



Air Tractor, Inc.
Accident Investigation

AIRFRAME ACCIDENT REPORT

NTSB Accident Number:

CEN18FA339

Date & Location of Accident:

8/18/18
Bronson, MI

NTSB REQUESTED CONFIDENTIAL:

The information contained in this report is produced for the sole purpose of providing observations and information to the NTSB and/or FAA during an active accident investigation. No entity may release or share this information prior to its inclusion in the NTSB's public docket without the express written consent of Air Tractor, Inc.

PREPARED BY:

Kyle Schroeder
Air Tractor, Inc.





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FACTUAL INFORMATION

AIRCRAFT:

AT-502B manufactured in 2012
502B-2823
N502RL

DATE & TIME:

8/18/18
~05:30 pm local (CDT)

INJURIES:

Fatal

LOCATION:

Approx. 4 miles southeast of Bronson, MI
N 41.843142° W 85.119050° (Crash site)

PILOT:

[REDACTED]

OPERATOR:

Lute's Flying Service
Ralph Lutes
Shipshewana, Indiana
[REDACTED]

NTSB INVESTIGATOR:

John Brannen
NTSB – Central Region
4760 Oakland St. Suite 500
Denver, CO 80239
[REDACTED]

INSURANCE:

USAIG
Russell Talbot – Adjuster
[REDACTED]

FAA INVESTIGATOR:

Michael Strickland
Grand Rapids FSDO
[REDACTED]

SALVAGE:

First Call Towing & Recovery
Fremont, Indiana
[REDACTED]

OTHER CONTACTS:

OTHER CONTACTS:



Example of AT-502B in Flight

The information contained in this report is the result of travelling to the accident site on 8/19/18 and 8/20/18 under the supervision of NTSB IIC John Brannen. This examination was conducted before and during the wreckage removal by the salvage company.

This report is subject to revision as additional information becomes available. The intent of this report is to provide details relating to the investigation of the subject accident. This report is not to be shared with any person outside the scope of this official investigation.

GENERAL OBSERVATIONS OF WRECKAGE AND ACCIDENT SITE:

Arrival at the accident site was approximately 4:30pm on 8/19/18. The aircraft wreckage was found in a soybean field approximately 750 feet east of Snow Prairie Rd and 1,000 feet north of Kosmerick Rd. This location is approximately 4 miles to the southeast of Bronson, Michigan. It was reported that the target field for this application was a potato field on the west side of Snow Prairie Rd.



Overview of Wreckage as viewed from the left side



Overview of Mid Fuselage Wreckage



Overview of Wreckage viewed from right side

There were some tall trees and power distribution lines between the two fields but there were

no indications of impact with any of these obstacles.

The aircraft was found in a generally upright position and the fuselage was oriented on a 350 degree (magnetic) heading. The wings, empennage and all control surfaces were present and in their normal locations. The wing orientation was measured to be oriented on a line of 50-230 degrees (magnetic), which is about 30 degrees from the normal pre-impact position (perpendicular to the fuselage). No horizontal debris trail or ground scars were discernible. The wreckage and debris patterns were consistent with a high angle, nose-low impact. There were linear wing impact marks radiating from the center impact mark. The crush and impact damage on the airframe was generally in a direction of aft and upwards.

The airplane was confirmed to be N502RL, which is an Air Tractor AT-502B, serial number 502B-2823 which was manufactured in 2012. The Hobbs meter reading was found to show 2200.0 hours time in service.

FUSELAGE:

The fuselage was found upright and generally intact. The area of the fuselage forward of the cockpit was heavily damaged and crushed upwards and aft. The cockpit area was found to have maintained an occupiable space. The seat pan was deformed downward and the pilot restraints were found unbuckled. The airplane was equipped with AmSafe Inflatable Restraints (airbags), which were found in the deployed state. The shoulder harness and airbag inflation hoses were found to have been cut cleanly.



Cockpit Area Wreckage

The powerplant control levers (power, propeller, and condition levers) were found in the following positions: the power lever and condition lever were in a full forward position and the propeller lever was in a coarse-pitch position near the feather position. The spray pump switch, near the power quadrant, was found in the "Spray Pump On" position. Due to the damage of aircraft and the extrication efforts of the first responders, there is little confidence that these represent pre-impact positions.

It was noted that the aircraft was equipped with an Ag-Nav GPS system, a Garmin portable GPS, an Alpha Systems Angle-of-Attack system, and a GT-50 recording G-meter. The Ag-Nav GPS and the Garmin portable GPS were removed from the aircraft and retained by the NTSB for further review.

LANDING GEAR:

The righthand main landing gear and the tail gear remained attached to the aircraft at the fuselage attach points. The lefthand main gear was no longer attached to the fuselage and was found under the fuselage wreckage.

WINGS:

Both wings were found in place on the fuselage. The center splice wing connection remained intact. The leading edges of both wings were displaced in the upward and aft direction. These leading edge skins appeared to be ballooned upward, with most of the aftermarket vortex generators missing. The lefthand wing leading edge appeared to have slightly more damage than the right.



View of Right Wing Wreckage

Each of the ailerons and flaps remained installed on the wing mounted hinges. The wings were equipped with a 234 gallon fuel system with 117 gallons in each wing. The fuel caps remained in place on the fuel tanks. The fuel tanks were ruptured and no appreciable amount of fuel remained visible in the tanks.

The wings were fitted with aftermarket winglets at the wing tips.

EMPENNAGE:

All of the empennage surfaces were located in their correct locations on the tail of the aircraft. Each of these surfaces were heavily damaged. The vertical fin remained attached to the fuselage at the front and rear spars. The rudder was connected to the vertical fin by the lower two hinges. The upper hinge remained attached to the vertical fin but was no longer installed in the rudder. The rudder was folded over approximately 90 degrees to the left.



Overview of Wreckage viewed from the rear

The righthand elevator remained attached to the fuselage through the control system and remained attached to the horizontal stabilizer at both hinge points. The righthand stabilizer was separated at the front and main spar attachments to the fuselage. The attachment of the righthand v-strut was still in place.

The lefthand elevator remained attached to the fuselage through the control system and remained attached to the lefthand horizontal stabilizer. The lefthand stabilizer was separated at the front spar attachment to the fuselage. The rear spar attachment and the v-strut

attachments were still in place.

FLIGHT CONTROLS:

All flight control surfaces were located with the primary wreckage and in their expected locations within the wreckage. The flight controls were heavily damaged, but flight control continuity was established to the extent possible by the condition of the wreckage.

Elevator Controls

The elevator controls are manually operated by steel and aluminum pushrods connecting the control stick to the elevator control horns through two control idlers. The controls were found to be continuous from the control stick to the elevators.

Rudder Controls

The rudder controls are manually operated by a pair of stainless steel cables running directly from the rudder pedal assemblies to the rudder control horns. Both rudder cables remained attached at the rudder control horn. The cables were traced forward and found to be continuous to the rudder pedal adjustment attach points.

Aileron Controls

The aileron controls are manually operated by steel and aluminum pushrods connecting the control stick to the aileron control horns through a torquetube and multiple bellcranks and idlers. In addition, the AT-502B ailerons incorporate a drooping feature that lowers both ailerons in conjunction with extension of the flaps. The aileron drooping controls are documented below under "Flap System". The primary aileron controls were found to be continuous with some heavy damage.

Flap System

The flap control system was found to be continuous and all control system hardware was found to be in place. The extension of the flap actuator was measured and found to be about 0.9". This corresponds to a flap position of approximately 5°, which is considered within the normal range for flap position during an agricultural turn maneuver.



Flap Actuator Extension

The aileron drooping system was found to be damaged but fully continuous. All of the rodends and installation hardware were found to be present and installed. There were no breaks in any of the pushrods. The bellcrank frame on the righthand controls was no longer attached to the fuselage frame due to heavy damage to the cockpit floorboard structure.

POWERPLANT:

The powerplant remained attached to the forward portion of the fuselage. There was heavy damage to all of the firewall forward systems that was consistent with upward and aft crush damage. The engine was confirmed to be a Pratt & Whitney PT6A-34AG engine, serial number PCE-PH0761. The engine was separated at the "F" Flange.

One propeller blade was visible above ground and remained attached to the hub. The two other blades were found buried. One blade remained attached to the hub and the other had been separated. The separated blade showed chordwise scoring and a deep gouge in the leading edge. This gouge was consistent in size and shape with several stones that were found in the dirt near the propeller.



Overview of Powerplant Wreckage



Detail of Separated Propeller Blade

DISTURBANCE OF WRECKAGE:

No portion of the wreckage was removed by me during my involvement in this accident investigation. My disturbance of the wreckage was limited to handling components to the extent necessary for identification and documenting their condition, including removing inspection covers/access panels. I did not make any modification to the aircraft wreckage that would intentionally result in loss of evidence.

The agricultural GPS system and a Garmin portable GPS were retained by the NTSB Investigator in Charge for further review.