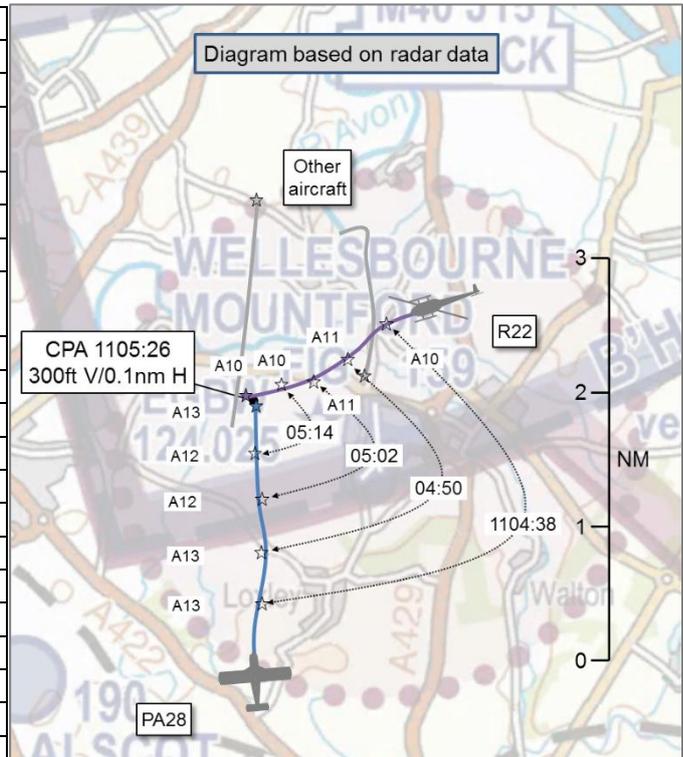


**AIRPROX REPORT No 2018205**

Date: 05 Aug 2018 Time: 1105Z Position: 5212N 00138W Location: Wellesbourne Mountford

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

| Recorded    | Aircraft 1               | Aircraft 2               |
|-------------|--------------------------|--------------------------|
| Aircraft    | PA28                     | R22                      |
| Operator    | Civ FW                   | Civ Helo                 |
| Airspace    | Wellesbourne ATZ         | Wellesbourne ATZ         |
| Class       | G                        | G                        |
| Rules       | VFR                      | VFR                      |
| Service     | AFIS                     | Basic                    |
| Provider    | Wellesbourne Information | Wellesbourne Information |
| Altitude/FL | 1300ft                   | 1000ft                   |
| Transponder | A, C                     | A, C, S                  |
| Reported    |                          |                          |
| Colours     | Maroon, white            | Maroon                   |
| Lighting    | Strobes, beacon          | NK                       |
| Conditions  | VMC                      | VMC                      |
| Visibility  | 30km                     | 20km                     |
| Altitude/FL | 1000ft                   | 1150ft                   |
| Altimeter   | NK (1018hPa)             | QNH (NK hPa)             |
| Heading     | 360°                     | 270°                     |
| Speed       | 100kt                    | 80kt                     |
| ACAS/TAS    | Not fitted               | Not fitted               |
| Separation  |                          |                          |
| Reported    | 100ft V/100m H           | 150ft V/200ft H          |
| Recorded    | 300ft V/0.1nm H          |                          |



**THE PA28 INSTRUCTOR** reports conducting standard circuits on RW18 when a maroon R22 helicopter crossed from right to left at the exact circuit height on the downwind leg. A risk of collision existed so the instructor took control, immediately applied full power, climbed straight ahead, and announced by R/T that he was climbing for conflict resolution with a helicopter crossing the downwind leg at 1000ft QFE. Once clear of conflict, the instructor returned to normal circuit height and the circuit session resumed normally. The Instructor noted that the R22 pilot did not appear to see the other circuit traffic, passing fairly close behind the aircraft ahead on the downwind leg and close ahead of the PA28 with no alteration of heading. The R22 pilot was not in radio communication on frequency at the time and a high risk of collision would have existed without the instructor’s prompt avoiding-action. The Instructor stated that an instructor from a helicopter flight school based at the same aerodrome visited later to apologise. He noted that the R22 pilot was a solo student-pilot who had been briefed to conduct a local area solo sortie, but became uncertain of position during flight when east of airfield. Whilst navigating visually towards a known landmark he had crossed the aerodrome overhead at fixed-wing circuit height without realising. The helicopter instructor debriefed the student-pilot post occurrence.

He assessed the risk of collision as ‘High’.

**THE R22 STUDENT PILOT** reports that he was briefed to conduct a solo flight in the local area after having flown a dual-check flight, leaving towards the west, turning south and then returning to the airfield for a low-level rejoin. He followed the same track for the solo flight until he came to a large town which, in hindsight, he misidentified. He identified several local features but became increasingly confused as ground features did not appear when he expected them to. He attempted to fix his position but became increasingly concerned by the prospect of being lost, and by his fuel state. He attempted to use the ‘sat/nav’ but could not see a useful menu option to enable steering to base and did not want to ‘lose’ the only navigation aid he had. Whilst attempting to manipulate the ‘sat/nav’, he descended

from 1500ft to 1000ft, and it was at that point that he saw a fixed-wing aircraft in his left 9 o'clock position, some distance away and in a climb. He heard R/T transmissions concerning a black helicopter in the circuit at the wrong height, which he realized was him. The student pilot surmised that he had been unsure of his position, was attempting to route back to a known feature and had unwittingly transited the ATZ as he inadvertently descended to circuit height.

He assessed the risk of collision as 'None'.

**THE WELLESBOURNE AFISO** reports that he was the duty FISO on a busy Sunday morning. Weather conditions were good with greater than 10km visibility and a cloud base of over 4000ft. RW18 right-hand circuit was in use. As he was completing a form for a Qualifying Cross Country for a student pilot of a visiting helicopter, he received two radio calls at 1106Z reporting an Airprox downwind in the fixed-wing circuit at 1000ft QFE. The pilots of two aircraft from a based flying school reported that they had had to climb to avoid a small helicopter crossing at their altitude downwind. They both said that they would file Airprox reports. The AFISO did not witness the incident nor could he see the aircraft when he looked behind him, to the downwind leg. At that time he only had one helicopter on frequency, [the R22 student pilot] in receipt of a Basic Service, reported to have been operating in the Gaydon area, to the east of the airfield. It seemed that this was the most likely helicopter to have infringed the fixed-wing circuit; no joining call had been made (the helicopter circuit is 600ft on the QFE). Because the helicopter student was from a based helicopter school the AFISO telephoned the instructor, told him of the possible Airprox, and suggested that he might discuss the incident with his student and the pilots at the based flying school. The instructor later came and apologised for the incident and so the AFISO assumed that his assumption about the helicopter's identity had been correct. Because the two pilots had announced their intention to file an Airprox report, the AFISO decided that, having not seen the incident, he could add nothing to their commentary.

## Factual Background

The weather at Birmingham was recorded as follows:

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METAR EGBB 051120Z 20007KT 160V270 9999 FEW036 24/15 Q1023=
METAR EGBB 051050Z 19006KT 140V260 9999 FEW032 23/15 Q1024=
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## Analysis and Investigation

### UKAB Secretariat

The PA28 and R22 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>1</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>2</sup>.

## Comments

### R22 Operating Company

The student pilot had received a detailed board-brief before flying a dual exercise to a good standard and was then briefed to conduct the same exercise solo. He became uncertain of position during his solo flight and flew back through the ATZ at 1000ft, conflicting with an aircraft in the visual circuit. He eventually re-orientated himself and joined the circuit correctly.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

## Summary

An Airprox was reported when a PA28 and an R22 flew into proximity in the Wellesbourne visual circuit at 1105hrs on Sunday 5<sup>th</sup> August 2018. Both pilots were operating under VFR in VMC, the PA28 pilot in receipt of an AFIS and the R22 pilot in receipt of a Basic Service, both from the Wellesbourne AFISO.

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

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the Wellesbourne AFISO.

Members first discussed the R22 pilot's actions and quickly agreed that he had become uncertain of position shortly after starting his sortie. The Board also felt that, in his attempt to gain information from the onboard GPS equipment, he had allowed himself to be distracted to the detriment of lookout. Both of these factors were considered to have been contributory. It was acknowledged that a student pilot could be more likely to become uncertain of position, and members emphasised the need to cover such eventuality in the Threat and Error management aspects of a sortie. Members pointed out that, in this respect, useful information is contained in the Skyway Code:

#### EMERGENCIES

##### Lost

With the widespread use of GPS systems, cases of being completely lost are thankfully rarer than they once were. However, such systems are not universally carried, and even if they are (which is recommended), they can be misinterpreted or fail.

- If in contact with an ATSU that has radar, ask them to clarify your position.
- If not in contact with an ATSU, call Distress and Diversion on 121.5 and ask for assistance.
- Prior to establishing contact with either an ATSU or D&D, squawk 0030 – this will alert other ATSUs that there is a lost aircraft.
- Orbit near any prominent landmarks that could be described to ATC. Do not continue to fly aimlessly.<sup>3</sup>

It was also noted that, in this case, an increase in altitude would have kept the R22 pilot clear of the Wellesbourne ATZ whilst also assisting with the sighting of navigation features. Ultimately, the old adage Aviate-Navigate-Communicate was relevant, with lookout being a fundamental element of the primary 'Aviate' activity.

Turning to the PA28 pilot, members agreed that he was no doubt concentrating on his student's performance in the visual circuit and that he would reasonably not be expecting another aircraft to cross the downwind leg on a perpendicular heading. In this respect, members commented that this incident again highlighted the need to maintain a robust lookout, even within the 'protected' volume of an ATZ.

In the event, members agreed that the R22 pilot had inadvertently flown through the Wellesbourne ATZ whilst uncertain of position and into conflict with the PA28. The PA28 pilot did see the R22 with sufficient time to take some avoiding action but the Board felt that the circumstances and separation were such that safety had not been assured.

The Board also discussed the use of GPS equipment and noted that although its use was recommended by the CAA<sup>4</sup>, the PPL syllabus does not currently include any learning objectives for GPS-based navigation, or the pitfalls of becoming task-focused on the manipulation of GPS equipment versus maintaining mental situational awareness and lookout. Members therefore resolved to recommend that 'The CAA consider expanding GNSS theoretical knowledge and flying training syllabi'.

<sup>3</sup> CAP 1535 (The Skyway Code) page 132.

<sup>4</sup> 'The CAA actively promotes the use of GPS moving map technology as a mitigation against airspace infringements. But pilots must ensure that they are using the application and device correctly.'

<https://www.caa.co.uk/News/Causal-factor-analysis-of-airspace-infringements-published/>

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

Cause: The R22 student pilot inadvertently flew through the Wellesbourne ATZ and into conflict with the PA28.

Contributory Factors:

1. The R22 pilot was uncertain of his position.
2. The R22 pilot allowed himself to be distracted by the onboard navigation equipment, to the detriment of lookout.

Degree of Risk: B.

Recommendation: The CAA consider expanding GNSS theoretical knowledge and flying training syllabi.

**Safety Barrier Assessment<sup>5</sup>**

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

**Flight Crew:**

**Regulations, Processes, Procedures, Instructions and Compliance** were assessed as **ineffective** because the R22 student pilot inadvertently entered the Wellesbourne ATZ without first communicating his intentions.

**Tactical Planning** was assessed as **ineffective** because the R22 student pilot did not effectively execute his plan, this resulted in him misidentifying his geographical features and inadvertently entering the Wellesbourne ATZ.

**Situational Awareness and Action** were assessed as **ineffective** because the R22 student pilot had a flawed mental model of his location, and neither pilot had any situational awareness of the other aircraft's presence.

**See and Avoid** were assessed as **partially effective** because although the R22 student pilot did not see the PA28, the PA28 pilot saw the R22 late and took emergency avoiding action.

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<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

