

**AIRPROX REPORT No 2015114**

Date: 9 Jul 2015 Time: 1050Z Position: 5122N 00316W Location: 3nm SE Cardiff Airport

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	DHC8	PA31
Operator	CAT	Civ Comm
Airspace	CTR	CTR
Class	D	D
Rules	IFR	VFR
Service	Aerodrome	Aerodrome
Provider	Cardiff	Cardiff
Altitude/FL	NK	NK
Transponder	A,C,S	A,C,S
<b>Reported</b>		
Colours	Company scheme	Mainly white
Lighting	Nav, landing, strobes	NK
Conditions	VMC	VMC
Visibility	>10nm	20km
Altitude/FL	1000ft	1500ft
Altimeter	QNH	NK
Heading	300°	045°
Speed	125kt	150kt
ACAS/TAS	TCAS II	TAS
Alert	TA	TA
<b>Separation</b>		
Reported	500ft V/1nm H	500ft V/500m H
Recorded	700ft V/0.68nm H	



**THE DHC8 PILOT** reports that he was conducting a visual approach onto RW30 at Cardiff using the ILS for lateral and vertical guidance. The crew received a Traffic Advisory and became visual with a PA31, above and to the south of them. The aircraft appeared to be flying directly towards them. Cardiff advised him of the traffic, and said that it would be passing behind. The First Officer reported to ATC that the PA31 pilot did not appear to be manoeuvring to pass behind, after which the PA31 pilot made a left turn and advised ATC he would 'orbit for spacing.' The aircraft was initially about 300ft above them, increasing to 500ft above them at the closest point where they estimated that he was no more than 1nm away laterally. The PA31 was level, and they were descending on the approach, so they felt that the safest course was to continue their descent - a go-around would have placed them into the flight-path of the PA31 thus endangering their aircraft. Once on the ground they advised ATC that they were uncomfortable with the separation and would be filing a report.

He assessed the risk of collision as 'Low'.

**THE PIPER PA31 PILOT** reports that the crew were carrying out an ILS calibration flight at St. Athan; Cardiff ATC were fully briefed prior to departure. Their first profile was a 6nm orbit from the localiser at 1500ft. The DHC8 pilot called for a visual approach on right base and they became visual with the aircraft at more than 10km, and also saw it on TAS. He was asked by Cardiff to pass behind the DHC8 and, having more than 500ft vertical separation, he continued the profile aiming to pass behind. The DHC8 pilot slowed down on the approach and he sped up slightly with a tail-wind. Continuing closer to the DHC8, although having a very good visual contact and separation of more than 500ft vertically, he conducted an orbit to re-establish on his flight-check profile. On orbiting left, he flew parallel and away from the DHC8, continues with the calibration. He was visual with the DHC8 at all times, and would have passed directly behind it if he had continued the profile.

He assessed the risk of collision as 'None'.

**THE CARDIFF AERODROME CONTROLLER** reports that, at the time of the incident, RW30 was in use, the VFR block was active not above altitude 3000ft (to permit ILS calibration at St. Athan) and St. Athan was active with the LFZ 26. The PA31 pilot was airborne from St. Athan, and was instructed to orbit to the south of Cardiff airport to permit two IFR aircraft inbound to Cardiff. He observed the PA31 pilot enter the orbit and confirmed this with binoculars from the Visual Control Room (VCR). At approximately 10:48, the DHC8 pilot was cleared to land RW30. The PA31 pilot reported visual with the landing traffic and was cleared to transit behind it. The PA31 pilot was reminded of the wake turbulence requirements of 4nm. At 10:50, he observed the PA31 pilot start a left-hand orbit, rather than position behind the DHC8 as instructed, which positioned the PA31 into close proximity with the DHC8. The PA31 pilot did not respond to two transmission attempts. The DHC8 pilot was issued with Traffic Information. Both aircraft were observed on the Aerodrome Traffic Monitor (ATM) at 3nm final for RW30, the PA31 500ft above the inbound DHC8. He was visual with both aircraft through the binoculars at the time of the incident. The pilot of the inbound DHC8 advised he would be submitting a report.

## Factual Background

The Cardiff weather was:

EGFF 090950Z 25009KT 9999 SCT033 16/10 Q1024=

CAP 493 states that:

'Instructions issued to VFR flights in Class D airspace are mandatory. These may comprise routing instructions, visual holding instructions, level restrictions, and information on collision hazards, in order to establish a safe, orderly and expeditious flow of traffic and to provide for the effective management of overall ATC workload.'<sup>1</sup>

Within Class D airspace controllers are responsible for passing Traffic Information to IFR flights on VFR flights and to VFR flights on IFR flights. Traffic avoidance advice must be given if requested by the pilots of IFR flights against VFR flights and VFR flights against all other flights.<sup>2</sup>

## Analysis and Investigation

### CAA ATSI

ATSI had access to reports from the Aerodrome Controller, both pilots, area radar recordings, RTF and transcript of the unit position frequency and the ATS Unit investigation report. An interview with the controller was also conducted. The area radar recordings had poor low-level coverage so it was not possible to observe the actual Airprox; the PA31 did not show on radar.

Screenshots produced in the report are provided using the area radar recordings. Levels indicated are Flight Levels. All times are UTC.

The DHC8 pilot was operating IFR and was making a visual approach to RW30. The pilot was in receipt of an Aerodrome Control Service from Cardiff Tower.

The PA31 pilot was operating VFR on a local flight from St. Athan airport and was also in receipt of an Aerodrome Control Service from Cardiff Tower. The PA31 pilot was engaged in the flight checking of the ILS to RW26 at St. Athan. St. Athan is a military airfield approximately 2.5nm to the west of Cardiff airport, and the ATZ for St. Athan lies entirely within the Cardiff CTR.

The PA31 pilot had reported on frequency at 1047:48 and was cleared for a profile 4 (a type of ILS check). At 1048:00 the PA31 pilot was advised that there were 2 IFR inbounds for RW30 at Cardiff, and was asked if this would affect his ability to carry out the check. Figure 1 shows an

<sup>1</sup> CAP493 Section 1, Chapter 5, Paragraph 3.2.

<sup>2</sup> CAP493 Section 3, Chapter 1, Paragraph 2.

arc, depicted in red, which is approximately a 6nm radius, based on St. Athan (DX); this is the route the PA31 was intending to fly (anti-clockwise) for the calibration of the St. Athan ILS.

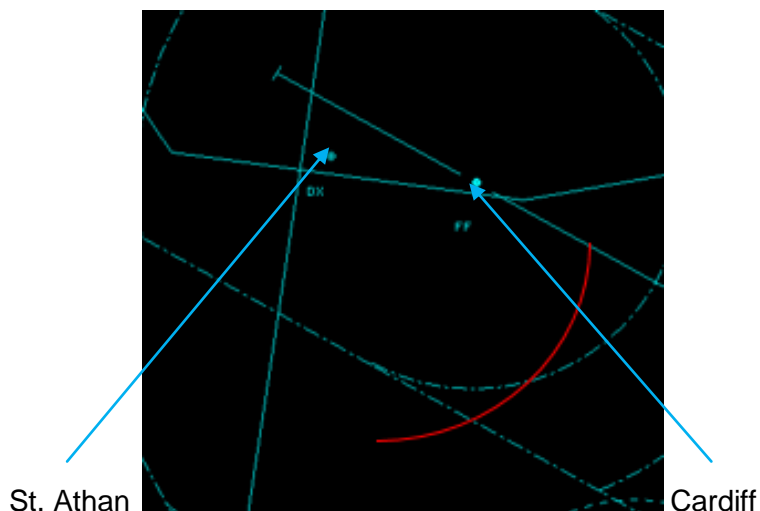


Figure 1 – Map depicting an approx. 6nm arc from St Athan

At 1048:58 the controller asked the PA31 pilot how far he needed to run in. He confirmed that they needed to maintain 6nm from the St. Athan Localiser but provided there was nothing on the runway at St. Athan there would not be a problem. He would be maintaining 1500ft.

At 1049:16 the controller passed specific Traffic Information to the PA31 pilot about the inbound DHC8. The inbound DHC8 had been approaching Cardiff from the north east, initially via the Standard Instrument Arrival (CDF1A STAR - Figure 2), but the pilot later completed his approach via a visual approach. The controller established with the PA31 pilot that his intended track would route approximately through a 3nm final for RW30 at Cardiff.

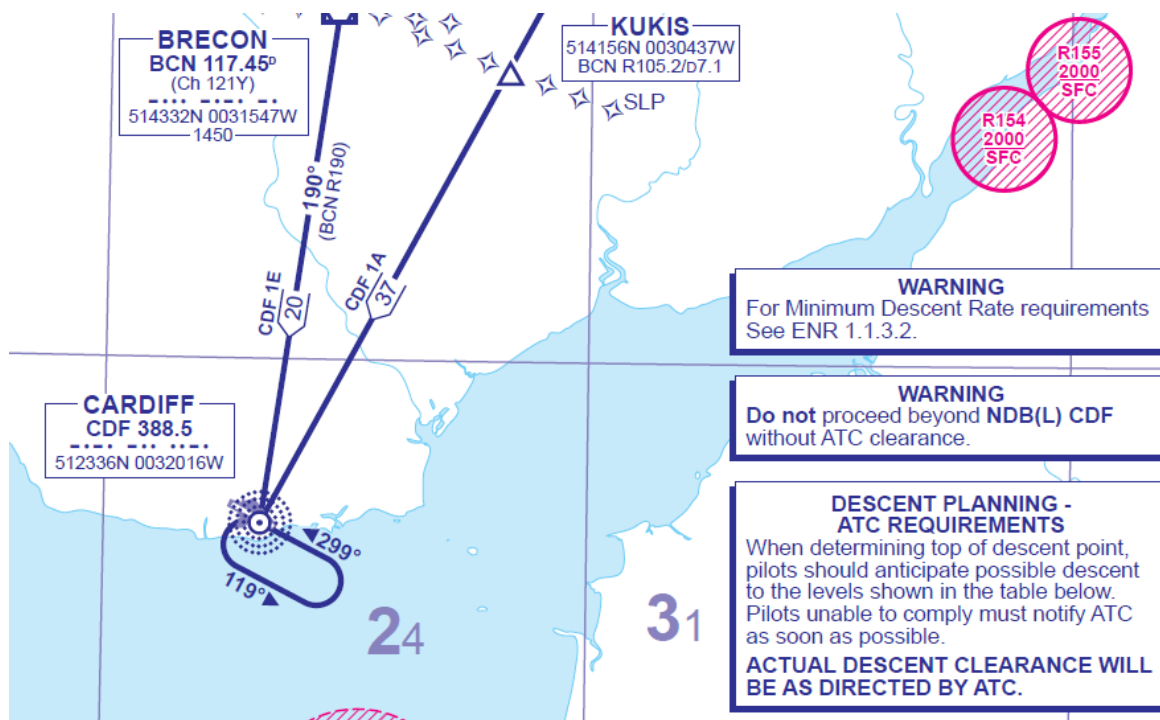


Figure 2 (CDF1A STAR - UKAIP)

At 1049:55 the controller instructed the PA31 pilot to make a right-hand orbit as the first IFR arrival (the DHC8) was approaching and explained this would minimise any delay to the PA31's task.

At 1050:40 (Figure 2) the DHC8 (code 5451) pilot made his initial call on the Tower frequency and was advised to continue approach. The pilot of the DHC8 referred to a previous altitude restriction (imposed by Cardiff Radar) of 2500ft. The Aerodrome controller confirmed there was no altitude restriction and the DHC8 pilot confirmed that he was now on a visual approach.

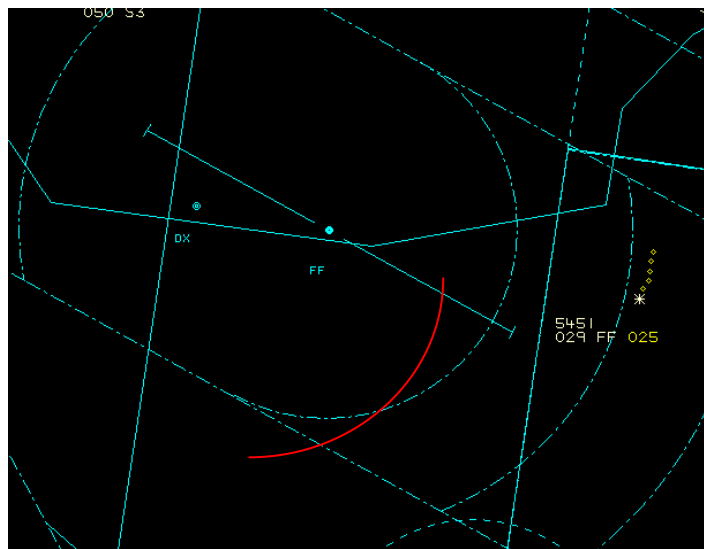


Figure 2 – Swanwick MRT at 1050:40

At 1052:00 (Figure 3) the PA31 pilot reported visual with the inbound DHC8. The controller confirmed that he was clear to pass behind the DHC8 and cautioned on wake turbulence spacing. The DHC8 was established on a 5nm final at this point.

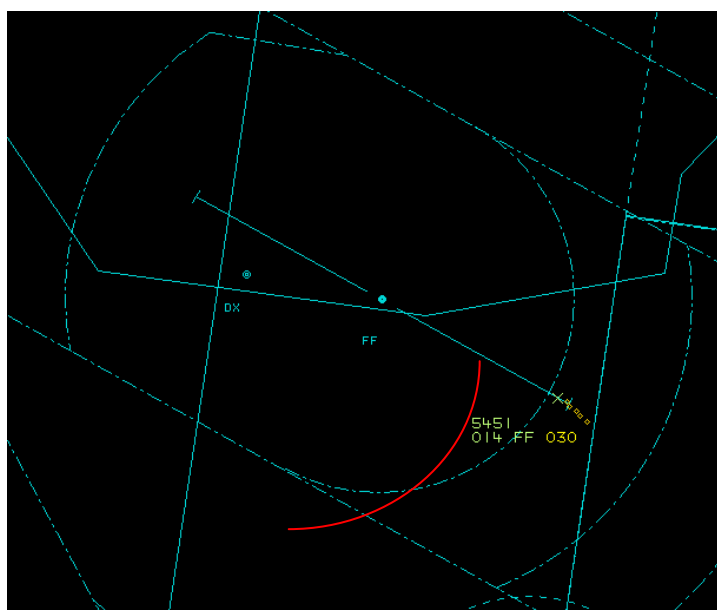


Figure 3 – Swanwick MRT at 1052:00

At 1052:50 the controller gave Traffic Information to the DHC8 pilot and advised him that the PA31 pilot was visual with his aircraft. The DHC8 replied that the PA31 was level with him and did not appear to be passing behind. At this point the PA31 pilot had begun another orbit, this time to the left, effectively paralleling the track of the DHC8 for a short period.

On two separate occasions over approximately the next 30 seconds, the controller attempted to confirm that the PA31 pilot could still see the DHC8. At 1053:22 the controller cleared the DHC8 pilot to land, which he acknowledged, and he also confirmed again that he was visual with

the PA31. The controller then established communication with the PA31 pilot and was able to ascertain that he would be continuing with his task.

The controller had been briefed at the commencement of his duty on the requirement to handle the Flight Checking aircraft. In order to make co-ordination easier with Cardiff Radar, the Aerodrome controller was delegated a vertical extension in the CTR up to 3000ft whilst the calibration was in progress.

At interview the controller explained that the initial plan had been to run the PA31 around the 6nm arc from St. Athan (anti-clockwise) but, as the DHC8 was approaching from the north east, he decided to delay the PA31 to minimise the chance of a conflict and to afford the PA31 pilot an uninterrupted task. The initial orbit was completed quicker than the controller expected but was still sufficient to enable the PA31 pilot to pass behind the DHC8.

The controller also stated how Traffic Information was not passed to the DHC8 pilot earlier because he considered the DHC8 would be established inbound on final approach and flying ahead of the PA31 which was expected to pass behind. The controller stated that, had he known the PA31 pilot would make another orbit, he would have alerted the DHC8 pilot earlier. As the PA31 pilot had reported visual with the DHC8, the controller expected it to comply with the instruction and route behind.

Due to poor low-level coverage, the area radar recording did not show the CPA. However, the local unit report, which utilised a recording of their own Air Traffic Monitor, stated that a CPA of 0.68nm horizontal and 700ft vertical had occurred.

The controller issued Traffic Information to the DHC8 pilot when it became apparent that a conflict was likely. The controller was visual with both aircraft and, although he considered it closer than planned, he did not consider any avoiding action was necessary. When providing an Aerodrome Control Service the controller is not required to separate IFR and VFR aircraft but shall provide information whenever it is considered necessary in the interests of safety to enable VFR flights to integrate with IFR flights. However, Aerodrome Control is not solely responsible for collision avoidance, and pilots must also fulfil their own responsibilities in accordance with the Rules of the Air.

### **UKAB Secretariat**

The DHC8 and PA31 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>3</sup>. Because the incident geometry is considered as converging, the PA31 pilot was required to give way to the DHC8<sup>4</sup>. Additionally, 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 operation<sup>5</sup>.

### **Summary**

An Airprox was reported when a DHC8 and a PA31 flew into proximity at 1050 on Thursday 9<sup>th</sup> July 2015. The DHC8 pilot was operating under IFR, in VMC, conducting a visual approach using the ILS for azimuth and glideslope guidance; the PA31 pilot was operating under VFR in VMC. Both pilots were in receipt of an Aerodrome Service from Cardiff Tower. The PA31 pilot had been instructed to pass behind the DHC8 but unexpectedly executed a left-hand orbit to initially parallel the final approach track of the DHC8. Local radar recordings show the CPA was 700ft vertically and 0.68nm horizontally.

<sup>3</sup> SERA.3205 Proximity.

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

<sup>5</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

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

Information available included reports from both pilots, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board first considered the background to the flight check and noted that the PA31 pilot was carrying out a calibration check of the St. Athan RW26 ILS, which entailed a 6nm arc from the localiser - this required the PA31 to cross Cardiff's RW30 approach at about 3nm. Board members noted that the Cardiff controller was aware of the PA31's detail but wondered whether the PA31 pilot had been able to brief the controller face-to-face because he had been operating from St. Athan airfield. Civil ATC members and a Commercial Airline Pilot member with previous flight-checker experience reassured the Board that calibration companies do ensure that ATC receive appropriate details of calibration tasks either by providing a file, fax or E-mails, but that face-to-face briefings are often not possible. The Board agreed that the PA31 pilot had reported that Cardiff ATC had been briefed prior to departure, and the Aerodrome controller had reported that he had been briefed appropriately.

Turning to the actions of the PA31 pilot, the Board noted that he had been advised about the inbound DHC8 and had obtained it visually at a range of more than 10km. They observed that he had been instructed to pass behind the aircraft and, as he approached the DHC8, he had first orbited to the left before then continuing his profile to indeed subsequently pass behind it. The Board debated whether or not the PA31 had therefore complied with his ATC clearance. Clearly, both the controller and the DHC8 pilot had not expected the PA31 pilot to take up an orbit in close proximity rather than turning to route behind. The Board contended that, although the PA31 pilot had broadly adhered to the instructions he had been given, he would have been better served by informing the controller about his decision to orbit first, thereby removing any confusion.

The Board agreed that the controller had acted appropriately. He had passed Traffic Information to both pilots and had cleared the PA31 pilot, who confirmed he had visual contact, to cross behind the DHC8. That the PA31 pilot had not done so in the manner that he intended did not reflect on the controller himself, although his instructions might have been more specific in hindsight.

The Board then turned its attention to the cause. The DHC8 pilot had been informed by ATC that the PA31 would pass behind his aircraft but, rather than immediately positioning behind as he expected, it had appeared to be routing directly towards him and then commenced a left-hand orbit which initially brought the PA31 parallel to his aircraft. There was no doubt that this brought an element of doubt and confusion into the DHC8 pilot's mind, and his concern was such that he had reported to ATC on landing that he had been uncomfortable with the separation between the two aircraft. This coincided with the view of the Board that the cause of the Airprox had been that the DHC8 pilot had been concerned by the proximity of the PA31, brought about by the unexpected flight path of the latter. In considering the risk, the Board took account of the fact that both the pilots and the controller had been in visual contact. They also noted that, although the PA31 pilot had then turned away from the DHC8, and had come within less than 1nm, the PA31 pilot had ensured that he was 500ft vertically above the DHC8 as the latter was descending for a visual approach. The Board agreed therefore that there had been no risk of a collision and, moreover, it was considered that, because the PA31 pilot had ensured that he had passed at a level sufficiently above the DHC8, normal safety standards had pertained. Consequently the Airprox was categorised as risk Category E.

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

Cause: The DHC8 pilot was concerned about the presence of the PA31.

Degree of Risk: E.