Aviation Safety Investigation Report 199702467

Piper Aircraft Corp Chieftain

29 June 1997

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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.

Aviation Safety Investigation Report

199702467

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: 199702467 **Occurrence Type:** Incident
Location: 180km W Whyalla, Aerodrome
State: SA **Inv Category:** 4
Date: Sunday 29 June 1997
Time: 1230 hours **Time Zone** CST
Highest Injury Level: None

Aircraft Manufacturer: Piper Aircraft Corp
Aircraft Model: PA-31-350
Aircraft Registration: VH-MZK **Serial Number:** 31-8152180
Type of Operation: Air Transport Domestic Low Capacity Passenger
Damage to Aircraft: Nil
Departure Point: Cook SA
Departure Time: 0945 CST
Destination: Port Augusta SA

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	215.3	941

Approved for Release: Monday, June 15, 1998

The pilot was tasked with flying passengers from Port Augusta to Cook, via Ceduna. After arriving at Cook the aircraft was flown without passengers to Nullabor for an overnight stop. The following day, he was to return to Cook to collect a group of eight passengers and fly them to Port Augusta. The aircraft had been refuelled to full capacity at Ceduna on the flight out to Cook. During this refuelling the pilot did not note the amount of fuel used on the flight from Port Augusta.

The pilot calculated that the fuel remaining at Cook for the return flight would be 439 litres. He also calculated that the fuel required to return to Port Augusta from Cook would be 452 litres. This fuel requirement was calculated using a fuel flow of 140 litres per hour and a true airspeed of 170 knots with a 15 knot headwind. The fuel requirement included a 100 litre fixed reserve. The pilot was aware that there was a 13 litre shortfall between the fuel on board and the fuel required. He did not eliminate this discrepancy by adding fuel at Nullarbor where it was available. The weight of the aircraft on departure from Cook was calculated by the pilot as being 35 kg below maximum take-off weight. However this calculation was based on 423 litres of fuel, rather than 439 litres.

The aircraft departed Cook at 0007 UTC and the pilot passed an estimate with his departure report of abeam Ceduna at 0116. The aircraft reported abeam Ceduna at 0116 and gave an estimate to flight service for Port Augusta of 0238. This estimate gave a time interval which was 9 minutes longer than planned by the pilot. The pilot had submitted a flight plan to ATS that indicated a ground-speed of at least 165 knots would be acheived during the flight.

The pilot had planned the flight expecting the true airspeed to be higher, and therefore the groundspeed to be higher, on the return flight. He also expected to obtain favourable winds at various altitudes and therefore did not plan to use the reserve fuel of 100 litres. He also assumed that he would obtain a better fuel flow than the 140 litres per hour that he had used during the planning for the flight.

The flight progressed uneventfully until approximately 90 nm from Port Augusta when the pilot noticed that the fuel remaining on board had decreased to a lower level than expected. He elected to divert to Wudinna as he was now in some doubt as to whether the aircraft would make Port Augusta with the fuel remaining on board. The decision to divert to Wudinna was based on the fact that the company held fuel stocks at this location. He advised flight service that he was diverting due to a higher than normal fuel burn. Flight service declared an alert phase at this time due to the pilot reporting 20 minutes endurance with a time interval to Wudinna of 10 minutes. En-route to Wudinna the pilot noticed that the airfield was situated beyond a heavily timbered area and he elected to carry out a precautionary search-and-landing in a cleared paddock whilst there was fuel remaining, rather than continue over the timbered area where he might suffer fuel exhaustion.

The pilot advised flight service that he was carrying out a precautionary landing and they declared a distress phase due to the unsure fuel status of the aircraft. The pilot completed the precautionary search-and-landing without damage to the aircraft or injury to the passengers. The position of the precautionary landing was 19 nm north-east of Wudinna. The company was advised and the aircraft was recovered to Wudinna later that day. The estimated fuel remaining on board was less than 30 litres.

In his report to the Bureau as part of the investigation, the pilot indicated that he operated the aircraft during both the outbound flight to Cook and the return flight to Port Augusta using fuel flow and exhaust gas temperature (EGT) settings from another company aircraft. These settings had resulted in an actual fuel flow of approximately 165 litres per hour.

Significant Factors

1. The pilot used a fuel flow setting during flight planning that was not representative of that which the aircraft would achieve during flight.

2. The pilot departed from an aerodrome where fuel was available knowing that the fuel on board was less than that required for the flight, with reserves.