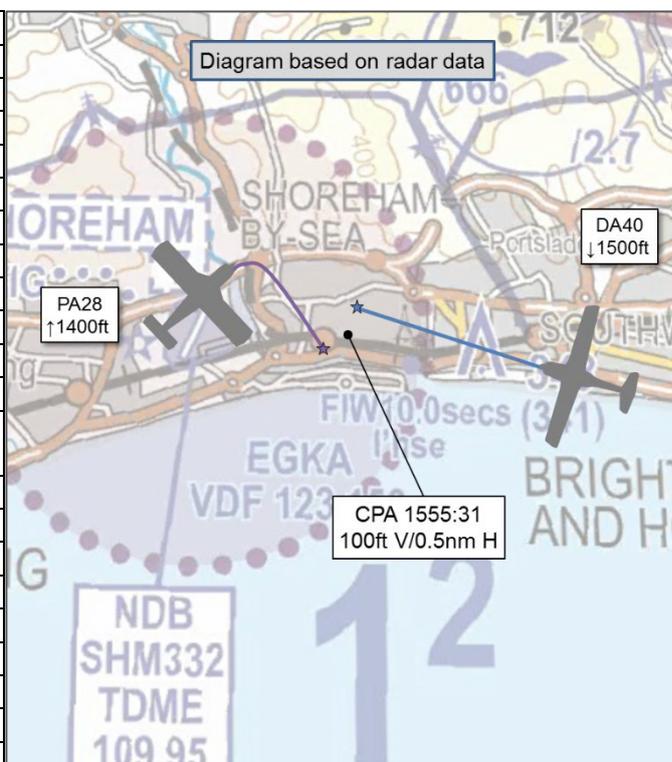


AIRPROX REPORT No 2019106

Date: 14 May 2019 Time: 1555Z Position: 5050N 00015W Location: Brighton City Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA40	PA28
Operator	Civ FW	Civ FW
Airspace	Shoreham ATZ	Shoreham ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Shoreham Tower	Shoreham Tower
Altitude/FL		
Transponder	A, C, S	A, C, S
Reported		
Colours	White	White/Green
Lighting	Strobes	Strobes, Landing Beacon
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1100ft	900ft
Altimeter	QNH (1030hPa)	QNH (1030hPa)
Heading	290°	120°
Speed	100kt	78kt
ACAS/TAS	Unknown	TAS
Alert	N/A	Information
Separation		
Reported	0ft V/0.25nm H	300ft V/0.4nm H
Recorded	100ft V/0.5nm H	



THE DA40 PILOT reports that he was returning to land at Shoreham RW02 via a crosswind join. The PA28 was departing RW02 VFR east with a right turn. He was approaching crosswind when ATC advised that the PA28 had just departed and was passing down his left-hand side; he commented that he would expect that normally departing traffic would be on the right. He believed that the PA28 had turned below 600ft and made a climbing right turn inside the ATZ onto a south-easterly heading of about 150°, instead of turning not below 600ft as per Shoreham’s AIP entry. In doing so, in his opinion, the PA28 did not depart the ATZ on an appropriate heading to allow for the potential of crosswind joining traffic, had flown through the helicopter circuit and through his flight path as he joined crosswind.

The pilot assessed the risk of collision as ‘High’.

THE PA28 PILOT reports departing for a local flight to the east. ATC cleared him for take-off with a non-standard right-hand turn out. He climbed ahead to 550-600ft and then began the turn; as he turned, ATC advised of an inbound aircraft joining crosswind, which he acknowledged. Whilst looking for the traffic he continued to turn slightly further than originally planned. He saw the inbound traffic at 11 o’clock, slightly above and it appeared on the TAS; the other aircraft informed ATC that they had him in sight. He decided to continue the turn and climb because he had the traffic in sight, and it was descending, this seemed preferable to turning left and passing north of the traffic because that would have crossed its path. He noted that when on a right turn he would normally have expected to pass to the north of any joining traffic joining from the A27 tunnels. When he returned to the airfield he was asked to call the tower, which he did, and he was told that although there was no standard departure pattern, when turning right it would be best to delay the turn until above 700ft and pass beyond the tunnels before turning further, they also discussed that the moderate NE wind may have resulted in his turn being slightly further south than usual. ATC said that there was no need for further paperwork.

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

THE SHOREHAM CONTROLLER reports that the PA28 had been given clearance to take-off on RW02 and had climbed away, followed by a slightly early (but not excessively early) right turn towards the east. Around the same time the DA40 had called inbound and requested joining instructions. He was given a crosswind join and instructed to report passing north abeam the Shoreham power station, as is usual for such a join. He became visual with the DA40 shortly after he reported passing the power station, and he passed traffic information to both pilots, which was acknowledged. He then told the DA40 pilot that the traffic should pass down his right-hand side, which is what occurred, and the pilot reported visual. He was visual with both aircraft for the duration and did not believe there was a risk of collision.

Factual Background

The weather at Shoreham was recorded as follows:

METAR EGKA 141550Z 04012KT CAVOK 17/05 Q1030=

The relevant Shoreham AIP entry is below with pertinent sections in bold.

6 USE OF RUNWAYS

- a) *More than one runway may be in use at any one time.*
- b) *Runway 02/20 will always be preferred subject to operational limitations. Aircraft departing Runway 20 should avoid overflying as much of the built up areas to the south as is practical.*
- c) *Circuit heights are 1100 ft aal for all runways.*
- d) *Variable circuits at discretion of ATC.*
- e) ***Unless otherwise instructed aircraft joining the circuit will overfly the aerodrome maintaining 2000 ft aal, until instructed to descend to circuit height on the inactive (dead) side of the runway in use and join the circuit by crossing the upwind end. Pilots should note that there would frequently be helicopters operating both 'liveside' and 'deadside' in the ATZ up to 600 ft.***
- f) ***Aircraft joining direct to the crosswind leg should arrange their flight to track over the upwind end of the runway-in-use, ie in the same position as if approaching it from the 'deadside'. Unless otherwise instructed, this should be at circuit height.***
- g) ***Departing aircraft shall not turn on course below 600 ft QNH unless approved by ATC.***
- h) *All fixed wing aircraft should be aware of helicopters operating live side and dead side beneath the fixed wing circuit patterns.*
- i) ***Departing aircraft, and aircraft going around, should be aware of the possibility of aircraft on the crosswind leg at 1100 ft QFE.***

Shoreham MATS Part 2 states that normal circuit direction on RW02 is left-hand. Aerodrome elevation is 7ft AMSL.

Analysis and Investigation

CAA ATSI

At 1545:40, the PA28 pilot requested taxi for a local VFR flight to the east and was given taxi instructions. At 1552:50, the DA40 pilot was inbound from the east and requested a downwind join RW06 or crosswind RW02. The pilot was instructed to report north of the power station and to expect a crosswind join for RW02 initially and that this may be converted to RW06 as they got closer. The pilot readback "*report at the power station initially, crosswind for RW02*".

At 1553:30, the PA28 pilot had reported ready for departure, was cleared for take-off RW02 and given a right turnout. Between 1554:40 and 1555:00 (Figure 1), the following continuous exchange took place. The DA40 pilot reported north abeam the power station and the controller asked the pilot which runway they would prefer for landing. After an exchange about the wind conditions the pilot responded that they were happy to join crosswind RW02. The controller instructed the pilot to join crosswind RW02, to report downwind and advised the pilot that the circuit was active with traffic on short final. The joining instructions were readback accurately. This was followed immediately

with further Traffic Information on the PA28, described as a recently departed Cherokee, becoming opposite direction, routing east, VFR. The DA40 pilot responded that they had not yet sighted the traffic.

At 1555:20 the PA28 pilot was advised to look out for traffic just north of the power station joining crosswind, he responded that they were looking (Figure 2).

At 1555:30 the DA40 pilot was advised that the PA28 traffic should pass down their left-hand side and the pilot reported that they were visual. This transmission was coincident with CPA, with the aircraft separated by 0.5nm laterally and 100ft vertically (Figure 3).

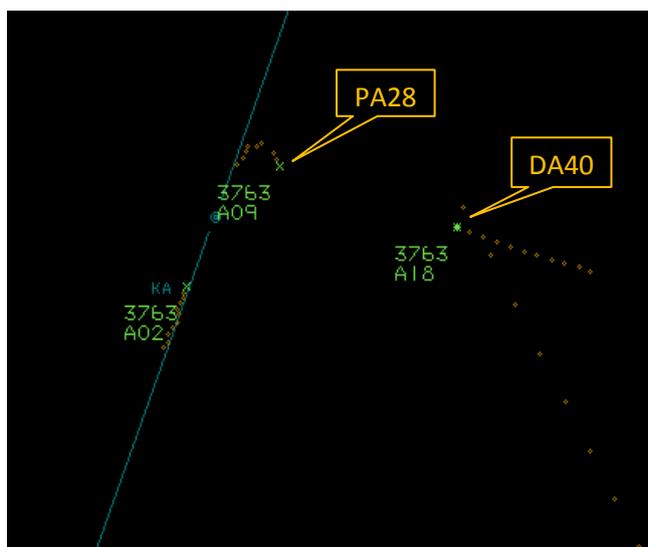


Figure 1 – 1555:00

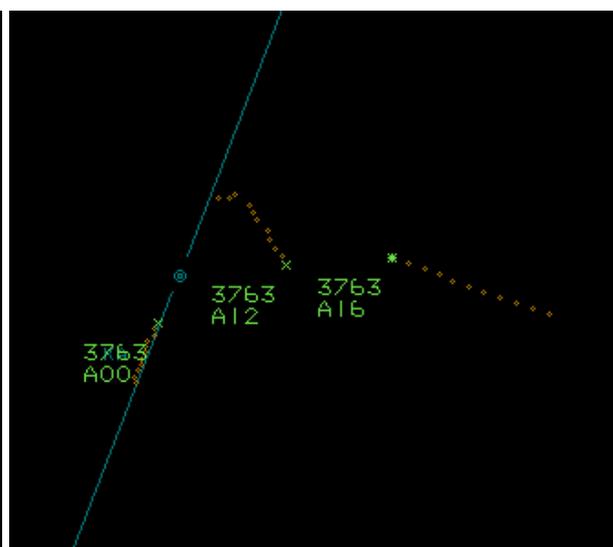


Figure 2 – 1555:20

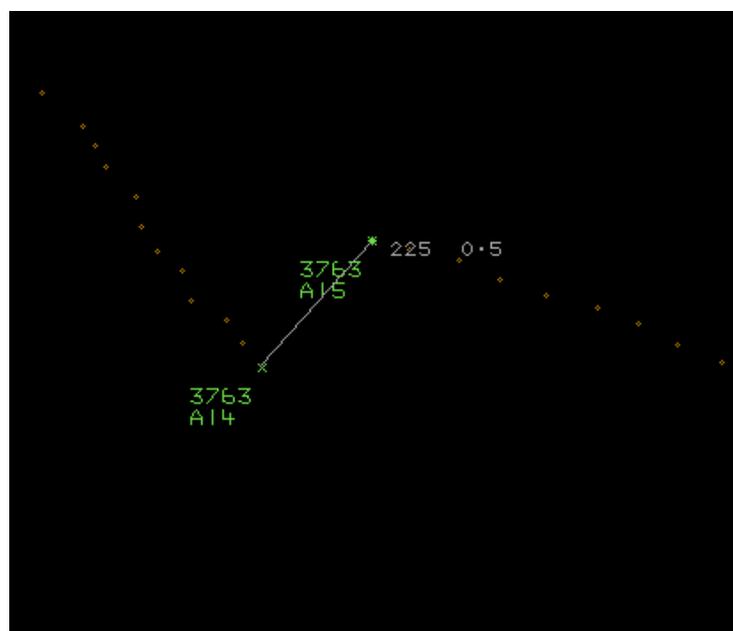


Figure 3 – 1555:30 CPA

In accordance with CAP493, 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.

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”.

And

Traffic information and instructions shall be passed to aircraft on any occasion that a controller considers it necessary in the interests of safety, or when requested by a pilot. Aerodrome Control shall provide:

- (1) generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;*
- (2) specific traffic information appropriate to the stage of flight and risk of collision;*
- (3) timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.*

The joining instructions issued to the arriving DA40 pilot brought the aircraft into conflict with the PA28 departing to the east. The DA40 pilot was not made aware of the PA28 until after the PA28 was airborne and in the right turn, passing 900ft in the climb.

The PA28 pilot was not made aware of the joining DA40 until after they had commenced the right turn and were passing 1200ft. Had the pilot been made aware of the DA40 prior to take off or prior to commencing the right turn, the pilot would have had the option to delay their turn to the east.

After the event, telephone conversations took place between the controller and the pilots of both aircraft involved. The content of the telephone call with the DA40 pilot established that both the controller and the pilot of the DA40 were relying on the departing PA28 pilot not commencing the right turn below 600ft, in accordance with the Shoreham AIP entry. During the conversation with the PA28 pilot it became apparent that he was not aware of this requirement and thought that he may have turned just below 600ft. The radar recording confirms that the PA28 pilot did not commence the right turn below 600ft. Whilst the AIP entry may be intended to assist in the deconflicting of traffic joining crosswind with traffic departing in the crosswind direction, it cannot be relied upon in every eventuality and does not negate the CAP 493 requirement for controllers to pass timely and relevant Traffic Information to enable pilots to safely integrate their flight with other aircraft.

UKAB Secretariat

The DA40 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 hazard¹. 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 operation².

Summary

An Airprox was reported when a DA40 and a PA28 flew into proximity in the Shoreham ATZ at 1555hrs on Tuesday 14th May 2019. Both pilots were operating under VFR in VMC, both receiving an ACS from Shoreham.

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 and reports from the appropriate ATC 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.

The Board first looked at the actions of the DA40 pilot. He was recovering to Shoreham to join the visual circuit, had requested a downwind join for RW06, but was told to expect a crosswind join for RW02. Members agreed that once he had been given this information it was for him to then integrate with other aircraft in the visual circuit, which included those taking off. Although he wasn't immediately

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.

given Traffic Information on the PA28 by the controller, he would have heard the PA28 pilot request take-off and right turn-out on frequency, and could have assimilated that there was a potential conflict. Some members opined that at that point he should have realised that the PA28 departing would be a factor and perhaps converted to an overhead join to keep out of the way (CF4). Even after he had been given the Traffic Information by ATC, the DA40 pilot seemed to believe that the PA28 would be separated from him because it would remain below 600ft before turning and so he did not think he needed to take any action (CF6). Members wondered whether the conversation about the surface wind and active runway had distracted him from realising the importance of the information that ATC were giving him, i.e. the Traffic Information on the PA28 (CF5). Ultimately, in the end the PA28 passed 0.5nm away from the DA40 and members wondered whether the DA40 pilot had become concerned more because he wasn't expecting it to turn right where it did, rather than the actual separation (CF8).

Turning to the PA28 pilot, the Board thought that although ATC did not give him specific Traffic Information on the DA40 until he was airborne, he also could have heard the initial call from the DA40 pilot and the subsequent conversation with ATC. Knowing that the DA40 was going to join crosswind as he climbed above circuit height to cross its track, he also should have realised that there was potential for conflict (CF5). Although the DA40 pilot believed that the PA28 had turned below 600ft, members noted that in fact the radar showed that not to be the case and so the PA28 pilot was entitled to turn as he did. That being said, some members thought that had he assimilated where the DA40 was likely to be, he may have been better placed in delaying his right turn until he was sure that he was clear of the joining traffic (CF4). The Board noted that the PA28 pilot had received additional situational awareness from a TA on his TAS (CF7) and some members surmised that this may have been why he was more sanguine with the geometry than the DA40 pilot, subsequently reinforced by sighting the DA40 some distance away.

Controller members noted that the controller did not immediately give Traffic Information to the PA28 on giving the take-off clearance (CF1, CF3), which was an opportunity missed. Had he passed such information at that point, the PA287 pilot would have had the option of delaying his take-off or positively acting to ensure that his right-hand turn would not conflict with the DA40. In the end the PA28 pilot did not get Traffic Information on the DA40 until he was passing 1200ft and the DA40 was at 1600ft (CF3). In this respect, members felt that the controller should have foreseen that the two aircraft had the potential to conflict with each other, and the Board agreed that he had contributed to the event by not passing Traffic Information early enough (CF2).

Finally, the Board assessed the Risk. Some members opined that a separation of 0.5nm represented a situation where normal safety standards had pertained (Category E). Others felt that there had been more to the Airprox than that, given that each party could have done more to prevent the occurrence. In their view it would only have taken the PA28 pilot to have delayed his turn slightly, or the DA40 pilot to have arrived crosswind slightly earlier for the outcome to have been much different. Although the Board were not concerned with 'what might have happened' and could only assess 'what did happen', members felt that the controller had not sufficiently ensured the safe and efficient flow of traffic in the ATZ because of inadequate Traffic Information and so all factors considered, this should not be seen as 'normal'. In the end the latter view prevailed and it was agreed that although there had been no risk of collision because both pilots were visual with each other, safety had been reduced; risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Contributory Factors:

2019106			
CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with

• Situational Awareness and Action			
2	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
3	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
Flight Elements			
• Tactical Planning and Execution			
4	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
• Situational Awareness of the Conflicting Aircraft and Action			
5	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
6	Human Factors	• Lack of Action	Pilot flew close enough to cause concern despite Situational Awareness
• Electronic Warning System Operation and Compliance			
7	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
• See and Avoid			
8	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment³

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

Ground Elements:

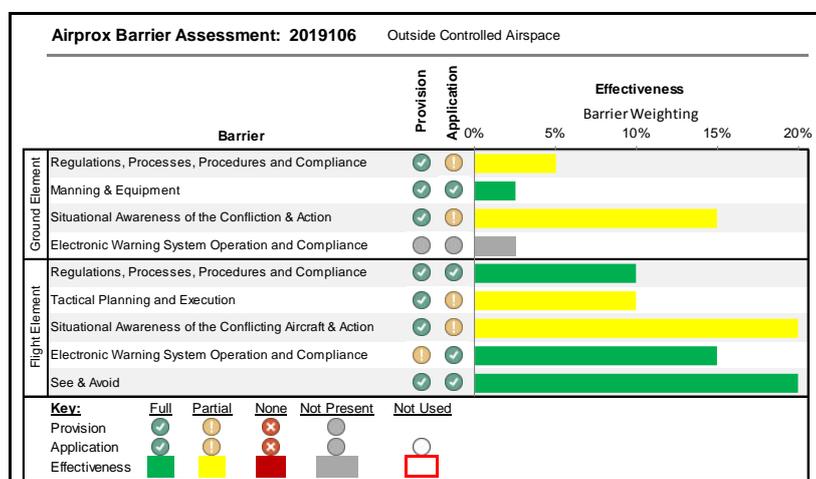
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the controller passed inadequate Traffic Information to the PA28.

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the PA28 pilot did not receive any Traffic Information until after he was airborne and passing 1200ft.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the DA40 pilot did not modify his plan once he became aware of the PA28 getting airborne for a right turnout.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the DA40 pilot did not take positive action to integrate even though he knew the PA28 had turned towards him.



³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](http://www.ukab.co.uk).