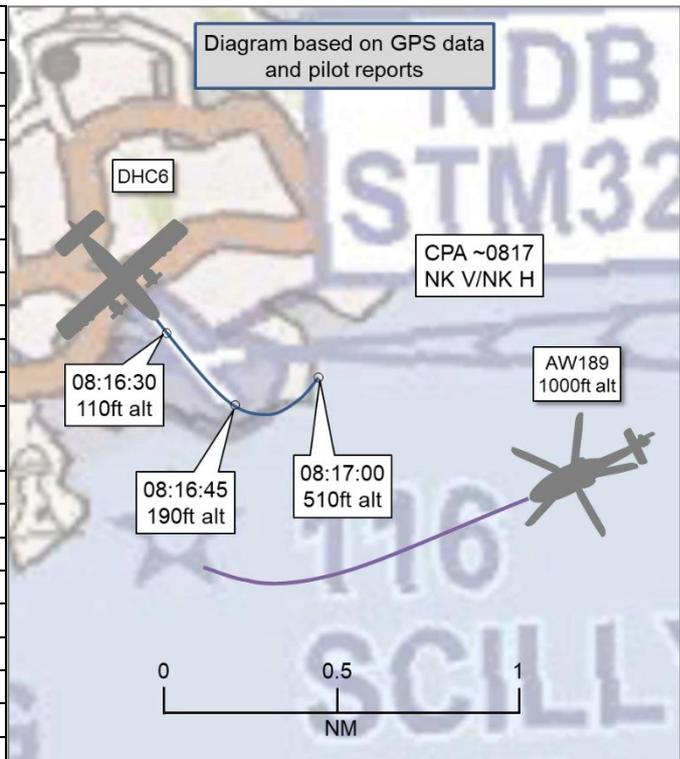


AIRPROX REPORT No 2021167

Date: 02 Sep 2021 Time: ~0817Z Position: 4945N 00617W Location: Scilly Isles/St Mary's ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DHC6	AW189
Operator	CAT	Civ Comm
Airspace	Scilly Isles ATZ	Scilly Isles ATZ
Class	G	G
Rules	VFR	VFR
Service	ACS	ACS
Provider	Scillies App/Twr	Scillies App/Twr
Altitude/FL	NK	NK
Transponder	None ¹	None ²
Reported		
Colours	White	Blue, red, white
Lighting	Landing, taxi, nav, beacon, strobes	Position, anti-colls, strobe
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	50ft	500ft
Altimeter	QNH (1026hPa)	QNH (1026hPa)
Heading	140°	270°
Speed	90kt	120kt
ACAS/TAS	TAS	TCAS II
Alert	Information	None
Separation at CPA		
Reported	200ft V/500m H	100ft V/1500m H
Recorded	NK V/NK H	



THE DHC6 PILOT reports that they were operating an Isles of Scilly to Land's End sector departing from RW14. Whilst taxiing, they were aware of helicopter inbound traffic for RW09 which was instructed to join downwind left-hand for RW09. The DHC6 pilot held on the threshold of RW14 awaiting a visual inspection of the stop end to be completed. Traffic Information was given on the helicopter joining downwind left-hand for RW09 and then take-off clearance issued with a climb to 1000ft. Just after rotation, they noticed an AW189 in their 10 o'clock position crossing left-to-right in front of them and instructed the First Officer to turn immediate left, which averted the risk of collision.

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

THE AW189 PILOT reports that they were relatively unfamiliar with the airport but the PM operated locally and, while they (the PF) briefed the passengers on the arrival, the PM was communicating with ATC; consequently, they may have missed some of the calls/instructions from ATC. They had been cleared to join downwind right-hand [they recall] for RW09 at St Mary's and the PM proceeded to direct them where to fly to effect the join. On crossing the climb-out lane of RW14, a fixed-wing aircraft was observed taking-off and banking to take up a track away from their helicopter. No immediate threat was observed as they had passed through the runway centreline. They continued with their positioning for right-hand downwind RW09.

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

¹ The DHC pilot reported transponder Modes A, C and S but the incident took place outside the coverage of the NATS radars.

² The AW189 pilot reported transponder Modes A, C and S but the incident took place outside the coverage of the NATS radars.

THE SCILLY ISLES/ST MARY'S CONTROLLER reports that the AW189 pilot was informed, at 17DME LND, to expect a left-hand downwind join for RW09 due to traffic departing from RW14. [The DHC6 pilot] was informed of the AW189 traffic joining left-hand downwind for RW09 and then cleared take-off from RW14, [the AW189 pilot] reported 25D (DME LND) and was instructed to join left-hand downwind RW09 and informed of RW14 traffic – [the AW189 pilot's] readback was correct. As [the DHC6] rotated, or shortly thereafter, the controller spotted the AW189 on right-hand downwind RW09. [The DHC6 pilot] had initiated an early climbing left turn as the controller radioed them to update them on the position of the AW189. After the aircraft had safely resumed their flight, [the DHC6 pilot] was informed that an Airprox would be filled.

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

Factual Background

The weather at Scilly Isles/St Mary's Airport was recorded as follows:

METAR EGHE 020820Z 07016KT 9999 FEW020 SCT030 BKN040 16/12 Q1026=

Analysis and Investigation

St. Mary's Airport ATC

The AW189 [pilot], having passed 17DME south-west of the LND DVOR (mid-point of the crossing between Land's End and St. Mary's Airport) tracking southwest-bound to St. Mary's, was advised to expect a left-hand downwind join for RW09 due to traffic starting, expecting to depart RW14. This was readback by the crew correctly. The departing DHC6 [pilot] was passed Traffic Information on the opposite direction AW189 approaching 25DME with the caveat that they would be joining downwind left-hand RW09, followed by a take-off clearance which was acknowledged by the crew. At the same time as the DHC6 commenced its take-off, the AW189 [pilot] reported now at 26DME and was instructed to join downwind left-hand for RW09 to report final, traffic departing RW14. Again, this clearance was correctly readback.

At the same time as the ATCO saw the AW189 and called the traffic, the DHC6 was already taking avoiding action in a low-level left-hand turn. The AW189 [pilot] stated they had the traffic in sight passing behind them. The DHC6 [pilot] commented that it had been a high risk of collision, the ATCO stated that they would be filing an Airprox report. There were no comments made by the AW189 [pilot].

The AW189 [pilot] had not reported at the 25DME position and was still within the time frame at the time the DHC6 was cleared for take-off. Only a short time later did the AW189 [pilot] report 26DME and the ATCO was monitoring the departing aircraft and its climb-out path. This is how they spotted the AW189 at the same time as the DHC6 [pilot] took avoiding action. The ATCO would also be initially looking in the direction of where the aircraft would be expected to be sighted for the correctly read-back clearance.

CAA ATSI

This incident occurred outside the coverage of the NATS radars and so no radar data was available. However, the RTF recording was reviewed and, at **0812:35**, the AW189 pilot announced at 17DME; this was acknowledged by the controller. Then, at **0812:50**, the pilot of the AW189 was informed by the Scillies controller of the DHC6 departing from RW14 and to expect a left-hand downwind join for RW09. The left-hand downwind join for RW09 was read back correctly by the AW189 pilot, with no mention of whether the Traffic Information on the DHC6 had been copied.

At **0815:30** the DHC6 pilot was lined up for departure RW14 and the controller passed the AW189's position to the DHC6 pilot as "...*approaching 25DME for left-hand downwind runway 09.....*" which was acknowledged by the DHC6 pilot. The DHC6 pilot was then cleared for take-off. At **0816:00** the AW189 pilot announced their position as "26DME" and the Scillies controller re-iterated that it would

be for a left-hand downwind join for RW09 and passed Traffic Information on the DHC6 departing from RW14 ahead. The clearance to join left-hand downwind for RW09 was read back correctly by the AW189 pilot and the Traffic Information was acknowledged.

The Scillies ATCO acknowledged the AW189 pilot report at 17DME, correctly identified the potential confliction and instructed the pilot to join LH for RW09. They would then have expected the next report to be made at 25DME but this call was not received, meaning that the ATCO was probably visually searching in the wrong area for the AW189, but was probably not too concerned when they had not visually acquired it because they had received a correct readback from the pilot.

When the AW189 pilot provided the LH downwind readback at **0812:50** they did not acknowledge the Traffic Information on the departing DHC6, meaning that they may or may not have heard the reason for the LH downwind instruction. It becomes clear later that they did not identify the potential confliction until they were almost through the RW14 climb-out lane and already in confliction. If they had heard the reason for the LH join they would have been more likely to have recognised the potential confliction and would have been looking and listening for the departing traffic. The AW189 pilot did not acknowledge the Traffic Information on the departing DHC6 until they had reported at 26DME and the ATCO passed it again, probably around 30-40sec before they passed through the RW14 climb-out lane.

UKAB Secretariat

The Airprox occurred outside the coverage of the NATS radars. Although the DHC6 pilot was able to supply a GPS log file to the UKAB Secretariat, no such data became available for the AW189. It has therefore not been possible to accurately reconstruct the geometry of the event and measure the CPA.

The DHC6 and AW189 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.³ 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.⁴

Summary

An Airprox was reported when a DHC6 and an AW189 flew into proximity in the Scilly Isles/St Mary's ATZ at approximately 0817Z on Thursday 2nd September 2021. Both pilots were operating under VFR in VMC and both pilots were in receipt of an ACS from Scillies Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, GPS data for both aircraft, a report from the air traffic controller involved and reports from the appropriate operating authorities. 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 DHC6 pilot and quickly agreed that they had done everything that they reasonably could have to deconflict their departure from the arriving AW189. The Board heard from a pilot member that the DHC6 pilot would not have expected the AW189 to have been crossing their climb-out lane, and would certainly have cleared their flightpath before initiating the take-off. The Board noted that DHC6 pilot had been passed Traffic Information on the AW189 arrival and some members wondered whether they might have been better served by waiting to commence their take-off run until they had been visual with the helicopter. However, in the event, the AW189 had also been indicated to them on their TAS (**CF10**) and the Board agreed that, once they had sighted the

³ (UK) SERA.3205 Proximity.

⁴ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

AW189, the DHC6 pilot had been concerned by the AW189's positioning and proximity to their aircraft (**CF12**).

Turning to the actions of the AW189 pilot, the Board noted that the Captain and PF had been briefing the passengers on the arrival to the airport while the PM had been communicating with ATC. A helicopter pilot member stated that this would be a normal division of responsibilities within the crew, and would have expected the crew's arrival briefing to have covered the type of join that had been cleared by ATC. Some members opined that there may have been a breakdown in the coordination between crew members but could not offer a reason as to why this might have happened – it may have been due to insufficient arrival briefing, fatigue, or a confirmation bias on the part of the PM that they had been expecting a right-hand downwind join and so that is what they believed they had been cleared to execute. All that said, the Board was unanimous that the AW189 pilot had not joined the airfield in accordance with their clearance (**CF3**) and that this had been likely due to PF not being able to fully monitor the communications with ATC (**CF8**) while they had been briefing the passengers. The Board felt that the most likely explanation for this had been an insufficient arrival briefing amongst the crew (**CF4**, **CF6**) which had led to the PF following the PM's instructions to join on the wrong side of RW09 (**CF5**, **CF7**). Additionally, it was not clear to the Board if the PF had assimilated the presence of the DHC6 departing from RW14 as this information had been passed by the Scillies controller at the same time as the instruction to join for left-hand downwind to RW09; therefore, the Board considered that the PF had not been aware of the DHC6 departing (**CF9**) and had therefore not questioned the PM on their routing in the vicinity of the climb-out lane. The Board agreed that the AW189's routing had taken the helicopter close enough to the departing DHC to cause its pilot concern (**CF11**).

The Board then considered the actions of the Scillies controller, and heard from an ATC member that there had been little opportunity for the controller to interject to try and prevent the Airprox. Members agreed that the controller had issued instructions to the AW189 pilot for a left-hand join to RW09 and that this had been correctly read-back by the AW189 crew on 2 separate occasions, but the fact that the AW189 crew had not joined in the manner cleared had led to the controller having an inaccurate mental model of the AW189's and DHC6's relative positions (**CF2**). A pilot member wondered if perhaps the controller could have separated the aircraft laterally by use of a radial from LND, but controller members suggested that that would not have been a realistic option for 2 aircraft operating in the vicinity of the airfield. The Board agreed that the controller had identified early the potential for a conflict between the 2 aircraft and had issued instructions that should have kept the AW189 to the north of RW14; however, the Board agreed that the controller had not visually detected the developing conflict in the RW14 climb-out lane (**CF1**) because they had not been expecting the AW189 pilot to route south of RW09.

Finally, the Board considered the risk involved in this event. Members noted that each pilot's estimation of separation differed markedly from the other's and that the DHC6 pilot had assessed the risk of collision to be 'high' while the AW189 pilot had assessed it as 'low'. The Board was disappointed that the AW189 pilot had been unable to secure timely access to the GPS data for their flight, as this would have greatly enhanced the Board's understanding of the geometry and timing of the Airprox and enabled a separation to have been measured. [UKAB note: the GPS data for the AW189 became available after the report had been sentenced by the Board. The data did not include time stamps and so, while the track described in the diagram at page 1 is accurate, the CPA could not be established. However, it was clear from the data that the 2 aircraft could not have passed any closer to each other than approximately 0.5NM.] Notwithstanding, members felt that there was enough information available from the pilots' and controller's reports to be able to classify the risk and agreed that, whilst safety had been degraded, the joining altitude of the AW189 and the actions of the DHC6 pilot on departure had removed any risk of collision. Consequently, the Board assigned a Risk Category C to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**Contributory Factors:**

	2021167			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
Ground Elements				
• Situational Awareness and Action				
1	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
2	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, inaccurate or no Situational Awareness
Flight Elements				
• Regulations, Processes, Procedures and Compliance				
3	Human Factors	• Flight Crew ATC Clearance Deviation	An event involving a deviation from an air traffic control clearance.	
• Tactical Planning and Execution				
4	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
5	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
6	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
• Situational Awareness of the Conflicting Aircraft and Action				
7	Human Factors	• Flight crew response to communications	An event related to the flight crew taking the incorrect action following communication	
8	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
9	Human Factors	• Understanding/Comprehension	Events involving flight crew that did not understand or comprehend a situation or instruction	Pilot did not assimilate conflict information
• Electronic Warning System Operation and Compliance				
10	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
• See and Avoid				
11	Human Factors	• Incorrect Action Selection	Events involving flight crew performing or choosing the wrong course of action	Pilot flew close enough to cause concern
12	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk:

C

Safety Barrier Assessment⁵

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 **ineffective** because the Scillies controller had inaccurate situational awareness regarding the positioning of the AW189 with respect to the RW14 climb-out lane and therefore did not detect the conflict between the departing DHC6 and arriving AW189.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the AW189 pilot did not comply with the Scillies controller's instructions to join on a left-hand downwind for RW09.

Tactical Planning and Execution was assessed as **ineffective** because the AW189 pilot joined on a right-hand downwind for RW09 having been instructed by the Scillies controller to join on a left-hand downwind for RW09.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the AW189 pilot did not assimilate the reason for the controller's instruction to join on a left-hand downwind for RW09 (to keep the AW189 to the north of the departing DHC6) and proceeded to fly through the RW15 climb-out lane.

Airprox Barrier Assessment: 2021167		Outside Controlled Airspace																				
Barrier	Provision	Application	Effectiveness																			
			Barrier Weighting																			
			0%	5%	10%	15%	20%															
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 5%]																		
	Manning & Equipment	✓	✓	[Green bar to 2.5%]																		
	Situational Awareness of the Confliction & Action	!	✗	[Red bar to 15%]																		
	Electronic Warning System Operation and Compliance	●	●	[Grey bar to 2.5%]																		
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✗	[Red bar to 10%]																		
	Tactical Planning and Execution	✓	✗	[Red bar to 10%]																		
	Situational Awareness of the Conflicting Aircraft & Action	✓	✗	[Red bar to 20%]																		
	Electronic Warning System Operation and Compliance	✓	✓	[Green bar to 15%]																		
	See & Avoid	✓	✓	[Green bar to 20%]																		
Key: <table style="display: inline-table; vertical-align: middle;"> <tr> <td>Full</td> <td>Partial</td> <td>None</td> <td>Not Present/Not Assessable</td> <td>Not Used</td> </tr> <tr> <td>✓</td> <td>!</td> <td>✗</td> <td>●</td> <td>○</td> </tr> <tr> <td>Green</td> <td>Yellow</td> <td>Red</td> <td>Grey</td> <td>White</td> </tr> </table>								Full	Partial	None	Not Present/Not Assessable	Not Used	✓	!	✗	●	○	Green	Yellow	Red	Grey	White
Full	Partial	None	Not Present/Not Assessable	Not Used																		
✓	!	✗	●	○																		
Green	Yellow	Red	Grey	White																		

⁵ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).