Aviation Safety Investigation Report 199603095

Air Tractor Inc AT-502

06 September 1996

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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

199603095

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: 199603095
Occurrence Type: Accident
Location: Glen Ruff Downs
State: WA
Inv Category: 4
Date: Friday 06 September 1996
Time: 1220 hours
Time Zone WST
Highest Injury Level: None

Aircraft Manufacturer: Air Tractor Inc
Aircraft Model: AT-502
Aircraft Registration: VH-DDH
Serial Number: 502-0118
Type of Operation: Commercial Aerial Agriculture/Baiting
Damage to Aircraft: Substantial
Departure Point: Glen Ruff Downs WA
Departure Time: 1220 WST
Destination: Glen Ruff Downs WA

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	2600.0	11600

Approved for Release: Sunday, November 17, 1996

It was reported that the aircraft was being used to spread powered fertiliser. There had been light rain prior to the accident flight and the wing surfaces were wet. During loading the wind momentarily lifted the sock, used to fill the hopper, clear of the aircraft and some powder was blown onto the upper surface of the right wing. The rain was not heavy enough to wash the powder off. The aircraft's weight was reported to be at its maximum for takeoff. The average wind was a westerly at 8 kts with significant shifts reported as occasional squalls passed through.

The pilot commenced a takeoff, with 10 degrees of flap set, towards the west and into wind. The strip slopped down and then up. As the aircraft accelerated the pilot flew the tail off the ground. Shortly afterwards the left wing also lifted, pivoting the aircraft over the right wheel. The pilot introduced left aileron to keep the wings level until he reached take-off speed. The aileron control reached the left stop at the same time as the aircraft became airborne. It continued to roll to the right and began to yaw right. The pilot introduced rudder and then brake in an attempt to stop the roll and yaw. The rudder made little difference and the brakes were completely ineffective as the wheels were off the ground.

The pilot closed the throttle and, as the aircraft settled back onto the ground in a left-wing-high attitude, it collided with a fence. The aircraft ripped 76 m of fence from the ground before it cartwheeled and overturned.

The aircraft's flight manual contains a caution which indicates that aileron effectiveness is reduced when flaps are used for takeoff. The pilot reported that he used flaps as the aircraft was at maximum weight and the strip length was restricted. The aerofoil section of the wings on the AT502 is designed for maximum efficiency. The aircraft manual indicates that any ice must be removed from the wing prior to takeoff because of its effect on wing-produced lift. It is probable that the powder-contamination on the right wing surface adversely affected its aerodynamic characteristics resulting in the roll experienced by the pilot. The pilot's ability to control the roll with aileron was reduced by his use of flap for takeoff. The result was a roll and yaw which the pilot was unable to correct before the aircraft collided with the fence. It is possible that a squall-induced wind shift also contributed to the loss of control.