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ATSB TRANSPORT SAFETY REPORT
Aviation Occurrence Investigation AO-2011-082
Preliminary

Collision with terrain, VH-FOZ 22km WSW of Dirranbandi, Queensland 19 July 2011

Abstract

On 19 July 2011 a PZL Warszawa-Okecie M-18 Dromader, registered VH-FOZ, was conducting spraying operations on a cotton station about 22 km west-south-west of Dirranbandi, Queensland. The aircraft failed to return from a spraying flight and workers on the station subsequently located the aircraft's wreckage in a ploughed field at about 1445. The pilot, who was the sole occupant, was fatally injured. The aircraft was destroyed by the impact forces.

The investigation is continuing.

FACTUAL INFORMATION

The information contained in this preliminary report is derived from initial investigation of the occurrence. Readers are cautioned that there is the possibility that new evidence may become available that alters the circumstances as depicted in the report.

History of the flight

At about 0730 Eastern Standard Time[1] on 19 July 2011, a PZL Warszawa-Okecie M-18 Dromader, registered VH-FOZ, departed Saint George Airport for a private airfield on a cotton station 13km west-south-west of Dirranbandi, Queensland (Qld). In addition to the pilot, the aircraft carried a mixer as a passenger on the flight. The mixer's duties included mixing spray chemicals, loading the aircraft's hopper, and refuelling the aircraft.

After landing at the airfield, the pilot briefly discussed the day's spraying requirements with the farm manager. Those requirements included applying herbicide to irrigation channels around the cotton fields. It was reported that the mixer pumped the chemicals into the aircraft's hopper and, at the pilot's direction, refuelled the aircraft's left wing fuel tank.[2]

The pilot was reported to have then conducted two 50-minute spraying flights. After each flight, the mixer reloaded the aircraft's hopper and filled one wing fuel tank as directed by the pilot.

At about 1140, the pilot took off for a third spraying flight. The mixer reported that he dozed off while waiting for the pilot to return and that, at about 1400, he attempted to contact the pilot by ultra-high frequency radio without success. He then telephoned the operator by mobile telephone to raise the alarm.

A search was initiated and the aircraft's wreckage was located at about 1445 in a ploughed field near where the aircraft was expected to have been spraying. The pilot, the sole occupant of the aircraft, was fatally injured and the aircraft was destroyed by impact forces.

1 The 24-hour clock is used in this report to describe the local time of day, Eastern Standard Time (EST), as particular events occurred. Eastern Standard Time was Coordinated Universal Time (UTC) + 10 hours.

2 The aircraft was fitted with two wing fuel tanks that drained into a central collector tank, where the engine's fuel pickup was located.

Aircraft information

The aircraft was a low-wing agricultural aircraft with seating for a pilot and one passenger (Figure 1). The aircraft was powered by a single Honeywell TPE331 turboprop engine, driving a 5-blade Hartzell constant-speed propeller via a reduction gearbox. The aircraft's hopper capacity was about 3,000 L.

The aircraft, serial number 1Z014-10, was manufactured in Poland in 1995 and first registered in Australia in 2004. According to maintenance records, the aircraft had accumulated about 5,901 hours total time in service (TTIS) and was certified for agricultural operations under the 'Restricted' category.

Figure 1: VH-FOZ

Photograph courtesy of Roger Syratt

The aircraft was configured for aerial spraying using spray booms and for fire fighting using doors that were attached to the base of the hopper.

The aircraft was released to service on 29 June 2011 following an annual inspection. During that inspection, a number of airframe rectification tasks were carried out.

Since 2005, the aircraft had been operated by a company that specialised in aerial agriculture and aircraft maintenance.

Pilot information

The pilot held a Commercial Pilot (Aeroplane) Licence that was issued in 1996 and a Class 1 Medical Certificate with no restrictions that was valid to 24 July 2011. He was endorsed to fly TPE331-powered M-18 aircraft and had completed an agricultural aeroplane flight check on 31 March 2011. The pilot had a total aeronautical experience of about 4,961 hours, including 74 hours on the TPE331-powered M18.

The pilot had been employed by the aircraft operator since March 2011 and was the nominated chief pilot.

Meteorological information

The Bureau of Meteorology (BoM) forecast conditions for the day were fine with light to moderate, south to south-easterly winds. The nearest aerodrome forecast (TAF) routinely issued by BoM was for Moree, New South Wales, which was about 200 km south-east of Dirranbandi. The Moree TAF that was issued at 1132 and valid from 1200 indicated a wind of 250° magnetic (M) at 12 kts and from 1500 a wind of 240°M at 15 kts, gusting to 25 kts.

The mixer reported that the weather conditions on the day were cool, with little or no cloud cover, good visibility and a light southerly wind. He also observed winds of about 5 kts early in the day, increasing to 13 kts and gusting, as indicated by an anemometer at the airfield.

Wreckage and impact information

The aircraft wreckage was lying in a flat, furrowed field about 240 m from the field's southern boundary (Figure 2). Ground impact marks and the distribution of the wreckage indicated that the aircraft had been on a track of about due north, and impacted the ground in a left wing-low and nose-down attitude. Both wings separated from the fuselage during the impact sequence.

The aircraft's fuselage came to rest about 50 m from the initial ground impact. The forward fuselage had separated at the hopper, forward of the cockpit. The propeller and gearbox had separated from the engine.

Figure 2: Aircraft wreckage

The soil in the vicinity of the wreckage was contaminated by a significant quantity of spilt fuel and spray chemical. There was no evidence of any fuel or chemical spill prior to the initial ground impact.

A small number of items of wreckage originating from around the cockpit area were found between 50 m and 220 m to the south of the initial impact point. There were no other indications to suggest that they separated from the aircraft prior to impact.

All of the aircraft's primary structure and flight controls were located within the accident site and there was no evidence of fire. There were no anomalies identified with the aircraft's flight control systems. There was also no evidence of birdstrike or previous impact with ground obstacles.

Recovered components

The aircraft's engine and propeller were removed from the accident site and transported to a secure location for possible further examination. If needed, that examination will be carried out under supervision of the Australian Transport Safety Bureau (ATSB).

An aircraft data acquisition alarm monitor unit was recovered and sent to the manufacturer in Brisbane, Qld for data download. Some of the aircraft's other instruments and avionics, including an agricultural Global Positioning System (GPS) navigation system, were also recovered and taken to the ATSB's facilities in Canberra, the Australian Capital Territory for technical examination.

FURTHER INVESTIGATION

The investigation is continuing and will include:

- a review of data from the aircraft's condition monitoring system
- the download and examination of data from the aircraft's agricultural GPS navigation system
- the examination of the aircraft's propeller, instruments and other recovered components
- a review of the aircraft's maintenance records
- an examination of aircraft performance, including weight and balance
- an examination of the operational aspects of the flight.