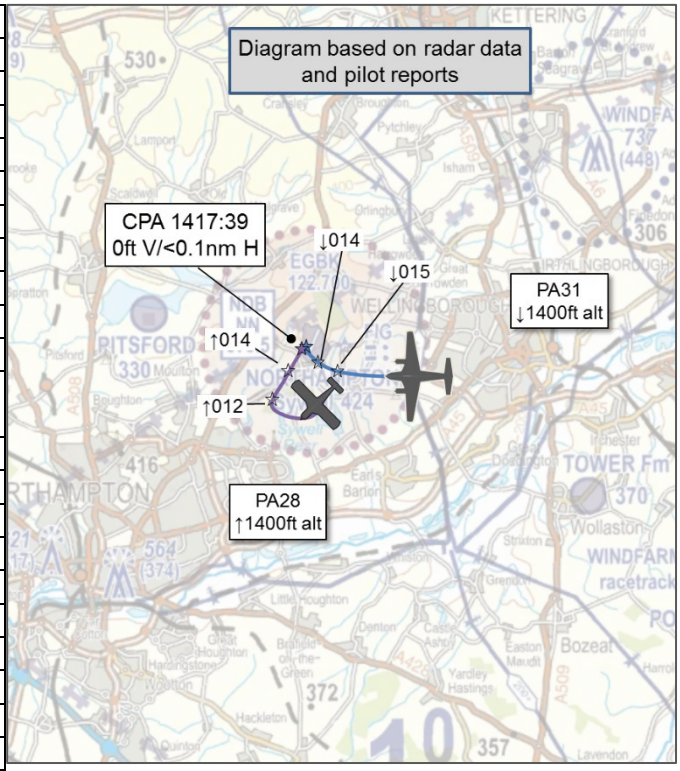
AIRPROX REPORT No 2018301

Date: 31 Oct 2018 Time: 1417Z Position: 5218N 00046W Location: Sywell

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA31	PA28
Operator	Civ Comm	Civ FW
Airspace	Sywell	Sywell
Class	G	G
Rules	VFR	VFR
Service	AFIS	AFIS
Provider	Sywell	Sywell
Altitude/FL	1400ft	1400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White, Orange, Blue
Lighting	Nav, Strobes	Strobes
Conditions	VMC	VMC
Visibility	NR	>10km
Altitude/FL	1100ft	1100ft
Altimeter	QFE (999hPa)	QFE
Heading	290°	030°
Speed	100kt	100kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	100ft V/0.25nm H	100ft V/300m H
Recorded	0ft V/<0.1nm H	



THE PA31 PILOT reports that he had just completed 3 east-to-west passes of the airfield at 1700ft at the end of a survey task, after which he asked to join the circuit, descending from 1700ft to circuit height as he crossed from deadside to a late-downwind position. He had been visual with a departing PA28 as he descended across the airfield and understood that there was no circuit traffic. He was not aware that the departing PA28 had made a right turn to a tight downwind track for his departure. As he approached late downwind he was still in a gentle descending turn, he made a call to ATC who informed him that the aircraft on his left was departing traffic. He levelled the wings, saw the aircraft and increased his rate of descent to pass ahead and below it, and in doing so continued on a wider downwind position. The PA28 pilot subsequently made a call to ATC to ask what the twin (the PA31) was doing, and they were informed that it was joining the circuit. The PA31 pilot continued the circuit to land, adjusting his track to final to remain clear of the departing traffic. He opined that he didn't think he would have seen the PA28 had it not been for the ATC response to his downwind call, but he also could not tell whether their flight paths were in conflict before he levelled off, ensuring safe separation.

He assessed the risk of collision as 'Medium'.

THE PA28 PILOT reports that he took-off from RW21R at Sywell and followed the right-hand circuit to take the northern fixed-wing departure route. When late downwind, the passenger noticed an aircraft to their right, same height, and approaching close on a steady heading. Almost at the same time the other pilot took avoiding action and descended to pass below. There was no indication of the aircraft initiating a turn to the right to join the circuit. After the incident he followed the northern departure route and the other aircraft continued away from the airfield, turning onto a very wide and late downwind after about 0.5nm. He opined that he would expect an aircraft joining overhead would descend deadside, then join the circuit cross-wind over the upwind end of the runway, before proceeding downwind.

He assessed the risk of collision as 'High'.

THE SYWELL AFISO reports that the PA31 was returning from a local flight and had briefed the AFISU that he required two runs through the overhead at 1500ft. On joining, information was passed that there was one microlight (an EV97) in the RW21R circuit. There was also a PA28 taxying for departure, but this information was not passed because it was not airborne. The first east-west run was completed and the PA31 repositioned to the east for the next run. During the start of the PA31's second run, the PA28 departed from RW21R. The PA31 pilot reported that after the run he intended to join RH downwind. As the PA31 approached the overhead the EV97 was on right base and the PA28 was seen in a right turn to the southwest after departure. The PA31 was seen to pass through the overhead from the east and commence a crosswind turn for a RH join downwind. The AFISO noticed the PA28 appeared to be flying early downwind at circuit height and so he warned the PA31 pilot who appeared to be in a gentle right turn. The PA31 pilot descended to avoid, then positioned wide downwind, eventually landing at 1421. The PA28 pilot asked what the PA31 was doing, to which the FISO replied 'joining the circuit'. After landing the PA31 pilot reported to the AFISU and thanked the Duty AFISO for the warning call, he had been aware of the PA28 departing and had seen it southwest, but had not expected it to turn downwind, indeed neither did the AFISO. The AFISO noted that it seemed odd that a departing aircraft who should have heard the calls regarding the other circuit traffic chose to depart from the downwind leg, remaining at circuit height, when the cloud-base did not preclude further climb.

Factual Background

The weather at Cranfield was recorded as follows:

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METAR EGTC 311350Z 16013KT 9999 FEW032 13/05 Q1006=
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Pooley's Flight Guide (2019) provides details of the Sywell departure routes below. The northern fixed-wing departure route is indicated as commencing from about the end of the downwind leg for RW21, following the A43.

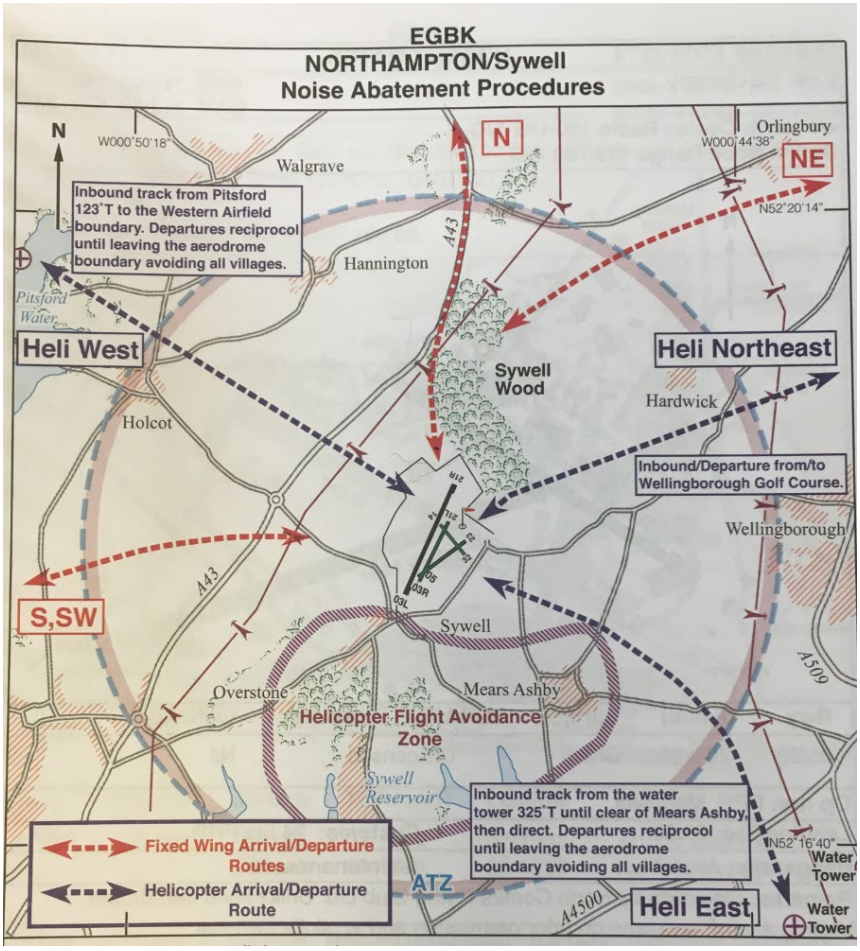

Figure 1: Extract from Pooley's Flight Guide

Analysis and Investigation

UKAB Secretariat

The PA31 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 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 a PA31 and a PA28 flew into proximity in the Sywell visual circuit at 1417hrs on Wednesday 31st October 2018. Both pilots were operating under VFR in VMC and both were in receipt of an AFIS.

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 AFISO involved.

The Board first looked at the actions of the PA31 and debated at some length whether he was conducting a non-standard join, in which case he was required to integrate with other aircraft already in the circuit, or whether, by completing his final run deadside and turning onto the downwind position, he was effectively already part of the visual circuit. In the end, they agreed that it was the former and that the onus was on him to avoid aircraft already 'forming a pattern of traffic'. Having established this, the Board agreed that he had made his intentions clear by articulating on the frequency what he was going to do, and that the AFISO had understood this and expected him to turn late-downwind for landing. However, it was clear that the non-standard nature of his join was a surprise to the PA28 pilot, who did not expect the PA31 pilot to position as he did. The Board noted that the PA31 pilot had seen the PA28 pilot depart, but had expected it to continue to the southwest, not turn to depart downwind. It was therefore apparent that both pilots were not aware of the intentions of the other, and had made assumptions based on incomplete information. Ultimately, it was only the Traffic Information provided by the AFISO that alerted the PA31 pilot to the PA28 in time to avoid a collision, and that, at least in part, it had been the non-standard nature of the PA31 pilot's join that had added an element of uncertainty when the PA28 pilot had not assimilated the intention. GA members commented that although non-standard joins can be expeditious, this was a timely reminder to those conducting them that they should be aware that in not following standard procedures other pilots situational awareness can quickly become eroded because aircraft may not be in the positions they would normally anticipate.

For his part, the PA28 pilot had been on the frequency at all times and members wondered why he had not assimilated the information calls by the PA31 pilot. The Board also noted that his downwind departure was a surprise to the AFISO, and members wondered whether the PA28 pilot had clearly articulated that he would be departing to the north because neither the AFISO nor the PA31 pilot were expecting him to depart that way. Unfortunately, without an RT recording, the Board could not be sure of what either pilot had said, although it seemed likely that the PA28 pilot had not made his departure routing clear given that the AFISO was surprised by the profile. Notwithstanding, members noted that Pooleys represented the northerly departure as the PA28 pilot had performed it, without climbing downwind, despite the AFISO's comments about expecting him to climb. GA members confirmed that they would have departed in the same way given the details provided, commenting that a climb downwind can interfere with any aircraft joining overhead and, given that that was what the PA28 pilot thought the PA31 was doing, it was understandable that he had remained at circuit height.

Turning to the actions of the AFISO, the Board noted that it was his Traffic Information that had alerted the PA31 pilot to the PA28, but they wondered whether he should have provided information earlier.

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 15.

More specifically, controller members thought that when the PA31 advised of his intentions to join non-standard downwind, the AFISO should have passed Traffic Information on the departing PA28 to be sure the PA31 pilot was aware of it. The AFISO had clearly assumed that the PA28 was departing the circuit and climbing and so wouldn't affect the PA31; a confirmatory check with the PA28 pilot as to his departure intentions once the PA31 pilot had stated his would have resolved any uncertainty. Ultimately, it seemed that all involved in the Airprox had made assumptions about the actions of others, which had turned out to be incorrect; but it was the AFISO who had the clearest opportunity to grip the situation at an early stage given that he could see both aircraft as the PA28 turned downwind and the PA31 approached the airfield overhead at circuit height.

In determining the cause of the Airprox, the Board quickly agreed that, notwithstanding the seeming lack of timely information from the AFISO, it was for the pilots to integrate and sequence themselves in the visual circuit. Recognising that both pilots had a flawed mental model of the others' intentions, the Board agreed that the incident was probably best described as a conflict in the visual circuit resolved by the PA31 pilot. However, there were a number of contributory factors: neither pilot had assimilated the other's intentions; the AFISO did not assimilate that the PA28 was departing downwind on the northerly departure; and that the AFISO passed incomplete Traffic Information. The risk was then debated, with some members opining that because the PA31 pilot had described having time to level the wings, see the PA28, and then descend, he had been able to act in a timely and effective manner (Category C). However, a majority felt that his sighting had been much later than desirable, that there had been a definite risk of collision, and that safety had therefore been much reduced below the norm. Accordingly, the risk was assessed as Category B.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in the visual circuit resolved by the PA31 pilot.

Contributory Factors:

1. Neither pilot assimilated the other's intentions.

2. The FISO did not assimilate that the PA28 was departing downwind on the northerly departure.

3. Incomplete Traffic Information from the FISO.

Degree of Risk: B.

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:

ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the AFISO didn't give Traffic Information to the PA28 pilot about the PA31 joining the circuit immediately after his run-through, or to the PA31 pilot about the PA28 until the last minute.

Situational Awareness and Action were assessed as **partially effective** because the AFISO didn't assimilate that the PA28 was departing downwind at circuit height.

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

Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as ineffective because the PA31 pilot did not integrate with the PA28 departing downwind.

Situational Awareness and Action were assessed as **partially effective** because the PA31 pilot was only generically aware of the PA28 departing, and the PA28 pilot was only generically aware that the PA31 was joining.

See and Avoid were assessed as **partially effective** because the PA31 pilot could only take late avoiding action.