

AIRPROX REPORT No 2014074

Date/Time: 31 May 2014 1150Z (Saturday)

Position: 5047N 00018W
(Shoreham)

Airspace: Shoreham ATZ (Class: G)

Aircraft 1 Aircraft 2

Type: C152 PA28

Operator: Civ Trg Unknown

Alt/FL: 1100ft 1300ft
QNH (1025hPa)

Conditions: VMC NK

Visibility: NK NK

Reported Separation:

200ft V/0m H

Recorded Separation:

NK

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

THE C152 PILOT reports flying in the Shoreham visual circuit with a student. Transponder Mode 3A and C were selected; he did not report which lights were illuminated. He was turning from crosswind to downwind when the other aircraft flew directly overhead at 1300ft. They kept a tight downwind circuit to avoid the other aircraft, but it flew beside them, and the other pilot made no attempt to avoid them until ATC told him to position behind.

He assessed the risk of collision as 'Medium'.

THE PA28 PILOT declined to file a report.

Factual Background

The weather at Shoreham was recorded as:

METAR EGKA 311020Z 03007KT 9999 SCT035 17/08 Q1025

Analysis and Investigation**CAA ATSI**

The Shoreham ATZ consists of a circle, radius 2nm, centred on Runway 02/20 and extending to 2000ft above the aerodrome elevation (7ft). The C152 was VFR, positioning downwind in the visual circuit and was in receipt of an Aerodrome Control Service from Shoreham Tower. The PA28 was on a VFR flight and had requested a landing at Shoreham for refuelling. The PA28 was joining crosswind and was also in receipt of an Aerodrome Control Service from Shoreham Tower.

ATSI had access to Shoreham RTF and area radar recording, together with the written report from the C152 pilot. No report was received from the PA28 pilot and the Airprox was not reported to the ATSU on the RTF, or subsequently, and therefore no controller or unit report was available.

At 1142:52, having followed the coastline, when 3.4nm southwest of Shoreham, the PA28 turned inland and commenced a left-hand orbit.

At 1143:24 the PA28 contacted Shoreham Approach requesting a landing at the airfield for refuelling. The PA28 pilot was instructed to report when he had the airfield in sight with runway 20 left-hand circuit and QFE 1025. The PA28 was allocated the VFR conspicuity squawk 3763 and the pilot confirmed inbound. Shoreham Approach advised, *“Okay thank you [1144:10] and er eh in which case then report Worthing for a crosswind join and er sh the the Shoreham circuit height is eleven hundred feet”*. The PA28 pilot replied *“Say again (PA28)c/s”*, however another inbound aircraft [a PA38 not involved in the Airprox] transmitted and reported at North Worthing for crosswind before being transferred to the Tower. At 1144:50 the PA28 pilot asked Approach to say again and Approach responded by asking the PA28 to go ahead. The PA28 pilot advised, *“(PA28) Wo – Worthing with the airfield in sight er request er crosswind join*. At 1145:05 the PA28 pilot was advised about the PA38 ahead and transferred to the Tower.

At 1145:14, the PA28 had completed the left-hand orbit and was over the coast 4.4nm southwest of Shoreham. At this point the PA38 ahead was crosswind and the C152 was downwind.

The PA28 continued towards the airfield and, at 1146:20, commenced a second left-hand orbit 2.3nm southwest of Shoreham, contacting Shoreham Tower at 1146:29. The Tower controller responded, *“(PA28)c/s Shoreham Tower continue crosswind and report downwind runway two zero lefthand circuit traffic is two aircraft ahead of you in the circuit”*. The PA28 pilot’s reply was garbled due to a crossed transmission from the PA38 reporting downwind. The Tower controller instructed the PA38 to report final number two following the C152 - Figure 1 (a representation of the runway 20 centreline has been added for clarity and it was noted that the PA28 pilot had selected the SSR code 3063 in error).

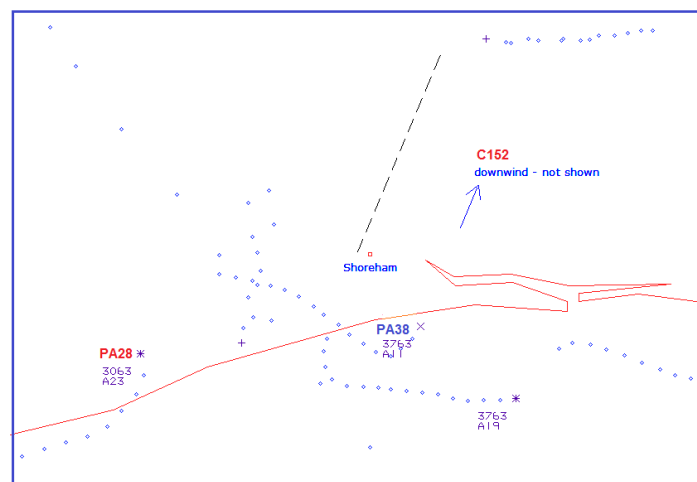


Figure 1 – Swanwick MRT at 1146:29

At 1146:52 the controller sighted the PA28 in the left-hand turn and advised, *“(PA28)c/s visual with you there if you continue that left turn that’ll put you back on crosswind”* which the PA28 acknowledged with *“(PA28)c/s”*. The controller added, *“and (PA28)c/s descend to circuit [1147:00] height one thousand one hundred feet report left-hand downwind runway two zero”*. The PA28 pilot responded, *“Descend to one thousand one hundred feet er report when downwind (PA28)c/s”*.

At 1147:12 the C152 was cleared for touch and go and the controller instructed an aircraft awaiting departure to hold position. At 1148:11 the PA28 had completed the orbit and the controller transmitted, *“(PA28)c/s I’ve lost visual with you report position”* and the PA28 pilot replied *“(PA28)c/s just er joining crosswind now”* – Figure 2.

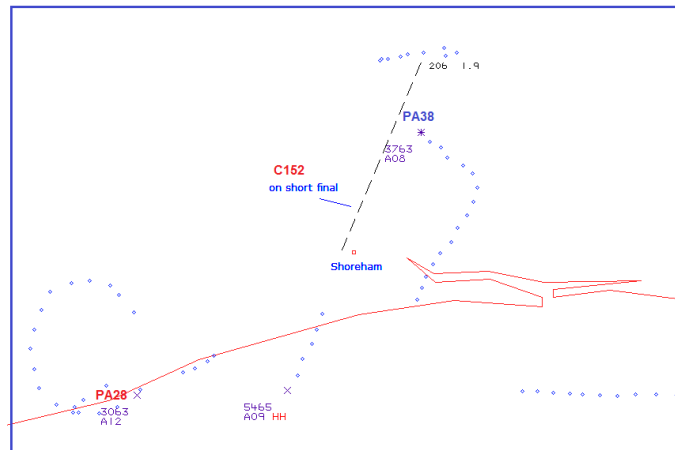


Figure 2 – Swanwick MRT at 1148:11

At 1149:24 radar recording showed the PA28 joining crosswind indicating 1300ft and an intermittent contact, which CAA ATSI considered was likely to have been the C152, turning from crosswind to downwind at 1100ft as reported by the C152 pilot – Figure 3.

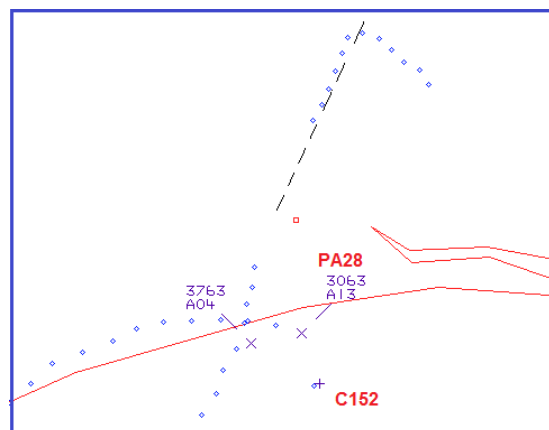


Figure 3 – Swanwick MRT at 1149:24

[Note – radar recording does not show the C152 again but the projected paths would indicate that the PA28 then crossed the path of the C152 from left to right.]

At 1150:41 the C152 reported downwind and the controller asked the PA28 to report his position. The PA28 pilot responded “(PA28)c/s jus- just had er ???? ???? in sight downwind”. The controller instructed the C152 to report final number one and the PA28 to report final number two following the Cessna. The two aircraft continued without further incident.

No report was received from the PA28 pilot and it was not clear when he had sighted the C152 which was downwind and approaching from his right. He had reported the C152 in sight after the Airprox.

The ATSU commented that the PA28 pilot carried out two orbits prior to joining crosswind, selected the incorrect SSR code, did not join crosswind as expected, and was not visual to the controller. The UK AIP, page AD 2.EGKA-8 (14 Nov 2013), paragraph 6(f), states:

‘Aircraft joining direct to the crosswind leg should arrange their flight to track over the upwind end of the runway-in-use, i.e. in the same position as if approaching it from the ‘deadside’. Unless otherwise instructed, this should be at circuit height.’

An extract from the Google Earth mapping tool shows the C152 (labelled ‘unknown’) and the PA28 radar plots relative to the airfield and runway.



Extract from Google Earth showing the radar plots

Both aircraft were operating within the Shoreham ATZ, in receipt of an Aerodrome Control Service and CAP493 - The Manual of Air Traffic Services (MATS) Part 1, Section 2, Chapter 1, Paragraph 1.4 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 :Preventing_collisions between: aircraft flying in, and in the vicinity of, the ATZ...

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

It was considered likely that the unplanned diversion by the PA28 for refuelling led to the PA28 pilot being unfamiliar with the airfield and unsure of arrival procedures. The PA28 pilot had been advised that circuit height was 1100ft and that there were two aircraft ahead in the circuit, although the pilot's response was garbled due to a crossed transmission. Radar does not show the geometry of the incident but the PA28 joined crosswind at 1300ft, further south than expected with the C152 below (1100ft as reported by the pilot) and crossing from right to left as it routed downwind. It was not clear from the garbled readback if the PA28 pilot had received the general traffic information, and there was an absence of specific traffic information from the Aerodrome Controller regarding the type, position and intentions of the other two aircraft. CAP493, Section 2, Chapter 1, Paragraph 1.23/24 states:

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. In particular, Aerodrome Control shall provide:

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

MATS Part 2 shall detail local procedures for the integration of aircraft in the vicinity of the aerodrome.

CAP774 – Flight Information Services, Chapter 2, paragraph 2.5 states:

'In order to comply with the Rules of the Air Regulations 2007 (as amended) with regard to flight within an ATZ, specific and, where appropriate, updated traffic information will be provided to aircraft receiving Aerodrome ATS.'

In this respect, ATSI made the following the recommendations:

It is recommended that the CAA SARG Principal Inspector (Gatwick RO) in consultation with Shoreham ATSU ensure that the ATSU undertake a review of their procedures for the integration of VFR traffic into the circuit in order to facilitate, in accordance with CAP493, the passing of:

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

UKAB Secretariat

The PA28 was required to conform to the pattern of traffic formed by other aircraft intending to land, or keep clear of the airspace¹. Additionally, both pilots shared an equal responsibility to avoid a collision and not to fly into such proximity as to create a danger of collision.²

Summary

An Airprox was reported on 31st May 2014 at 1150 between a C152 and a PA28 1nm to the southeast of Shoreham. The C152 was established in the visual circuit at Shoreham and the PA28 was joining the circuit.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the C152 pilot, transcripts of the relevant RT frequencies, radar photographs/video recordings and reports from the air traffic controllers involved.

The Board first expressed its disappointment that the PA28 pilot had chosen not to participate in the Airprox process. The lack of his report meant that vital pieces of information were missing from the analysis, and the Board had no way of knowing whether he had in fact seen the C152 or not. This had hampered the Board's ability to offer lessons and recommendations regarding flight safety issues for the good of all. In the absence of his report the Board had to assume that he was unfamiliar with Shoreham, that this had led to him orbiting prior to entering the circuit, and went some way to explain his positioning as he joined nominally through a crosswind track.

The Board discussed at some length whether 200ft separation in the visual circuit was in fact normal operations for aircraft joining the circuit, and some discussion then ensued about the positioning for a crosswind join. It became apparent that even within the Board, made up of many experienced controllers and aviators, there was a varying degree of opinion as to what should be expected for a 'crosswind join' versus 'joining crosswind'. Some Board members felt the PA28 had followed ATC instructions and had joined 'crosswind' by adopting a track which all pilots recognised as a crosswind leg. Others argued that a crosswind join was a far more precise instruction that required the PA28 pilot to cross the upwind runway threshold. The CAA has recently debated crosswind joins and visual circuit procedures in general but, nevertheless, the Board felt that the use of the word 'crosswind' for both a joining procedure and for a track in the visual circuit was misleading and could cause confusion, as in this case, between pilots who were already in the circuit and were 'crosswind' just prior to turning downwind; pilots who were conducting a 'crosswind' join that routed over the threshold and not via the same circuit's crosswind track; and pilots who might be joining the circuit 'crosswind' with the intention of turning directly onto the downwind leg. The Board therefore resolved to make a recommendation that the CAA reviews this ambiguity, probably by removing the phrase 'crosswind' from the formal 'crosswind join' nomenclature – perhaps calling it an 'upwind (threshold) join' instead, or similar.

Notwithstanding, the debate over this ambiguity, the Board also opined that Shoreham ATC could have removed much of the uncertainty in the situation if they had given specific traffic information on the position of circuit traffic to the PA28 as he joined. This in turn may have then highlighted to the

¹ Rules of the Air 2007 (as amended), Rule 12 (Flight in the vicinity of an aerodrome)

² *ibid.* Rule 8 (Avoiding aerial collisions).

C152 that an aircraft was joining, and avoided the surprise that the pilot felt when the PA28 appeared directly above him.

In discussing the cause, the Board agreed that the C152 pilot was concerned by the proximity of the PA28, and that a contributory factor had been that ATC had not given timely traffic information. They noted that the PA28 pilot had sensibly remained at 1300ft despite being told to join the circuit at 1100ft, and that this had generated the 200ft separation from the C152. They concluded that, in doing so, the PA28 pilot had made an effective and timely decision, and the risk was therefore determined as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The C152 pilot was concerned by the proximity of the PA28.
<u>Contributory Factor(s):</u>	The Shoreham TWR controller did not pass timely traffic information.
<u>Degree of Risk:</u>	C
<u>ERC Score³:</u>	4
<u>Recommendation(s):</u>	The CAA considers reviewing the use of the word 'crosswind' for both joining the visual circuit and a visual circuit position.

³ Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.