Aviation Safety Investigation Report 199604014

Piper Aircraft Corp
Cherokee Six

08 December 1996

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Aviation Safety Investigation Report

199604014

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: 199604014 **Occurrence Type:** Accident
Location: 6km NW Cobden, (ALA)
State: VIC **Inv Category:** 4
Date: Sunday 08 December 1996
Time: 1530 hours **Time Zone** ESuT
Highest Injury Level: None

Aircraft Manufacturer: Piper Aircraft Corp
Aircraft Model: PA-32-300
Aircraft Registration: VH-POA **Serial Number:** 32-7540142
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Substantial
Departure Point: Moorabbin Vic
Departure Time: 1425 ESuT
Destination: Warrnabool Vic

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command		13.0	186

Approved for Release: Tuesday, January 28, 1997

Factual information.

The pilot had planned to fly from Moorabbin direct to Ocean Grove, then on to Warrnambool. Prior to departure he was advised that there was 40 litres of fuel in the left main tank and the right main tank was full at 91 litres. Both tip tanks were also full at 63 litres each. Records held by the operator showed that the aircraft was consuming an average of 61 litres per hour. Accordingly the pilot was advised to use the right main tank for one hour, then use the tip tanks, and go back to the fullest main tank for the landing.

The pilot loaded his five passengers, selected the right main fuel tank, started the engine, conducted engine runs and taxied for takeoff. These actions took approximately 20 minutes. After takoff the pilot flew coastal from Moorabbin to Ocean Grove rather than direct as planned, then tracked direct for Warrnambool. Due to weather constraints he cruised between 2,000 feet and 2,500 feet above mean sea level and also deviated from his track to avoid rain showers. He used a high power setting of 24 inches of manifold pressure and 2,400 rpm, and did not lean the fuel mixture. Approximately 65 minutes after takeoff, at a position about 15 minutes from Warrnambool, the engine suddenly failed. At low altitude over hilly terrain the pilot said he did not have time to conduct a proper assessment of the cause of the power loss, nor did he have time to carry out a successful restart procedure. The pilot forced landed the aircraft onto a sloping field, colliding with a fence before bringing the aircraft to a stop. The aircraft suffered substantial damage, however the six persons on board were uninjured.

Investigation disclosed that the right main fuel tank contained unusable fuel only, and the fuel feed system to the engine was empty. When the system was supplied with fuel the engine was started and ran satisfactorily. Tests indicated that the fuel quantity measuring system was serviceable.

The pilot advised that during the flight he did not maintain a flight log and did not monitor the right main tank fuel quantity. His planning had indicted that the flight would take about one hour and he had intended to change to the fullest tank prior to landing.

The recommended power charts contained in the pilots operating handbook, which was available to the pilot, did not cover the combination of parameters under which this flight was conducted.

Analysis.

While the contents of the right main tank prior to departure could not be definitely established it was most probably full at 91 litres. The coastal track taken by the pilot could have added up to an extra ten minutes flying and his deviations from track to avoid showers would also have added to his flight time. While the flying school's flight sheets indicated that the average fuel usage was 61 litres per hour, this was attained by using recommended power settings and correct leaning procedures. It was calculated that the aircraft could use up to 88 litres of fuel per hour while flying at low altitude with high power and a rich mixture. This, coupled with the taxiing, takeoff and climb fuel flows would have depleted the 91 litre contents of the tank after approximately one hour in flight, as occurred.

By operating the aircraft as he did, the pilot chose to fly outside of the recommendations contained in the pilots operating handbook. However, even flying in this manner had the pilot maintained a flight time log and a fuel usage log, and monitored the fuel quantity gauges, he would have become aware of the contents of the right main fuel tank before the fuel was depleted.

Significant factors.

1. The pilot did not use effective fuel management techniques.

2. Engine power was lost when the fuel tank in use was allowed to run dry.