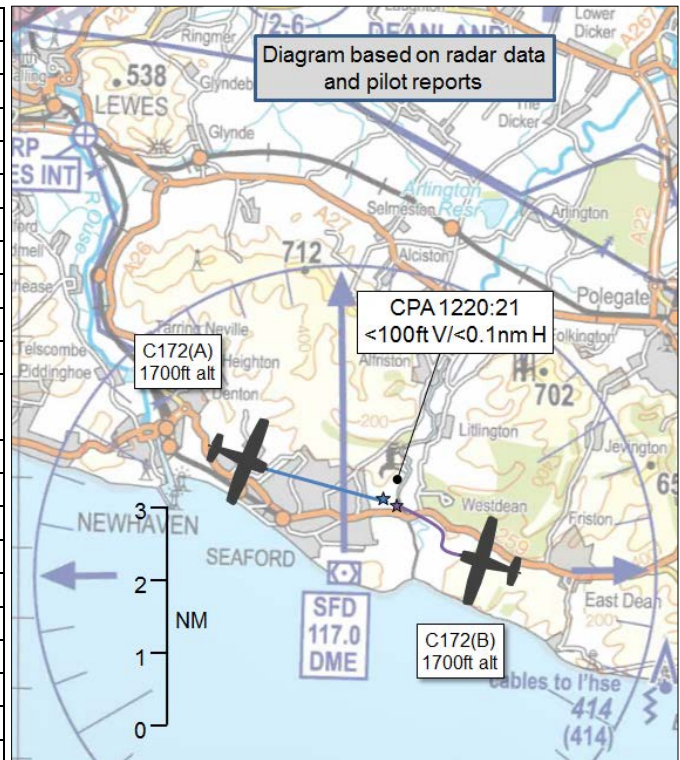


## AIRPROX REPORT No 2016219

Date: 10 Oct 2016 Time: 1220Z Position: 5046N 00008E Location: 3nm NE Seaford VOR

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	C172
Operator	Civ Trg	Civ Trg
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	None
Provider	Shoreham	
Altitude/FL	1700ft	1700ft
Transponder	A, C	A, C
<b>Reported</b>		
Colours	White, Green, Blue	White, Blue, Silver
Lighting	Beacon	
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	1800ft	1600ft
Altimeter	QNH (1025hPa)	QNH (1026hPa)
Heading	030°	110°
Speed	120kt	105kt
ACAS/TAS	Unknown	Not fitted
<b>Separation</b>		
Reported	20ft V/3m H	300ft V/0.5nm H
Recorded	<100ft V/<0.1nm H	



**THE C172(A) PILOT** reports that he was near the Seaford VOR, turning at 15° AOB to fly along the Cuckmere River, when a C172 came from behind to the starboard side. It flew over the top descending and turning left. He saw the underside of the aircraft appear very close as it went over the top and it appeared that the other aircraft almost flew into him. By the time he had seen it, it had already passed so there was no time to take any avoiding action.

He assessed the risk of collision as 'High'.

**THE C172(B) PILOT** reports that he was on a training flight and sitting in the right-hand seat. Although not matching C172(A) pilot's report, he described a geometry that saw him flying west of Seaford towards Cuckmere when he saw another aircraft on his right, tracking in from the coast, 3 to 4nm away. He monitored its track, fully aware that he would be in the other pilot's blindspot due to its high wing, and that the other pilot probably hadn't seen him. The other aircraft was tracking a steady north-easterly heading; because the other aircraft was on the right he performed a precautionary 90° left turn away from his track, expecting to see it appear on his right if it had maintained course. However, it did not appear as expected, so he turned further left and saw it low, left abeam, and although he was now on the right, he turned right to increase separation. It was clear that the other pilot was not visual with his aircraft, otherwise it would not have turned left towards him, he thought that when he came into view the other pilot must have been startled as he turned right behind and below and continued on an easterly heading. He opined that he would have expected the other pilot to 'lift the wing' and complete a thorough look-out before making any changes in heading, especially when operating at low altitudes in a high-wing aircraft. The weather was fine with excellent visibility and he was fully aware of the other aircraft, with sufficient distance between them to perform normal and smooth flight. At no time did he consider the contact to be endangering his aircraft.

He assessed the risk of collision as 'Low'.

## Factual Background

The weather at Shoreham was recorded as follows:

METAR EGKA 101220Z 36008KT 9999 SCT028 14/05 Q1025=

## Analysis and Investigation

### CAA ATSI

The C172(A) (SSR code 3763) was operating on a local VFR flight, at the time of the Airprox the intention of the C172(A) pilot was to fly along the Cuckmere River in the vicinity of the 'SFD' VOR/DME which is located 16.6nm east-southeast of Shoreham Airport.

The C172(B) (SSR code 7000) was operating on a local training flight. At the time of the Airprox the C172(B) was tracking north-west, the pilot was listening out on the Headcorn Radio frequency but was not in receipt of any Air Traffic Service.

After departing the Shoreham ATZ, the C172(A) tracked eastbound along the South Coast and a Basic Service was agreed with the Shoreham Approach controller. Other than agreeing the type of ATS there was no further communication between the C172(A) and Shoreham Approach until well after CPA when the pilot requested to re-join the circuit. The C172(B) was not known traffic to the Shoreham Approach controller and the pilot of C172(A) made no mention of the Airprox on the recorded Shoreham Approach R/T. Shoreham ATC were only made aware of the Airprox when the C172(A) pilot reported the occurrence via telephone to them after landing.

CPA occurred between 1220:19 (Figure 1) and 1220:23 (Figure 2) with a minimum horizontal distance of less than 0.1nm and a minimum vertical distance of 0ft.

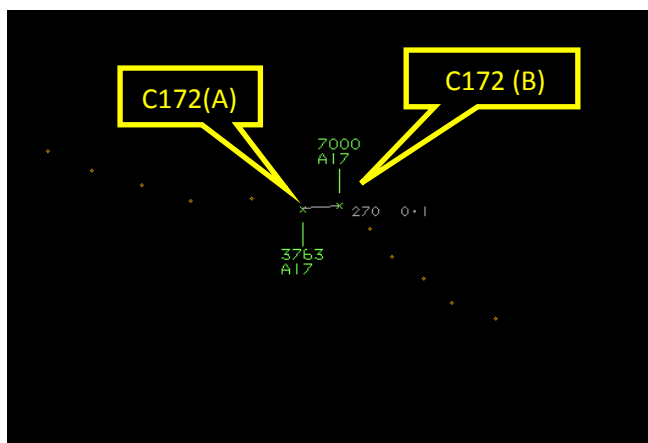


Figure 1 – 1220:19 UTC

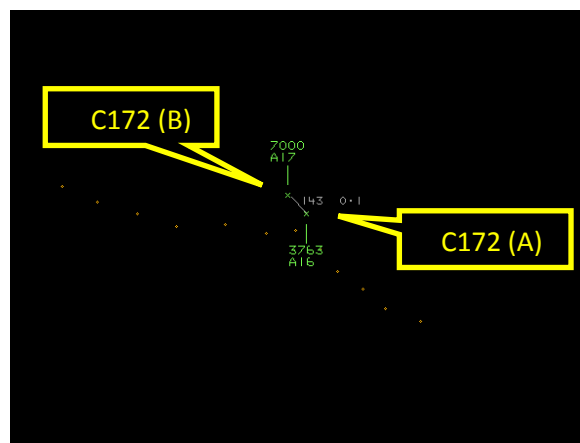


Figure 2 – 1220:23 UTC

The Shoreham Approach controller was providing a Basic Service to the C172(A) in Class G (uncontrolled) airspace. A Basic Service relies on the pilot avoiding other traffic, unaided by controllers/FISOs. The provider of a Basic Service is not required to monitor the flight (and) pilots should not expect any form of Traffic Information from a controller<sup>1</sup>.

### UKAB Secretariat

<sup>1</sup> CAP774, Chapter 2, Para 2.1 & 2.5

The C172 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>2</sup>. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right<sup>3</sup>. If the incident geometry is considered as converging then the C172(A) pilot was required to give way to the C172(B)<sup>4</sup>.

C172(B)'s report and diagram did not match the C172(A) pilot's description of the event or the radar replay. However, shortly after CPA, the two aircraft again came into proximity and it is possible that this is the part of the incident that the pilot recalls, not initially having seen C172(A) when they initially closed. Screen shots of the radar just after the Airprox are reproduced at Figures 3 and 4.

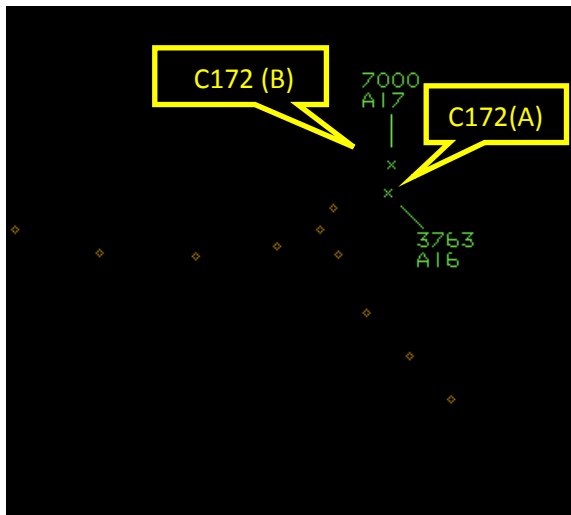


Figure 3 - 1220:32

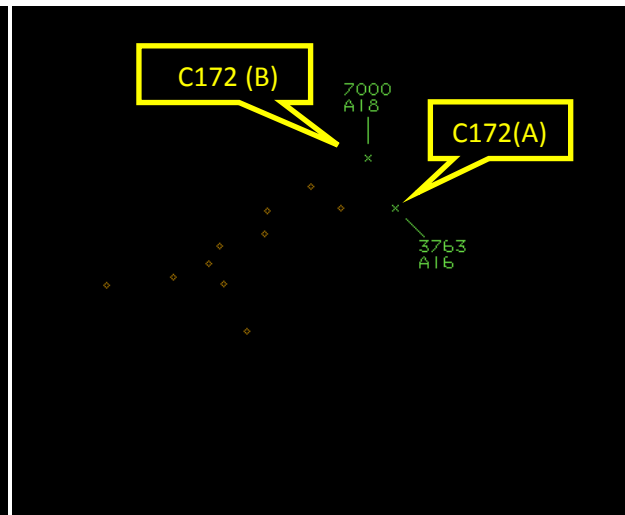


Figure 4 - 1220:43

## Summary

An Airprox was reported when C172(A) and C172(B) flew into proximity at 1220 on Monday 10th October 2016. Both pilots were operating under VFR in VMC, C172(A) pilot in receipt of a Basic Service from Shoreham and C172(B) pilot not receipt of an ATS.

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

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

The Board first looked at the account of the C172(B) pilot because it was clearly at variance to the radar replay and the report from C172(A) pilot. Members quickly agreed that he must not have seen C172(A) as they initially both approached the Seaford VOR. His description of flying on an easterly heading led the Board to believe that he had probably only seen the other aircraft after the first crossing once both aircraft were heading east. Although some members wondered how the two aircraft could have got so close without C172(B) pilot seeing anything, Mode S data confirmed that there was no doubt that these were the aircraft involved.

Turning to C172(A) pilot, he reported seeing the other aircraft as it came from behind and passed over the top. This led the Board to conclude that he too had not seen the other aircraft until after the first crossing. Members opined that the two aircraft had been approaching each other head-on for some miles and that there had been ample the opportunity for either pilot to spot each other earlier and then manoeuvre to change the geometry. Members went on to discuss the practise of flying to

<sup>2</sup> SERA.3205 Proximity.

<sup>3</sup> SERA.3210 Right-of-way (c)(1) Approaching head-on.

<sup>4</sup> SERA.3210 Right-of-way (c)(2) Converging.

the right of geographical line-features, and wondered whether in this instance if the C172(A) had been flying to the right of the coastline (i.e. over the sea as it headed southeast), the two aircraft would have then been spaced far enough apart to have avoided the Airprox. The Board were aware that the under SERA the rule had been removed as a formal requirement, but they noted that CAA guidance still stated that:

*An aircraft which is flying within the United Kingdom with the surface in sight and following a road, railway, canal or coastline, or any other line of landmarks, should fly to the right of the line feature unless flying within controlled airspace in accordance with instructions given by the appropriate air traffic control unit.*<sup>5</sup>

Noting that there were very few ATSU in this area who could provide a radar service, the best ATS that the pilots could get was a Basic Service from Shoreham. Unfortunately, without a radar or knowledge of C172(B), Shoreham were not able to warn C172(A) of traffic in the vicinity. The Board noted that neither aircraft was fitted with any form of TAS, and members thought it worth highlighting the merit of electronic conspicuity in cases such as this; both aircraft were transponding and so any Traffic Alerting System should have provided a warning to the pilots, allowing them to visually acquire the on-coming traffic.

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

- **Flight Crew Situational Awareness** was **ineffective** because neither pilot knew about the other aircraft.
- **Onboard warning/Collision Avoidance Equipment** was **inapplicable** because neither aircraft was fitted with any form of TAS.
- **See and Avoid** was **ineffective** because neither pilot saw the other aircraft in time to take any avoiding action.

In determining the cause, the Board quickly agreed that this had effectively been a non-sighting by both pilots. Assessing the risk, the Board considered this to be a high-risk event, where providence had played a large part in the two aircraft avoiding a collision; radar replays indicated that the separation was at the bare minimum and so they therefore assessed the incident as Category A.

Although neither aircraft was heading directly for the Seaford VOR, the Board wanted to reiterate to pilots the importance of good look-out in the vicinity of VORs and VRPs because of the dangers of other aircraft also using them as navigational points, as in this case.

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

Cause: Effectively a non-sighting by both pilots.

Degree of Risk: A

Barrier Assessment<sup>6</sup>:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).<sup>7</sup>

<sup>5</sup> UK GM1 TO SERA SECTION 3 (GENERAL RULES AND COLLISION AVOIDANCE) CHAPTER 2 (AVOIDANCE OF COLLISIONS) ROTA 2015 SECTION 3 SUB-SECTION 2

<sup>6</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#)

<sup>7</sup> Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.

The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.

