Aerodrome controller that pilots comply with the joining clearance issued. The only recorded meteorological information was that entered into the ATC watch log at 0800 (reproduced above), however, the weather at the time of the Airprox was discussed with both controllers at interview and they described good VFR conditions.

Due to the relative position of the Wycombe VCR and the reported position of the Airprox, at the north-eastern boundary of the ATZ, the controllers were unable to visually acquire the R22 in sufficient time to de-conflict it from the C152. The watch handover taking place at the time may have been a contributory factor in their overall situational awareness.

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<sup>3</sup> Wycombe Air Park MATS Pt.2 Ch.2: Fixed Wing and Helicopter Procedures para. 7

After interviewing both controllers involved it was evident that, in this particular scenario, a reliance was placed on the R22 pilot complying with the height restriction element of the joining clearance, which, if followed correctly, would have allowed a vertical distance between the R22 and the C152.

Specific Traffic Information was not passed to the R22 pilot, this is contrary to the helicopter procedures published in the Wycombe Air Park Manual of Air Traffic Services Part.2. The provision of specific and timely Traffic Information to the R22 pilot may have improved his situational awareness and, therefore, aided his ability to safely integrate his helicopter into the helicopter circuit. Specific Traffic Information was also not passed to the C152 pilot.

The controllers were providing an Aerodrome Control Service within Class G (uncontrolled) airspace. In this airspace, irrespective of the ATC service being provided, pilots are ultimately responsible for collision avoidance.<sup>4</sup>

ATSI recommended that all controllers at Wycombe Air Park be reminded of their obligations published in both CAP 493 and the Wycombe Air Park Manual of Air Traffic Services Part 2 regarding the provision of Traffic Information.

Additionally, ATSI recommended that the Aerodrome Authority at Wycombe Air Park, in conjunction with ATC, review the existing procedures regarding the information passed to visiting pilots as part of the PPR briefing to ensure that pilots are fully conversant with local procedures prior to conducting their flight.

### **UKAB Secretariat**

The R22 and C152 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>5</sup>. 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<sup>6</sup>.

### **Summary**

An Airprox was reported when an R22 and a C152 flew into proximity at 1057 on Sunday 22<sup>nd</sup> May 2016. Both pilots were operating under VFR in VMC, in receipt of an Aerodrome Control Service from Wycombe. The C152 pilot reported that he was carrying out a training flight in the right-hand circuit at the published circuit height of 1000ft. The R22 pilot was inbound from the north and had been instructed to join the helicopter circuit at a height of 750ft. The C152 pilot reported that the R22 had been at his altitude. Because the R22 was not transponding there is no radar information to indicate the helicopter's level at the time, although the pilot reported that he had been at 750ft QFE.

### **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

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

The Board first discussed the actions of the R22 pilot and noted that he had reported to ATC that he was unfamiliar with Wycombe airfield. It was also noted that he had incorrectly read back the QFE several times as 998hPa instead of the correct 988hPa. The Board wondered whether his difficulty in registering the correct pressure setting may have been an indication that he was relatively inexperienced and was in a high workload situation. Some members wondered whether the pilot had

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<sup>4</sup> CAP 774 – The UK Flight Information Services Chapter 1 Para 1.2.

<sup>5</sup> SERA.3205 Proximity.

<sup>6</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

set the wrong altimeter QFE setting as a potential cause of the incident (the 10hPa difference in his response (998hPa) compared to reality (988hPa) equated to about 275ft, which was close to the difference between the fixed-wing and rotary-wing circuit heights). However, this theory was discounted because, had he set 998hPa and then flown at 750ft indicated height, it would have increased his separation from the fixed-wing circuit by 275ft, not decreased it. Given that the R22 pilot commented that he descended to 600ft as he saw the C152, there was a reasonable assumption that he was flying at 750ft indicated height prior to the incident; what could not be determined was the pressure setting on which that height was based. Finally, it is not known if the R22 pilot did receive a thorough airfield briefing when applying for PPR, but it was considered that he had probably been provided with some information, either directly or via the web site, given that he was aware of the reporting points of the 'Golden Ball' and the 'Stadium'.

The actions of ATC were then discussed and the Board commended the controller for his multiple corrections of the R22 pilot's incorrect read-backs to ensure that he did, in the end, at least read back the correct pressure setting, even if he could not be sure that the R22 pilot had set it on his altimeter. However, although informing the R22 pilot to join the circuit at a height of 750ft, and to remain below the fixed-wing circuit, the Board considered that it would have been prudent for the controller to also have advised the pilot of the level of this fixed-wing circuit (1000ft), which might also have assisted him in integrating into the circuit at the correct height. Although the controller might have expected the R22 pilot to have been given this information as part of his PPR briefing, he could not be sure that he had, and the absence of positive transmission of this information to the R22 pilot was considered to be a contributory factor to the Airprox. Additionally, when the R22 pilot reported at the 'Golden Ball', with the circuit in sight, he was not issued with specific Traffic Information about the C152 in the fixed-wing circuit. He was, however, informed about helicopter traffic operating on the airport. Some Board members wondered whether this information gave the pilot the incorrect belief that there was no other traffic in the vicinity. The Board noted that local MATS Part 2 procedures require Traffic Information to be given to inbound helicopter pilots with regard to helicopter and fixed wing circuits; it was apparent from comments in the ATSI report that controllers were not routinely passing specific Traffic Information to inbound helicopter pilots regarding aircraft operating in the fixed-wing circuit on RW24. Whereas controllers may consider that appropriate for locally based pilots who would know where to look for conflicting traffic, it was considered that it was imperative that the R22 pilot should have been made aware of the C152's details, especially given the non-standard nature of the High Wycombe fixed-wing visual circuit. This omission was also considered to be a contributory factor to the Airprox. Finally, it was noted that a handover of controllers occurred as the R22 pilot was joining the circuit. The Board wondered whether this had been a distraction, leading to the controllers not visually observing the R22 pilot's approach. Although it was reported that it was not usual practice to visually monitor helicopter arrivals from the north until they were within the circuit, ATC members felt that it would have been appropriate on this occasion given that the controllers were aware that the pilot was not familiar with the airfield, was having difficulty reading back the correct QFE, and probably merited close monitoring of his arrival, especially in the presence of fixed-wing traffic.

For his part, the C152 pilot was carrying out right-hand training circuits to RW24 and reported that he had been aware of the R22 pilot's difficulty in reading back the correct QFE. He had reported downwind when the R22 was approximately 3.2nm north of Wycombe and had been cleared to final number one. Although he had not been issued with specific Traffic Information about the R22's approach, the Board believed that, being a locally based pilot, he would have been well aware of its routing, especially when the R22 pilot reported at the 'Golden Ball'. Consequently, the Board were surprised that he had not established visual contact with the helicopter earlier than he reported. Even taking into account that he was probably sitting in the right-hand seat, GA members confirmed that there is good vision from the cockpit of a C152 and, in their opinion, he should have been able to see the R22 at an earlier stage, especially if it was co-altitude or slightly below. It was also clear that the C152 pilot also perceived that the R22 pilot was having difficulties with the QFE read-back, and this should have caused alarm bells to ring in his mind as to the potential for a conflict as their tracks crossed. Finally, the C152 pilot reported that when he was visual with the R22 it was at the same height as his aircraft. It was apparent that if both aircraft had been at the same level one of the aircraft was at an incorrect height.



Turning to the cause and risk of the Airprox, members noted that the C152 had been carrying out circuits for some time and the Board considered that an incorrect pressure setting by the C152 pilot would have already manifested itself, especially as the aircraft touched down. Undoubtedly the R22 pilot had had difficulty in reading back the correct pressure. However, if he had set an incorrect setting it would have had to have been a pressure setting of about 980hPa. This erroneous setting was considered a possibility, especially if the pilot was experiencing high workload at the time. Nonetheless, the Board had no reason to doubt that the R22 was at the fixed-wing circuit height as stated by the C152 pilot. Disappointed that neither aircrafts' Mode C readouts were showing on the radar recording despite both pilots reporting that Mode C was selected, some Members wondered whether the aircraft were out of SSR coverage. However, other aircraft in the vicinity, at similar heights, were showing Mode C returns on the radar recording. Although Mode C returns from the R22 would have proved its actual level, the Board was fairly confident that the balance of probability was that the R22 pilot was not at the correct height for the helicopter circuit. As a result, it was decided that the cause of the Airprox was that the R22 pilot did not integrate effectively given that it was for him to do so when joining the airfield. The Board then discussed the risk. Radar recordings show that the two aircraft passed within about 0.1nm or less horizontally. The C152 pilot, having observed the R22 at a late stage, had reported that the R22 pilot descended below his aircraft by a small margin; whilst the R22 pilot reported descending 150ft. The Board considered therefore that, although the R22 pilot had taken action to prevent the possibility of a collision, their close proximity meant that safety had been much reduced below the norm; they assessed the Airprox as risk Category B.

Rather than making recommendations of their own, the Board endorsed ATSI's recommendation that all controllers at Wycombe be reminded of their obligations regarding the provision of Traffic Information, and the recommendation that Wycombe reviews the procedures for passing information to visiting pilots as part of their PPR briefing.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

<u>Cause:</u>	The R22 pilot did not integrate effectively with the C152.
<u>Contributory Factors:</u>	<ol style="list-style-type: none"> <li>1. ATC did not pass specific Traffic Information on the C152 to the R22 pilot.</li> <li>2. ATC did not give specific joining instructions about the fixed-wing circuit to the unfamiliar R22 pilot.</li> </ol>
<u>Degree of Risk:</u>	B.