ACCIDENT

Aircraft Type and Registration:	Piper PA-34-200 Seneca, G-BBPX
No & Type of Engines:	2 Lycoming IO-360-C1E6 piston engines
Year of Manufacture:	1972 (Serial no: 34-7250262)
Date & Time (UTC):	27 June 2012 at 1207 hrs
Location:	St Mary's Airport, Isles of Scilly
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 3
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damage to left main landing gear leg and fuselage skin
Commander's Licence:	Basic Commercial Pilot's Licence
Commander's Age:	65 years
Commander's Flying Experience:	7,762 hours (of which 233 were on type) Last 90 days - 32 hours Last 28 days - 15 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot, reports from St Mary's Air Traffic Control, meteorological documentation and recorded radio transmission data

Synopsis

The pilot flew a NDB approach to Runway 27 with the intention to circle to land on Runway 14. Weather conditions were marginal, and after losing visual contact with the Runway 14 threshold, the pilot discontinued the approach. He elected instead to land with a tailwind component on Runway 27. After touchdown, as the aircraft passed from the paved portion of runway to the grassed portion, braking effect was lost. The aircraft overran the runway and the left landing gear leg collapsed when it struck a runway light. The aircraft came to rest upright and none of the occupants was injured.

Pilot's report

The aircraft took off from Newquay Airport at 1130 hrs for the flight to St Mary's, with the pilot and three passengers on board. The pilot had received the latest weather information for St Mary's while at Newquay. It forecast a surface wind of 150° at 12 kt, good visibility, nil weather and 'FEW' cloud at 300 ft above the aerodrome. On arrival at St Mary's there was scattered cloud at 200 ft and broken cloud at 300 ft. The pilot elected to fly a NDB approach to Runway 27, to circle to land on Runway 14.

After flying the NDB approach, the pilot circled to land as planned, but found that a fog bank to the north of the airfield obscured the Runway 14 threshold. He initiated a go-around, and saw that the south side of the airport

was clear of fog and that Runway 27 was clearly visible. He reported that at no time during the go-around and subsequent approach did he penetrate the fog, nor enter cloud. The pilot had previously landed on Runway 27 in calm conditions, and considered that a 5 kt tailwind component would be acceptable.

The aircraft touched down on the Runway 27 threshold at 75 kt. It decelerated on brake application but, as it passed onto the grass portion of runway, all retardation appeared to cease. The pilot called for his passengers to "brace", shut down the engines and switched off the fuel. The left landing gear leg collided with a runway end light and collapsed. The aircraft overran the runway and slid down the grass slope at its end. After the aircraft had come to rest, the pilot informed ATC that all occupants were uninjured. They were able to vacate the aircraft through the cabin door.

The pilot observed that the grass was wet and offered minimal braking effectiveness. He considered that this, together with the tailwind component and downwards slope on the latter part of the runway were direct causal factors. He noted that there had been some pressure to complete the flight, which had already been delayed by weather. He added that his familiarity with St Mary's and the aircraft may have resulted in giving insufficient consideration to all the performance factors which could adversely affect the landing.

St Mary's ATC report

The ATC controller on duty at St Mary's reported that, after breaking off the approach for Runway 14 the pilot asked for wind information for Runway 32. The tailwind on Runway 32 was unacceptable, so the pilot asked about Runway 27, which was showing an 8 to 10 kt tailwind. The aircraft was seen to fly a visual manoeuvre to Runway 27 before landing at what appeared to the controller to be about 80 to 100 m beyond the threshold. The aircraft was seen to commence heavy braking, but this appeared to cease as the aircraft passed on to the grass portion of runway.

The airport's Rescue and Fire Fighting Service (RFFS) had been placed on standby prior to the aircraft's arrival, as the weather conditions had been changeable. They were alerted and dispatched at the first sign of the aircraft failing to stop and were on scene within seconds. ATC initiated implementation of the airport's full emergency orders in accordance with local procedures.

Radiotelephony information

A recording of radio transmissions between the ATC controller and the aircraft pilot was available for analysis. Also recorded were landline exchanges between the controller and the RFFS.

After clearing the aircraft for the NDB approach, the controller contacted the RFFS to place them on standby. In this exchange, both parties commented on the poorer weather on the north side of the airfield affecting the approach for Runway 14. At 1159 hrs the pilot announced that he was at the starting point of the NDB procedure, and he was instructed to continue and to call "visual". The controller passed the surface wind at this point as 140° at 15 kt.

When the pilot subsequently called "visual", he was asked "DO YOU WISH TO CIRCLE FOR ONE FOUR?". He replied "AFFIRM" and was instructed to call "final" for Runway 14. The ATC controller was not visual with the aircraft at this stage and warned the pilot of the 400 ft television mast to the north of the field. When the pilot advised "DOWNWIND" and was cleared to land, the controller passed the surface wind as 140° at 15 kt and advised the surface was damp.

The pilot subsequently advised that he was going around. He said that it was quite clear to the south and asked the controller about the wind for Runway 32. The controller said the tailwind component on Runway 32 was 15 to 17 kt, which the pilot rejected as unacceptable. He then asked about the wind for Runway 27, and the controller replied "THE WIND IS ONE FOUR ZERO DEGREES AT SIXTEEN KNOTS, GIVING YOU AN EIGHT TO TEN KNOT TAILWIND". The pilot responded "ROGER, WE'RE LATE DOWNWIND FOR TWO SEVEN, GOLF PAPA XRAY". When the pilot reported 'final' he was passed a last wind of 140° at 15 kt.

Meteorological information

There had been no scheduled flying at St Mary's on the day of the accident, due to a low cloud ceiling. A meteorological forecast issued at 1110 hrs on 27 June, for the period 1200 hrs to 1900 hrs, gave a surface wind of 130° at 15 kt and visibility of 300 m in fog, temporarily improving to 4,000 m visibility and scattered cloud at 400 ft. A fog warning for St Mary's was issued by the Met Office at 0846 hrs on the morning of the accident. It was valid for the daytime period, and stated that fog with visibility less than 600 m was expected.

A weather observation taken at the time of the accident gave a surface wind from 140° at 16 kt, visibility in excess of 10 km, scattered cloud at 200 ft and broken cloud at 300 ft. The temperature and dew point were both 15°C. The weather at 1150 hrs was similar, except the visibility was 9 km and the cloud was broken at 200 ft.

St Mary's Airport

The airport occupies an elevated position on the island of St Mary's in the Isles of Scilly. Its main runway, which is all asphalt, is designated 14/32 and is 600 m long by 23 m wide. A second runway, designated 09/27, is 523 m long by 18 m wide; it is part asphalt and part grass. Airport elevation is 116 ft.

Runway 27 is asphalt for its first 287 m (to the point where it crosses Runway 14/32), beyond which it is grassed. The first 100 m rises with a gradient of 4.3%, while the last 100 m slope downwards with a gradient of 5%. Information for St Mary's in the United Kingdom Aeronautical Information Publication includes the warnings:

> *'a. Pilots should exercise extreme caution when landing or taking-off at this aerodrome, which is markedly hump-backed. The gradients increase to as much as 1 in 13 at runway ends.*
>
> *b. Pilots are warned of the different braking characteristics of the grass/asphalt sections of Runway 09/27.'*

Two instrument approaches are available, for Runway 27 and Runway 32. Both are based on the St Mary's NDB, which is situated on the airport. The Obstacle Clearance Altitude applicable to circling manoeuvres is 700 ft (584 ft AAL), reducing to 520 ft (404 ft AAL) south of Runway 09/27.