



**Australian Government**

**Australian Transport Safety Bureau**

**ATSB TRANSPORT SAFETY INVESTIGATION REPORT**

Aviation Occurrence Report – 200606530

Preliminary

**Loss of control - 9 km south-east of Raglan, Qld  
31 October 2006  
Piper Aircraft Corporation PA31-350, Chieftain  
VH-ZGZ**





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Meteorology radar picture at Figure 2 courtesy of Bureau of Meteorology.

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### Abstract

On 31 October 2006 at 1955 Eastern Standard Time, PA31-350 aircraft, registered VH-ZGZ, was on descent to Gladstone Airport, Qld when its radar track disappeared from the air situation display in the Brisbane Air Traffic Control Centre. Subsequently, the aircraft was found to have impacted terrain approximately 9 km south-east of Raglan, Qld. The pilot and two passengers were fatally injured. The aircraft was destroyed by impact forces and post-impact fire.

The investigation is continuing.

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# THE AUSTRALIAN TRANSPORT SAFETY BUREAU

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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. Accordingly, the ATSB also conducts investigations and studies of the transport system to identify underlying factors and trends that have the potential to adversely affect safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and, where applicable, relevant international agreements. The object of a safety investigation is to determine the circumstances in order to prevent other similar events. The results of these determinations form the basis for safety action, including recommendations where necessary. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations.

It is not the object of an investigation to determine blame or liability. However, it should be recognised that an investigation report must include factual material of sufficient weight to support the analysis and findings. That material will at times contain information reflecting on the performance of individuals and organisations, and how their actions may have contributed to the outcomes of the matter under investigation. 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.

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. While the Bureau issues recommendations to regulatory authorities, industry, or other agencies in order to address safety issues, its preference is for organisations to make safety enhancements during the course of an investigation. The Bureau prefers to report positive safety action in its final reports rather than making formal recommendations. Recommendations may be issued in conjunction with ATSB reports or independently. A safety issue may lead to a number of similar recommendations, each issued to a different agency.

The ATSB does not have the resources to carry out a full cost-benefit analysis of each safety recommendation. The cost of a recommendation must be balanced against its benefits to safety, and transport safety involves the whole community. Such analysis is a matter for the body to which the recommendation is addressed (for example, the relevant regulatory authority in aviation, marine or rail in consultation with the industry).

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# FACTUAL INFORMATION

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## History of the flight

On 31 October 2006, a Piper Aircraft Corporation PA31-350 Chieftain aircraft, registered VH-ZGZ, was being operated on a private category instrument flight rules (IFR) flight from Emerald to Gladstone, Qld. The pilot and two passengers were on board the aircraft. After departing Emerald at 1807 Eastern Standard Time<sup>1</sup>, the flight proceeded apparently normally at a cruising altitude of 7,000 ft above mean sea level (AMSL). At 1849, air traffic control cleared the pilot of the aircraft to leave controlled airspace on descent to Gladstone. At 1853, the pilot reported changing radio frequency to the Gladstone Common Traffic Advisory Frequency (CTAF). At 1855, the aircraft's radar track disappeared from the air situation display in the Brisbane Air Traffic Control Centre. The controller's attempts to contact the aircraft were unsuccessful. A few minutes later, the Gladstone Police received advice of an aircraft accident in the Raglan area. Subsequently, wreckage of the aircraft was located near Raglan, approximately 39 km west of Gladstone. The three occupants were fatally injured. The aircraft was destroyed by impact forces and post-impact fire.

## Recorded radar information

Preliminary analysis of recorded air traffic control radar data indicated that the aircraft's flight profile from Emerald was stable in altitude, direction, and speed. The final four minutes of valid radar data showed the aircraft in a steady descent at 600 ft per minute, and at a groundspeed of about 180 kts. The last valid data record showed an altitude of about 5,400 ft and a groundspeed of 177 kts. Throughout those four minutes, the recorded track remained steady on 191 degrees magnetic.

The last recorded position of the aircraft was within 1 km of the location of the ground impact.

## Accident site

Examination of the accident site revealed that the aircraft had impacted open ground on the side of a hill in a very steep nose-down attitude at high speed (figure 1). The relative angle between the terrain slope and the flight path was greater than 70 degrees.

The force of the impact and the subsequent fire caused complete disintegration of the aircraft structure, except for the engines and the propellers, which had retained some structural integrity.

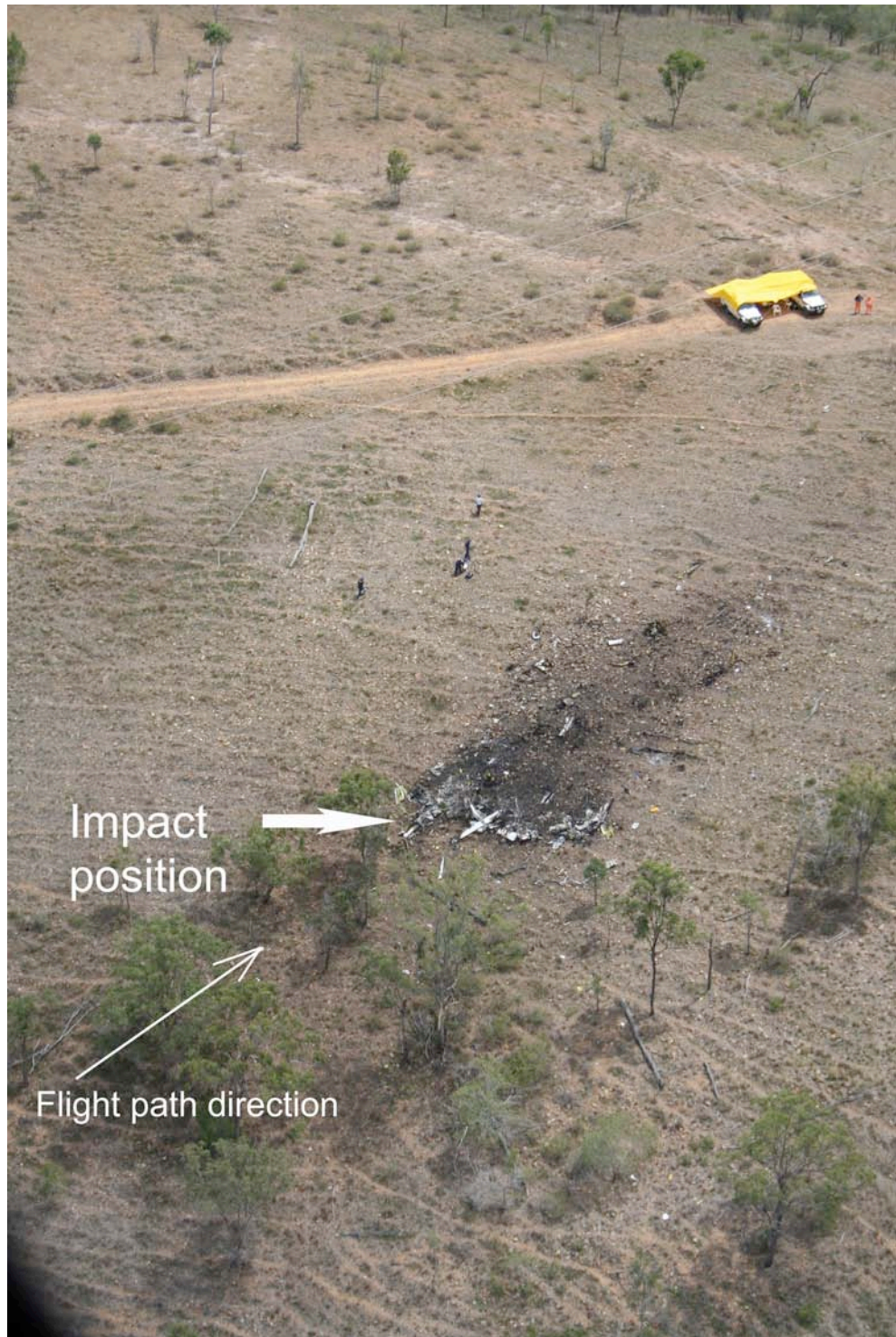
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<sup>1</sup> The 24-hour clock is used in this report to describe the local time of day, Eastern Standard Time (EST), as particular events occurred. Eastern Standard Time was Coordinated Universal Time (UTC) + 10 hours.

Examination of the wreckage confirmed that all the aircraft extremities were at the impact site. That information enabled in-flight break-up to be discounted as part of the accident sequence.

The engines and propeller structures, along with some remnants of the electrical and fuel systems and some flight instruments, were removed from the accident site for further examination.

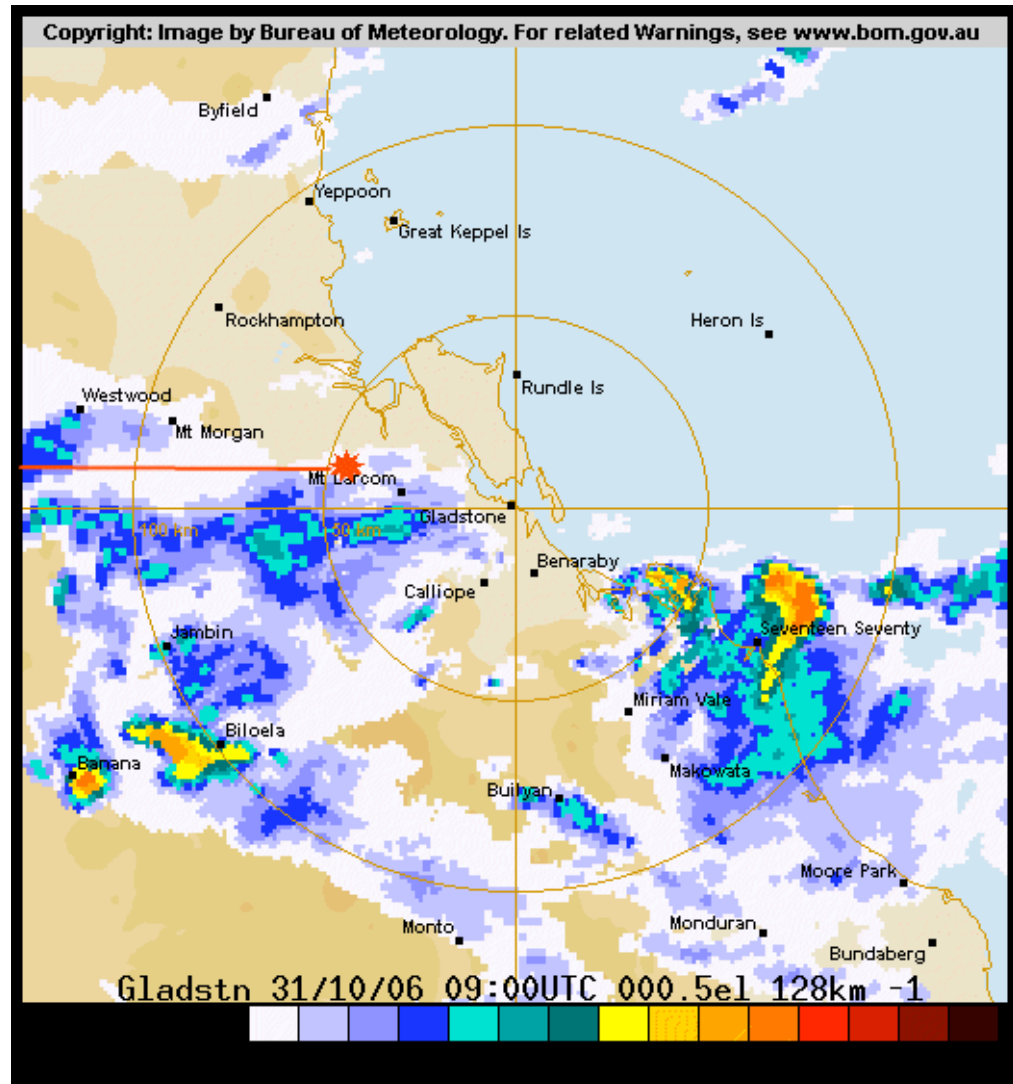
**Figure 1: Aerial view of accident site**



## Weather

On 31 October 2006, a high pressure ridge extended along the Queensland coast and an inland trough extended north-south through central Queensland. During the afternoon, showers and thunderstorms developed east of the trough and moved towards the coast. The Bureau of Meteorology's Gladstone weather radar image recorded at 1900 is shown at figure 2. The approximate track of the aircraft and the accident location (in red) have been superimposed on that image.

**Figure 2: Bureau of Meteorology Gladstone weather radar image, 256 km radius, recorded on 31 October 2006 at 1900 EST**



Witnesses in the area reported conditions as overcast with light rain and very dark at the time of the accident.

No lightning activity was recorded within a 20 km radius of the accident location between 1700 and 2000.

## **The aircraft**

On 15 September 2006, the aircraft was issued an Australian certificate of airworthiness and placed on the Australian register after being imported from the Philippines on 31 August 2006. It underwent an inspection for the issue of an Australian Certificate of Airworthiness, and a 100 hourly maintenance inspection, on 2 October 2006. The owner took possession of the aircraft on 9 October 2006.

## **The pilot in command**

The pilot in command completed his endorsement on the PA31 class of aircraft on 9 October 2006. He held a command (multi-engine) instrument rating and a Grade One flight instructor rating. His total flying experience exceeded 4,000 hours.

The pilot was observed occupying the left cockpit seat when the aircraft taxied for departure at Emerald.

## **The passengers**

One of the passengers was a qualified pilot with about 500 hours flying experience. He had completed multi-engine endorsement training but had not been endorsed on the PA31 class of aircraft. He had accompanied the pilot in command on flights in ZGZ on at least five occasions and was observed occupying the right cockpit seat when the aircraft taxied for departure at Emerald.

The other passenger was not a qualified pilot.

## **On going investigation**

The investigation is continuing and will include further examination of the following:

- aircraft maintenance history before and after its arrival in Australia
- engines and propellers
- electrical, structural, and fuel system components retrieved from the accident site
- in-flight weather
- recorded radar and voice transmission data
- pilot training and experience.