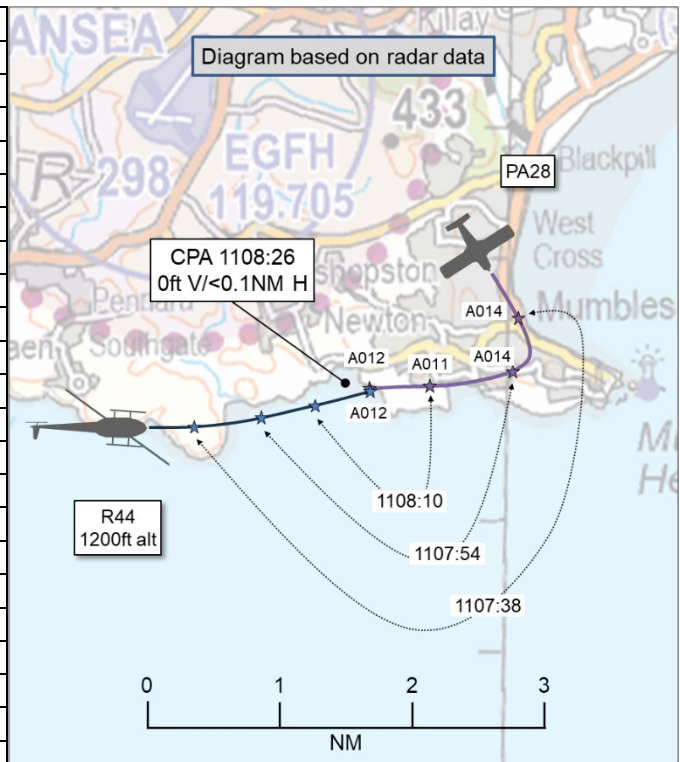


**AIRPROX REPORT No 2023205**

Date: 03 Sep 2023 Time: 1108Z Position: 5134N 00402W Location: 3NM SE Swansea

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	R44	PA28
Operator	Civ Helo	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Swansea Radio	Swansea Radio
Altitude/FL	1200ft	1200ft
Transponder	A, C, S	A, C, S
<b>Reported</b>		
Colours	Grey	NR
Lighting	Strobes, nav	NR
Conditions	VMC	VMC
Visibility	>10km	NR
Altitude/FL	1200ft	"above 1000ft"
Altimeter	QNH (1027hPa)	NR
Heading	"ENE"	NR
Speed	110kt	NR
ACAS/TAS	Not fitted	NR
Alert	N/A	NR
<b>Separation at CPA</b>		
Reported	100ft V/0m H	100ft V/NR H
Recorded	0ft V/<0.1NM H	



**THE R44 PILOT** reports that they had requested, and had received, a clearance from Cardiff Radar to enter, cross and exit controlled airspace with a Basic Service outside. They were completing a flight around the Swansea/Gower area, initially following the coast. They tuned the Swansea Radio frequency on box 2 when approximately 6NM to the east of Swansea airfield. Although they did not plan to cross the Swansea ATZ, they requested local traffic information and heard several aircraft on frequency. They then proceeded to Rhossilli Bay, and from there planned to route to Mumbles, remaining south of the Swansea ATZ. At approximately Oxwich Bay, they made another call to Swansea, reported their current position and their planned route towards Mumbles. They were informed of several aircraft that had recently departed; one inbound to [an airfield in Shropshire], and two remaining in the local area. One pilot reported at Mumbles at 1200ft and climbing. Another pilot was also called, and their height and position requested, but they did not respond. [The pilot of the R44] was then asked to report their position and height which they did. Approximately at the coast, they became aware of a fixed-wing aircraft roughly head-on.

Due to the short time involved from first seeing the aircraft, they had little chance to take avoiding action but started a rapid descent. The aircraft passed directly over the top of their own, sufficiently close that they could make out the tread on the tyres. Once the aircraft had passed, they stopped the descent. They put a call into Swansea Radio to report that a fixed-wing had passed extremely close over the top of their aircraft.

They do not believe that the fixed-wing pilot had spotted them, although a pilot that had been called by Swansea Radio made a similar observation regarding a helicopter passing close underneath. Given the approximate direction that that aircraft had been traveling this would have placed it over the water.

[The pilot of the R44] believes that the bright conditions, the presence of haze over Swansea Bay coupled with the other aircraft being predominantly white when viewed head-on caused it to blend-in

and prevented earlier identification of the collision risk. They believe that had the other aircraft been lower (or had they been higher) a mid-air collision would have occurred.

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

**THE PA28 PILOT** reports that, after climbing out from RW10 at Swansea, they announced to Swansea Radio their intention to circumnavigate Gower clockwise, and gave their present position and altitude 'above 1000ft, outside the ATZ' which was acknowledged. They were climbing and squawking 7000.

Following a radio call to Swansea Radio when they gave a position report at Mumbles, they heard another pilot make a report followed by a response from the 'tower'. Before any further calls could be made, they visually acquired a helicopter passing in close proximity. A radio call was made to Swansea Radio to make them aware.

They also heard the Swansea Radio [Air/Ground Radio operator] talking to the helicopter pilot before [the R44] passed close to them, in the opposite direction, and about 100ft below them to the south.

**THE CARDIFF AIRPORT GENERAL MANAGER** reports that, having reviewed their EFPS logs for the day, they cannot locate a corresponding entry for either of the two aircraft. There has been no paperwork filed.

**THE SWANSEA AIR/GROUND RADIO OPERATOR** reports that the [pilot of the R44] reported their position as 'overhead Mumbles' and added that an aircraft had passed in close proximity below [they recall].

They requested the position of [the PA28] and the pilot reported their position as 'overhead Mumbles' and that a helicopter had passed in close proximity overhead [they recall].

No further radio communication was received or transmitted on this matter. There was no involvement of ATS in this proximity.

## Factual Background

The weather at Cardiff was recorded as follows:

METAR EGFF 031120Z AUTO 11004KT 080V150 9999 NCD 22/14 Q1028

## Analysis and Investigation

### UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data (see Figure 1).

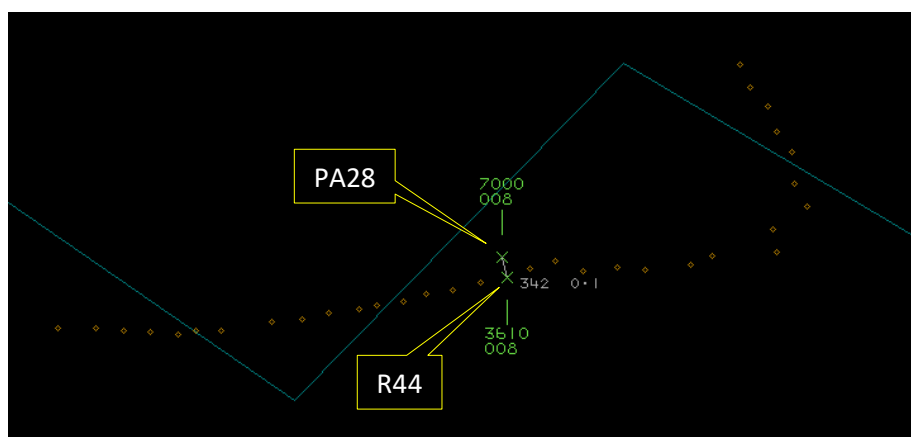


Figure 1 – CPA at 1108:26

Both aircraft were observed on the radar replay to have been at a Flight Level. A suitable conversion factor was used to determine their altitude. The diagram was constructed and the separation at CPA determined from the radar data.

The R44 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.<sup>1</sup> If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.<sup>2</sup>

## Summary

An Airprox was reported when an R44 and a PA28 flew into proximity 3NM south-east of Swansea at 1108Z on Sunday 3<sup>rd</sup> September 2023. Both pilots were operating under VFR in VMC, in receipt of an AGCS from Swansea Radio.

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

Information available consisted of reports from both pilots, radar photographs/video recordings and a report from the AGO involved. 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 considered the actions of the pilot of the R44, and members noted that the particular airspace in which the pilot of the R44 had conducted their flight is popular with recreational pilots. Members agreed that a very thorough and effective lookout had been of paramount importance, particularly as there had been haze over Swansea Bay as the pilot of the R44 had observed.

From their narrative report, it was noted that after leaving Cardiff controlled airspace, the pilot of the R44 had next contacted the Swansea AGO. Some members suggested that to not have contacted the Swansea AGO until they had been 6NM to the east of Swansea may not have provided sufficient time for the pilot of the R44 to have built a detailed mental model of the traffic situation. Moreover, members pointed out that a position report made by a pilot on a frequency may aid the situational awareness of all tuned to that frequency, and that more timely reporting may have been prudent. Nevertheless, members pondered the extent of the situational awareness held by the pilot of the R44 at the moment in question. It was noted that they recalled having heard another pilot (the pilot of the PA28) state their position as being "*at Mumbles at 1200ft and climbing*"; that there had then been a delay whilst another pilot had been contacted by the Swansea AGO; and then they had transmitted their own position report. Members agreed that the pilot of the R44 had therefore acquired specific situational awareness of the presence of the PA28, albeit somewhat late with respect to its subsequent visual acquisition. Nevertheless, it occurred to members that the position report made by the pilot of the PA28 had been sufficient for the pilot of the R44 to have assimilated that a potential conflict might occur. Members agreed that, whilst the information had been recalled in their narrative report, it had not been fully absorbed at the time of the event (**CF2**). Once the PA28 had been visually acquired, members noted that the pilot of the R44 had reacted by initiating a descent. It was agreed that, having sighted the PA28 essentially at the moment of CPA, there had not been time to have materially increased separation between the aircraft. Members assessed that it had, effectively, been a non-sighting (**CF3**).

The Board next turned its attention to the actions of the pilot of the PA28. Members noted that they recalled that they had heard another pilot (the pilot of the R44) report their position as being in the vicinity. It was acknowledged that, whilst there had been some information available to the pilot of the PA28 with which to build a mental model of the traffic situation, it had been acquired late (**CF1**) and there had been very little time before the R44 had been subsequently sighted. Members noted that the pilot of the PA28 had not had time to react when the R44 had been visually acquired. It was therefore agreed that to have visually acquired the R44 at the point of CPA effectively constituted a non-sighting (**CF3**).

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<sup>1</sup> (UK) SERA.3205 Proximity.

<sup>2</sup> (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

Members noted that neither aircraft had been fitted with additional EC equipment and suggested that had they been so equipped, then each pilot may have been alerted far sooner to the presence of the other aircraft.

The Board next considered the actions of the Swansea AGO. Members agreed that although they had not been required to have monitored the flights, their requests for a position report from the pilots of whom they had been aware had aptly prompted those pilots to gather situational awareness of the traffic situation. Indicating that they had little further to add, members concluded their discussion and summarised their thoughts. Members agreed that both pilots had gathered late situational awareness of the presence of the other and acknowledged that the pilot of the R44 had taken emergency action at the last minute. However, members were in agreement that neither pilot had visually acquired the other in time to have materially increased the separation between the aircraft. Members determined that there had been a serious risk of collision (**CF4**) and that it had been largely through providence that the aircraft had not collided. As such, the Board assigned Risk Category A to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

2023205				
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
<b>Flight Elements</b>				
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>				
1	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
2	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
<b>• See and Avoid</b>				
3	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
<b>• Outcome Events</b>				
4	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: A.

### Safety Barrier Assessment<sup>3</sup>

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 **not used** because the Swansea AGO had not been required to have monitored the flights.

#### **Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because both pilots had acquired late situational awareness of the presence of the other aircraft.

<sup>3</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

**See and Avoid** were assessed as **ineffective** because neither pilot had visually acquired the other in time to materially increase separation such that safety would have been assured.

<b>Airprox Barrier Assessment: 2023205</b>		Outside Controlled Airspace						
<b>Barrier</b>	<b>Provision</b>	<b>Application</b>	<b>Effectiveness</b>					
			Barrier Weighting					
			0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Conflicition & Action	✓	○					
	Electronic Warning System Operation and Compliance	●	●					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	⚠	⚠					
	Electronic Warning System Operation and Compliance	●	●					
	See & Avoid	✗	✗					
<b>Key:</b>		<u>Full</u>	<u>Partial</u>	<u>None</u>	<u>Not Present/Not Assessable</u>	<u>Not Used</u>		
Provision	✓	⚠	✗	●				
Application	✓	⚠	✗	●		○		
Effectiveness								