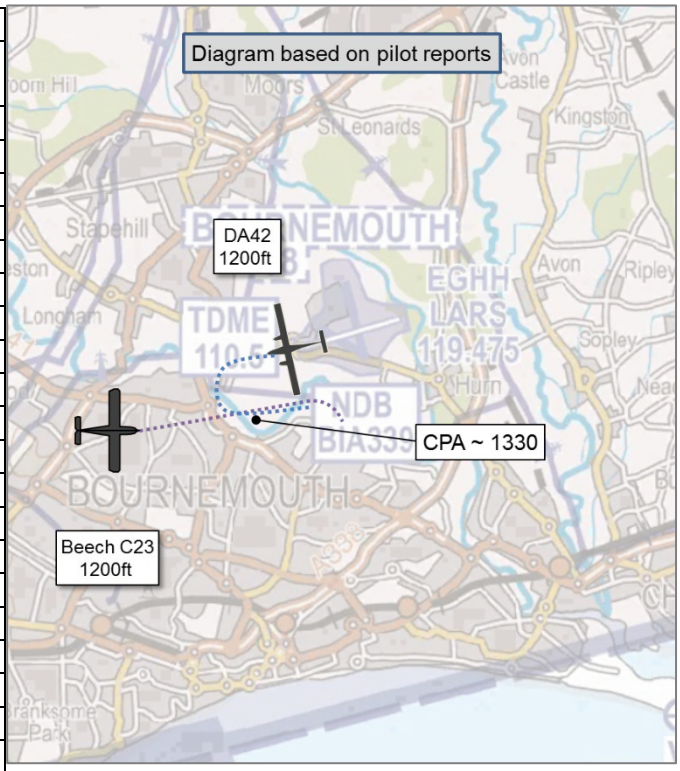
AIRPROX REPORT No 2018313

Date: 30 Nov 2018 Time: 1330Z Position: 5046N 00150W Location: Bournemouth

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	Beech C23 Sundowner
Operator	Civ FW	Civ FW
Airspace	Bournemouth CTR	Bournemouth CTR
Class	D	D
Rules	VFR	VFR
Service	ACS	Basic
Provider	Bournemouth	Bournemouth
Altitude/FL	NK	NK
Transponder	A, C, S	U/S
Reported		
Colours	White, Red	White, Blue
Lighting	Strobes, Nav	Strobe, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1200ft	1200ft
Altimeter	QNH	QNH (1009hPa)
Heading	080°	080°
Speed	100kt	100kt
ACAS/TAS	TAS	PCAS
Alert	None	Information
Separation		
Reported	0ft V/150m H	Not Seen
Recorded	NK	



THE DA42 PILOT reports that he was conducting circuits on a student training sortie. During a left-hand climbing turn onto the downwind leg for RW26, another aircraft was suddenly spotted just to the right, slightly ahead and at an similar altitude. The student in the left seat was first to see it, the instructor was initially unsighted due to the engine nacelle and raised wing. Whilst in the turn onto downwind they had a limited view into the area that the other aircraft was coming from and they had been naturally looking into the turn to judge the downwind position. The student estimated that other aircraft came within 150m on this initial pass. The joining aircraft (subsequently identified as a Beech C23) ended up positioned ahead and to the left of the DA42 and at the same altitude. ATC then advised the DA42 crew that they were 'No1 to traffic on short finals' and seemed to be unaware that there was also a BE23 on the downwind leg. The BE23 then suddenly performed a right-turn, which took it across the path of the DA42, whereupon the instructor took control and climbed above the BE23 which passed underneath by approximately 2-300ft and 150m laterally. A subsequent discussion with ATC indicated that the BE23 was not showing on the ATM or the radar.

He assessed the risk of collision as 'Medium'.

THE BEECH C23 PILOT reports that it was an extremely busy day at Bournemouth, the first good weather day for some weeks. He requested and was cleared to rejoin at Bournemouth but, unbeknown to him, although selected and giving normal indications, his transponder had failed due to a broken aerial and, as a result, he was not visible on radar. He was subsequently told by ATC that he had not reported at the Sandbanks VRP, and he continued towards the circuit expecting a left-hand downwind join for RW26. Although he visually checked the climb-out and the circuit, he did not see any traffic to affect, so joined the circuit and called downwind, but still on the radar frequency. He was told to orbit right, which he did immediately. He saw a return on his PCAS, but it did not trigger the proximity alarm and he did not see any circuit traffic. He was overhead Bournemouth town when he was asked his

position by ATC, which confused him because he expected that he was visible on radar and that they would know where he was. It transpired that the radar controller had handed over to another controller and the Tower controller could not see his aircraft on the radar (ATM). He was told to switch to the Tower frequency and there was another request to state his location. He was initially told by ATC that neither the Duty Controller, nor the other pilot considered it to be an Airprox. He noted that until that day he had no concept that he might not be visible on the radar and had learnt from that and his other procedural errors. With hindsight, he thought that he was tired from a long working week and, having not flown for 11 weeks and being a low-hour PPL relatively new on type, he had become task focused on making a safe landing.

He assessed the risk of collision as 'Low'.

THE BOURNEMOUTH TOWER CONTROLLER reports that they were operating during a period of busy traffic intensity. A DA42 was operating in the visual circuit with multiple inbounds and outbounds and taxyways Delta and Tango were blocked. The Radar controller advised that an aircraft was VFR, inbound from the north, (not the Airprox aircraft) and with this in mind the DA42 was given a left-hand circuit to deconflict with the inbound. The inbound from the north was seen on the ATM and the DA42 was also painting to the south, but no other contacts were showing. As the DA42 pilot turned downwind he advised that there was an aircraft in the circuit which was not known to the Tower Controller. Nothing was seen on the ATM, but when the controller looked to the south they could see two aircraft. At the same time the Radar controller reported that a BE23 pilot had reported 3nm south of the airfield but that he couldn't see it on the radar. It was established that the BE23 pilot had joined downwind left-hand as instructed by the previous Radar controller, but that no information had been passed to the Tower controller. The DA42 pilot was visual with the BE23 and positioned behind.

THE BOURNEMOUTH RADAR CONTROLLER reports that he had just taken over the position and he had been informed that the BE23 was VFR to join the visual circuit. Unbeknown to the controller, the BE23's transponder had failed and they could not see him on the radar. The pilot did not report at Sandbanks VRP and therefore the opportunity was missed to check his position and warn the ADI controller about him joining the circuit. By the time the BE23 was left downwind in the visual circuit, it had already come close to the DA42, at which point the BE23 pilot was told to orbit and transfer to the Tower frequency. He noted that they had since observed the aircraft on several local flights and the transponder appeared to be functioning correctly.

Factual Background

The weather at Bournemouth was recorded as follows:

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METAR EGHH 301320Z 26013KT 9999 FEW032 11/05 Q1009=
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Analysis and Investigation

UKAB Secretariat

The DA42 and BE23 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard. 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[1].

Summary

An Airprox was reported when a DA42 and a BE23 flew into proximity in the Bournemouth visual circuit at 1330hrs on Friday 30th November 2018. Both pilots were operating under VFR in VMC, the DA42 pilot in receipt of an ACS from the Bournemouth Tower Controller and the BE23 pilot in receipt of a Basic Service from Bournemouth Radar.

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

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the DA42 pilot. He was in the visual circuit and did not expect to see another aircraft appear in close proximity. The BE23 pilot had not called on the Tower frequency, nor had ATC given him any information on the BE23 joining, so he had no situational awareness prior to the Airprox. Other than acting as a salutary reminder of the need to maintain a robust lookout in the visual circuit, especially when flying in the vicinity of points where other (perhaps radio fail) aircraft might be joining, the Board agreed that there was little else the DA42 pilot could have done to prevent the incident from occurring.

For his part, members thought that the BE23 pilot should have realised where he was in relation to joining the circuit and, even if he had forgotten to call at Sandbanks VRP, they were surprised that at no point did he think to ask to switch to the Tower frequency as he approached the visual circuit. Moreover, although a self-confessed low-hours pilot, once approaching the circuit, he should have realised that he hadn't received proper joining instructions, including the circuit state, and that he should have been looking out for the circuit traffic as he integrated and joined. In this respect, members agreed with his comments that he had likely become task focused, concentrating on joining the circuit to land at the expense of the peripheral but vital tasks such as calling ATC and maintaining a robust lookout. All of which was compounded by his transponder failure which meant that ATC were not cued to his location and therefore did not assimilate that he was closer to the airfield than they thought.

Turning to Bournemouth ATC, the Board were disappointed that Bournemouth had not provided a fuller investigation into the incident and would have liked to have seen a report from both radar controllers, with Bournemouth radar recordings if available. Focusing on the role that ATC had to play on the day, controlling members were surprised that even with a transponder failure the BE23 did not show up on the primary radar. [UKAB note: a conversation with Bournemouth SATCO has indicated that the issue may be a fault with the Bournemouth Radar, rather than the BE23; the issue is being investigated.] Furthermore, noting that the call at Sandbanks VRP was not forthcoming from the BE23 pilot, they thought that it was unfortunate that the controllers had handed over the radar position when they did because the out-going controller may have wondered about the whereabouts of the BE23 given the delay between calls, whilst the in-coming controller was less aware of the time that had elapsed since the BE23 pilot's first call. Controller members wondered how robust the handover had been in respect of the BE23s intentions and expected track but, even without the radar displaying the aircraft, they pointed out that the flight progress strip in front of the incoming radar controller should have served as a reminder as to the BE23's presence and intentions to join the visual circuit. Once the BE23 pilot had called downwind on the radar frequency, controller members noted that the controller had told him to orbit. Whilst the situation of the BE23 being in the visual circuit without a clearance was now far from ideal, members wondered about the logic of asking him to orbit, given that the controller didn't know what other traffic was in the visual circuit. There was a risk that the radar controller might have made matters worse and, indeed, this had transpired because the DA42 had had to take swift action to avoid the now orbiting BE23. Whilst acknowledging that perhaps the controller didn't really believe that the aircraft could be downwind and might still be approaching to join, members thought that a liaison call to the Tower controller would have been a better initial option.

In determining the cause of the Airprox, the Board quickly agreed that the primary cause was that the BE23 pilot had not integrated with the DA42 in the circuit. However, they also agreed that there were a number of contributory factors: the BE23 pilot did not report at Sandbanks VRP; the BE23 pilot was task focused on flying the aircraft; the BE23 transponder was unserviceable; and there was a lack of situational awareness and coordination from the Bournemouth Radar controller. When assessing the risk, the Board agreed although the DA42 pilot had seen the BE23 just before CPA on the first encounter, the BE23 pilot had not seen the DA42 at all and neither pilot had taken any avoiding action. Accordingly, they agreed that providence had played a major part and they therefore determined that there had been a serious risk of collision; risk Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Beech pilot did not integrate with the DA42 in the circuit.

Contributory Factors:

1. The Beech pilot did not report at Sandbanks VRP.
2. The Beech pilot was task focused on flying the aircraft.
3. The Beech transponder was unserviceable.
4. A lack of SA and coordination from the Bournemouth Radar controller.

Degree of Risk: A.

Safety Barrier Assessment[2]

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

ANSP:

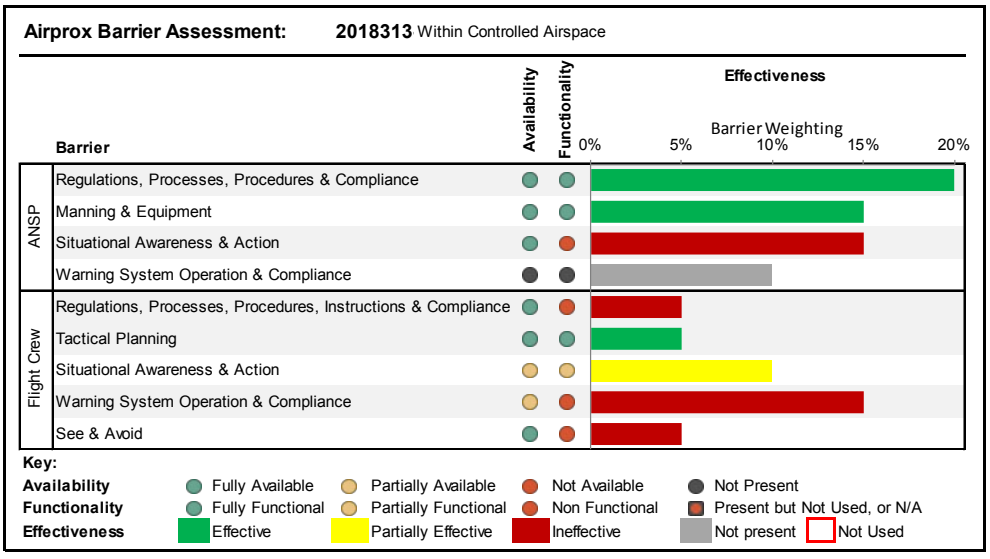
Situational Awareness and Action were assessed as **ineffective** because the Bournemouth Radar and Tower Controllers were not aware that the BE23 had flown into the visual circuit.

Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **ineffective** because although the BE23 pilot flew the join procedure he had been given, he did not call at the Sandbanks VRP; and he could not integrate with the DA42 because he did not know of its presence.

Situational Awareness and Action were assessed as **partially effective** because although the BE23 pilot knew he was approaching the visual circuit, he joined without contacting the Tower frequency and therefore did not know about the DA42 that he should have integrated with.

Warning System Operation and Compliance were assessed as **ineffective** because the PCAS on the BE23 did not alert (potentially due to the DA42 SSR antenna being blanked from the PCAS with the DA42 being below the BE23 as they approached CPA), and the TAS on the DA42 could not alert due to the failure of the BE23's transponder.



See and Avoid were assessed as

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

ineffective because neither pilot saw the other in time to take any action.