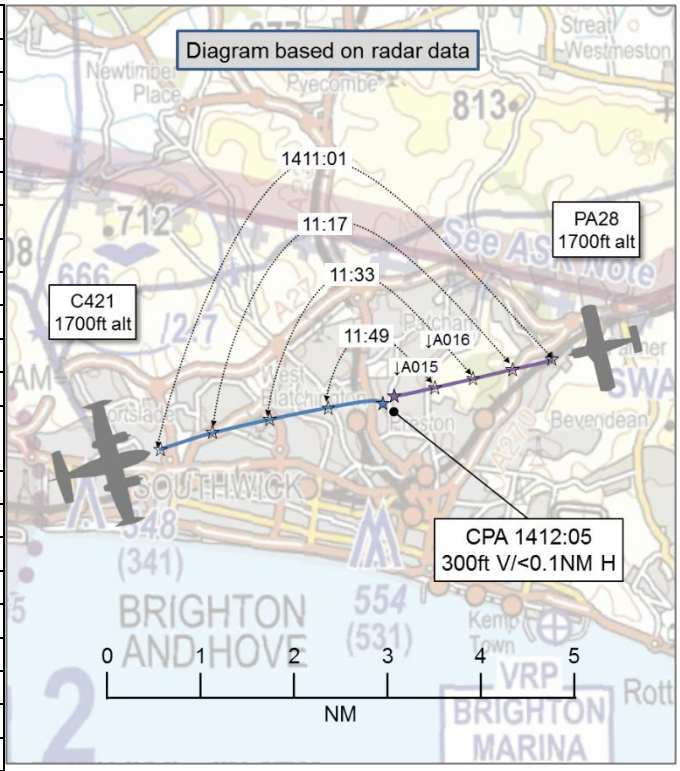
AIRPROX REPORT No 2020006

Date: 21 Jan 2020 Time: 1412Z Position: 5051N 00009W Location: Brighton

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Cessna 421	PA28
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	ACS
Provider	Shoreham Tower	Shoreham Tower
Altitude/FL	1700ft	1400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White/Blue	White/Blue
Lighting	Nav, strobes, anti-collision lights	Nav, strobes, landing light
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	1600ft	NR
Altimeter	QNH (1046hPa)	NR
Heading	080°	260°
Speed	145kt	95kt
ACAS/TAS	Not fitted	Not fitted
Separation		
Reported	400ft V/200m H	500ft V/NR H
Recorded	300ft V/<0.1NM H	



THE CESSNA 421 PILOT reports that he was conducting an air quality surveillance flight, collecting data on AURN[1] sites across the south coast under the operator's Part-SPO approval. Although there were 2 crew, this was a simulated single-pilot operation, with the LH seat pilot under line training and the chief pilot in the RH seat. The planned route had taken them through the Shoreham overhead because 2 AURN sites were located to the west and east of the airfield. Their operations department had contacted Shoreham ATC earlier that day to advise them of the crew's intentions, routing and timing of the flight. The pilot made contact with Shoreham Approach and requested transit, which was approved, maintaining 1600ft on Shoreham's issued QNH and a Basic Service was given. The aircraft was routing from the Shoreham overhead to the eastern AURN site located in Brighton park, just to the east of Shoreham when, while looking-out for the ground site, the handling pilot spotted opposing traffic in the 12 o'clock at around 0.5NM. They took evasive action with a climbing right turn so as to keep the contact in sight during the manoeuvre.

The pilot assessed the risk of collision as 'High'.

THE PA28 PILOT reports that he was conducting a local VFR flight and, on completion, flew back to Lewes to return to Shoreham. He changed frequency from Farnborough and obtained the ATIS; it was while listening to the ATIS that he spotted the other aircraft. Initially, he could not determine whether it was closing or flying away from him. After approximately 10sec he concluded that it was closing and expedited his descent to 1000fpm using idle power. The other aircraft flew overhead and made a steep turn to the right, but by this time he assessed there to be around 500ft of vertical separation so he did not make any course changes. He believes that the Airprox occurred because the pilots of both aircraft were using Lewes VRP to arrive/depart, and that it was unfortunate that he had just changed frequency from Farnborough radar, otherwise they would (he opined) have notified him of the traffic. He

[1] The Automatic Urban & Rural Network is a collection of sites that includes automatic air quality monitoring stations measuring air pollutant levels for the UK Government.

maintained a good lookout and stayed with Farnborough for as long as he deemed practical in order to receive radar Traffic Information. The pilot does not believe that there was any risk of collision. Once he contacted Shoreham, they informed him that a 'twin' was departing and he confirmed with them that they had passed overhead.

The pilot assessed the risk of collision as 'Low'.

THE SHOREHAM CONTROLLER did not submit a report.

Factual Background

The weather at Shoreham was recorded as follows:

```
METAR EGKA 211420Z 34005KT CAVOK 07/04 Q1040=
```

Analysis and Investigation

CAA ATSI

An Airprox was reported by the pilot of a C421 when it came into proximity with a PA28, while conducting a survey flight, passing to the north of Brighton & Hove. The PA28 was on a local VFR flight to the Lewes area, returning to Shoreham.

At 1406:10, the C421 pilot contacted Shoreham Approach, advising that they were passing Littlehampton at 1500ft, requesting a transit of the Shoreham (airfield) overhead and a Basic Service (Figure 1). The Shoreham Approach controller agreed to a transit of the Shoreham ATZ at 1600ft, requesting that the C421 pilot report passing north of the Worthing Pier, but did not confirm the Basic Service. At this time the PA28 pilot was receiving a Basic Service from Farnborough LARS E in the vicinity of Lewes. At 1408:00, the C421 reported passing north of the Worthing pier (Figure 2). The controller acknowledged this and confirmed the ATZ transit approval at 1600ft, advising that the left-hand circuit was active at Shoreham at 1100ft, which was acknowledged by the C421 pilot.

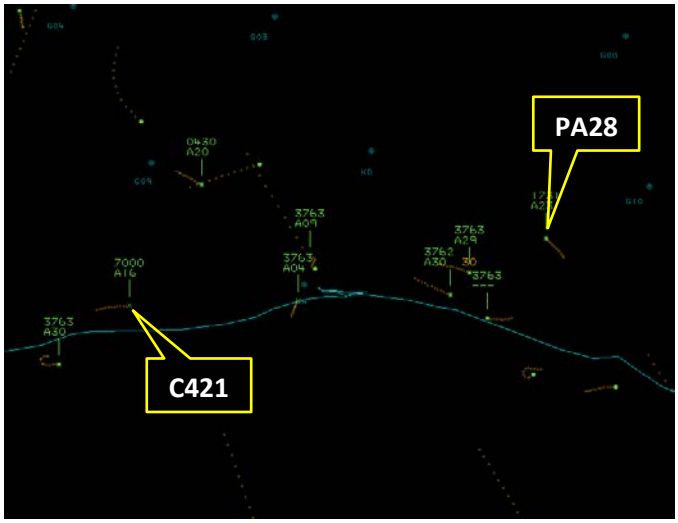


Figure 1 – 1406:10

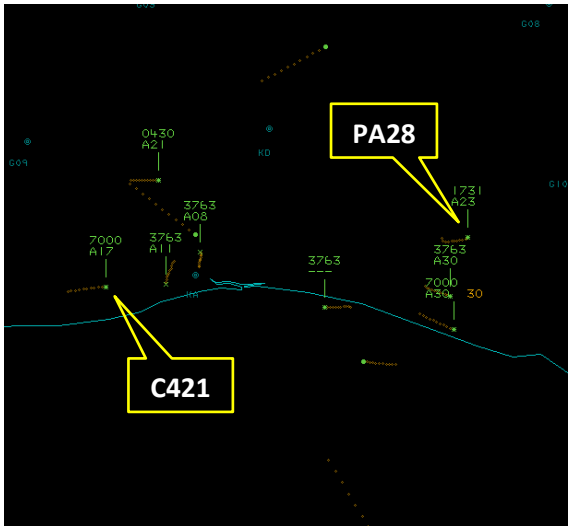


Figure 2 – 1408:00

At 1409:24, the transponder code on the PA28 was seen to change from a Farnborough LARS E code to a 7000 conspicuity code. At 1410:04, the C421 pilot reported passing the Shoreham overhead at 1600ft. The controller acknowledged this and passed the following Traffic Information: "*as you pass to the east of the field, I've got three known and it's a Basic Service*". The C421 pilot acknowledged the transmission and the Basic Service. At 1410:25, the PA28 pilot made his initial call to the Shoreham controller but was told to standby. At 1410:35, the controller requested the PA28 pilot pass their message. The pilot reported being inbound from Lewes, routing towards the

"*power station*" at 1800ft, and requested a right-base join for RW02. The C421 was 6.2NM to the west-southwest of the PA28 at this time (Figure 3). The controller advised the PA28 pilot to expect a crosswind join for RW02 and to report approaching the power station, which was acknowledged by the pilot. Figures 4 illustrates the developing situation.

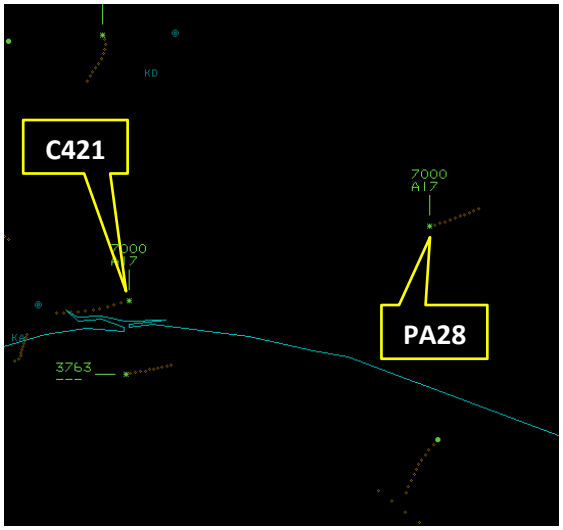


Figure 3 – 1410:35

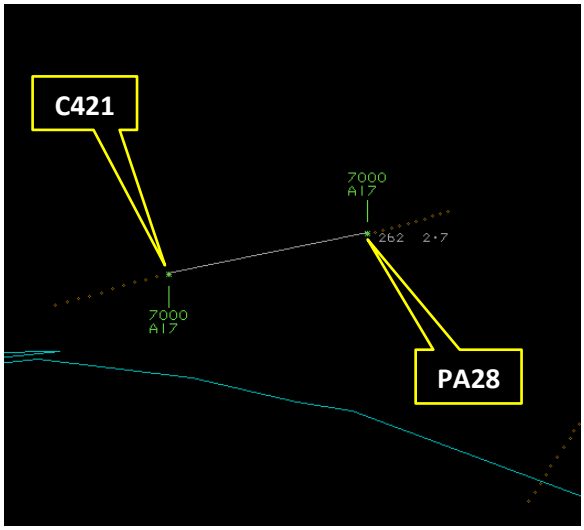


Figure 4 – 1411:30

CPA occurred at 1412:07, with the C421 seen to already be in a turn to the right (Figure 5).

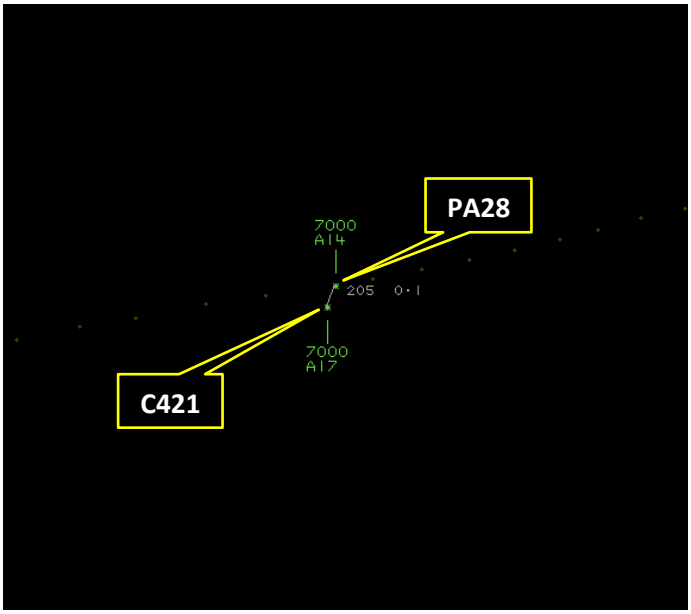


Figure 5 – 1412:07 - CPA

At 1412:35, the controller requested that the PA28 pilot route and report passing south of the power station chimney for a right-base join, not below 1600ft, and to "*be advised, traffic recently passed through the overhead at that altitude eastbound*". The PA28 pilot acknowledged this, confirming "*we were visual with the traffic, descended below*".

The report from the pilot of the C421 suggested that they didn't spot the PA28 until very late. However, the PA28 pilot reported having seen the C421 much earlier, and that they had recognised the potential confliction and descended to avoid.

No reference to an Airprox was apparently made by the C421 pilot on the RTF at the time. As no report nor investigation was completed by the unit, it was not possible to determine if the controller

was providing both a Procedural and an Aerodrome Control Service at the time. There were a number of aircraft on the Shoreham frequency operating within, and in the vicinity of, the Shoreham ATZ, including departures and arrivals, and all were apparently operating VFR. The Traffic Information passed by the Shoreham controller to the C421 pilot as he passed through the Shoreham overhead was generic and considered to be of little practical use. When the controller subsequently passed Traffic Information to the PA28 pilot on the C421, both aircraft had already passed each other.

CAP493 states:

Aerodrome Control shall issue information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic with the objective of:

(1) Preventing collisions between:

(a) aircraft flying in, and in the vicinity of, the ATZ;

(b) aircraft taking-off and landing;

(c) aircraft and vehicles, obstructions and other aircraft on the manoeuvring area.

***Note**: Aerodrome Control is not solely responsible for the prevention of collisions. Pilots and vehicle drivers must also fulfil their own responsibilities in accordance with Rules of the Air.*

UKAB Secretariat

The Cessna 421 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.[2] If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.[3]

Summary

An Airprox was reported when a Cessna 421 and a PA28 flew into proximity over Brighton at 1412hrs on Tuesday 21st January 2020. Both pilots were operating under VFR in VMC, the Cessna 421 pilot in receipt of a Basic Service and the PA28 pilot in receipt of an Aerodrome Control Service, both from Shoreham Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first considered the actions of the C421 pilot and was pleased to note that the C421 operating company had contacted Shoreham prior to the flight to arrange an ATZ crossing. Members felt that, having arranged his ATZ crossing and having passed to the east of Shoreham airfield, he may have heard the intentions of the PA28 during its pilot's joining call, but acknowledged that he had probably

[2] SERA.3205 Proximity.
[3] SERA.3210 Right-of-way (c)(1) Approaching head-on.

not assimilated the PA28's position as relevant to his flight profile at the time, particularly if he was not familiar with the 'power station'. Without any form of on-board alerting system (such as TAS), and in the absence of any Traffic Information (**CF3**), the Board agreed that the C421 pilot had had, at best, generic situational awareness of the presence of the PA28 (**CF4**) and that this had left the only barrier to MAC available to the C421 pilot as see-and-avoid. Although the C421 pilot had seen the PA28 prior to the aircraft crossing, members felt that, given the nature of his manoeuvre, the sighting had been late (**CF5**).

Turning to the actions of the PA28 pilot, the Board first noted that the pilot considered that, had he remained with Farnborough LARS, then he would have received Traffic Information. The Board wished to remind all pilots that, under the terms of a Basic Service, the controller is not required to monitor the aircraft and, if Traffic Information is required, then a Traffic Service should be requested. Nonetheless, members felt that the PA28 had provided sufficient information to the controller regarding his position and intentions but, because he too had not received Traffic Information (**CF3**) and was not equipped with an on-board alerting system, he had equally not had any specific situational awareness regarding the presence of the C421 (**CF4**). However, members considered that the PA28 pilot had sighted the C421 early enough to comfortably take action to increase separation.

Members then discussed the actions of the Shoreham controller and quickly agreed that it was disappointing that there had been no report from the controller and, equally, no investigation from the unit, as this hampered their understanding of the controller's perspective. Without the controller's version of events the Board could only assess the Airprox from the evidence reported, and so concluded that, although the controller had had all the necessary information to assimilate a potential conflict between the C421 and the PA28, he had nonetheless neither detected (**CF1**) nor resolved (**CF2**) the confliction. Controller members felt that Traffic Information on the C421 could have been passed to the PA28 pilot during the joining call or shortly thereafter. As it was, when the Traffic Information had been issued it was after the 2 aircraft had already passed each other (**CF3**).

In considering the collision risk of this encounter, the Board felt that the lack of Traffic Information had played a crucial part in allowing the 2 aircraft to fly into proximity but, without a controller's report, it had not been possible to establish why the passage of Traffic Information had been so late. Members were heartened to hear that the CAA will be conducting a review of reporting requirements of ANSPs as part of the post-Brexit regulatory environment. Nevertheless, the Board agreed that, although safety had been degraded, the PA28 pilot had sighted the C421 early enough to remove any risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2020006		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1	Human Factors	• Conflict Detection - Not Detected	
2	Human Factors	• Conflict Resolution – Not provided	
3	Human Factors	• ANS Traffic Information Provision	TI not provided, inaccurate, inadequate, or late
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
4	Contextual	• Situational Awareness and Sensory Events	Pilot had no, late or only generic, Situational Awareness
	• See and Avoid		
5	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: C

Safety Barrier Assessment[4]

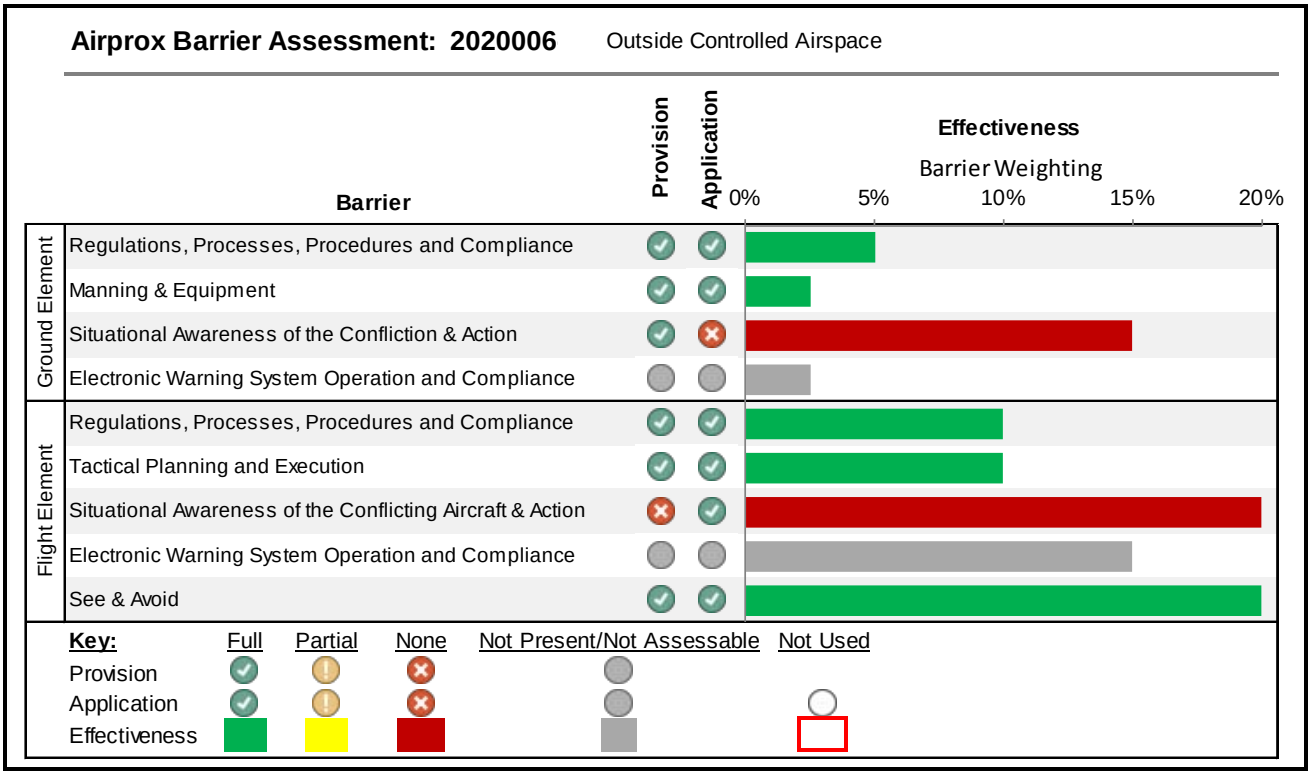
In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Shoreham Tower controller had not assimilated that the 2 aircraft were in conflict until after CPA.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither aircraft was equipped with an on-board collision warning system and neither pilot had been passed any information on the presence of the other aircraft.



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