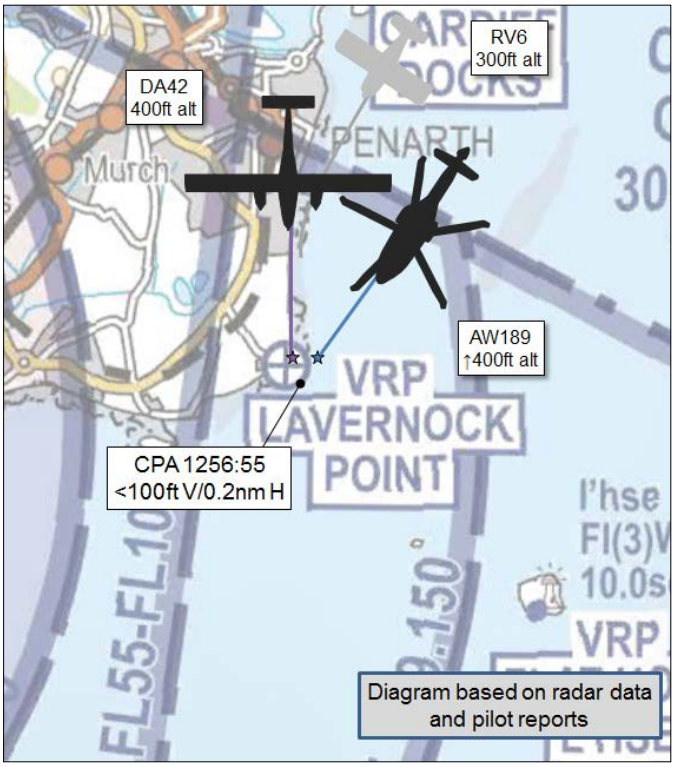
AIRPROX REPORT No 2016268

Date: 20 Dec 2016 Time: 1256Z Position: 5124N 00309W Location: Lavernock Point, Cardiff

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	AW189	DA42
Operator	HEMS	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Aerodrome
Provider	Cardiff	Cardiff
Altitude/FL	FL004	FL004
Transponder	A, C, S	A, C, S
Reported		
Colours	Red, White	White
Lighting	Landing, Anti-Cols, Nav	Strobes
Conditions	VMC	VMC
Visibility	8km	5-7km
Altitude/FL	600ft	800ft
Altimeter	QNH (1020hPa)	QNH
Heading	230°	NR
Speed	80kt	120kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	200ft V 0.25nm H	0ft V/600m H
Recorded	<100ft V/0.2nm H	



THE AW189 PILOT reports that he had just completed wet-winch training east of Cardiff airport (south of Lavernock point), and began a visual recovery to St Athan. He remained outside controlled airspace but climbed from 200ft to 600ft to improve comms with Cardiff. The RT was very busy with IFR and VFR traffic in the vicinity of Cardiff, and multiple TCAS contacts. On reaching about 600ft, a TCAS aural and visual caution activated. Initially the pilot noted a TCAS contact in the 11 o'clock; however, the winchman called visual with a fixed-wing aircraft at 4 o'clock and turning away. The RHS pilot saw a white DA42 and estimated it was 200ft above and within 0.25nm. Neither pilot remembered Traffic Information being passed by Cardiff. No avoiding action was necessary.

He assessed the risk of collision as 'Low'.

THE DA42 PILOT reports that he was in receipt of a radar service from Cardiff, prior to a zone transit along the coast to land at St Athan. He was holding at Lavernock point, as directed by Cardiff. A helicopter made contact with Cardiff on the radio and, shortly afterwards, he was aware of a helicopter to the south-east. He continued to circle while the helicopter passed by. A colleague in a following aircraft holding behind was forced to move his holding circle to the north in order to maintain a reasonable separation from the helicopter because it was flying unpredictably. There was no risk of collision but the helicopter pilot attempted to fly through the area where they had been directed to hold by Cardiff. It appeared that he joined the frequency only a short time before arriving in the area. He noted that the cloud base was around 1000ft and the visibility was approximately 5-7km; both fixed-wing aircraft were white and this may have made it difficult for the helicopter pilot to see them.

He assessed the risk of collision as 'None'.

THE CARDIFF RADAR CONTROLLER reports that at approximately 1245 he opened the Radar 2 position because he had been alerted by the controller on Radar 1 that a peak in traffic was developing. He was vectoring two aircraft inbound to Cardiff, the DA42 and a following aircraft were inbound to St Athan from the east receiving a Basic Service, and two Tutors were operating to the west under a Basic Service. The ADC was working a coastguard helicopter on a low-level training detail by Lavernock point. As the DA42 approached Cardiff Docks the pilot of aircraft accompanying him stated that he was struggling to maintain VMC. To help them to remain VMC and to de-conflict from traffic on the ILS, they were instructed to route westbound along the coast, not above 1500ft and to hold at Lavernock Point. He had to challenge one of the pilots for a correct readback, and St Athan's weather, runway in use and QFE was passed and readback. He coordinated with ADC, giving their clearance limit as Lavernock point and agreed to pass Traffic Information on the Coastguard helicopter, which he did before transferring them to ADC.

THE CARDIFF ADC reports that he recalled having trouble establishing two-way communication with the AW189 pilot (which is a common problem for Cardiff with this airframe type). He had passed Traffic Information to the two inbound fixed-wing aircraft on the helicopter, had an acknowledgement, and they called traffic in sight. However, despite passing Traffic Information to the AW189 pilot on more than one occasion, he was not sure they acknowledged it and didn't recall them responding to the transmissions. He was trying to ascertain the altitude the pilot was intending to climb to as they climbed towards the other aircraft. All three aircraft were cleared to enter the zone and the flights proceeded to St Athan. He was unaware of any concerns regarding proximity at the time because no-one reported anything on the frequency.

Factual Background

The weather at Cardiff was recorded as follows:

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EGFF 201250Z AUTO 12007KT 6000 BKN008 06/05 Q1019
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Analysis and Investigation

CAA ATSI

At 1250:12 the DA42 pilot called Cardiff Radar and reported descending to 3000ft and squawking SSR code 3630. The controller was busy dealing with sequencing inbound IFR aircraft to Cardiff and asked him to standby.

At 1253:06 the DA42 was instructed to route towards Cardiff Docks. At 1253:41 the DA42 was cleared to enter the Cardiff Control Zone (CTR) routing westbound along the coast below 1500ft VFR, a Basic Service was agreed.

At 1254:28 the DA42 was instructed to hold at Lavernock Point. Another aircraft (a REED DL VANS RV6 (RV6)) was also given a similar instruction soon afterwards.

At 1254:55 the DA42 was provided with Traffic Information by the radar controller about a helicopter operating low-level just north of Lavernock Point.

At 1254:59 the AW189 called Cardiff Tower. The controller responded immediately but two-way communications could not be established. At 1255:31 the AW189 pilot called the tower frequency again and, after a short pause, two-way communication was established.

The DA42 was instructed by Cardiff Radar to call Cardiff Tower at 1255:53.

At 1256:00 the AW189 pilot requested a routing along the coast returning to St. Athan. The Tower Controller advised that routing as far as Barry Docks was approved and Traffic Information about two light aircraft in the area was provided.

At 1256:35 the Tower Controller asked the AW189 pilot what height they would be climbing to and passed further Traffic Information on the two previously mentioned light aircraft, advising that both were operating below 1000ft. This was not acknowledged by the pilot despite repeated calls to the aircraft.

CPA between the AW189 and the DA42 occurred at 1256:56 (Figure 1) with 100ft vertical separation and 0.2nm lateral. Height information is displayed in terms of Flight Levels, the levels indicated being approximately 200ft lower than the associated equivalent altitude.(004 would be approximately 600ft).

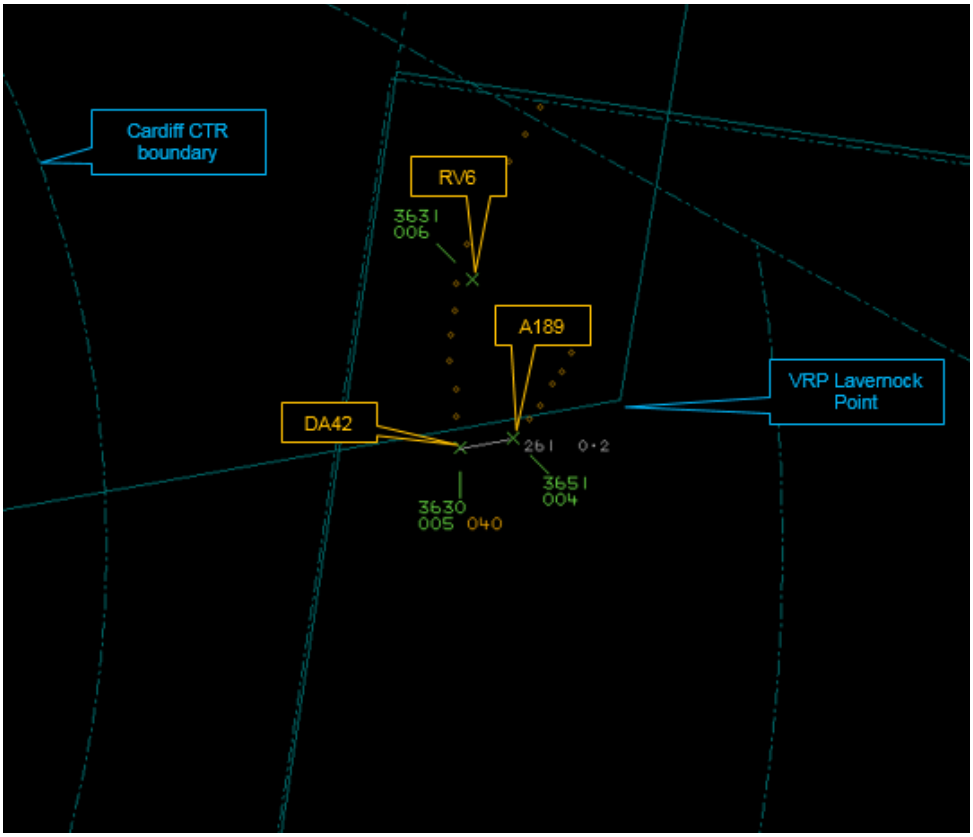


Figure 1 -1256:56

No report of the Airprox was made on the radio at the time but the report was phoned into Cardiff approximately 4 hours later and both the Tower and Radar controllers subsequently made reports.

All pilots were operating in Class G airspace and were ultimately responsible for their own collision avoidance. Appropriate and timely Traffic Information was passed to the pilots of all aircraft concerned although the low level of the A189 made two-way communication difficult to establish, just prior to the Airprox occurring. A low cloud base in the vicinity may have also contributed to the lower altitudes of the fixed wing aircraft.

UKAB Secretariat

The AW189 and DA42 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. If the incident geometry is considered as converging then the AW189 pilot was required to give way to the DA42[2].

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(2) Converging.

Summary

An Airprox was reported when an AW189 and a DA42 flew into proximity at 1256 on Tuesday 20th December 2016. Both pilots were operating under VFR in VMC, and both were in receipt of a Basic Service from Cardiff.

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.

The Board first looked at the actions of the DA42 pilot. Members noted that he had been asked to hold at the VRP by Cardiff radar, but it was a VFR hold, not, as suggested in his report, a holding pattern designated by ATC. Therefore, the AW189, and anyone else using the VRP, were perfectly entitled to fly through the area and it was for the DA42 pilot to keep a good look-out for other aircraft that might be doing so as he orbited near the VRP. Members agreed with the DA42 pilot that the weather was a factor, noting that the RV6 pilot had informed Cardiff that he was struggling to maintain VMC. The Cardiff controller had therefore advised them to fly over the sea along the coast, knowing that they could fly there at a lower altitude below cloud. This probably meant that the 2 aircraft were lower than they would usually have been in normal circumstances, and therefore closer to anyone pulling up from low-level over the sea to join Cardiff/St Athan from the VRP. Noting that the AW189 pilot was on the same frequency, some members wondered whether the DA42 pilot should have either avoided the VRP area once he gained situational awareness from the AW189 pilot's calls, or transmitted his own intentions to the AW189 pilot who was clearly not receiving all of ATC's transmissions.

Turning to the AW189 pilot, the Board thought that it was unfortunate that his radio wasn't working sufficiently at low-level for him to hear the controller's calls because this had denied him valuable situational awareness. As a result, ATC's Traffic Information was ineffective and he was therefore surprised to see the other aircraft at a similar level to himself. Some members wondered whether he too could have heard the other aircraft's transmissions and formulated a degree of situational awareness from them, but it was acknowledged that he would have likely been task-focused with a high cockpit workload whilst wet-winching. Some members familiar with wet-winching operations questioned the AW189 pilot's choice of area of operation. Whilst they acknowledged that it was necessary to be within a certain distance of the airfield and the lifeboat, they felt that conducting such operations alongside a VRP might not have been the best position knowing that other aircraft would likely route via the VRP to join the circuit. However, without a full knowledge of operations at Cardiff or the task's requirements, they conceded that there could be many factors that had meant that that area was the only one available on the day.

Finally, the Board looked the actions of the controllers. Whilst acknowledging that the controller gave accurate and timely information to all of the pilots concerned (even though the AW189 pilot didn't appear to hear his), controller members thought that his choice of holding the DA42 near a VRP, was not a good one. Knowing that any aircraft routing visually from that direction would route through that area, and with a low cloud-base causing height restrictions, the Board thought that he would probably have been better served in holding the light aircraft elsewhere.

The Board then debated the cause of the Airprox but were split in their views. Some members thought it had been a late sighting by the AW189 pilot, whilst others believed it was little more than a sighting report given the separation achieved, the fact that neither pilot appeared to think that avoiding action was necessary, and that the risk of collision was reported by them respectively as low/none. After considerable debate, the latter view prevailed, and the cause was agreed as a sighting report. However, members felt that there were some contributory factors, namely: the DA42 had been told to hold at the VRP at low-level below the cloud base; and communication issues between the AW189 and the Cardiff controller had precluded the timely passing of Traffic Information. The risk was assessed as Category E, normal procedures and safety standards pertained.

PART C: ASSESSMENT OF CAUSE, RISK AND SAFETY BARRIERS

Cause: A sighting report.

Contributory Factors: 1. Holding the DA42 at the VRP at low-level below a low cloud-base.

2. Communication issues between the Cardiff controller and the AW189 pilot.

Degree of Risk: E.

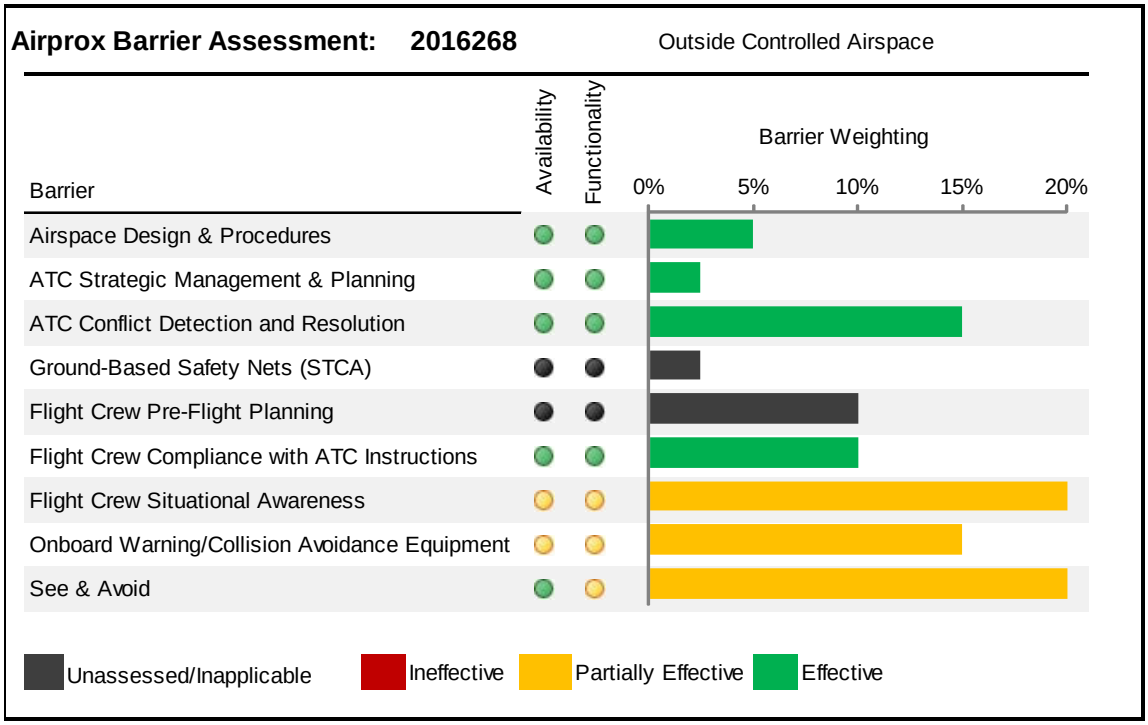
Safety Barrier Assessment[3]:

The Board decided that the following key safety barriers were contributory in this Airprox:

Flight Crew Situational Awareness was only **partially effective** because the AW189 pilot had no specific information about the DA42.

Onboard Warning/ Collision Avoidance Equipment was **partially effective** because the AW189 TCAS gave ambiguous indications and the DA42 did not have a CWS.

See and Avoid was **partially effective** because the AW189 pilot only saw the DA42 at CPA.



[3] 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 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). 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/Inapplicable). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident. The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.