

**Aviation Safety Investigation Report
199501660**

**Beech Aircraft Corp
Bonanza**

03 June 1995

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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.

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199501660 **Occurrence Type:** Accident
Location: Tyabb
State: VIC **Inv Category:** 4
Date: Saturday 03 June 1995
Time: 1655 hours **Time Zone** EST
Highest Injury Level: None

Aircraft Manufacturer: Beech Aircraft Corp
Aircraft Model: K35
Aircraft Registration: VH-AYU **Serial Number:** D-6134
Type of Operation: Non-commercial Practice
Damage to Aircraft: Substantial
Departure Point: Tyabb VIC
Departure Time: 1625 EST
Destination: Tyabb VIC

Crew Details:

Role	Class of Licence	Hours on	
		Type	Hours Total
Pilot-In-Command	Private	0.5	140

Approved for Release: Wednesday, June 14, 1995

The flight was intended as a brief pleasure/practise flight in the local area in an aircraft borrowed from a friend. The pilot had only 90 minutes previous flying experience in the aircraft while sitting in the right front seat with the owner/friend acting as pilot-in-command in the left seat. However, the pilot had flown several hours as pilot-in-command of a Debonair, which is similar, and advised that his friend had pointed out the differences between the Bonanza and the Debonair. The accident flight lasted only 30 minutes and was the first time the pilot had acted as pilot-in-command of a Bonanza.

The pilot advised that, as part of the preflight inspection, he had visually checked the contents of both main fuel tanks and assessed that there was enough fuel on board for a short flight. He did not dip the tanks. He started the engine on the left main tank and maintained that selection in flight until the engine lost power on final approach for runway 35 at Tyabb. He then changed the fuel selector to the right main tank. The engine did not regain power. The aircraft touched down on its wheels in an open paddock about 400 metres short of runway 35 threshold. During the landing roll the aircraft ran through a farm fence before coming to rest about 200 metres short of the threshold.

An inspection and tests conducted after the accident confirmed that the engine had failed due to fuel starvation. The fuel gauges read zero. No fuel leaks were found. Both main fuel tank floats were resting on their static low stops, namely the bottom of the rubber fuel cells. After the aircraft was recovered, the engine was started and ran normally after air was purged from the fuel lines. When asked about the low fuel gauge readings at the commencement of the flight, the pilot said that he did not take too much notice of them because he had visually assessed the fuel level as adequate for the flight and that flying instructors in the past had told him that fuel gauges could not be believed because they were notoriously inaccurate in light aircraft.

Total engine time for the flight was about 35 minutes. When both main tanks were drained after the accident, one third of a litre of AVGAS drained from the left main tank and eight litres from the right main tank. Both of the auxilliary fuel tanks were empty. The approved flight manual lists the unusable fuel in both main tanks combined as 22.7 litres (i.e. 11.35 litres per main tank). The flight manual also states, "Do not takeoff if fuel quantity gauges indicate in yellow band or with less than 11 Imperial or 13 U.S. gallons in each main tank" (i.e. 49 to 50 litres in each main tank). The pilot said he did not recall this comment in the flight manual.

Pilots experienced in this model Bonanza advised that it uses about 42 to 45 litres of AVGAS per hour. VH-AYU's engine somehow managed to use about 11 litres of the unusable fuel from the left main tank before it lost power.

When the pilot selected the right tank, its fuel level was already within the unusable fuel range; it contained only about 9 litres. There was probably insufficient time and insufficient fuel in the right main tank to achieve adequate fuel flow/pressure to restart the engine before the aircraft touched down in the paddock.

Significant factors

The following factors were considered relevant to the development of the accident:

1. The pilot's visual assessment of the fuel quantity within both main tanks was incorrect.
2. The pilot ignored the fuel gauge readings.
3. The pilot's knowledge of the flight manual content was inadequate.
4. The engine failed due to fuel starvation.

