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ATSB TRANSPORT SAFETY INVESTIGATION REPORT
Aviation Occurrence Report – 200700358
Preliminary

Engine power loss
15 km south-east Gold Coast Airport, Qld
4 February 2007
VH-DIC
Piper Aircraft Co. PA-30 Twin Comanche

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Engine power loss, 15 km south-east Gold Coast Airport, Qld, 4 February 2007, VH-DIC, Piper Aircraft Co. PA-30 Twin Comanche

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Abstract

On 4 February 2007, the owner pilot of a Piper Aircraft Co PA 30 Twin Comanche aircraft, registered VH-DIC, was conducting a private flight from the Gold Coast aerodrome. The pilot was the sole occupant. Approximately 11 minutes after takeoff, at 1622 Eastern Standard Time, the pilot declared an emergency reporting an engine failure and some 15 seconds later that he was also experiencing problems with the left engine. Approximately 13 minutes after departure, the aircraft impacted the water about 100 m from Kingscliff beach, adjacent to the suburb of Casuarina, New South Wales. The pilot sustained fatal injuries.

The aircraft wreckage, including most of the lower centre fuselage, wings, and both engines and propellers, were recovered 2 days after the accident. The right propeller was recovered with the blades in the feathered position. The left propeller blades were recovered in the normal operating range with bending consistent with power being applied at the time of the accident.

The pilot held a commercial pilot license and at the time of the accident, had accrued approximately 2,544 hrs total flying time. He purchased the accident aircraft in 1996, and had accrued approximately 940 hrs in that aircraft.

At the time of the accident, the weather was generally fine.

The investigation is continuing.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal Bureau within the Australian Government Department of Transport and Regional Services. ATSB investigations are independent of regulatory, operator or other external bodies.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the Transport Safety Investigation Act 2003 and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to enhance safety. To reduce safety-related risk, ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not the object of an investigation to determine blame or liability. However, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to proactively initiate safety action rather than release formal recommendations. However, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation, a recommendation may be issued either during or at the end of an investigation.

The ATSB has decided that when safety recommendations are issued, they will focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on the method of corrective action. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations. It is a matter for the body to which an ATSB recommendation is directed (for example the relevant regulator in consultation with industry) to assess the costs and benefits of any particular means of addressing a safety issue.

About ATSB investigation reports: How investigation reports are organised and definitions of terms used in ATSB reports, such as safety factor, contributing safety factor and safety issue, are provided on the ATSB web site www.atsb.gov.au.

FACTUAL INFORMATION

History of the flight

On 4 February 2007, the pilot of a Piper PA-30 Twin Comanche aircraft, registered VH-DIC, was conducting a private flight from the Gold Coast Airport, Qld. The pilot, who was also the aircraft owner, was the sole occupant. At 1612 Eastern Standard Time[1], the pilot departed from the airport. At 1622, the pilot declared an emergency reporting an engine failure. Approximately 15 seconds later the pilot advised that he was also experiencing problems with the left engine. Approximately 13 minutes after departure, the aircraft impacted the water about 100 m from Kingscliff beach, adjacent to the suburb of Casuarina, NSW (figure 1). The pilot sustained fatal injuries.

Figure 1: Aerial view of the accident site

Note: The approximate location of the accident site is indicated by the arrow.

The following is a chronology of events based on the recorded communications between the pilot and the Gold Coast Airport aerodrome controller (ADC):

1601	The pilot advised that he intended to conduct a 'check flight' to the training area.
1604:31	The pilot requested, and received, clearance to taxi and to track to the training area.
1611:24	The pilot was cleared to take off from runway 14.
1622:07	The pilot reported to the ADC 'I have an engine failure and I'm declaring an emergency'.

1 The 24-hour clock is used in this report to describe the local time of day, Eastern Standard Time (EST), as particular events occurred. Eastern Standard Time was Coordinated Universal Time (UTC) + 10 hours.

1622:13	The controller acknowledged the emergency, cleared the pilot to track direct to the airport, and asked what altitude the pilot would prefer.
1622:22	The pilot advised that he didn't think that he would make the field, and that he had 'got a lot of problems with the left engine as well … I might have to do beach landing'.
1623:07	The pilot advised that he would attempt to land on the beach to the south.
1623:18	The pilot advised that he wouldn't make a landing to the south, and that he would land to the north.

No further transmissions were received from the pilot.

Witnesses located on or near the beach at Casuarina reported seeing the aircraft flying north at a low height, either over, or just off, the beach. Witnesses located close to the accident site reported hearing noises consistent with engine operation. They described a variety of sounds associated with the aircraft's flight, including that there was:

- an increase in engine noise
- a loud bang
- a noise like a 'bull-roarer'
- a vibrating engine sound like a diesel four-wheel-drive engine
- a surge in engine noise.

The aircraft was then observed to pitch up and bank sharply to the right. It remained banked to the right and descended steeply into the water, just beyond the wave zone/shore break.

Wreckage information

The aircraft wreckage, consisting of most of the lower centre fuselage (figure 2), wings, and both engines and propellers, were recovered two days after the accident. Both wing tip tanks, a seat and a number of pieces of the fuselage and wing skin were collected from the beach shortly after the accident.

The following items were not found:

- cabin roof with windows and door
- approximately 1.8 m outboard section of each wing
- right aileron
- right wing outboard fuel tank
- approximately 1.5 m section of empennage
- approximately 0.6 m outboard section of the left horizontal stabiliser and elevator
- vertical stabiliser and rudder

Figure 2: The aircraft as recovered

Weather information

At the time of the accident, the weather was generally fine with the wind from the south-east.

Pilot information

The pilot held a valid commercial pilot license (aeroplanes) since 1989. On 24 January 2007, he underwent an aviation medical examination and his medical certificate was re-validated by the examining physician. At the time of the accident, the pilot had

accrued approximately 2,544 hrs total flying time, including approximately 940 hrs in the accident aircraft.

Previous flights

The aircraft had flown approximately 5.3 hours since an annual inspection, including 3.9 hours during a flight from the Gold Coast to Bundaberg and return 5 days prior to the accident. A witness near the Gold Coast Airport reported that the pilot experienced problems with the right engine before departure on that flight. The pilot reported to maintenance personnel, after returning to the Gold Coast Airport, that the right propeller feathered when the aircraft was entering the circuit in preparation for landing. The pilot believed that he may have feathered it unintentionally. It is not yet known whether the pilot experienced any problems with the aircraft on arrival or departure from Bundaberg.

Maintenance personnel attempted to assist the pilot to unfeather the right propeller. Following an unsuccessful initial attempt, the pilot placed the aircraft in a hangar. The investigation has not yet established what subsequent action was taken to unfeather the propeller, or whether the engine/propeller were examined by a maintenance engineer during the period between when the aircraft arrived from Bundaberg and the accident flight.

Aircraft information

The aircraft had been owned by the pilot for approximately 10 years. It received a maintenance release and annual inspection on 6 December 2006. It had been maintained by the same organisation for the last 8 years.

The aircraft was refuelled to full tanks the day before the flight to Bundaberg. The sole fuel supplier at Bundaberg Airport reported that there was no record of the aircraft being refuelled at Bundaberg. There were no records of the aircraft being refuelled by either of the two fuel suppliers at the Gold Coast Airport following its return from Bundaberg.

Wreckage examination

The aircraft impacted the water on the right side and cartwheeled to the right while breaking up. The parts of the aircraft that were not recovered were probably carried away by the current.

The right propeller was recovered with the blades in the feathered position and with minimal deformation of the blades (figure 3). An examination of the right engine found significant damage to the number-4 connecting rod big end bearing. The engine was found to have been contaminated by metal particles.

Figure 3: Right (a) and left (b) engines as recovered

(a) **(b)**

The left propeller blades were recovered in the normal operating range with deformation consistent with power being applied at the time of the accident.

The respective fuel selectors for the left and right engines were on Main, the boost pumps were selected to OFF and the magnetos were selected to ON. The right main fuel tank was cut during impact and was empty. The left main tank contained a mixture of fuel and water. The right auxiliary fuel tank was not located. The left auxiliary fuel tank contained a mixture of fuel and water

Further investigation

The investigation is continuing, and will include:

- additional discussion with witnesses;
- examination of recorded radar and audio information;
- a review of medical, post-mortem and toxicology information;
- a review of aircraft documentation;
- a review of the aircraft's operational and maintenance history;
- further examination of the right and left engines and the propellers;
- further examination of aircraft instruments and components; and
- examination of pilot training and flying records.