

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA255

FIELD NOTES & EXAMINATION SUMMARY

8/4/2024

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A. ACCIDENT

Location: Izee, Oregon
Date: 7/25/2024
Time: 1830 local (PDT)
Airplane: N850DG

B. FIELD NOTES & EXAMINATION SUMMARY

IIC	Eleazar Nepomuceno National Transportation Safety Board Federal Way, Washington
Party Coordinator	Dakota Lowe Air Tractor Inc Olney, Texas
Party Coordinator	Lea Wienkauf United States Forest Service Fort Collins, Colorado
Inspector	Bernie Connolly Federal Aviation Administration Boise, Idaho

C. DETAILS OF THE INVESTIGATION

1.0 Accident Site

The main wreckage was found in wooded mountainous terrain about 7.2 miles southeast of Izee, Oregon in an area that had been burned during the "Sand Fire". Trees leading up to the wreckage site were found with impact damage. Wing, fuselage, and empennage components were found following the impacted trees leading up to an initial ground scar located 290 ft west of the initial tree impact. Initial impact with trees was consistent with a left-wing low attitude.



Figure 1. Accident flight path through trees (looking East)



Figure 2. Accident flight path and wreckage site (looking West)

The ground scar was found to contain the inboard half of the left aileron, the left aileron counterweight, a segment of the right V-strut, and a segment of frame tube. West of the initial ground scar, the airplane was found to be highly fragmented. Tree trunks along the debris path were found with impact marks. The main fuselage wreckage was found 890 ft west of the initial tree impact. The main fuselage wreckage consisted of the aft cockpit frame, overturn structure, and the seat. The main fuselage wreckage was found upright with significant fire damage.

The airplane was confirmed to be N805DG, which is an Air Tractor AT-802A, serial number 802A-0156 which was manufactured in 2003. The Hobbs meter was found with a reading of 2034.3 hours.

2.0 Airframe Examination

2.1 Fuselage

The forward fuselage was found highly fragmented. A section of fuselage consisting of aft cockpit frame, overturn structure, and the seat was found near the end of the debris trail. The aft fuselage was found fragmented along the debris trail.



Figure 3. View of main fuselage resting against a tree

The airplane was found equipped with 4-point restraints. The restraints were consumed by fire. The harness buckle was found secured with the aft cockpit wreckage. The pre-impact position of the powerplant control levers could not be determined due to impact forces. The power lever was found in a low-mid power position. The propeller RPM lever was found in a high RPM setting. The condition lever was found in the ground idle position.

All flight control surfaces were located with the primary wreckage. The flight controls were damaged, but flight control continuity was established to the extent possible by the condition of the wreckage.

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 forward rod end bearing of the forward elevator pushrod was found separated in the threaded region. The bearing was found attached to the control stick. The aft pushrod rod end bearing was found with a separation in the threaded region. The bearing was found attached to the forward elevator idler. The forward rod end bearing of the aluminum pushrod was found separated at the forward idler. The aluminum pushrod was found with a "D" shaped separation at approximately 1/3 its length. The aft rod end bearing of the aluminum pushrod was found with a separation at the aft idler. The aft Idler was found attached to the frame. The frame tube was found separated from the fuselage. The controls were found to be continuous from the aft idler to both elevator control horns. The elevator control horn ears were found separated from the elevator torque tubes.

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. The left rudder cable was found with a broom straw separation at the forward cable terminal. The right rudder cable was found with a broom straw separation near the rudder control horn.

The aileron controls are manually operated by steel and aluminum pushrods connecting the control stick to the aileron control horns through torque tubes, an idler, and a bellcrank.

The control stick socket was found destroyed by heat/fire. The ears of the rear torque tube arm were found separated from the torque tube connected to the pushrod between the upper and lower torque tubes. The pushrod remained attached to the lower torque tube. The controls to the left aileron were continuous from the torque tube to the aileron idler. The inboard rod end bearing of the left aluminum aileron pushrod was separated at the aileron idler. The left aileron idler was found attached to a fragment of the frame that was separated from the fuselage. The left aluminum pushrod was found with multiple "D" shaped fractures. The outboard rod end bearing of the aluminum pushrod was separated at the bellcrank. The wing mounted

steel pushrod was found attached to the bellcrank. The aft rod end bearing was found separated at the aileron control horn.

The right fuselage mounted steel pushrod was found attached to the lower torque tube. The outboard rod end bearing of the right fuselage mounted steel pushrod was separated at the idler. The right aluminum pushrod rod end bearing was separated at the idler. The aluminum pushrod was found with a "D" shaped separation near the inboard end of the pushrod. The outboard rod end bearing was found separated at the right bellcrank. The wing mounted steel pushrod was found attached to bellcrank. The aft rod end bearing of the wing mounted steel pushrod was found separated at the aileron control horn.

The flap actuator was found attached to the fuselage frame and flap torque tube. The motor was separated from the actuator. The actuator was found in the retracted position. The flap torque tube was found separated from the left fuselage attach point. The right torque tube arm was found separated near the pushrod attach point. The right flap pushrod was found with a separation in the aft threaded region. The aft rod end bearing was found attached to the flap control horn. The left flap torque tube arm was found separated near the upper torque tube arm attach bolt. The flap pushrod was found separated from the torque tube arm, attached to the flap control horn with the torque tube arm bearing installed.

2.2 Empennage

The empennage surfaces were separated from the fuselage and located along the wreckage path. The right horizontal stabilizer was fragmented. The right elevator was separated from the horizontal stabilizer and found with a separation at elevator station 50.0". The right elevator counterweight separated from the elevator and found along the debris path. The left horizontal stabilizer was found separated from the fuselage. The left elevator was found separated from the stabilizer with a separation at elevator station 50.0".

The vertical fin was found separated from the fuselage and found near the main fuselage wreckage. The rudder was found separated from the vertical fin and found near the main fuselage wreckage with a separation near water line 20.0".



Figure 4. View of empennage layout

2.3 Wings

The wings were highly fragmented along the debris path. The main spar was found 590 ft west of the initial tree impact attached to fragments of the fuselage frame. The center splice was found intact. The left rear spar attach plate was found separated from the wing, attached to the fuselage frame. The right rear spar was found separated from the fuselage frame.



Left Wing Layout



Right Wing Layout

Figure 5. Top left and right photos: view of left-wing layout; Bottom left and right photos: view of right-wing layout

The ailerons and flaps were found separated from the wing along the wreckage path. Both ailerons and flaps were found with a separation at approximately mid-span.

Each of the wings were equipped to hold 189 gallons of fuel in the wing fuel tanks for a total of 378 gallons. Both fuel tanks were ruptured and there was no fuel remaining in the tanks.

2.4 Landing Gear

The left main gear spring was found attached to a segment of the frame 380 ft west of the initial tree impact. The wheel was separated from the gear spring. The right main gear spring was found separated from the fuselage 840 ft west-northwest of the initial tree impact with the wheel separated.

The tail gear was found attached to a segment of the frame 730 ft west of the initial tree impact.

3.0 Engine and Propeller Examination

The powerplant was found separated from the engine mount. The engine was found with impact damage and separations at the "C" and "F" flange. The main engine wreckage was found 470 ft west of the initial tree impact. Twist and compression damage was seen on the engine case.



Figure 6. View of engine at accident site

The engine was equipped with a five-bladed Hartzell fully reversible propeller. The propeller hub was found attached to the propeller shaft which was separated from the engine 500 ft west of the initial tree impact. The feathering spring assembly was found separated from the hub. Each of the five propeller blades were found attached to the hub. One blade was found bending towards the camber side at the blade tip. One blade exhibited "S" bending and was found with a separated tip. One blade exhibited bending to the face side. The remaining blades exhibited bending to the camber side.



Figure 7. View of propeller wreckage at accident site

4.0 ADS-B Data Depictions

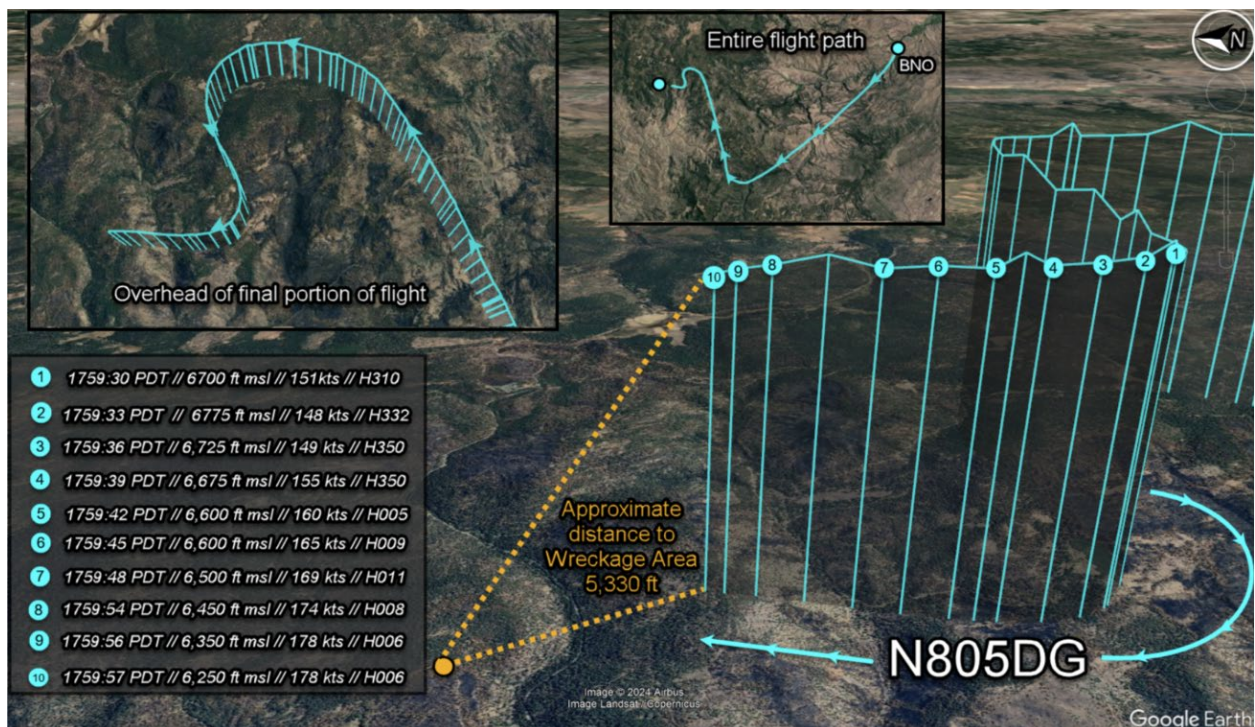


Figure 8. Google Earth map with ADS-B data overlay, showing the last 10 targets. Left photo shows overhead of final portion of the flight track; the upper photo depicts the entire flight path from BNO to the accident site.

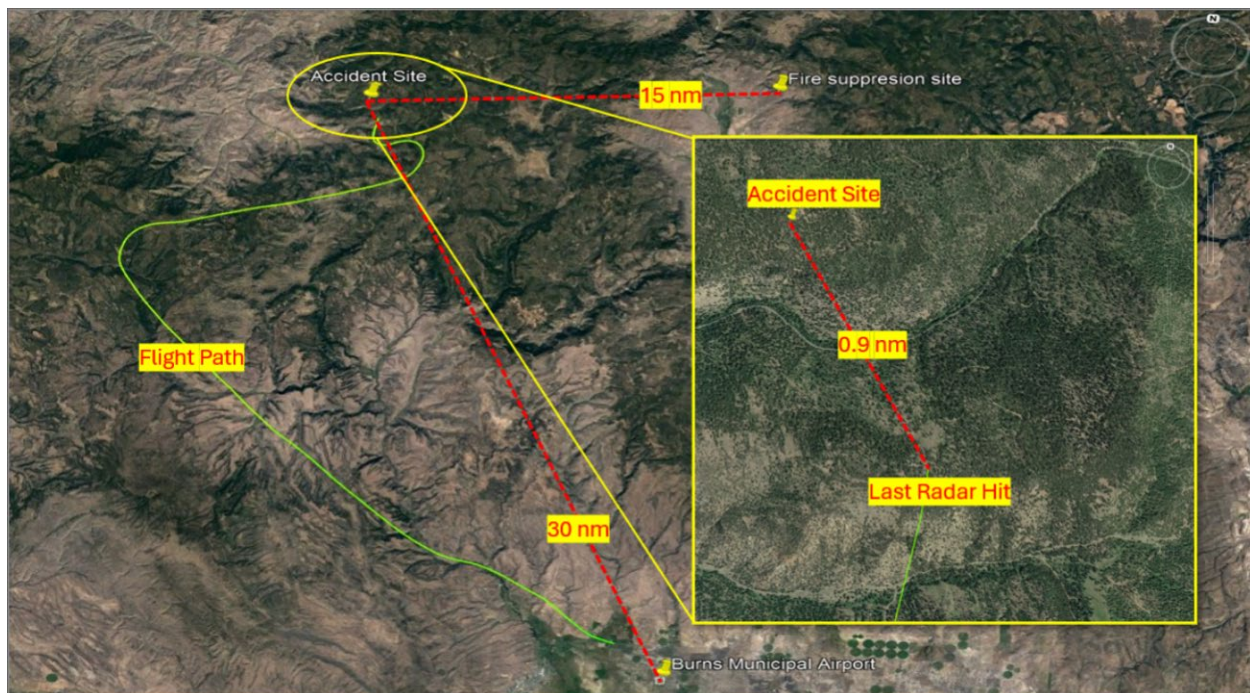


Figure 9. ADS-B flight track of N805DG overlaid over Google Earth, depicting the accident site, departure airport, and fire suppression site locations.

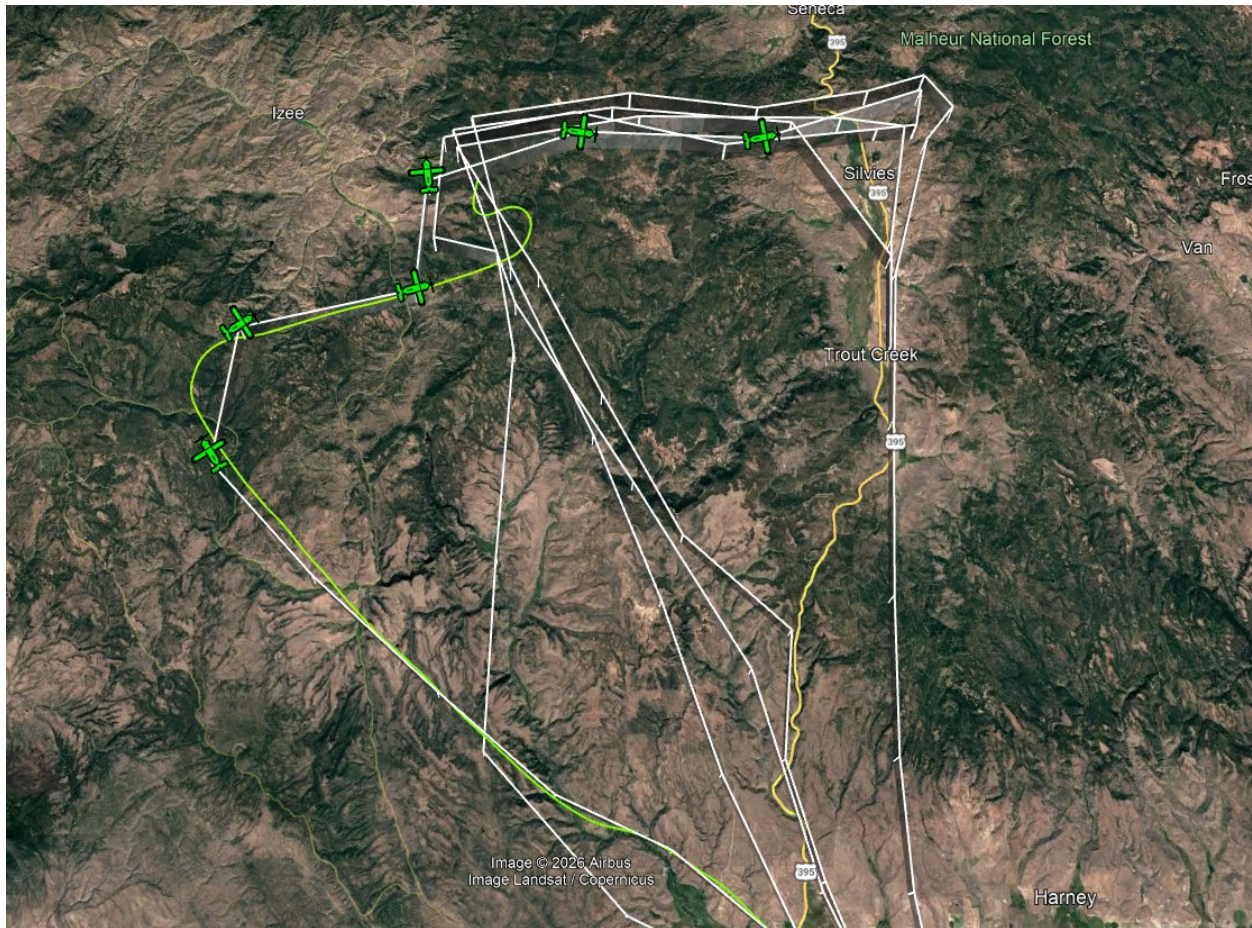


Figure 10. Overlay of 2nd SEAT's flight track (white track) in with the accident airplane's flight track (green track).

Submitted by:

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