



Australian Government

Australian Transport Safety Bureau

Collision with terrain involving Air Tractor AT-502, VH-AQW

17 km north-west of Bourke Airport, New South Wales on 10 February 2024



ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2024-005
Preliminary – 17 July 2024

Cover photo: Rebel Ag Aviation

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: PO Box 321, Canberra ACT 2608
Office: 12 Moore Street, Canberra, ACT 2601
Telephone: 1800 020 616, from overseas +61 2 6257 2463
Accident and incident notification: 1800 011 034 (24 hours)
Email: atsbinfo@atsb.gov.au
Website: www.atsb.gov.au

© Commonwealth of Australia 2024



Ownership of intellectual property rights in this publication

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia.

Creative Commons licence

With the exception of the Coat of Arms, ATSB logo, and photos and graphics in which a third party holds copyright, this publication is licensed under a Creative Commons Attribution 3.0 Australia licence.

Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work.

The ATSB's preference is that you attribute this publication (and any material sourced from it) using the following wording: *Source:* Australian Transport Safety Bureau

Copyright in material obtained from other agencies, private individuals or organisations, belongs to those agencies, individuals or organisations. Where you want to use their material you will need to contact them directly.

Addendum

Page	Change	Date

Preliminary report

This preliminary report details factual information established in the investigation’s early evidence collection phase, and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation’s final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

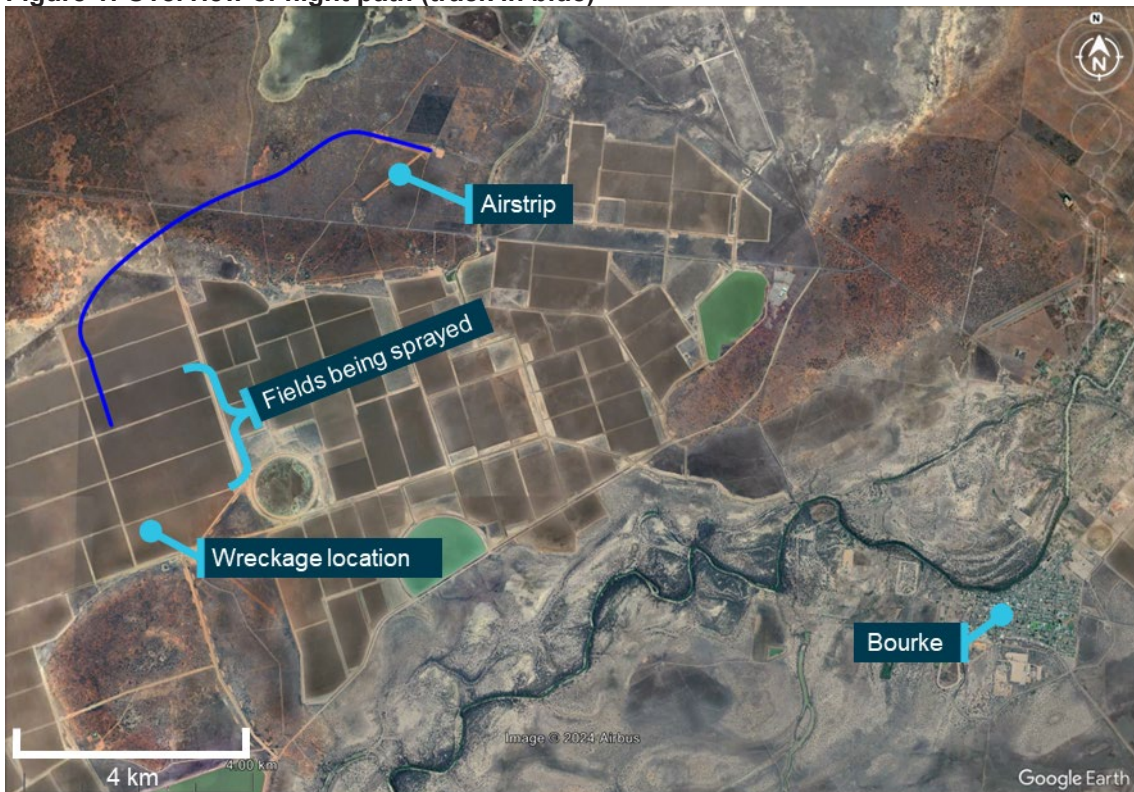
The occurrence

On the morning of 10 February 2024, the pilot of an Air Tractor AT-502 aircraft, registered VH-AQW (AQW) and operated by Rebel Ag, was conducting aerial spraying operations on a property near Bourke, New South Wales. The plan was to continue spraying herbicide on fields they had commenced the previous day.

At 0629 local time, AQW departed a private airstrip on the property in a southerly direction with the first load of herbicide (Figure 1). Another pilot also departed around this time to conduct spraying in a different area of the same property. At 0632, recorded data showed that AQW had commenced spraying a field. The recording ended 12 seconds later. The final point recorded AQW’s ground speed of about 114 kt and travelling in a south-easterly direction.

At about 0715, the other pilot attempted to contact the pilot of AQW on the ultra-high frequency radio, followed by a text message at about 0719, but received no response. The other pilot became concerned so decided to fly around the property to locate AQW. The aircraft wreckage was found in a cotton field adjacent to the field being sprayed. The pilot was fatally injured, and the aircraft was destroyed.

Figure 1: Overview of flight path (track in blue)



Source: Google Earth, annotated by the ATSB

Context

Pilot information

The pilot held a Commercial Pilot's Licence (Aeroplane) and a valid Class 1 Aviation Medical Certificate. The pilot also held an aerial application rating, as well as float plane, manual propeller pitch control, tailwheel undercarriage, and gas turbine endorsements.

The pilot had 13,135.6 hours of total aeronautical experience, and at least 3,721.2 hours on Air Tractor aircraft variants based on information provided by the operator.

Aircraft information

VH-AQW was an Air Tractor Incorporated AT-502 single-seat low-wing tailwheel aircraft manufactured in the United States in 1993. It was powered by a Pratt & Whitney Canada PT6A-34AG turboprop engine. It was first registered in Australia on 29 November 1993.

The current maintenance release was issued on 30 January 2024, with 18,162.5 hours recorded as the total time-in-service.

Meteorological information

Around the time of the accident, a private weather station located on the property recorded the air temperature as 26 °C and an average windspeed of about 9 kt from the south-south-east. At 0630, the Bourke Airport METAR¹ recorded the windspeed as 6 kt from the south-south-east.

Geoscience Australia recorded first light at 0627 and sunrise at 0652 at the accident site.

Wreckage and impact information

The ATSB's site examination found that the aircraft had impacted an irrigation levee adjacent to the southernmost field to be sprayed. A ground scar about 27 m long from the aircraft's left main wheel was found in the paddock just before the levee. Two more wheel marks were found where the main landing gear struck the levee (Figure 2).

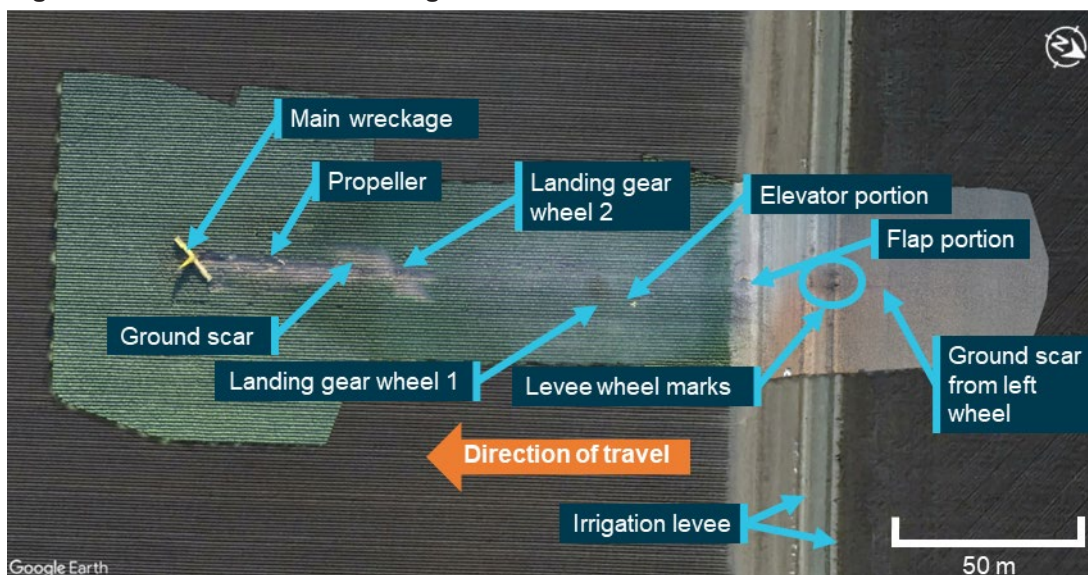
¹ METAR: a routine report of meteorological conditions at an aerodrome. METAR are normally issued on the hour and half hour.

Figure 2: Wheel marks in the paddock and levee



Source: New South Wales Police Force (top) and ATSB (below), annotated by the ATSB

A larger ground scar was found in an adjacent cotton field where additional debris, including the elevator, flap, and parts of the landing gear and the main wreckage was found. The propeller and parts of the engine were found in the large ground scar, indicating the aircraft collided with terrain nose down initially, then came to rest inverted (Figure 3). The ground scars and main wreckage were aligned with the final data point recorded on a track of about 150° magnetic and perpendicular to the levee at the site of the main wheel impact.

Figure 3: Overview of the wreckage distribution

Source: Google Earth and New South Wales Police Force, annotated by the ATSB

All the aircraft's major components were present at the accident site with no evidence of an in-flight break-up. There were no pre-impact defects identified that affected the airframe or flight controls. Examination of the propeller and engine indicated that the engine was delivering power at the time of the impact. Fuel and chemical product residues were also found at the accident site, but there was no post-impact fire.

The airframe around the cockpit had retained its structure, but the windscreen had fragmented resulting in the cockpit filling with mud.

The first responder reported that the pilot had been fastened into the seat by the aircraft's 4-point harness and was wearing a flight helmet. The helmet was found intact but covered with the dried mud.

Operational information

The fields planned to be sprayed did not have crops and were being sprayed with herbicide chemicals in preparation for crop growth in a subsequent season. The surrounding terrain in the area was flat and the operator reported that they expected the accident run field to be sprayed at a height between 2–3 m above the ground, measured from the wheelbase of the aircraft.

Further investigation

The investigation is continuing and will include further review and examination of:

- electronic components recovered from the aircraft
- medical and pathological records
- operational documentation
- aircraft maintenance records.

A final report will be released at the conclusion of the investigation. Should a critical safety issue be identified during the course of the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.

Acknowledgements

The ATSB acknowledges the support of the staff from Darling Farms and the New South Wales Police Force for their assistance during the onsite investigation.

General details

Occurrence details

Date and time:	10 February 2024 – 0632 EST	
Occurrence class:	Accident	
Occurrence categories:	Collision with terrain	
Location:	17 km north-west of Bourke Airport, New South Wales	
	Latitude: 30.0772° S	Longitude: 145.7793° E

Aircraft details

Manufacturer and model:	Air Tractor Inc AT-502	
Registration:	VH-AQW	
Operator:	Ashby Aviation Pty Ltd, trading as Rebel Ag Aviation Pty Ltd	
Serial number:	502-0218	
Type of operation:	Part 137 Aerial application operations	
Activity:	General aviation/recreational-Aerial work-Agricultural spreading/spraying	
Departure:	Darling Farms, New South Wales	
Destination:	Darling Farms, New South Wales	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 1 (fatal)	Passengers – 0
Aircraft damage:	Destroyed	

Australian Transport Safety Bureau

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. It is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

The ATSB's purpose is to improve the safety of, and public confidence in, aviation, rail and marine transport through:

- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
- fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia, as well as participating in overseas investigations involving Australian-registered aircraft and ships. It prioritises investigations that have the potential to deliver the greatest public benefit through improvements to transport safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of a safety investigation is to enhance transport safety. This is done through:

- identifying safety issues and facilitating safety action to address those issues
- providing information about occurrences and their associated safety factors to facilitate learning within the transport industry.

It is not a function of the ATSB to apportion blame or provide a means for determining liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner. The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

Terminology

An explanation of terminology used in ATSB investigation reports is available on the ATSB website. This includes terms such as occurrence, contributing factor, other factor that increased risk, and safety issue.