

**Aviation Safety Investigation Report
199503601**

**Piper Aircraft Corp
Arrow**

26 October 1995

Readers are advised that the Australian Transport Safety Bureau investigates for the sole purpose of enhancing transport safety. Consequently, Bureau reports are confined to matters of safety significance and may be misleading if used for any other purposes.

Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

Investigations commenced after 1 July 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with the Transport Safety Investigation Act 2003 (TSI Act). Reports released under the TSI Act are not admissible as evidence in any civil or criminal proceedings.

NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 199503601 **Occurrence Type:** Accident
Location: 14 km WNW Childers
State: QLD **Inv Category:** 3
Date: Thursday 26 October 1995
Time: 0907 hours **Time Zone** EST
Highest Injury Level: Fatal
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	1	0	0	0	1
Ground	0	0	0	0	0
Passenger	1	0	0	0	1
Total	2	0	0	0	2

Aircraft Manufacturer: Piper Aircraft Corp
Aircraft Model: PA-28R-200
Aircraft Registration: VH-YAB **Serial Number:** 28R-35228
Type of Operation: Non-commercial Business
Damage to Aircraft: Destroyed
Departure Point: Coolangatta QLD
Departure Time: 0728 EST
Destination: Rockhampton QLD

Crew Details:

<u>Role</u>	<u>Class of Licence</u>	<u>Hours on Type</u>	<u>Hours Total</u>
Pilot-In-Command	Private	575.0	761

Approved for Release: Tuesday, August 13, 1996

FACTUAL INFORMATION

At 0721 EST, while taxiing for takeoff at Coolangatta, the pilot informed the aerodrome controller that he intended to fly along the coast at 500 ft. He had not submitted a flight plan and did not require search and rescue services.

The early part of the flight to Noosa was without apparent difficulty. The aircraft was last observed by radar at 0820, crossing the coast on a north-westerly track south of the Wide Bay Restricted Area. Radar returns indicated that the aircraft was at 2,500 ft at the time. The pilot did not communicate with the Brisbane Flight Service unit.

At about 0907 witnesses on the ground heard what they believed was aircraft engine noise, which was varying in intensity, followed by a loud bang. A short time later several large pieces of aircraft were seen to fall from the low cloud base, followed by a shower of lighter material.

The Area 40 weather forecast covering the period from 0300 to 1800 on 26 October 1995, indicated wide-spread rain from stratiform, layered cloud, with a base below 1,000 ft. A clearing change, gradually moving east, was expected at the coast about midday. Pilots who flew in the area at about the time of the accident reported that the cloud mass was quite thick, with a base at about 600 ft and tops to 14,000 ft in places. Witnesses on the ground said that the cloud base was unbroken at about 500 ft above ground level. No thunderstorms were reported in the area. An Area 40 forecast was available to the pilot before the flight commenced but it is not known whether he obtained one from the Brisbane Briefing Office.

Examination of the wreckage found that the left wing had failed in overload and had separated from the fuselage. The remainder of the aircraft structure then rapidly disintegrated. There was no evidence of an in-flight explosion. The landing gear was found in the extended position.

The validity of the aircraft's Maintenance Release expired on 20 October 1995.

The pilot was the owner of the aircraft and he used it almost exclusively for transport between the Gold Coast and Rockhampton where he had business commitments on a semi-regular basis. On the day of the accident he had business scheduled in Rockhampton. He did not hold an instrument rating but did hold a night visual flight rules (NVFR) rating. His log-book showed that he had completed his endorsement training in the aircraft in October 1990. He had not undertaken a biennial flight review within the two years prior to the accident.

In 1990 the pilot underwent heart bypass surgery. Since the operation he had regained his Class 2 medical certificate and was allowed to exercise the privilege of his pilot's licence. The post-mortem examination revealed the presence of ischaemic heart disease, a deficiency of blood in part due to functional constriction or actual obstruction of a blood vessel.

ANALYSIS

Weather and Flight Planning

Both the Area 40 forecast and actual weather reports indicated that it was unlikely that the pilot could have completed his flight in visual meteorological conditions.

The Pilot

Examination of his log-book showed that the pilot first flew VH-YAB during training for a Constant Speed (Propeller) and Retractable Gear endorsement in October 1990. In September 1991 he obtained a NVFR rating. The last log-book entry was dated March 1995. However, a detailed, current notebook recorded his flying activities. He had noted 45 flight hours in VH-YAB since March 1995, mostly on flights to and from Rockhampton.

The NVFR rating is not regarded by the Civil Aviation Safety Authority (CASA) as an instrument rating; however, the pilot would have gained limited instrument flying experience during his training for the rating. A passenger on an earlier flight said that on one occasion they were caught above cloud. The aircraft entered cloud and seemed to be out of control for a period of time.

The post-mortem examination report revealed the presence of ischaemic heart disease. The report found that there may have been a cardiac episode prior to the crash which affected the pilot. With the degree of ischaemic heart disease found, any relative hypoxia of the myocardium might have precipitated a rapid and/or irregular rhythm, bringing about left ventricular failure. The report noted that anxiety with a rapid heart rate might trigger such a sequence. A specialist report from the Directorate of Aviation Medicine, CASA, endorsed the findings of the post-mortem examination report, adding that unfavourable in-flight conditions may have brought on some degree of myocardial ischaemia through anxiety.

Aircraft Operation and Crash Site Examination

The crash site is situated on the direct track between Maroochydore and Gladstone. Examination of the aircraft's gyro flight instruments confirmed that they were functioning up to the point of breakup. The Piper Autocontrol 111 automatic pilot was switched on. A Magellan NAV 1000 PLUS (Marine) Global Positioning System (GPS) had been connected to the aircraft's electrical system. All GPS data was lost due to the loss of aircraft power supply and its battery pack backup. However it is possible that the pilot had the relevant data entered in the GPS receiver and was flying along the route.

The altitude at which the aircraft broke up could not be determined. Examination of the recorded radar tapes did not show the aircraft. The Mt Alma radar near Rockhampton is a monopulse secondary surveillance radar which relies on an operating aircraft secondary surveillance radar transponder. The pilot may have switched his transponder off, or the aircraft may have been operating below the radar horizon. Interpolation of radar coverage maps indicated that the radar horizon is approximately 6,000 ft over the crash site.

Witnesses described the engine sound as varying before the aircraft broke up. The varying engine noise was probably due to the doppler effect as the aircraft, relative to the witnesses, continually turned away and towards them in a downward spiral.

The aircraft had an automatic gear extension system which lowers the landing gear when the speed drops below about 90 kts. That the landing gear was down and locked could indicate that the air speed dropped below normal cruise speed some time before the breakup, or that the gear was deliberately lowered.

CONCLUSIONS

Findings

1. The aircraft was overdue for maintenance but was otherwise serviceable for flight as far as could be determined.
2. The pilot was not trained or rated for flight under instrument flight rules.
3. On a previous flight, the pilot had flown into cloud and probably lost control of his aircraft.
4. The pilot had scheduled business in Rockhampton on the day of the accident.
5. The weather was unsuitable for visual flight.
6. The pilot continued the flight without visual reference to the ground or horizon.
7. The pilot was suffering from ischaemic heart disease and may have been incapacitated.
8. The pilot lost control of the aircraft.
9. The aircraft was overstressed and as a result broke up in flight.

Significant factors

1. The pilot was unable to continue visual flight rules flight along the coast as planned and entered cloud, probably relying on his auto-pilot and GPS to aid him in control and guidance of his aircraft.
2. Control of the aircraft was lost by the pilot either through disorientation, incapacity, or a combination of both.