Aviation Safety Investigation Report 199601690

Beech Aircraft Corp Bonanza

28 May 1996

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Aviation Safety Investigation Report

199601690

Occurrence Number: 199601690 **Occurrence Type:** Accident
Location: Tyagarah, (ALA)
State: NSW **Inv Category:** 3
Date: Tuesday 28 May 1996
Time: 1653 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	2	0	0	3
Total	**2**	**2**	**0**	**0**	**4**

Aircraft Manufacturer: Beech Aircraft Corp
Aircraft Model: A36
Aircraft Registration: VH-AFP **Serial Number:** E-214
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Destroyed
Departure Point: Tyagarah NSW
Departure Time:
Destination: Tyagarah NSW

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Private		8000

Approved for Release: Monday, February 24, 1997

FACTUAL INFORMATION

Around lunch time on the day of the accident the pilot invited a number of people for a joyflight later in the day to view whales off the coast near Byron Bay. The flight was expected to take about 45 minutes.

The pilot and one passenger arrived at the aircraft at about 1630 EST, when the owner was repositioning the aircraft in its hangar. The other two passengers arrived about five minutes later. At that time, the pilot was conducting a pre-flight inspection and talking to the aircraft owner. Prior to the pilot completing his inspection, the owner departed. The owner did not note the quality of the pilot's pre-flight inspection, or whether the fuel tanks were tested for water.

The passengers boarded the aircraft and the pilot had them fasten their seatbelts. He then started the engine and taxied to the runway. One passenger considered that the pilot was in a hurry during this period; however, another pilot flying near the strip, and observing the takeoff of the aircraft, considered that the aircraft spent an unusually long time at the eastern end of the airstrip. The take-off was towards the west at about 1653.

Witnesses reported that soon after the aircraft became airborne, when at a height of 70 to 100 ft above the strip and with the landing gear almost retracted, the engine rapidly lost power. A passenger reported that the pilot tapped a number of instrument faces, asked himself what was happening a couple of times, and appeared to become panicked. Pilots at the airstrip said that they expected the nose of the aircraft to be lowered but this did not occur. A short time later the wings began to rock before the left wing dropped and the aircraft collided with the ground beside the Pacific Highway. At impact, the aircraft was banked about 90 degrees to the left and was descending at an angle of about 30 degrees. The left wing broke into sections and the aircraft slid backwards to rest against trees beside the road. The four occupants were rescued from the aircraft before it was consumed by fire. The pilot and the passenger who had been seated in the front seat were fatally injured.

The investigation found that the landing gear and flaps were up, with the left fuel tank selected at impact. The main tanks were reported to be close to full, with the wing tip tanks containing only residual fuel. Water was found in the fuel injection distributor valve on the engine. A small quantity of water was also found in the fuel control unit.

When the aircraft was ferried to Australia about a year before the accident, the ferry pilot noted that water collected in the left fuel tank after rain. The O-ring seals in the fuel caps were recorded as having been changed during maintenance to place the aircraft on the Australian register.

The aircraft had been parked in the open up to a few days prior to the flight and during that time, heavy rain had been experienced at the airstrip. The aircraft had been taxied to the hangar from its previous parking spot, although the owner could not remember which tank had been used. The investigation was unable to determine whether a fuel quality check was conducted prior to this flight.

Information provided by the aircraft manufacturer showed that not all water which entered the fuel tanks would have been extracted by normal fuel drain checks. The residual water remained in the tanks during normal flight manoeuvres, but would have the potential to move from the tanks into the fuel lines given the right circumstances.

The pilot had flown from the airstrip on previous occasions, and in the aircraft owner's opinion, was well qualified with about 8,000 hours of flying experience. The owner had flown with the pilot on a number of occasions. Although the pilot held a perpetual Australian private licence for aeroplanes, his medical certificate had expired in July 1994 invalidating the licence.

An emergency locator transmitter (ELT) was fitted to the rear of the passenger compartment. The owner believed the ELT to be capable of normal operation. The unit was destroyed by the fire and no reports of its activation were received from overflying aircraft.

ANALYSIS

The fuel distributor valve on the engine is the last point in the fuel system before the fuel runs through small pipes into the combustion chamber. Water in this valve would mean that water was being fed to the engine. Depending on the quantity of water in the fuel system, the presence of water would result in rough running or complete engine stoppage. On this occasion the engine stopped.

A suitable forced landing area was available if the aircraft had been landed straight ahead in the direction of the takeoff. While the distance available may have been inadequate, it did offer an area suitable for a substantial part of a forced landing.

The aircraft's nose was not lowered from the initial climb attitude, and landing gear and flaps were selected up at impact. This evidence suggests that the pilot did not take appropriate emergency actions intended to control the aircraft after the engine failed.

SIGNIFICANT FACTORS

1. The pilot did not conduct an adequate pre-flight fuel inspection.

2. The engine failed due to water in the fuel system.

3. The pilot did not initiate appropriate actions to carry out a forced landing.

4. The aircraft collided with the ground after it lost flying speed.