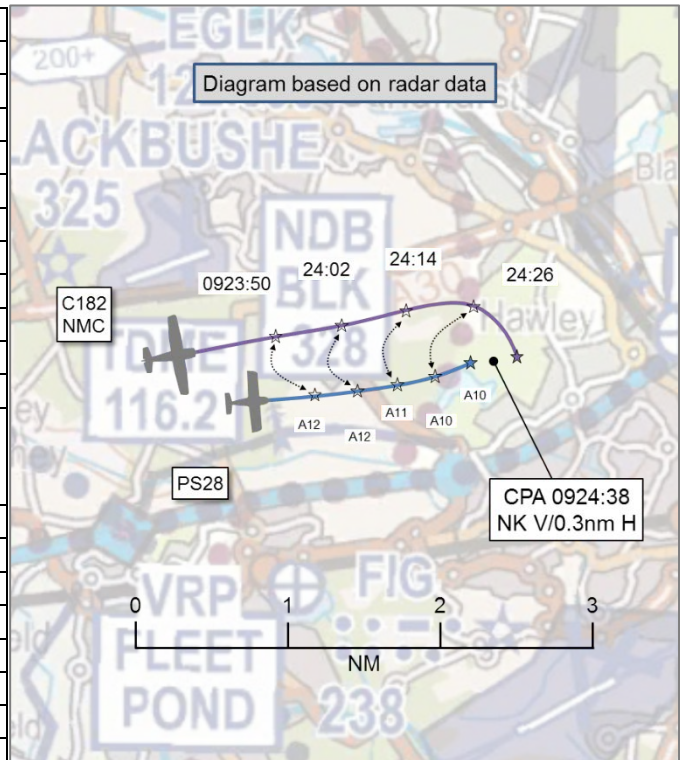


**AIRPROX REPORT No 2018172**

Date: 14 Jul 2018 Time: 0925Z Position: 5119N 00050W Location: Blackbushe airfield - elev 325ft

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	PS28	C182
Operator	Civ FW	Civ FW
Airspace	ATZ	ATZ
Class	G	G
Rules	VFR	VFR
Service	Information	Basic
Provider	Blackbushe	Farnborough
Altitude/FL	1000ft	NK
Transponder	A,C,S	A,S
<b>Reported</b>		
Colours	White	White red stripes
Lighting	Strobes, landing	Flashing beacon, taxi, landing
Conditions	VMC	VMC
Visibility	15km	>20km
Altitude/FL	800ft	1500ft
Altimeter	QFE (1009hPa)	QNH (1021hPa)
Heading	070°	070°
Speed	90kt	125kt
ACAS/TAS	Not fitted	Not fitted
<b>Separation</b>		
Reported	0ft V/150m H	Not reported
Recorded	NK V/0.3nm H	



**THE PS28 CRUISER PILOT** reports that he was carrying out left-hand training circuits to RW25 at Blackbushe. He had heard on the radio the C182 departing with a VFR flight plan. After departure, the C182 pilot changed frequency very early (about 200ft AGL) to Farnborough, indicating to him that the C182 was departing to the west. After discussing the incident with the Tower it seems they also believed the aircraft was leaving the ATZ to the west. When he was downwind, he was given Traffic Information about the C182, which was not in contact with Blackbushe, and was the same level in his 8 o'clock. He was then visual with this traffic and it was very close (within 100-200m horizontal) at the same level and passing him on his left-hand side at a higher speed inside in the circuit. He believed that the C182 was planning for a Farnborough overhead transit and not climbing due to the RA(T), so he took avoiding action by widening his own circuit, slowing down and starting a descent so that if the C182 did turn it would pass above. He believed that the C182 pilot was not visual with him because he did turn across his track towards Farnborough. He then took further avoiding action by turning base early to stop a conflicting path.

He assessed the risk of collision as 'High'.

**THE CESSNA 182 PILOT** reports that his flight was planned to route from Blackbushe to Alderney. He commented that he had only recently started flying from Blackbushe, so he was keen to prepare fully. There were RA(T)s in place for the Farnborough Airshow, and Blackbushe ATC had promulgated Special Procedures. The Blackbushe special arrangements emphasised that all circuits should be kept tight, not out by the M3, at 800ft QFE; and this included overhead joins at 800ft QFE (1125ft QNH). On the Thursday before the flight, he had telephoned Farnborough ATC to understand what impact the RA(T)s might have on his intended route (Blackbushe - FIMLI-MID-ORIST-Alderney) and was informed that they had not yet been notified of any pre-arranged flights on the Saturday and he should proceed as planned, calling them when airborne and released from Blackbushe to obtain a transit at/below

1500ft QNH, if this proved possible. Immediately after this, he telephoned Blackbushe 'ATC' to see how this should be achieved. He was told to conduct the flight as normal and call to change frequency once airborne. On Friday evening he filed a VFR flight plan (via Sky Demon) for the intended route with departure from Blackbushe direct FIMLI. On Saturday it was exceptional weather with CAVOK and no cloud or discernible wind. During start-up, he had to re-set the transponder to get 7000 to display but it seems, from a conversation later with Farnborough, that the Mode C had been not been set correctly and he subsequently had to recycle to 'ALT'. When he called Blackbushe for taxi clearance (not passing full details because they had his flight plan), he specifically asked whether he needed to contact Farnborough whilst still on the ground or in the air. He was told to 'call when airborne below 1500ft QNH'. The airfield was very quiet and he was cleared to depart at 0920 on RW25 as usual with 'nothing known to affect'. The C182 climbs very fast so he was conscious of the special procedures including overhead joins at 800ft QFE (1125ft QNH) so he was alert to possible other joining traffic. When airborne, not far from the upwind end of RW25 (at approximately 800ft QNH), he turned crosswind and continued to climb towards 1500ft (QNH) and then turned downwind. Mindful of the Blackbushe special procedures he kept a close circuit on a normal standard downwind track and distance. The only traffic of which he was aware was a PA28 [actually the PS28] which took off before him and whose radioed intentions he did not understand. Whilst climbing on crosswind leg he saw a slow-moving, low-wing single-engine aircraft on a heading west-to-east at similar altitude to his climb altitude, but it was so far in the distance (2+nm?) that he could not identify the type and thought it might be the PA28 or other Farnborough traffic. In any case he considered it too distant, too slow and on a different course to be a factor to circuit traffic. At 09:22 he reported to Blackbushe that he wanted to change to Farnborough's frequency and was told 'Roger, [frequency] and have a good flight'. Continuing downwind, he was travelling at approximately 125kt, at 1500ft QNH (i.e. 1125 QFE well above the 800 QFE circuit), on the reciprocal runway heading (070°), intending to pick-up his planned route heading (100°) to FIMLI if he did not get transit clearance from Farnborough. In the event, as he was leaving the Blackbushe ATZ, he was given clearance by Farnborough to 'transit overhead, direct MID, not above 1500ft QNH, with a Basic Service. He checked under the wing for traffic on his inside at the same height (and his passenger did also) and saw nothing, so he turned. If he recalled correctly this was instructed as an 'immediate right turn' because of other Farnborough traffic. It was at this point that he was alerted by Farnborough to the Mode C not transponding altitude, so he reset to 'ALT' which was then acknowledged as being seen. He did not believe that there was any issue because at all times he was aware of the potential for other traffic but actively saw none even likely to conflict. Also, the height separation above circuit traffic was sufficient to avoid any conflict.

He assessed the risk of collision as 'None'.



Figure 1 C182 GPS log.

**THE BLACKBUSHE AERODROME FLIGHT INFORMATION SERVICE OPERATOR (AFISO)** reports that the PS28 was flying circuits at Blackbushe. The C182 departed from RW25 and, due to the RA(T) in force at Farnborough, the pilot wanted to make an early call to Farnborough to obtain clearance for transit. The C182 pilot reported changing frequency on crosswind leg. The PS28 was downwind for touch-and-go when it was observed from the Tower that the previously departing aircraft, the C182, was flying a tight and fast circuit. Traffic Information was passed to the PS28 pilot regarding the other aircraft now in his 8 o'clock position, a lot lower and faster than himself and talking to Farnborough Radar. The PS28 pilot reported the traffic in sight and gave way to avoid conflict. It was observed that the C182 pilot then turned right to transit the Farnborough overhead.

### Factual Background

The weather at Farnborough was recorded as follows:

EGLF 140920Z VRB03KT 9999 FEW024 22/14 Q1021

### Analysis and Investigation

#### CAA ATSI

Note: Time references for Blackbushe R/T transmissions are believed to be 20-30 secs in advance.

At 0919:25, the PS28 pilot, who had been carrying out flight training in the circuit, reported on final for a touch and go. The aircraft was sharing the circuit with a PA28.

At 0920:30 the C182 pilot, having taxied out for departure, asked the Blackbushe AFISO if they, (the pilot), should check with Farnborough about transit of the RA(T), (established for the airshow), before or after getting airborne. The AFISO confirmed that they should wait until airborne, and before reaching 1500ft. The C182 pilot then confirmed that they were ready for departure and were given discretion to take-off at 0921:10. At 0921:18, the PS28 pilot, having completed their touch and go, advised that they were carrying out a (practice) fan-stop, and were asked by the AFISO to report climbing westbound. (Figure 2). At 0921:43, the PS28 pilot reported climbing away, observed on the radar replay at 0921:51. (Figure 3.)

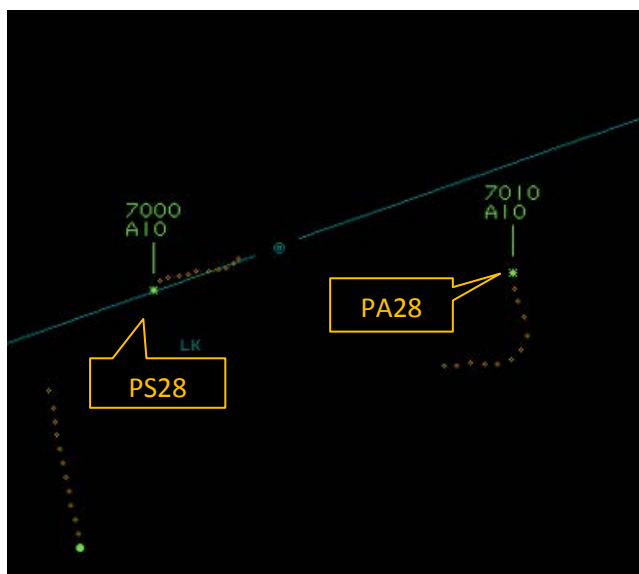


Figure 2 - 0921:18.

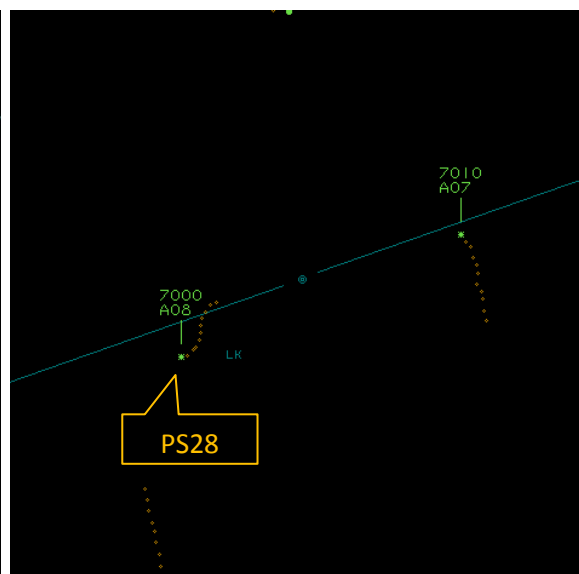


Figure 3 – 0921:51.

The C182 became visible on the radar replay at 0922:19. (Figure 4).

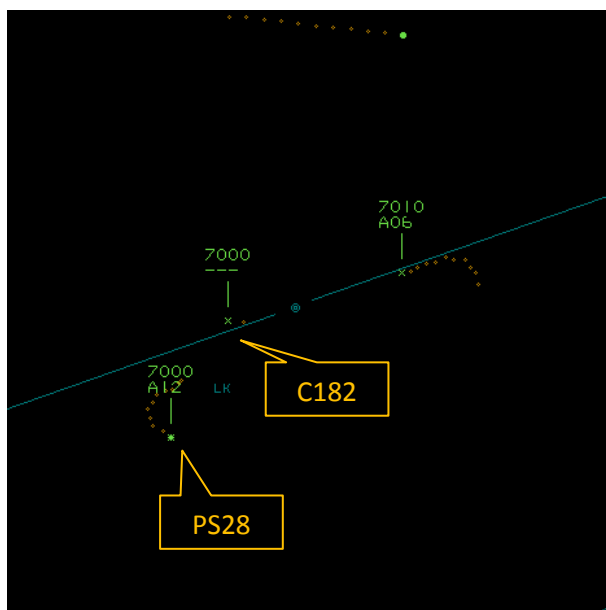


Figure 4 – 0922:19.

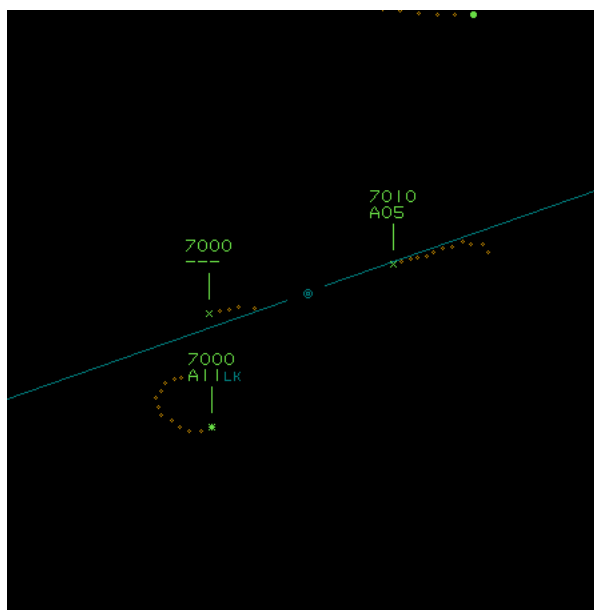


Figure 5 – 0922:28.

At 0922:28, the C182 pilot reported crosswind and ready to change to Farnborough Radar which was acknowledged by the AFISO. (Figure 5).

At 0922:53, the PS28 pilot reported downwind with Blackbushe. (Figure 6).

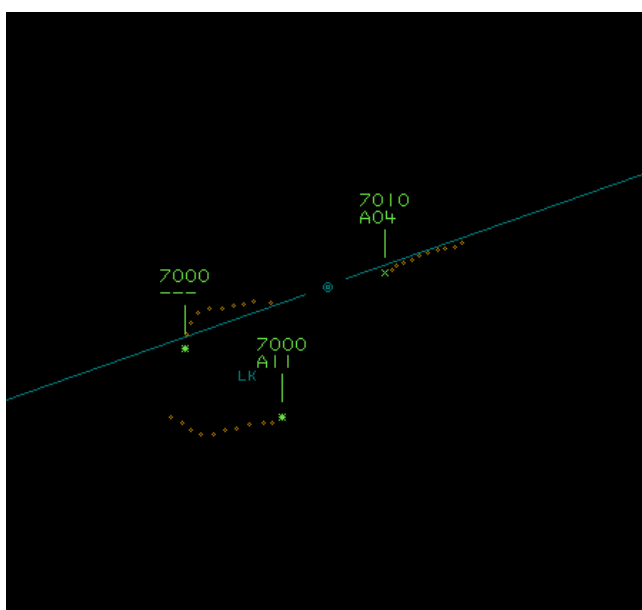


Figure 6 – 0922:53.

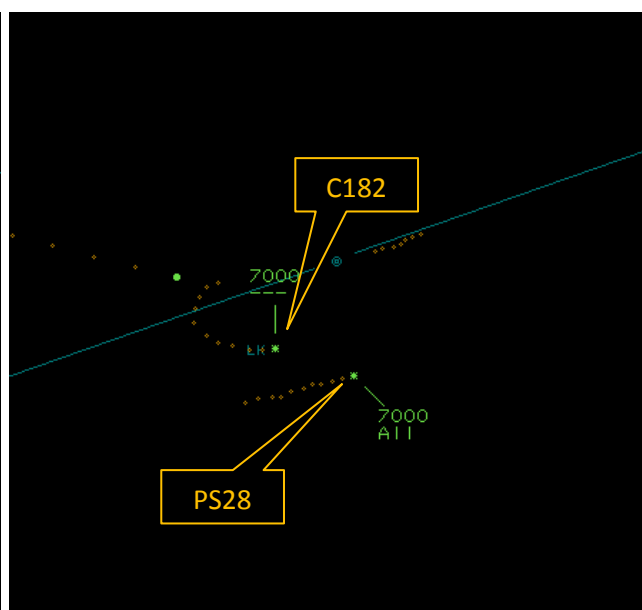


Figure 7 – 0923:15.

At 0923:15 (Figure 7), the C182 pilot contacted Farnborough. After initially telling the controller twice that they were airborne from Farnborough, the pilot subsequently corrected themselves, reported being at 1400ft, and requesting a routing via Frimley to Midhurst, which was acknowledged by the controller.

Meanwhile, at 0923:42, the Blackbushe AFISO cautioned the pilot of the PS28 that another aircraft, (the C182), was also downwind, but that it was speaking to Farnborough. This was acknowledged by the pilot who reported visual with that aircraft. (Figure 8).

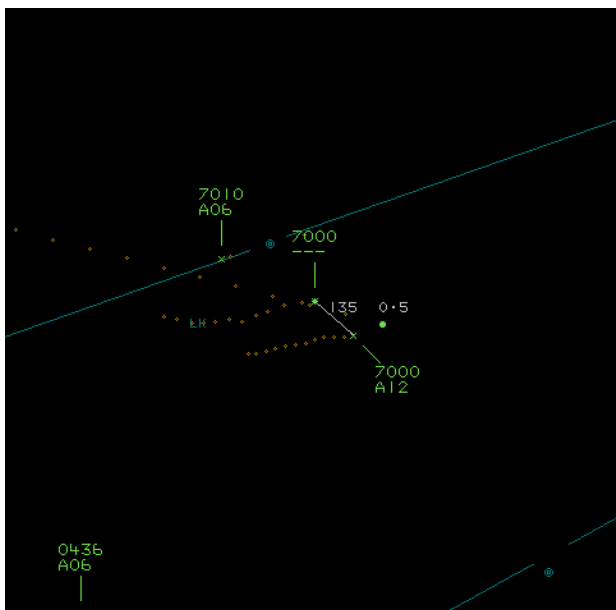


Figure 8 – 0923:42.

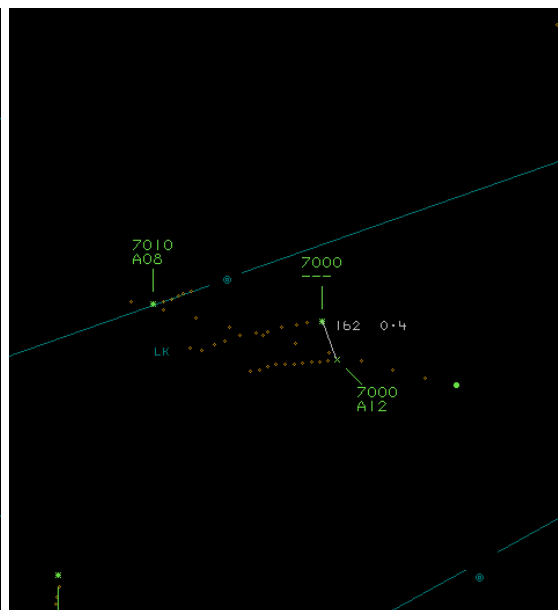


Figure 9 – 0924:00.

Having acknowledged the information passed by the pilot of the C182, at 0924:00, the Farnborough controller passed the Farnborough QNH, a transponder code 0463, and advised that it was a Basic Service. They then cleared the C182 pilot to transit the ATZ, but asked the pilot if they could route to the east of the airfield due to departing traffic, advising that they would then be able to route direct to Midhurst. (Figure 9).

Receiving no response from the pilot, the controller then repeated the request, at 0924:12, to which the pilot agreed. (Figure 10).

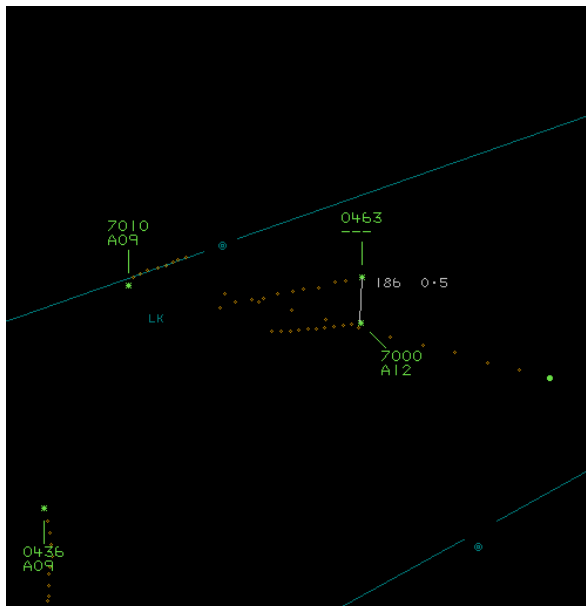


Figure 10 – 0924:12.

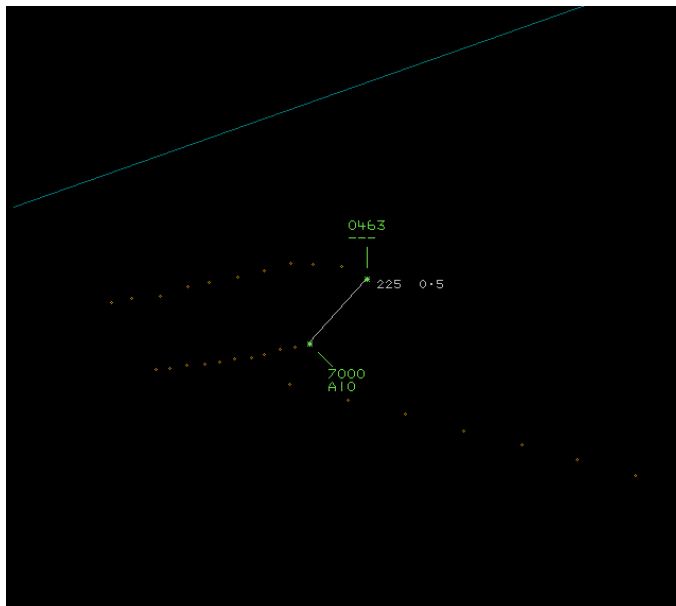


Figure 11 – 0924:32.

CPA took place at 0924:38 with the aircraft separated by 0.3nm laterally. Vertical separation could not be determined as the C182 was not transponding Mode C at the time. (Figure 12).

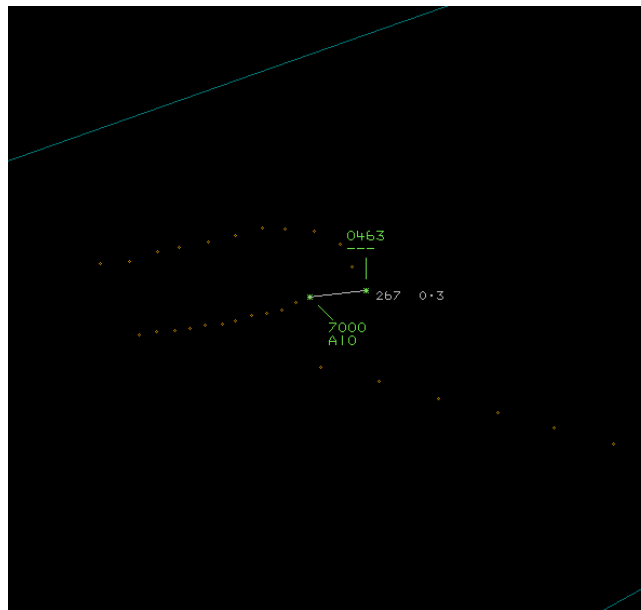


Figure 12 – 0924:38.

The pilot of the C182 reported being aware of another aircraft in the circuit (a PA28), and, according to their report, had heard but not understood the calls from that aircraft. They made no mention of having heard the calls from the PS28 about the practice fan-stop and climb-away. However, it appears from their report that the aircraft they reported seeing when they turned downwind was the PS28, but had not considered it to be relevant traffic. The pilot reported that both they and their passenger checked before commencing the turn southbound, and did not see any other traffic.

The establishment of the airshow RA(T), imposed certain restrictions for aircraft operating in the circuit and departing Blackbushe. Specifically, no aircraft departing Blackbushe was to climb above an altitude of 1500ft, nor track south of the “dual carriageway” until clearance to do so was obtained from Farnborough. The C182 pilot had submitted a flight-plan in advance, with an initial routing from Blackbushe to Frimley, to the northeast of Farnborough, and this was the route the pilot flew on departure, until cleared direct to their next flight-planned point of Midhurst VOR, before reaching Frimley. This effectively placed the C182 within the circuit pattern, albeit above the circuit height of 800ft (1125ft QNH) by 2-300ft.

Without the Mode C information from the C182, the level of confliction would not have been immediately apparent to the Farnborough controller. Further, the PS28 was transponding 7000 and not 7010 (which would have indicated that it was operating in the Blackbushe circuit). There was no requirement for the controller to continuously monitor the flight, and they were fully occupied dealing with other aircraft calls; the Farnborough frequency evidenced almost continuous transmissions during this period.

The C182 pilot believed, incorrectly, that he was informed that there was “no traffic to affect” their departure. The AFISO did not ascertain the planned direction of departure from the C182 pilot and did not say anything to the C182 pilot about the PS28 traffic ahead or the PA28 in the circuit. The PS28 pilot made the practice fan-stop call 8 secs after the AFISO had passed a discretionary clearance to the C182 pilot for departure. The AFISO may not have felt that this was an appropriate time to call in the PS28 as traffic to the C182 pilot, but could have called it at an appropriate point before the C182 pilot was transferred to Farnborough. However, the C182 pilot changed frequency in the crosswind position and initially it looked like the aircraft was going to pass well behind the PS28. Although the Blackbushe AFISO did not pass Traffic Information to the departing C182 pilot on the PS28 carrying out a practice forced landing ahead, they did subsequently pass Traffic Information to the PS28 pilot on the C182, which enabled the pilot to spot the C182 before CPA.

The Airprox took place in Class G airspace where both pilots were ultimately responsible for collision avoidance.

## UKAB Secretariat

The PS28 and C182 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>. Because the incident geometry is considered as converging then the C182 pilot was required to give way to the PS28<sup>2</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>3</sup>.

*'Blackbushe restrictions during first week of Farnborough to protect flying display validations:*

*Blackbushe movements will be allowed in accordance with the following procedures:-*

- i) Circuit traffic will be kept tight and operate at a height of not above 800 feet (including dead side joins). Traffic leaving the circuit must not climb above alt 1500ft until two-way contact has been established with Farnborough Radar, and approval to climb has been given.*

*iii) Blackbushe will remind all operators that the Farnborough ATZ is in force H24.'*

## Summary

An Airprox was reported when a PS28 and a C182 flew into proximity at Blackbushe at 0925hrs on Saturday 14<sup>th</sup> July 2018. Both pilots were operating under VFR in VMC, the PS28 pilot in receipt of a Flight Information Service from Blackbushe and the C182 pilot in receipt of a Basic Service from Farnborough.

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

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

The Board noted that the Airprox occurred on the Saturday, prior to the Farnborough Airshow week. In view of this, an RA(T) had been issued which had affected Blackbushe airport operations, stating that traffic leaving the circuit must not climb above 1500ft, until clearance was obtained from Farnborough and the circuit must be kept tight and operate at a height not above 800ft.

The Board looked first at the actions of the C182 pilot and considered that there were indications in his report that he had been very concerned about the procedures relating to Farnborough. He had telephoned Farnborough ATC on the Thursday before to ask what impact the RA(T) would have on his flight and they had told him to conduct the flight as normal, bearing in mind the 1500ft restriction and call to change frequency when airborne. On Friday he had filed his flight plan and, on the day of the flight, had queried with the AFISO whether he should contact Farnborough before or after departure. Although his attention to flight planning and the special routing procedures was commended, and noting that he had not assimilated the PS28's presence in the circuit, had changed to Farnborough's frequency at an early stage (crosswind), and had evidently not seen the PS28 as he turned towards Farnborough, the Board considered that it seemed that the C182 pilot had allowed himself to become task focussed on his routing (and the associated need to contact Farnborough), to the detriment of lookout and situational awareness, and that this was a contributory factor.

For his part, the PS28 pilot, having carried out a touch-and-go, had advised the AFISO that he was carrying out a practice fan-stop. The C182 pilot reported that he had seen the traffic ahead but had not understood what it was doing, and the fact that the C182 pilot did not assimilate the PS28 pilot's R/T calls was considered to be another contributory factor to the Airprox. The Board also noted that when

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

<sup>2</sup> SERA.3210 Right-of-way (c)(2) Converging.

<sup>3</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

the C182 pilot departed, the AFISO did not pass Traffic Information about the PS28 to the C182 pilot; this was also considered to be a contributory factor. With the PS28 now downwind, the AFISO observed that the C182 was flying a tight and fast circuit inside, and passed Traffic Information to the PS28 pilot about the C182 in his 8 o'clock position. This enabled the PS28 pilot to obtain visual contact with the C182.

The Board then turned its attention to the cause and risk of the Airprox. Some members thought that the incident was best described as a simple conflict in the visual circuit but others opined that the C182 pilot had information that the PS28 was ahead in the visual circuit but that he had convinced himself that it was operating outside the circuit. Although not helped by the AFISO not passing Traffic Information on the PS28 when the C182 pilot called for departure, the Board decided that it was for the C182 pilot to integrate with the PS28 ahead in the visual circuit, and he had not done so. Turning to the risk, the Board noted that the PS28 pilot had seen the C182 and had taken action to increase the separation between the aircraft. Additionally, the C182 pilot's log shows that he had fortunately climbed quickly to an altitude of 1500ft and was consequently about 400ft above the PS28 as he turned towards the aircraft, albeit he had not seen it. Consequently, the Board considered that although safety had been degraded, there had been no risk of a collision; therefore, they assessed the risk as Category C.

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

Cause: The C182 pilot did not integrate with the PS28 ahead in the visual circuit.

Degree of Risk: C.

Contributory factor:

1. The C182 pilot was task focussed on routeing and contacting Farnborough.
2. The C182 pilot did not assimilate the PS28 pilot's R/T calls.
3. The AFISO did not pass Traffic Information about the PS28 to the C182 pilot.

### **Safety Barrier Assessment<sup>4</sup>**

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 only **partially effective** because the C182 pilot was informed by the AFISO that there was 'nothing known to affect his departure', despite the presence of the PS28.

**Situational Awareness and Action** were assessed as **ineffective** because the AFISO had not identified at an early stage that the two aircraft would conflict.

#### **Flight Crew:**

**Regulations, Processes, Procedures, Instructions and Compliance** were assessed as **ineffective** because the C182 pilot did not integrate with the pattern of traffic.

**Situational Awareness and Action** were assessed as **ineffective** because the C182 pilot did not assimilate the position of the PS28 in the circuit.

<sup>4</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).



