

# AIRFRAME ACCIDENT REPORT

NTSB Accident Number:

## **CEN16LA312**

Date & Location of Accident:

8/8/16 Hickory Ridge, AR

# 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.

Air Tractor, Inc. ID # CEN16LA312



## FACTUAL INFORMATION

## AIRCRAFT:

AT-502B manufactured in 2001 502B-0634 N634LA

#### DATE & TIME:

8/8/2016 ~14:15 local (CDT)

#### **INJURIES:**

Fatal

#### PILOT:

Michael Burnette (61)

#### **NTSB INVESTIGATOR:**

Jason Aguilera Central Region 4760 Oakland St, Suite 500 Denver, CO 80239 Jason.Aguilera@ntsb.gov 303-373-3504 Office

#### FAA INVESTIGATOR:

John Gruber Little Rock FSDO

John.P.Gruber@faa.gov

## **OTHER CONTACTS:**

Kurt Ziegenhorn Arkansas Highway Patrol

## LOCATION:

Approx. 4 miles SSW of Hickory Ridge, AR GPS Coord: N35.34028°, W91.01653°

#### **OPERATOR:**

Burnette Aviation, Inc.

Hickory Ridge, AR 72347

## INSURANCE:

Unknown

#### SALVAGE:



## **OTHER CONTACTS:**



Example of AT-502B in Flight

The information contained in this report is the result of travelling to the accident scene on 8/9/16, accompanied by Trooper Kurt Ziegenhorn of the Arkansas Highway Patrol and John Gruber with the FAA Little Rock FSDO. Arrival at the scene was at approximately 9am CDT. The aircraft wreckage had not been recovered by the salvage company at this time.

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:**

Upon arrival at the scene, it was noted that the aircraft was located in a soybean field to the north of County Road 132. A set of rural power distribution lines ran along the south edge of the road. It was reported by Trooper Ziegenhorn that the aircraft had been treating a field to the south of County Road 132, was travelling north, failed to climb over the wires, and contacted the top three wires of these distribution lines. By the time of arrival on scene, the distribution wires had been repaired.

Trooper Ziegenhorn reported that the pilot had been partially ejected from the cockpit and did not appear to be wearing a helmet, seat belt, or shoulder harnesses.

The aircraft was confirmed to be an AT-502B serial number 502B-0634, registered as N634LA. This aircraft was manufactured in 2001. The aircraft hourmeter showed an elapsed time of 6,257.0 hours. The engine was confirmed to be a PT6A-34AG engine serial number PCE-PH0230.

The aircraft was located in the soybean field in an upright position with the fuselage oriented on a northerly heading. The wings remained attached to the fuselage in their normal location,

Air Tractor, Inc. ID # CEN16LA312 but were heavily damaged. The fuselage structure forward of the cockpit remained in its normal orientation, but was heavily damaged. The aft fuselage and empennage were generally undamaged.

A long length (several hundred feet) of 3/8 galvanized electrical cable was loosely wrapped around the empennage and tail gear and trailed out from the aircraft toward the southeast and then arcing around toward the east and then the northeast. No definitive wire strike marks were noted on aircraft leading edge surfaces.



Wreckage viewed from the front right



Wreckage viewed from the rear left



Google Maps view with wreckage location (red) and location of broken wires (green star)

The impact marks in the soybean field indicated that the aircraft contacted the ground in a roughly level attitude and bounced once before arriving at its final location. The total ground distance travelled was about 20 feet on a northerly heading. The ground scars were shallow.

The main landing gear and wing mounted spraybooms had separated from the aircraft and were laying near the wreckage.

## FUSELAGE:

The aft fuselage (aft of the cockpit) was intact with no significant damage. Forward of the cockpit, the fuselage was heavily segmented, broken at the forward cockpit wall, hopper midline, and in the engine compartment. All components stayed in their proper relative fore/aft positions.

The main landing gear springs had separated from the fuselage. The lower forward fuselage structure (including the main landing gear attachments and the wing attach structure) had dug into the soil, causing this part of the structure to begin to "roll up" under the fuselage. This resulted in both of the wings to assume a significant nose-down angle compared to their normal relationship with the fuselage. This rolling of the fuselage is a fairly common occurrence in Air Tractor aircraft and helps dissipate the impact energy of the crash.



View from right wingtip showing the wing rolled under the fuselage

The cockpit overturn structure was intact and there was no evidence of any external intrusions to the cockpit envelope. The windshield structure was detached at its upper support and remained attached to its lower support on the top of the hopper. This lower attach point was displaced forward approximately 3 feet due to the separation of the fuselage structure. There were no wire strike marks found on the windshield structure and there was no damage to the windshield wiper.



**Instrument Panels and Windshield** 

The interior of the cockpit was examined. The pilot's restraints were unbuckled and did not show any signs of failure or overstress. The shoulder harnesses were significantly sunbleached and deteriorated. The vertical rails that support the seat were undamaged.

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View of Pilot's seat belts and shoulder harness

The pilot's control stick was separated from its pivot point just above the attachment of the elevator pushrod. The separated surface was consistent with a bending/shear fracture in the forward direction. This is consistent with the stick being forced forward beyond its limit.



View of control stick separation (wires remain connecting stick to base)

The upper and lower instrument panels had been displaced forward with the hopper. The righthand side of the lower instrument panel exhibited crush damage from the aft (cockpit) side.

The wire deflector cable connecting the top of the cockpit canopy to the top of the vertical fin was undamaged and no impact marks were noted.

## WINGS:

Both wings remained attached to the fuselage and were slightly "rolled under" the fuselage as described earlier. The center splice connection of the wings remained intact and connected. The rear spar connections to the fuselage were separated on both sides.

Both wings exhibited significant damage and chordwise scratching to the bottom sides of the wings. Leading edge damage was moderate and both wings received approximately the same level of damage. The largest wing damage was outboard of the fuel tank area. Both wing fuel tanks and the fuselage header tank were ruptured. It was unknown how much fuel was onboard at the time of the accident.



**Right wing** 

Both ailerons remained intact and installed in their proper placement on the wings. The ailerons received light damage. The flaps remained installed in their proper placement on the wings. Both inboard ends of the flaps were curled up significantly higher than the wings. This damage was most likely caused by the separation of the main landing gear and their impact with the flaps. The radius of deformation on the bottom of each flap is generally the same shape as the main landing gear tires.



Detail of lefthand flap curled up on inboard end



View from behind of flap damage

## EMPENNAGE:

No wire strike marks were noted on any of the leading edges or tips of any empennage surface. The only damage noted on the empennage was to the rudder control horn located at the bottom of the rudder. The righthand side of the horn was bent downward approximately 10 degrees and there were some fresh impact marks on the aft side of the horn. The cause of this damage is unknown.



Impact marks (circled) and deformed rudder horn (arrow)

## FLIGHT CONTROLS:

Continuity of the elevator and rudder flight controls was established by moving the control surface on the empennage and observing proper movement of the controls in the cockpit. The separation of the control stick in the cockpit was previously described. The rudder pedals remained attached at their upper pivot points.

Continuity of the pitch trim controls were determined by moving the cockpit control and observing correct control of the elevator tabs.

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. The aileron controls had received substantial damage due to the significant deformation of the lower fuselage area. Control movement was not possible due to this deformation. The lefthand aileron controls were continuous from the control stick torque tube in the cockpit to the lefthand aileron. The righthand aileron controls were continuous from the pushrod at the righthand wing root.

This separation consisted of a tensile overload failure of the rodend bearing, leaving the inner race still attached to the aileron idler.

In addition, the AT-502B ailerons incorporate a drooping feature that lowers both ailerons in conjunction with deployment of the flaps. This system consists of pushrods and bellcranks that connect the aileron controls to the flap torque tube. All of the components in the drooping system were found to be damaged, but continuous.

The flap system was found to be continuous to the control horn on the flaps. On both flaps, these control horns were separated from the flap structure. The flap actuator was found to be in a partially deployed position. When measured, the gap between the gearbox housing and the ball nut was 3/4". This equates to approximately 5 degrees of flap deflection.

## POWERPLANT:

The engine was confirmed to be a PT6A-34AG engine serial number PCE-PH0230. The engine exhibited significant impact damage. The engine exhaust duct was crushed with the reduction gearbox being angled toward the right. One of the propeller blades was found with a nick in the leading edge.



Engine wreckage

The powerplant controls remained connected at both ends and continuous. The controls were found in the following positions: Power Lever - full reverse, Propeller - feather, Condition Lever - ground idle (or "run") position. These positions are not likely to be the positions of the controls prior to impact. Due to the nature of the engine control cables, it is likely that that these control positions are the result of impact deformation of the fuselage.

## **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 if necessary. I did not make any modification to the aircraft wreckage that would result in loss of evidence.