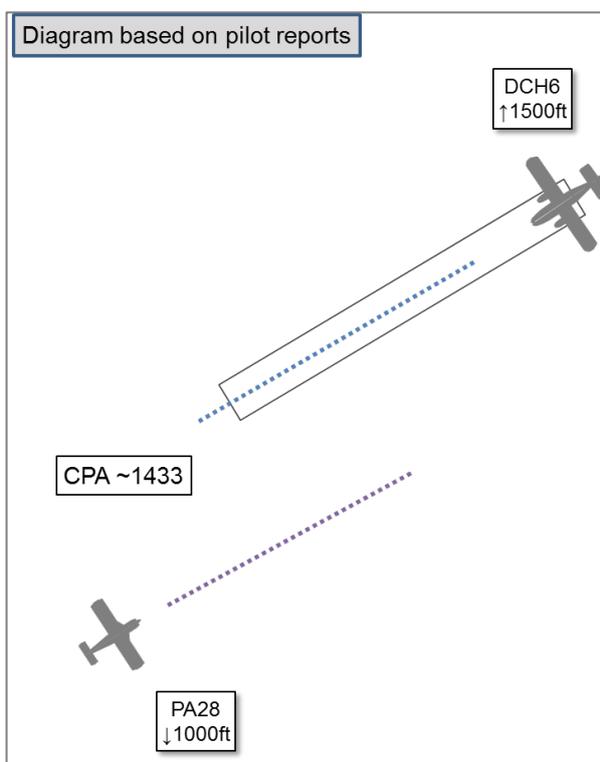


**AIRPROX REPORT No 2019231**

Date: 10 Aug 2019 Time: 1433Z Position: 5006N 00540W Location: Lands End

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	DHC6	PA28
Operator	Civ Comm	Civ FW
Airspace	Lands End ATZ	Lands End ATZ
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Lands End ADC	Lands End ADC
Altitude/FL	NK	NK
Transponder	A, C, S	A, C
Reported		
Colours	White, Blue	White, Blue
Lighting	NR	Strobe, Nav
Conditions	VMC	VMC
Visibility	NR	7km
Altitude/FL	1300ft	900ft
Altimeter	QNH (1009hPa)	QFE
Heading	247°	070°
Speed	90kt	100kt
ACAS/TAS	TCAS I	Not fitted
Alert	TA	N/A
Separation		
Reported	100ft V/1nm H	100ft V/1nm H
Recorded	NK	



**THE DHC6 PILOT** reports that he was cleared for departure on RW25, with a climb to 1500ft. He knew traffic was joining left downwind at 1000ft at 8nm (it had just reported passing reporting point 'C'). With the strong headwind he knew he would be through 1000ft before coasting out, giving vertical separation as well as the assumed horizontal separation. On passing 1100ft, the crew noticed a temporary flash-up of 'traffic' [on the TCAS] in the 2 o'clock position 400ft above, it then disappeared. He reduced the climb and asked the FO to keep a good look-out and to ask Tower if there was any reported traffic on the north coast, but before this was done, as they were passing 1300ft, traffic was spotted left 10-11 o'clock at 1400-1500ft at a range of 1nm. They made an avoiding action right turn to head north. He opined that the aircraft seemed to be heading for the Lands End overhead at 1500ft and may have been caught out by the strong tailwind. An Airprox was reported over the RT and the controller tried to contact the other aircraft to confirm the level, but initially there was no response.

**THE PA28 PILOT** reports the he was not aware that an Airprox had been reported until a few days later and recalls that he was approaching Lands End airfield from the Isles of Scilly and was offered a left or right-hand approach for RW25. He chose a left-hand approach, the usual joining pattern, which should have put him to the south of the climb-out for RW25. He was subsequently informed that the controller believed he was making a right-hand join. As he approached the circuit he asked the controller for the QFE and set it. He was aware from the RT that a Twin Otter was taking off from RW25 but was not visual with it throughout its ground roll and take-off; however, he subsequently saw it to his left-hand side, 1nm away and about 100-150ft above, turning right onto north. He recalled the controller asking the Twin Otter pilot if he was visual with the PA28, but did not hear the response. He was then asked for his height by the controller, who apparently did not hear that response. When he was asked again he replied that he was now at 900ft (he had descended as he approached the airfield).

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

**THE LANDS END CONTROLLER** reports that prior to making contact with the PA28, 'co-ordination' took place with Scilly Approach controller and he expected the PA28 to be inbound at 1000ft, to make initial contact at point 'Charlie'(10nm west of the LND VOR). The PA28 pilot reported 10nm west of the airport to join. Traffic Information was passed on traffic departing shortly, climbing to 1500ft westbound, together with joining instructions for a left-hand downwind join and QNH, which was read back correctly. The DHC6 reported ready for departure, the ATCO gave Traffic Information on the joining aircraft at 1000ft through 'Charlie', which was acknowledged, and the DHC6 was cleared for take-off. The PA28 pilot requested the QFE and the DHC6 pilot reported visual with traffic at the same level, he reported it was at 1500ft and within 1nm. The controller immediately requested a level check on the PA28, but didn't receive a response. He asked again and the pilot replied 'I was at 900ft at the time'. A subsequent discussion with the DHC6 pilot suggested that the aircraft climbed faster than usual to 1500ft due to the strong headwind, further the TCAS system had an issue on climb-out initially suggesting the traffic was on the right of the aircraft, but then updated to the left of the aircraft and 300ft above. The pilot then saw the PA28 in the 10 o'clock and within 1nm.

## Factual Background

The weather at Lands End was recorded as follows:

METAR EGHC 101420Z 23017KT 9999 FEW009 18/15 Q1009=

## Analysis and Investigation

### UKAB Secretariat

The Airprox could not be seen on either the NATS or the Newquay radar.

The DHC6 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>. 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>3</sup>.

## Summary

An Airprox was reported when a DHC6 and a PA28 flew into proximity west of Lands End at 1433hrs on Saturday 10<sup>th</sup> August 2019. Both pilots were operating under VFR in VMC, both in receipt of an Aerodrome Control Service from Lands End.

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

Information available consisted of reports from the pilots of both aircraft, and reports from the air traffic controllers 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 looked at the actions of the DHC6 pilot. He was given Traffic Information on the inbound PA28 by the controller, which led him to believe that the PA28 would be at 1000ft. Once he was airborne and in the climb to 1500ft, he was surprised to see it at a similar level to his own (**CF4**). His TCAS had issued a spurious warning that the traffic was on the right, when in fact it was on the left, but members noted that azimuth accuracy was a known problem with TCAS and that azimuth information should be treated with caution due to potential bearing errors (**CF5**). Members wondered whether, having looked for, and not seen, the traffic to the right, the pilot was then concerned by seeing the inbound traffic on the left, given that he saw the PA28 a mile away and had plenty of time to take action (**CF6**).

<sup>1</sup> SERA.3205 Proximity.

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

<sup>3</sup> SERA.3225 Operation on and in the Vicinity of an Aerodrome.

For his part the PA28 pilot reported joining through Point C but, without the RT transcript, members were unable to know for sure what height he told the controller that he was joining at, certainly the controller appeared to expect him to be at 1000ft. Some members wondered whether he should have heard the controller passing incorrect Traffic Information on his height to the DHC6 and corrected him at that time (**CF3**). However, ultimately he had heard the DHC6 on the RT and was expecting it to get airborne, so was not surprised to see it and was not concerned by the separation.

Turning to the Lands End controller, again the Board was unable to conclusively decide whether the controller was given incorrect information, or had just assumed the height of the PA28. Members noted that there were no formal procedures laid down for entry from the Isles of Scilly through Point C and, although the controller reported co-ordination with the Scilly controller, it was thought this was more likely to have been a pre-note rather than formal co-ordination given that the PA28 pilot was receiving a Basic Service and neither controller had radar. Some members opined that 1000ft over the sea in a PA28 seemed quite low for potential engine-failure reasons, and they were therefore surprised that the controller expected it was at that level. However, either through no fault of his own, or through a misunderstanding, the controller had an incorrect mental model of the height of the PA28 and so passed incorrect Traffic Information to the DHC6 (**CF1, CF2**).

In assessing the risk, the Board considered whether there had been any risk of collision, but quickly agreed that DHC6 pilot had taken early avoiding action and, in achieving 1nm separation, together with the PA28 pilot being visual, had ensured there was no risk of collision. Therefore, members determined that the separation was such that normal safety standards and parameters had pertained. The DHC6 pilot had simply been concerned by the proximity of the PA28; risk Category E.

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

#### Contributory Factors:

2019231			
CF	Factor	Description	Amplification
<b>Ground Elements</b>			
<b>• Situational Awareness and Action</b>			
1	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
2	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
<b>Flight Elements</b>			
<b>• Tactical Planning and Execution</b>			
3	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>			
4	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
<b>• Electronic Warning System Operation and Compliance</b>			
5	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
<b>• See and Avoid</b>			
6	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E.

### Safety Barrier Assessment<sup>4</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 **partially effective** because the controller’s mental model was such that the Traffic Information passed to the DHC6 on the PA28 was incorrect.

#### Flight Elements:

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because although the DHC6 pilot knew about the PA28, he thought it was at 1000ft.

Airprox Barrier Assessment: 2019231		Outside Controlled Airspace		Effectiveness				
Barrier		Provision	Application	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	⚠	⚠	[Yellow bar to 15%]				
	Electronic Warning System Operation and Compliance	⊖	⊖	[Grey bar to 2.5%]				
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓	[Green bar to 10%]				
	Tactical Planning and Execution	✓	✓	[Green bar to 10%]				
	Situational Awareness of the Conflicting Aircraft & Action	⚠	✓	[Yellow bar to 20%]				
	Electronic Warning System Operation and Compliance	⚠	✓	[Green bar to 15%]				
	See & Avoid	✓	✓	[Green bar to 20%]				
<b>Key:</b>		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	⚠	✗	⊖	⊖			
Application	✓	⚠	✗	⊖	⊖			
Effectiveness	█	█	█	█	□			

<sup>4</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).