



Australian Government  
Australian Transport Safety Bureau

# Loss of control and collision with terrain involving Air Tractor Inc. AT-802A, VH-NIA

33km W Narromine, New South Wales | 21 November 2016



Investigation

**ATSB Transport Safety Report**  
Aviation Occurrence Investigation  
AO-2016-157  
Final – 13 March 2018

**Cover photo:** Jayden Laing

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#### **Addendum**

Page	Change	Date

# Safety summary

## What happened

On 21 November 2016 at about 0730 Eastern Daylight-saving Time, the pilot of an Air Tractor Inc. AT-802A, registered VH-NIA, was conducting aerial spraying activities from Trangie airfield near Narromine, New South Wales. The planned activities included spraying a small area of crop on a property about 30 km west of Narromine. The crop spraying was a continuation of the previous day's activities that had been discontinued due to the weather becoming unsuitable for spraying conditions.

The property owner reported observing the aircraft arrive and that the pilot appeared to be experienced in the way he was manoeuvring the aircraft while spraying the crop. The property owner assumed that the pilot had completed spraying the crop as, after about 30 minutes, the aircraft departed in the direction of Trangie airfield.

At about 0810, witnesses briefly observed the aircraft to be in a nose-down attitude before impacting the ground, resulting in an intense fuel-fed fire. The accident site was located about 5 km from the spray area. The pilot was fatally injured, and the aircraft was destroyed.

## What the ATSB found

The ATSB found that the aircraft departed controlled flight, from which the pilot was unable to recover, leading to the collision with terrain. Based on the available evidence, it was not possible to determine the reasons for the loss of control.

The ATSB identified a number of observed incidents or potentially unsafe aircraft operations involving the accident pilot that were not reported to the operator's chief pilot. This decreased the opportunity for the operator to identify and address risks that could affect the safety of operations.

## What's been done as a result

The operator advised that meetings with staff have been beneficial in highlighting the importance of reporting incidents and accidents despite any concerns about an employee's seniority or role in the company. Additionally, induction processes and documented safety reporting procedures have been reinforced.

## Safety message

Operators must ensure that all personnel have an understanding of the importance of timely reporting of events that increase safety risk. A good safety reporting culture can assist operators with monitoring trends, identifying operational issues, and providing a timely response to reduce risk within the operating environment.

**Air tractor AT-802A, VH-NIA**



Source: Jayden Laing



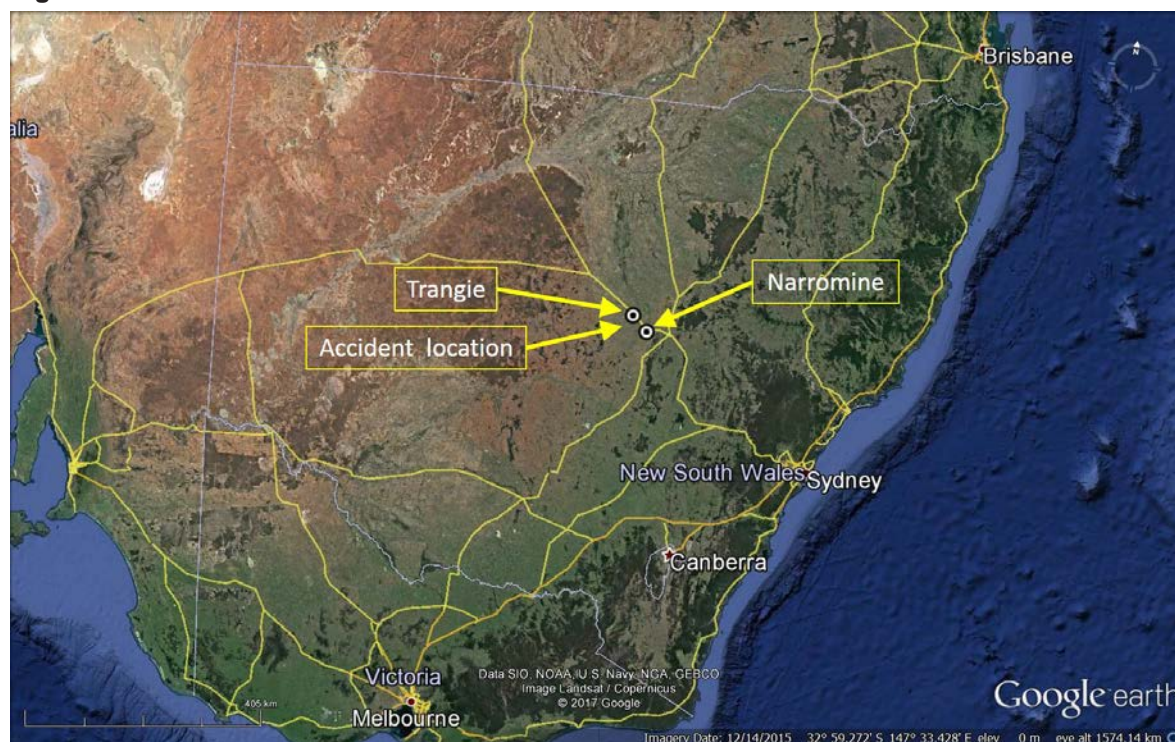
## The occurrence

On 21 November 2016, the pilot of an Air Tractor Inc. AT-802A, registered VH-NIA (NIA), was preparing to conduct aerial crop spraying activities from Trangie airfield near Narromine, New South Wales. The planned crop spraying was a continuation of the previous day's spraying activities that were conducted on a property about 30 km west of Narromine (Figure 1). The previous day's spraying had not been completed because of deteriorating weather conditions.

The operations manager recalled meeting the pilot at Trangie airfield at 0630 Eastern Daylight-saving Time<sup>1</sup> where about 1890 L of chemical solution was loaded into the aircraft's hopper. The operations manager reported that the pilot considered this adequate to complete the job as there was only a small spray area remaining. A loader reported that the aircraft's fuel tanks were likely to have been full before take-off as they were routinely filled at the end of each day's flying.

The property owner reported observing the aircraft arrive and commence spraying the remaining paddocks at about 0730. He reported that, judging by the way the aircraft was manoeuvred while spraying the crop, the pilot appeared to be experienced and there did not appear to be any difficulties with the operation of the aircraft. The property owner observed the aircraft leave the spray area after about 30 minutes. They assumed that the pilot had completed the spraying, as the aircraft was flying in the direction of Trangie.

**Figure 1: Accident location**



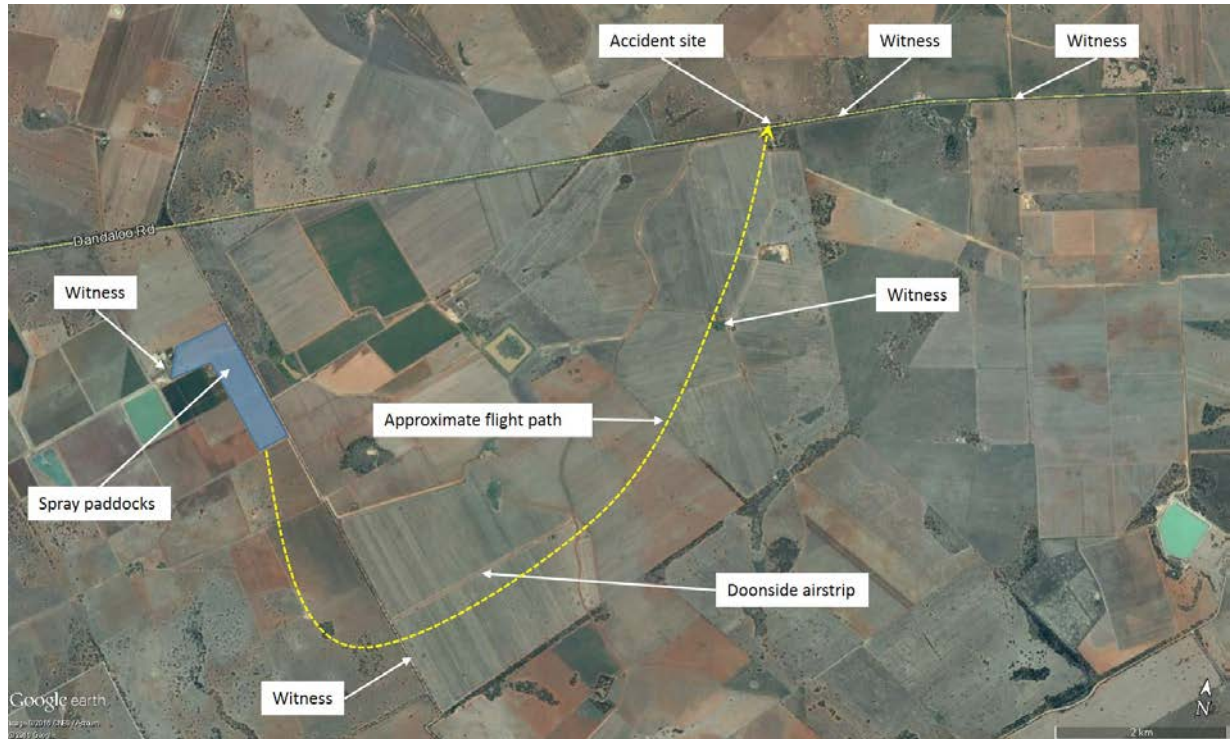
Source: Google Earth, modified by the ATSB

At about 0800, a contractor driving away from the property witnessed the pilot spraying alongside Doonside airstrip (Figure 2), which was bordered by a crop thought to have been sprayed on the previous day. The contractor reported observing the aircraft flying beside the airstrip with some up and down movements, before the spray stopped and the aircraft commenced a climb and continued north.

<sup>1</sup> Eastern Daylight-saving Time (EDT): Coordinated Universal Time (UTC) + 11 hours.

A farmer located between the airstrip and a short distance (2 km) from the accident site reported seeing the aircraft fly overhead at an altitude ‘that was quite high for an agricultural aircraft’. The farmer estimated the aircraft to have been at about 150 ft (45 m). Although the farmer could not clearly hear the aircraft because of machinery noise, the aircraft flew overhead in a level attitude and appeared to be in normal, controlled flight.

**Figure 2: Location of witnesses and approximate flight path**



Source: Google Earth, modified by the ATSB

At about 0810, witnesses driving along a nearby road observed the aircraft above a tree line in a steep, almost vertical, nose-down attitude. Some witnesses reported the aircraft also having a slow, right to left roll, as it quickly descended. The aircraft was destroyed by the impact and a subsequent post-impact fire. The pilot was fatally injured.

## Personnel

### Pilot

The pilot was appropriately qualified for the flight, holding a Commercial Pilot Licence with Aeroplane and Helicopter category ratings, an Aerial Application Rating (Aeroplane and Helicopter) and a Low Level Rating. The pilot also held an Aerobatic endorsement. The pilot's most recent logbook recorded a total aeronautical experience in excess of 23,967 hours, with the majority of these hours accumulated conducting agricultural flying activities.

The pilot was endorsed on the Air Tractor Inc. AT-802 (AT-802). The most recent logbook, which commenced in 2011, did not record any hours in this aircraft type. The operator records show that the pilot advised of having accrued about 1,500 hours of flying experience on the AT-802 and 700 hours on the Air Tractor Inc. AT-502/504 (AT-502). Further, the operator had employed the pilot to fly the AT-502/AT-802 on a casual basis over many years and considered him to be a highly experienced and proficient agricultural pilot.

The operator reported that proficiency checks were normally conducted yearly with the company pilots. An additional proficiency check was not required as the pilot's logbook recorded that a proficiency check had been conducted by another operator on the 30 August 2016 flying an AT-

502. The operator that conducted the pilot's last proficiency check recorded that the pilot had no difficulty operating the AT-502.

The pilot held a valid class 1 medical certificate. Highlighted in the medical records was a pre-existing medical condition that was medically managed through a CASA-approved medical officer. There was good evidence that the pilot was taking the prescribed medication used to manage the condition. Reports by work colleagues, friends, and relatives indicated that the pilot appeared well on the morning and in the days leading up to the accident.

## Operations

The operator was approved to conduct aerial spraying activities in accordance with an air operators certificate issued by CASA. The air operators certificate authorised the operator to engage in aerial work operations, and the requirements of Civil Aviation Order 82.0 and Civil Aviation Safety Regulations Part 137 were applicable. The operator had not implemented, nor was it required to implement, a safety management system.

In accordance with the requirements of their air operators certificate, the operator was required to provide an operations manual for the use and guidance of their personnel. In the performance of their duties, personnel were required to comply with all instructions in the operations manual. The operations manual included a requirement for company personnel to report accidents and incidents. This included the reporting of any occurrence associated with the operation of the aircraft that affects, or had the potential to affect the safety of the operation. To assist with the management of accident and incidents reported to the supervisor, the operator used a software database. Completed reports were to be forwarded to the chief pilot for investigation and follow up corrective action as considered necessary.

## *Incidents and accidents*

During the investigation, it was identified that the pilot in command of the accident flight had been involved in a number of operational events in the six days leading up to the accident flight. These events all occurred while the pilot in command was performing his flying duties in the AT-802.

Most of the identified operational events had the potential to compromise safety, and met the operator's definition of an incident included in the company operations manual. The events observed by company personnel included:

- A runway excursion during landing that required the aircraft to be towed from the runway edge drain
- A subsequent landing incident that resulted in the aircraft deviating from the centreline with the pilot regaining control prior to the aircraft again departing the runway
- An airborne event that involved a tight/aggressive 180-degree turn that, according to a witness who was also a pilot, resulted in a possible stall with the pilot recovering control at a very low altitude
- A downwind take-off approaching maximum take-off weight, which resulted in the aircraft narrowly missing trees at the departure end of the runway
- During a spray run, the aircraft's right wing spray equipment was damaged due to contacting the crop being sprayed. The pilot was reported to have removed the vegetation from the spray equipment, conducted a repair, and recommenced spraying operations.

The ATSB requested all of the operator's accident and incident reports recorded in the company's safety database in the 12 months prior to the VH-NIA accident. There was one unrelated incident report recorded in the database.

Despite being a company requirement, none of the incidents detailed above were reported to the chief pilot or management. Witnesses to the incidents had either discussed the events with other pilots, or were intending to discuss these matters with management at the first available



opportunity. In the absence of incident reports associated with these events, there was no ability for the operator to undertake an investigation and subsequently determine if corrective action was required.

### ***Spraying activities***

The operator's fleet primarily consisted of AT-502 and AT-802 aircraft. It was reported by the operator that each aircraft would have a specific pilot allocated to each aircraft. The recent spraying season, however, had been busy and the operator employed additional experienced pilots on a casual basis. The use of casual pilots allowed the permanent pilots the opportunity to rest and have a break from flying activities, in preparation for the next aerial spraying and fire season.

Loaders supported pilots conducting aerial spraying and were generally located at an airfield central to spraying operations. Primarily, the loaders were responsible for refilling the aircraft's spray tank (hopper) and refuelling the aircraft. A loading truck was used to refuel the aircraft in addition to mixing and transferring chemicals into the aircraft's hopper.

The spraying operation on the day before the accident required a loader to be at the Doonside airstrip (Figure 2), and the accident pilot to reposition NIA from Trangie airfield, to load the first quantity of chemicals. Spraying commenced at about 0730, and a number of loads were applied during the morning's operations. The loader reported that the pilot uplifted a full hopper of about 3,000 L of chemical mix, and that each load took about 30 minutes to spray.

The loader reported that during the morning, the pilot advised the spraying conditions had deteriorated and a remaining load would need to be applied the following day. The pilot subsequently completed the spray activities and returned to Trangie airfield at about 1030. In accordance with the reported standard company practice, the loader completely filled the aircraft's fuel tanks after returning with the loading truck to Trangie airfield.

### **Meteorological information**

On-site evidence, and data recorded at a nearby agricultural recording weather station indicated a 9 kt (16 km/h) wind from the north-east, and a temperature of 26 °C at about the time of the accident.

### **Aircraft information**

The Air Tractor Inc. AT-802A aircraft was of tail wheel, fixed landing gear design. The aircraft was powered by a Pratt & Whitney Canada PT6A-67A turboprop engine and was purpose-built for use in aerial agricultural applications and fire control operations.

VH-NIA was manufactured in 2003, and had a current special certificate of airworthiness, certificate of registration, and maintenance release. The last maintenance inspection was conducted about two weeks and 50 flight hours prior to the accident. The maintenance release was identified at the accident site, and indicated that the aircraft had a total time in service of 2812.9 flight hours before the accident flight. There were no outstanding maintenance requirements or defect endorsements entered on the maintenance release. Examination of the aircraft's maintenance documentation did not identify any issues that would have been detrimental to the operation of the aircraft.



## Site and wreckage

### Site examination

The accident site was located adjacent to a road on cleared flat farmland, about 33 km west of Narromine, NSW. The wreckage trail was about 70 m long, towards the south-west. The initial ground impact marks were from the upper part of the vertical stabiliser, left and right wings, upper cockpit area, engine and propeller (Figure 3). Those marks and items such as navigation lights, tail and cockpit components indicated that the aircraft impacted with terrain inverted, with the left wing striking the ground first, oriented on the right side of the wreckage trail.

**Figure 3: Accident site, showing ground impact marks and the main wreckage in the background**



Source: ATSB

### Wreckage examination

A post-impact fuel-fed fire began during the accident sequence and consumed the majority of the aircraft wreckage. Figure 4 shows the remaining sections of the main wreckage, which were inverted. The level of disruption and fire damage significantly reduced the amount of evidence available to be examined.

**Figure 4: Main wreckage inverted with the nose (engine and propeller) in the foreground**



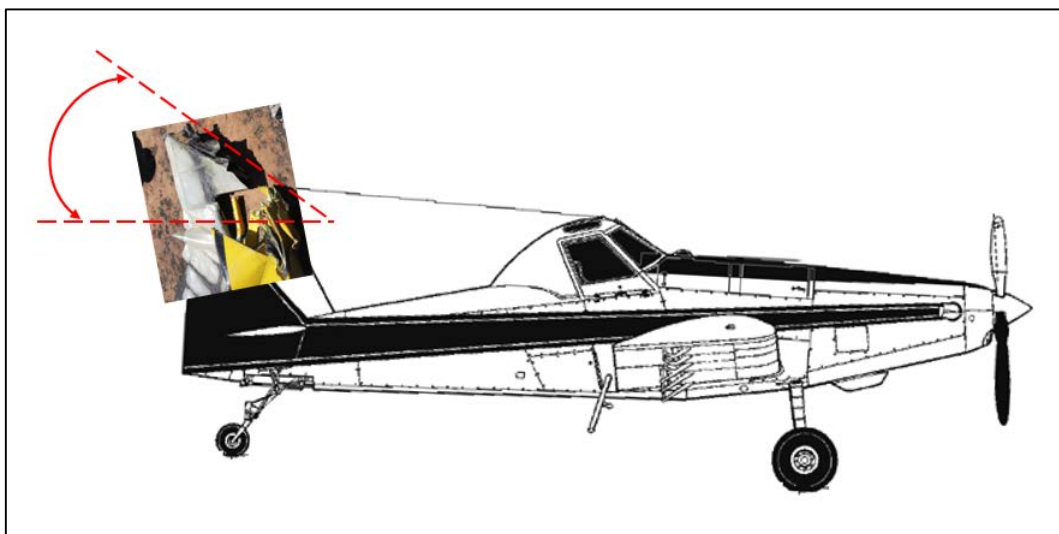
Source: ATSB

Inspection of the remaining wreckage indicated that:

- there was no evidence of impact with trees, powerlines, or birds
- all of the aircraft's main structural components were in the immediate area of the accident site
- the main support structure had no identified pre-impact defects
- the left wing had bending damage to the main and rear spars that was greater than that observed on the right wing structure, indicating that the left wing most likely struck the ground first
- the vertical stabiliser had separated from the empennage due to downward and back bending forces, which was a further indication of an inverted impact with terrain
- sections of the upper cockpit area, vertical stabiliser, and wing secondary structure had separated from the fuselage.

The aircraft's approximate angle of entry was calculated using the position of aircraft components and angled crush damage to the tail section of the aircraft (Figure 5). The aircraft most likely impacted the ground inverted, at an angle of about 30-40° nose down.

**Figure 5: Side view of an AT-802 aircraft with superimposed tail and rudder showing angled crush damage**



Source: Air Tractor Inc., modified by the ATSB



### ***Flight controls***

Examination of the flight control surfaces, control cables and push rods did not identify any pre-impact defects. The fire damaged flap actuator was located within the wreckage, and its attachment points were destroyed by fire. A measurement was taken on the threaded portion of the actuator to ascertain flap position. That measurement indicated that the flaps were in the fully extended position at the time of impact with terrain. Based on the trim actuator and trim control surface positions, the trim position was calculated as being almost fully nose up. Given the wreckage disruption and trim cable disconnection from the actuator, the trim position prior to impact could not be confirmed.

### ***Engine***

An external examination of the engine did not identify any pre-impact defects (Figure 6). The engine first stage compressor was inspected through the inlet and the second stage power turbine through the exhaust outlet. No pre-impact defects that would indicate an internal failure were identified.

**Figure 6: Engine and propeller assembly**

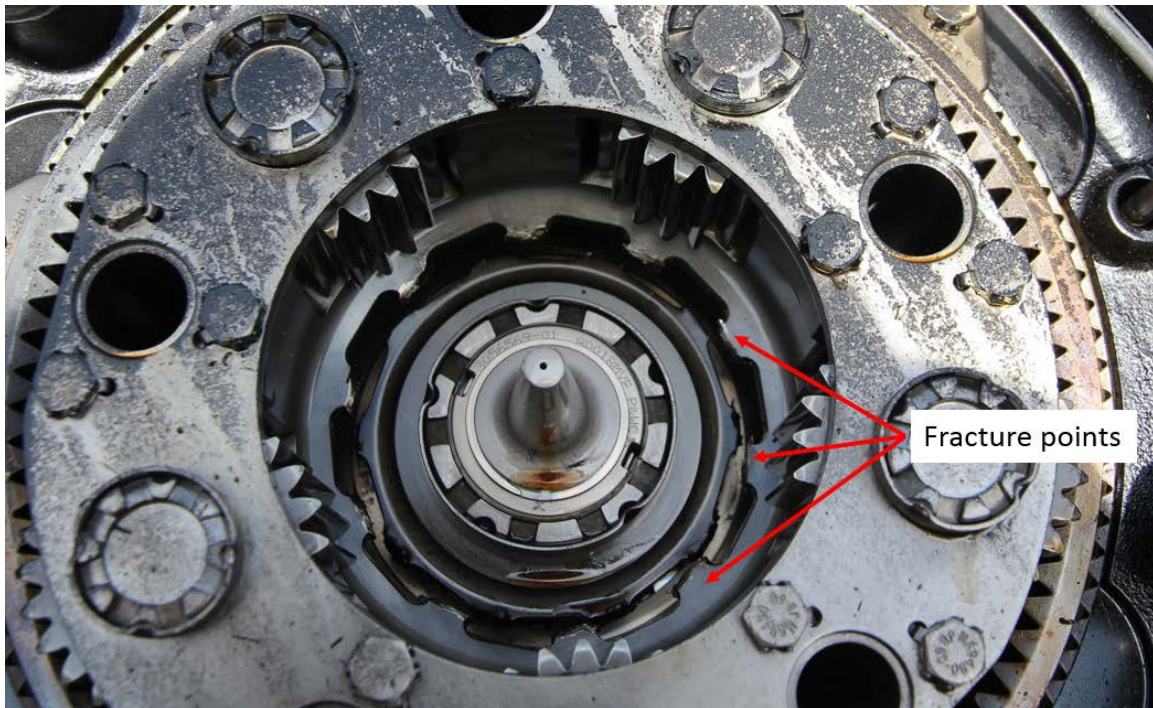


Source: ATSB

The engine reduction gearbox was removed from the accident site for further examination of the engine to propeller drive components, in an area of what appeared to be overload failure (Figure 7).



**Figure 7: Reduction gearbox drive section viewed from the rear with three of the ten fracture points arrowed**



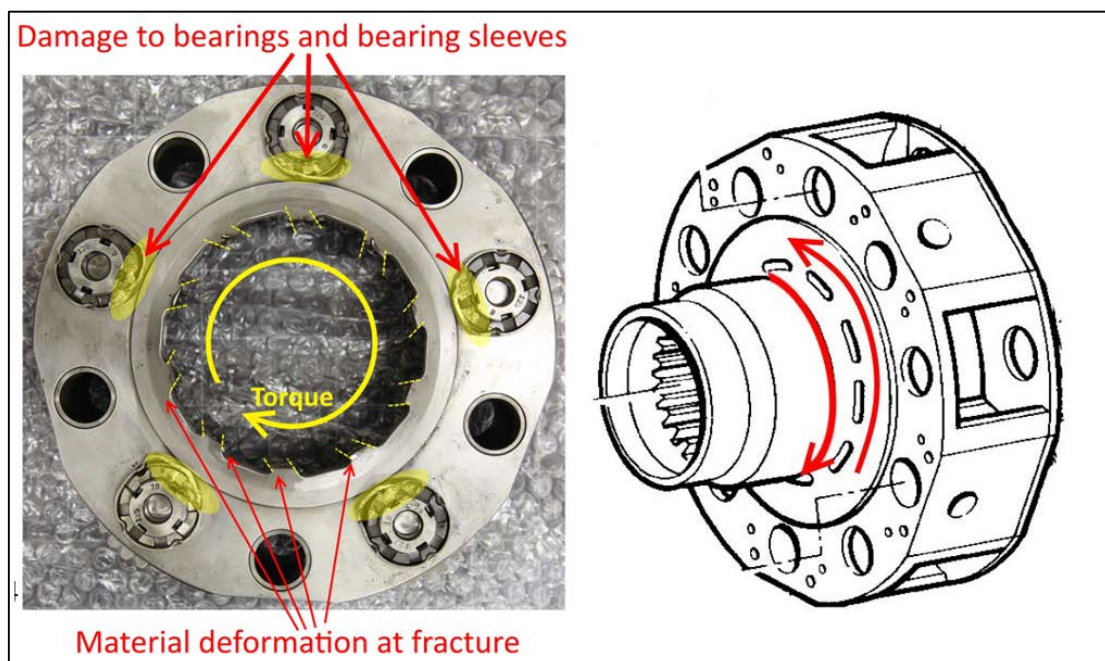
Source: ATSB

Detailed examination of the drive components showed that:

- the fractures observed were overstress, due to high torsional loads
- the direction of overstress failure was consistent with a sudden propeller stoppage while the engine was driving the propeller (Figure 8).

The engine manufacturer confirmed that the damage observed in the drive components was indicative of the engine producing power at the time of impact.

**Figure 8: Reduction gearbox drive section showing fracture points, damage to bearing sleeves and an illustration showing direction of failure.**



Source: ATSB and P&WC, modified by the ATSB



## ***Propeller***

The propeller was inspected on-site. Two of the five blades had been liberated from the hub and were located in the vicinity of the first impact point. The propeller was removed from the accident site, disassembled and examined at a propeller overhaul facility, under the supervision of the ATSB. The examination revealed that:

- the internal components of the propeller hub did not have any pre-impact defects
- only one blade did not have its pitch link broken at impact. Its pitch angle was calculated to be 43 degrees, which was reported by the propeller overhaul facility staff as being in the cruise power pitch range
- all other blades either had broken pitch linkages or were liberated from the hub, which precluded an accurate measurement of their positions
- two of the propeller blades showed signs of either double bending (forward at the tip and rearward through the mid-section) or bending in the opposite direction to rotation. That indicated that the engine was driving the propeller on impact with terrain.

## ***Recorded data***

The aircraft was not fitted with a flight data or cockpit voice recorder, nor was it required to be according to Australian regulations.

The aircraft was equipped with a satellite-based Global Positioning System (GPS) SATLOC AirStar system (SATLOC) to provide guidance for aerial spraying operations. The system also recorded position and spray information. Unfortunately, the data logging card that stores the recorded information was destroyed by the post-impact fire.

## ***Wreckage inspection summary***

Although there were no pre-impact defects identified during the wreckage examination, the possibility of an in-flight mechanical failure could not be discounted due to the level of disruption and fire damage.

# Safety analysis

## The occurrence

Examination of the aircraft and accident site concluded that the aircraft impacted terrain in an inverted and uncontrolled state. The ATSB considered several scenarios that might explain why the aircraft departed from controlled flight after the pilot had appeared to have completed all low level spraying activities.

There was no evidence of any mechanical defect or failure within the aircraft or engine that may have contributed to the accident. The level of impact and fire damage, however precluded a detailed examination of all of the aircraft systems. Therefore, a mechanical failure could not be discounted.

A review of the probable environmental conditions indicated that it was unlikely that the weather had an adverse effect on the operation of the aircraft. In addition, there was no evidence of a birdstrike or wirestrike.

A review of the pilot's recent AT-802 flying experience and incidents prior to the accident indicated that the pilot was not as proficient flying the AT-802 as the AT-502. Although both aircraft are similar, the flying characteristics of the AT-802 are different. The manual tail wheel lock mechanism, increased weight, increased inertia, and reported slower manoeuvring characteristics would all require some degree of pilot adaptation. These differences may not have been fully appreciated by the pilot, and were likely manifested in the way the aircraft was flown on previous flights. Despite this, the pilot conducted the morning's planned spraying activities successfully, with nearby witnesses reporting that this was done with no apparent difficulty.

After completing the planned spraying and a spray run along a paddock near the Doonside airstrip, the pilot climbed the aircraft to a higher altitude and flew away from the spray area. A farmer located close to the accident site reported the pilot appeared to be in control of the aircraft, and was maintaining level flight moments before the accident.

No conclusive evidence was available to determine how the aircraft went from what appeared to be controlled, level flight, at a reasonable altitude above terrain, to an apparent loss of control and a steep nose down attitude prior to impact with terrain.

## Incident reporting

Despite the operator implementing a safety reporting system, the ATSB became aware that a number of incidents and concerns by pilots and loaders about the accident pilot were not reported to the operator using the prescribed procedure.

The inclusion of reporting requirements in the operations manual was intended to assist the operator and management personnel to manage safety outcomes. Company personnel were made aware of these requirements through an induction program, however the investigation noted that in relation to events concerning the accident pilot, these requirements were not followed.

While it could not be established if that affected the outcome in this accident, the accurate and timely reporting of incidents and accidents is essential for organisations to be able to manage safety outcomes. Such reports from operational personnel directly involved in operational activities enable management to take action as necessary to manage risk.

The establishment of a reporting system is only one aspect of effective safety reporting within an organisation. It establishes the platform which enables reporting to occur, but does not provide assurance that personnel will comply with the requirements. Effective reporting systems require integration into the broader management systems of an organisation.

As such, the reporting system of the operator was not effective on its own in ensuring that hazards or perceived risks that existed in the operational environment were reported to management. It is probable that the effectiveness of the established reporting system was decreased by a lack of a systemic approach to its management. As it is possible that concerns held by some operating personnel of the pilot's flying were perceived by them as being unduly critical, they may not have reported out of a sense of fairness to the pilot. A focus on the need to report, despite common obstacles such as time, distance from the office and ease of reporting, along with stated management support for this process will help to ensure it is followed.

While the lack of reporting of safety events represented a missed opportunity to improve safety outcomes, given the unknown reason for the accident and limited time between the events and the accident, it is not possible to determine if better reporting would have prevented this accident.

# Findings

From the evidence available, the following findings are made with respect to the departure from controlled flight and collision with terrain of Air Tractor Inc. AT-802A, registered VH-NIA, that occurred 33 km west of Narromine, New South Wales, on 21 November 2016. These findings should not be read as apportioning blame or liability to any particular organisation or individual.

**Safety issues, or system problems, are highlighted in bold to emphasise their importance.**

A safety issue is an event or condition that increases safety risk and (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

## Contributing factors

- Shortly after departing the spray area, and for reasons that could not be determined, a loss of control occurred from which the pilot was unable to recover before impacting terrain.

## Other factors that increased risk

- Several aircraft incidents involving the accident pilot were not reported to the operator's management as per the documented procedure. This limited the operator's awareness of potential operational risks.
- **The operator's documented procedure for company personnel to report accidents and incidents was in itself not sufficient to ensure that occurrences that had affected, or had the potential to affect safety, were reported to management. This decreased the opportunity for the operator to identify potential operational risks and take appropriate action to minimise them [Safety issue].**



# Safety issues and actions

The safety issue identified during this investigation is listed in the Findings and Safety issues and actions sections of this report. The Australian Transport Safety Bureau (ATSB) expects that all safety issues identified by the investigation should be addressed by the relevant organisation(s). In addressing those issues, the ATSB prefers to encourage relevant organisation(s) to proactively initiate safety action, rather than to issue formal safety recommendations or safety advisory notices.

All of the directly involved parties were provided with a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

The initial public version of these safety issues and actions are repeated separately on the ATSB website to facilitate monitoring by interested parties. Where relevant the safety issues and actions will be updated on the ATSB website as information comes to hand.

## Safety reporting culture and procedures.

Number:	AO-2016-157-SI-01
Issue owner:	Rebel Ag Pty Ltd
Operation affected:	Aviation: General Aviation
Who it affects:	All owners and operators of aircraft

### ***Safety issue description:***

The operator's documented procedure for company personnel to report accidents and incidents was in itself not sufficient to ensure that occurrences that had affected, or had the potential to affect safety, were reported to management. This decreased the opportunity for the operator to identify potential operational risks and take appropriate action to minimise them.

### ***Proactive safety action taken by Rebel Ag Pty Ltd***

Action number: AO-2016-157-NSA-010

On 9 August 2017, Rebel Ag Pty. Ltd. provided the following proactive safety action in regards to their reporting system:

The mixing team have reflected that at the time of the accident there were feelings of discomfort and uncertainty of responsibility of reporting concerns about more experienced colleagues. This has been addressed both individually in private meetings between the Chief Pilot and the ground crew at our internal safety meetings. All of the ground crew have assured management that they are confident and happy to report any feelings of discomfort with behaviour /risks seen to be taken by a staff member irrespective of seniority.

Our reporting culture is relative to the team culture change that has taken place at Rebel Ag. Reporting through the correct chain of command for minor and larger scale risks is being driven by the Chief Pilot and safety officer, demonstrating to the mixing team open communication pathways to report risks/incidents in a private and supportive manner.

We believe the core substance of our induction process is to a high standard and deliverance is what needs to be addressed. As a team we have identified that we need to improve, demonstrating to new employees and contractors our vision and safety culture here at Rebel Ag. Our current induction process, will be more driven and supported by the Chief Pilot, to ensure all pilots are inducted to expected standards and documented accordingly.

In moving forward, the Chief Pilot will be supported in his role with a Deputy Chief Pilot, who will undertake this role in the next few months.

***ATSB comment/action in response*** The ATSB is satisfied that Rebel Ag Pty Ltd has identified deficiencies within its operation and has commenced implementing change to improve safety culture and safety systems.

***Current status of the safety issue***

Issue status: Adequately addressed

Justification: It appears that the operator is implementing structured change to operational processes. These changes are reportedly being embraced by operational personnel and supported by senior management.

# General details

## Occurrence details

Date and time:	21 November 2016 – 0810 EST	
Occurrence category:	Accident	
Primary occurrence type:	Loss of control and collision with terrain	
Location:	33 km west Narromine, New South Wales	
	Latitude: 32° 12.08' S	Longitude: 147° 54.08' E

## Pilot details

Licence details:	Commercial Pilot (Aeroplane/Helicopter) Licence, issued 1981
Endorsements:	Single Engine Aeroplane, Multi Engine Aeroplane, Single Engine Helicopter
Ratings:	Night VFR, Flight Instructor, Aerial Application, Low Level
Medical certificate:	Class 1, valid to March 2017
Aeronautical experience:	Approximately 23,970 hours
Last flight review:	30 August 2016

## Aircraft details

Manufacturer and model:	Air Tractor Inc AT-802A	
Year of manufacture:	2003	
Registration:	VH-NIA	
Operator:	Rebel Ag Pty Ltd	
Serial number:	802A-0148	
Total Time In Service	2,812.9 hrs	
Type of operation:	Aerial application	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – 1 (fatal)	Passengers – Nil
Damage:	Destroyed	

# Sources and submissions

## Sources of information

The sources of information during the investigation included the:

- operator
- maintenance provider
- witnesses
- engine manufacturer
- aircraft manufacturer
- Civil Aviation Safety Authority (CASA).

## Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003* (the Act), the Australian Transport Safety Bureau (ATSB) may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the aircraft and engine manufacturer, Rebel Ag, the maintenance provider, National Transportation Safety Board, Transportation Safety Board of Canada and the CASA.

A submission was received from CASA. The submission was reviewed and where considered appropriate, the text of the report was amended accordingly.



# Australian Transport Safety Bureau

The ATSB is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: 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 that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

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

## Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine 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.

## Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

## Australian Transport Safety Bureau

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## Investigation

### **ATSB Transport Safety Report** Aviation Occurrence Investigation

Loss of control and collision with terrain involving Air Tractor Inc. AT-802A, VH-NIA, 33 km W Narromine, NSW on 21 November 2016

AO-2016-157

Final – 13 March 2018