

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA25LA079

AIRFRAME EXAMINATION

February 25, 2025

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A. ACCIDENT

Location: Big Cypress, FL
Date: December 18, 2024
Time: 1630 EST
2130 UTC
Airplane: N8516V; Air Tractor AT-504

B. AIRFRAME EXAMINATION

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C. SUMMARY

On December 18, 2024, about 1630 eastern standard time, an Air Tractor AT504, N8516V, was substantially damaged when it was involved in an accident near Big Cypress, Florida. The commercial pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 ferry flight.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

1.1 Fuselage

The fuselage was found with slight upward bending on the motor mount and upward bending of the frame members around the right landing gear spring attach. The fuselage skin panels were removed, and a large amount of baggage was observed zip tied to the tubular metal fuselage structure aft of the baggage compartment and under the cockpit area. Multiple zip ties were found cut and others were found loose.



Photo 1: View of the airplane fuselage.



Photo 2: View of baggage zip-tied to the tubular fuselage frame.



Photo 3: View of baggage under the cockpit zip tied to the tubular fuselage frame.



Photo 4: View of cut zip ties from under the cockpit area.



Photo 5: View of cut and loose zip ties in the aft fuselage area.

1.2 Empennage

The horizontal stabilizer and elevator were removed in the field by the recovery company. The elevator and elevator trim were continuous from the controls in the cockpit to the aft pushrod bearing fastener that was removed for transportation of the wreckage. The left and right elevator control horns were attached to the elevators.

The vertical stabilizer remained attached to the empennage and the rudder remained attached to the vertical stabilizer. The right rudder control horn was found impact bent upwards. The right rudder limit stop was found impact bent upwards. Initially during the review, the rudder was able to move left to the limit but not to the right. The left and right rudder cables were found to be continuous from the rudder control horn to the rudder pedals. The rudder cables were traced and found to be continuous from the rudder control horn to the rudder interconnect system. The left seat and right seat rudder push rods were traced and found to be continuous to the rudder interconnect system. All members and fasteners in the rudder interconnect system were found to be in their correct perspective locations. The right rudder control horn was bent downwards towards a normal position and the rudder was able to move from stop to stop using the rudder pedals in the cockpit.



Photo 6: View of the left side of the vertical stabilizer and rudder.



Photo 7: View of the right side of the vertical stabilizer and rudder.



Photo 8: View of the rudder horn as first observed.



Photo 9: View of the rudder horn when bent down towards a normal position.

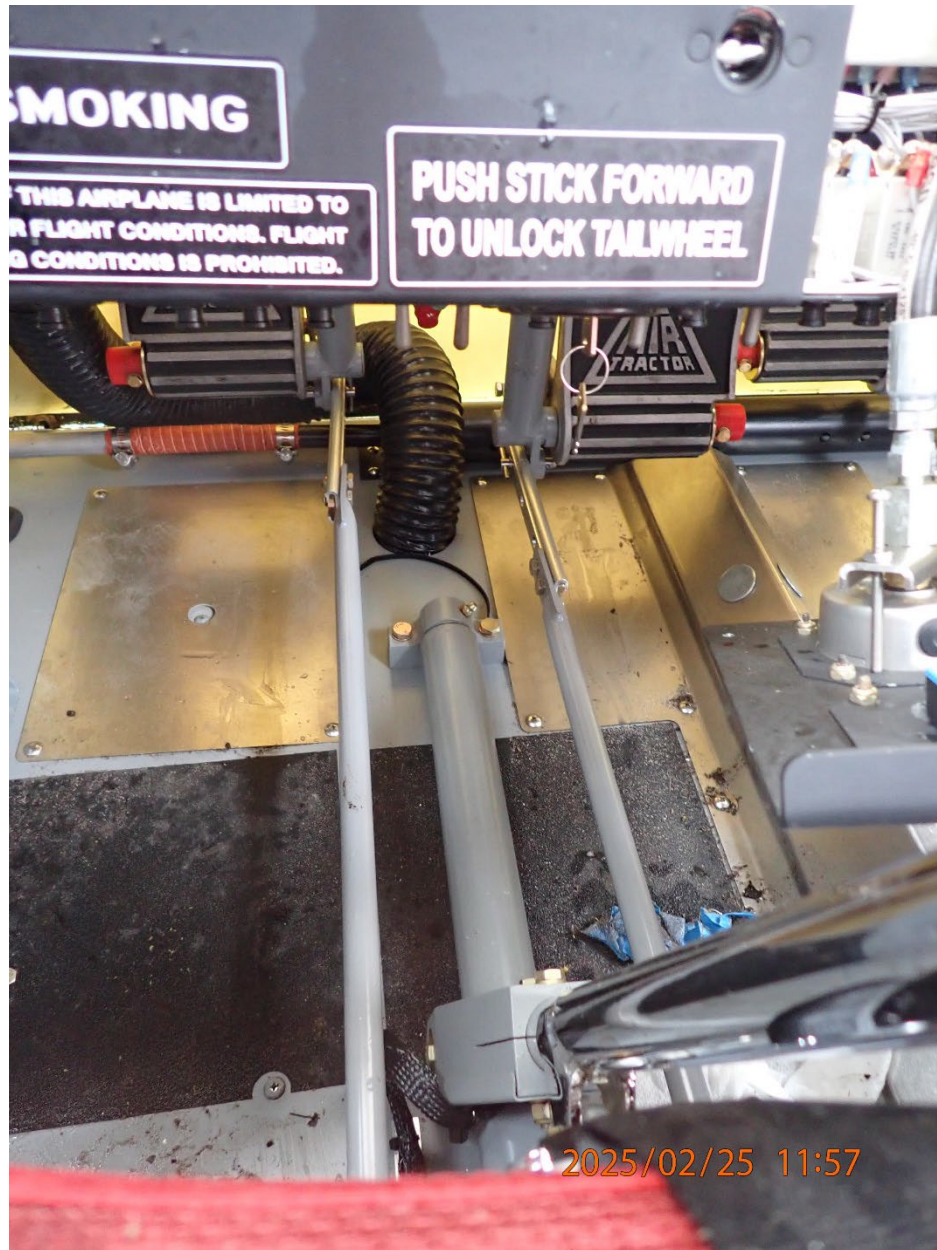


Photo 10: View of the left side rudder pedals and connecting rods.

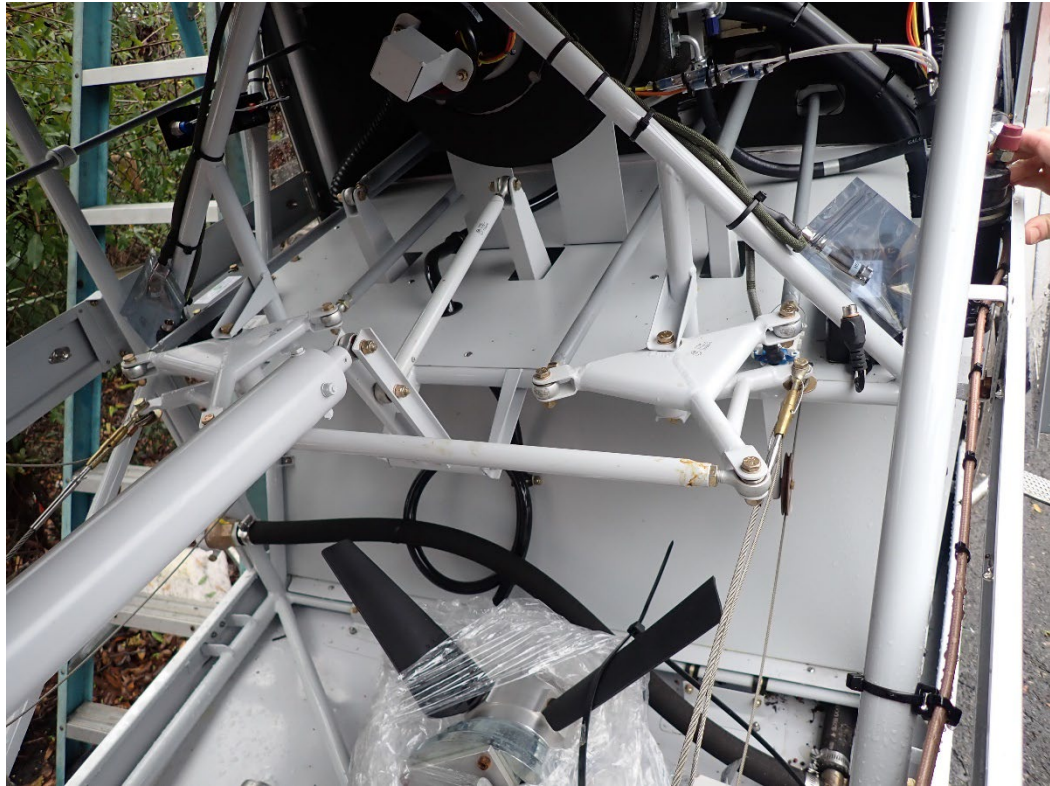


Photo 11: View of the rudder interconnect system.



Photo 12: View of the right side rudder cable. (Photo Courtesy of Air Tractor)



Photo 13: View of the left side rudder cables.

1.3 Aircraft Wings

Both wings were removed from the airplane in the field by the recovery company to facilitate transportation of the wreckage.

The right wing tip was found with upwards crush damage. The right wing flap was separated from the wing and was found next to the wing. The right aileron and right aileron trim tab were found attached to the wing. The right aileron controls were continuous from the control stick to the fuselage mounted bellcrank. The fastener that connects the fuselage mounted bellcrank to the main wing push rod was removed for transportation. The right wing main wing pushrod was found to be continuous to the aileron though movement of the inboard end of the pushrod.

The left wing was found intact with the flap and aileron attached. The left wing aileron boost tab was not located during the wreckage review. The left wing aileron boost tab rod was found with a separation near the bearing that is fastened to the aileron mounting arm. The left wing aileron outboard rib and boost tab bracket was bent outboard away from the aileron boost tab cove. The left aileron controls were continuous from the control stick to the fuselage mounted bellcrank. The fastener that connects the fuselage mounted bellcrank to the main wing push rod was removed for transportation. The left wing main wing pushrod was found to be continuous to the aileron though movement of the inboard end of the pushrod.

The left and right flap control system was continuous from the flap actuator to the aft push rod fastener that was removed for transportation. The left and right flap control arms were located on the flaps. The flap actuator was found near the fully extended position.



Photo 14: View of the wings.

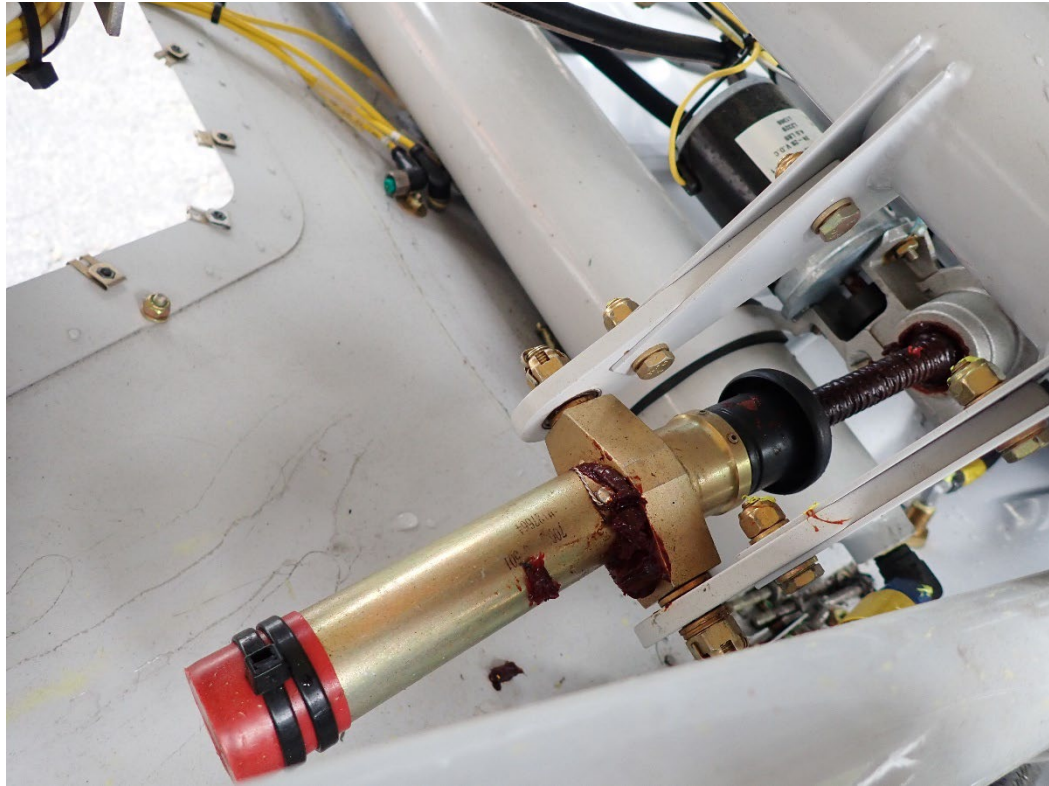


Photo 15: View of the flap actuator and jackscrew. (Photo Courtesy of Air Tractor)

1.4 Landing Gear

The left main gear was found attached to the fuselage frame. The right main gear was found attached to the airframe with inboard bending. The tail gear spring was found attached to the aft fuselage and the tail wheel and axle assembly was connected to the spring with the lower attach bolt separated.



Photo 16: View of the main landing gear.



Photo 17: View of the tailwheel.

1.5 Cockpit

The instrument panel in the cockpit was found separated from the hopper. The Hobbs meter was found to show 0011.9 hours. The following switch and lever positions were noted:

- Fuel condition Lever: Cutoff
- Propeller lever: Feather
- Power control lever: Idle (against the beta stop)
- Rinse Pump: ON
- Nose Lights: OFF
- Spray: OFF
- Wind. Washer: OFF
- Start: OFF
- Ignitor: OFF
- Dome Light: OFF
- Inst. And Flap Lights: OFF
- Strobe and Nav Lights: OFF
- Air Cond.: OFF
- Blower: LOW
- Fuel Boost Pump: OFF

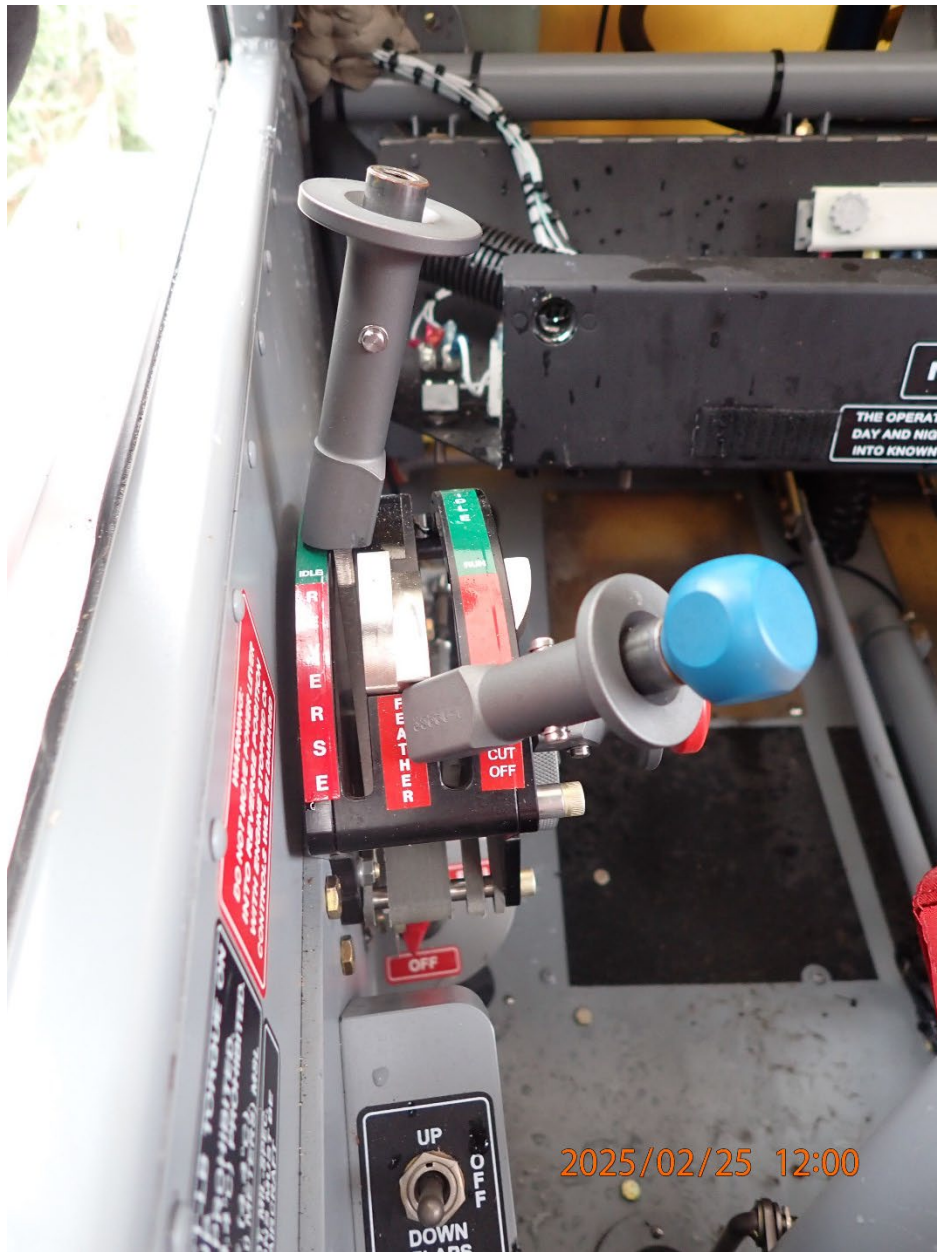


Photo 18: View of the throttle quadrant.



Photo 19: View of the Hobbs meter.

1.6 Survivability

The airplane was equipped with a 5 point harness and airbags. The harness remained attached at all attachment points and the airbags did not deploy. The pilot side harness operated as expected with no anomalies.



Photo 20: View of the cockpit with harness airbags not deployed.

1.7 Fuel/Fuel System

The airplane was equipped with a ferry fuel system which allowed the hopper to carry fuel and be plumbed directly into the fuel selector. The fuel selector in the cockpit was selected to off and operated through it's full range of motion with no anomalies. The finger screens were removed from the integral wing fuel tanks and were free of debris.

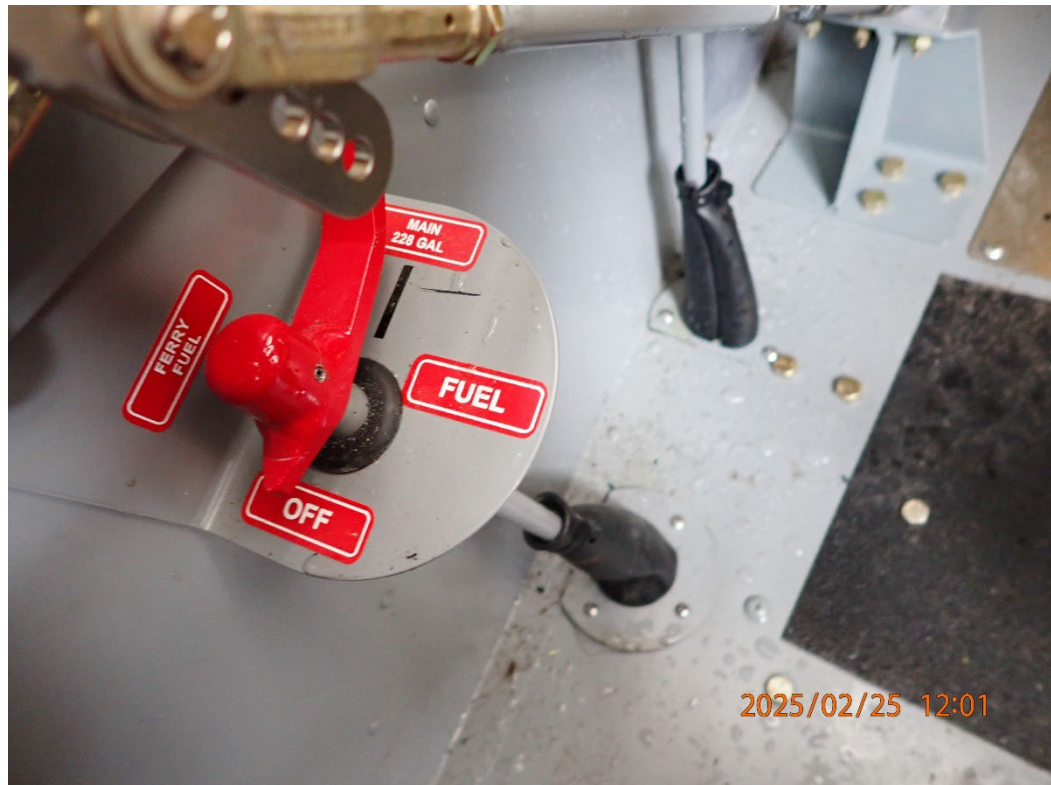


Photo 21: View of the fuel selector valve.



Photo 22: Fuel filter screens from the wing fuel tanks.

2.0 Propeller Examination

All 3 propeller blades exhibited aft bending, polishing, leading edge gouges, and tip curling.



Photo 23: View of the propeller.



Photo 24: View of the propeller.



Photo 25: View of the propeller blade cut by recovery crews.

3.0 Aircraft Information

According to manufacturer records, the airplane was manufactured in 2024 and was purchased by the company in 2024. It was powered by a Pratt & Whitney PT6A-34AG series, 750-horsepower engine equipped with a controllable pitch Hartzell propeller.

4.0 Meteorological Information

METAR KIMM 182125Z AUTO 00000KT 10SM A3002 RMK AO2

Submitted by:

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