

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23FA353

ON-SCENE INVESTIGATION SUMMARY

August 10, 2023

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. PARTICIPANTS.....	3
C. SUMMARY.....	3
D. DETAILS OF THE INVESTIGATION	5
1.0 ACCIDENT SITE	5
2.0 AIRFRAME EXAMINATION.....	5
3.0 ENGINE EXAMINATION	8
4.0 PROPELLER EXAMINATION	8
5.0 PILOT INFORMATION	9
6.0 AIRCRAFT INFORMATION	10
7.0 METEOROLOGICAL INFORMATION	10

A. ACCIDENT

Location: Gilman City, Missouri
Date: August 8, 2023
Time: 1150 CDT
Airplane: Air Tractor AT-802, N804AA

B. PARTICIPANTS

IIC	Joshua Lindberg NTSB Dallas, Texas
Deputy IIC	Brian Rutt NTSB Aurora, Colorado
Party Member	Dakota Lowe Air Tractor, Inc. Olney, Texas
Party Member	Stephan Nelle Air Tractor, Inc. Olney, Texas
FAA Inspector	Tom Davis FAA Kansas City, Missouri

C. SUMMARY

On August 8, 2023, about 1150 CDT, an Air Tractor AT-802 airplane, N804AA, was destroyed when it was involved in an accident near Gilman City, Missouri. The pilot was fatally injured. The flight was conducted under 14 *Code of Federal Regulations* Part 137 as an aerial application flight.

In a phone conversation with Ms. Marshall, she stated that she was driving south on [State Highway] K adjacent to the accident site. She said she saw the accident airplane “flip sideways” and wasn’t sure if it was a crop duster or performing aerobatics. Ms. Marshall stated that her daughter, who was with her in the vehicle, said she saw the airplane rapidly spinning like a corkscrew toward the ground. Ms. Marshall stated she could not see the ground impact because of her position, but saw smoke, and shortly after, saw the accident airplane burning at the scene. She stated a

fire was burning 15-20 minutes before the entire airplane was engulfed in flames. Ms. Marshall was not able to hear any engine noise from inside her vehicle.

In a phone conversation with Mr. Lollar, he stated that he was driving south on K blacktop near the water tower. The airplane was flying above him near the intersection of K and B. The airplane appeared to be flying southbound, then turned east, and back to the north. Right before he turned right on B, the airplane started to turn pretty aggressively. Airplane turned right over him when he was at the intersection of K and B. Mr. Lollar continued his turn and drove west on B when the airplane flipped and tumbled to the ground. He immediately called 911. He noticed there was another car behind him. When he got to the airplane in the field, it was sitting at a downward angle toward the nose and the smoke and fire were heavy near the front. He did not observe any smoke or fire from the airplane before it hit the ground. He never heard the sound of the engine at any point in the flight.

According to the airplane owner and operator, the pilot was spreading Urea Ammonium Sulfate fertilizer on a nearby bean field. The accident site was 0.5 nautical miles to the east (100° magnetic) of the application field. The operator stated that the target field was the one in Figure 1 below.

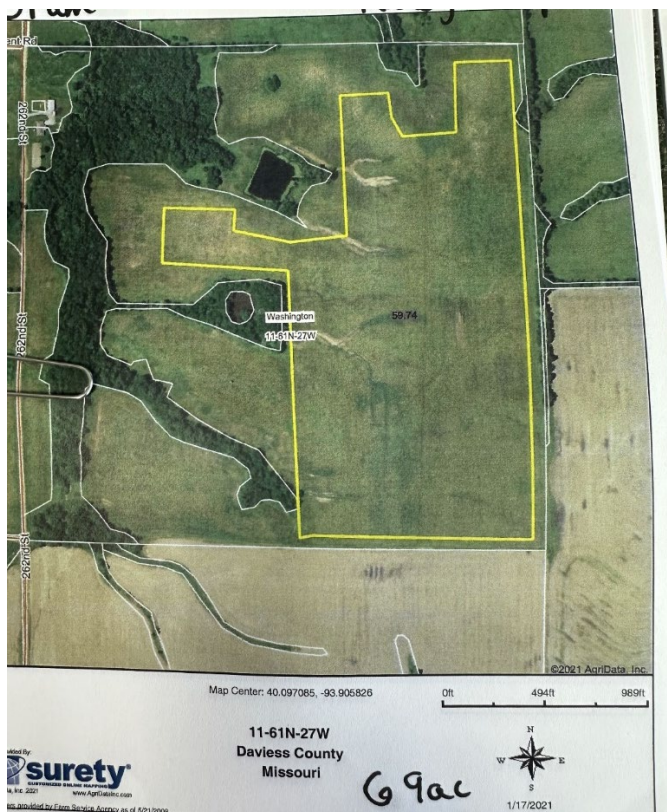


Figure 1. Map of target field (according to the operator)

D. DETAILS OF THE INVESTIGATION

1.0 Accident Site

The airplane was found in a relatively flat soybean field. The airplane was upright, and all four corners of the airplane were located with the wreckage. A post impact fire consumed most of the fuselage, cockpit, hopper, and engine compartment. The fuselage and empennage remained attached to each other and were distorted to the right. The right wing had some leading edge crush damage. The right wing sustained more fire damage than the left wing. Both wings remained attached to the fuselage. The forward spar remained continuous from each wing through the fuselage. The vertical stabilizer remained attached to the fuselage and the rudder was impact separated. The left horizontal stabilizer was impact separated at the fuselage attachment point and remained attached to the elevator control horn. The right auxiliary fin fiberglass tip was found in a ground scar about two feet inboard of where the right auxiliary fin came to rest. The engine was attached to the engine mount and embedded in the ground. The propeller assembly was embedded in the ground and only one propeller blade was visible. An oil slick was visible on the ground and a strong odor consistent with jet fuel was present.

2.0 Airframe Examination

The onboard SATLOC GPS unit was found in the rear fuselage and exhibited fire damage. The unit will be shipped to the NTSB Vehicle Recorders Lab for evaluation. The fuselage was found upright, with fire damage from the firewall to the aft end of the cockpit. There was upward crush damage to the forward and aft ends of the fuselage.

The aircraft was equipped with five-point AmSafe inflatable restraints (airbags). The harness webbing was consumed by fire. The five-point buckle was found fully latched. The airbag inflators were found under the cockpit floor and were fire damaged.

The preimpact position of the powerplant control levers could not be determined due to impact forces. Engine control continuity could not be established due to impact damage.

LANDING GEAR:

The main gear was found embedded in the ground under the fuselage. The left main gear spring was separated from the fuselage. The left wheel was separated from the left main gear spring and was located under the inboard end of the left wing. The right main gear remained attached to the fuselage and the right main wheel remained attached to the right main gear spring. The tailwheel assembly was

separated from the tail gear spring and remained attached to the fuselage by the tail wheel lock cable.

WINGS:

The wing center splice connection was found intact. The main spar was found connected to both fuselage attach locations. The left rear spar attach was found separated and the attach hardware was present in the fuselage attach point.

Both wing leading edges exhibited upward crush damage. The left aileron was attached to the wing. The left flap was attached to the wing. Minor fire damage was found on the left wing. The right wing was found with heavy fire damage. The right aileron was attached to the wing. The right flap was heavily fire damaged. The hinges were found attached to the wing.

Each of the wings were equipped to hold 189 gallons of fuel in the integral wing fuel tanks for a total of 378 gallons. Both fuel caps were found installed. Left fuel tank ruptured. The right fuel tank was consumed by fire.

EMPENNAGE:

The right horizontal stabilizer was attached to the fuselage at the forward attach point. The aft attach point was separated. The aft v-strut attachment was separated from the horizontal stabilizer at the clevis. The clevis remained attached to the stabilizer. The v-strut remained attached to the fuselage attach point.

The left horizontal stabilizer was separated from the fuselage at the forward and aft attach points. The forward and aft v-strut attachments were separated from the horizontal stabilizer at the clevis. Both clevises remained attached to the stabilizer. The v-strut remained attached to the fuselage attach point. The elevators were attached to the respective horizontal stabilizers.

The auxiliary fins were attached to the horizontal stabilizers. Both auxiliary fin tips were impact damaged.

The elevator torque tube arms were attached to the aft elevator pushrod. The elevator torque tube arms were separated from the stabilizer attach bracket.

The vertical fin was attached to the fuselage. The rudder was separated from the vertical fin and was found near the aft end of the fuselage.

FLIGHT CONTROLS:

Flight control continuity was established to the extent possible by the condition of the wreckage. Flight control continuity could not be established; however, all observed separations were consistent with impact or fire damage.

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 forward control stick was separated above elevator pushrod rod end connection. The control stick socket was fire damaged and separated from the upper torque tube. The rod end attaching the control stick to the forward elevator pushrod was separated and the rod end remained attached to the lower section of the control stick. The controls were found to be continuous from the forward pushrod to the aluminum pushrod. The forward aluminum pushrod rod end was found attached to the forward elevator idler. The forward end of the aluminum elevator pushrod was found separated consistent with fire damage. The elevator controls were found to be continuous from the aft section of the aluminum pushrod to the elevator control horns.

Rudder Controls

The rudder controls are manually operated by a pair of pushrods and 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 rudder cables were found to be continuous from the rudder horn to the rudder cable attach plates. The rudder cable attach plates were separated from the aft pedal attach channels consistent with fire damage.

The left rudder pushrod was separated from the aft rudder attach channel with the attach hardware installed. Aft channel was fire damaged. Forward channel was attached to the pedal mount assembly.

The right rudder pushrod was separated from the forward and aft rudder channels with the attach hardware installed. Channels were destroyed by fire.

Aileron Controls

The aileron controls are manually operated by steel and aluminum pushrods connecting the control stick to the aileron control horns through torque tubes, bellcranks and idlers.

The control stick was separated above elevator rod end connection. The control stick socket was fire damaged and separated from the upper torque tube.

The left aileron controls were continuous from the upper torque tube to the aileron control horn. The fuselage mounted aileron idler was found separated from the fuselage.

The right aileron controls were continuous from the upper torque tube to the aileron except for separations in the wing mounted aluminum pushrod due to fire damage.

Flap System

The extension of the flap actuator was found to be approximately 3.6 inches. The flap actuator was separated at the fuselage attach point. The jackscrew remained loosely attached at the torque tube attach point. The flap actuator gearbox was fire damaged. The flap system was found to be continuous except for a separation in the right flap control arm.

3.0 Engine Examination

The engine was a Pratt & Whitney PT6A-65AG, serial number PCE-PN0306. The engine was found embedded in soft mud and remained attached to the engine mount. The reduction gear box sustained impact damage and was partially separated. During recovery a chain was attached to the engine mount to lift it out of the crater. During the process, the reduction gear box completely separated from the engine. The exhaust duct exhibited torsional buckling consistent with torque production. The engine was retained for further examination.

4.0 Propeller Examination

The propeller assembly was completely embedded in the ground. A chain was attached to the reduction gear box and lifted from the impact crater. All 5 blades remained attached to the propeller hub. The blades exhibited compound bend and twist progression from forward to aft in the sequence of rotation consistent with producing thrust at initial impact. The RGB second stage planet gear carrier impact separated from the propeller shafter between the carrier web slots. Material deformation on the propeller shaft tabs was consistent with shear/torque production. The propeller was retained for further examination.

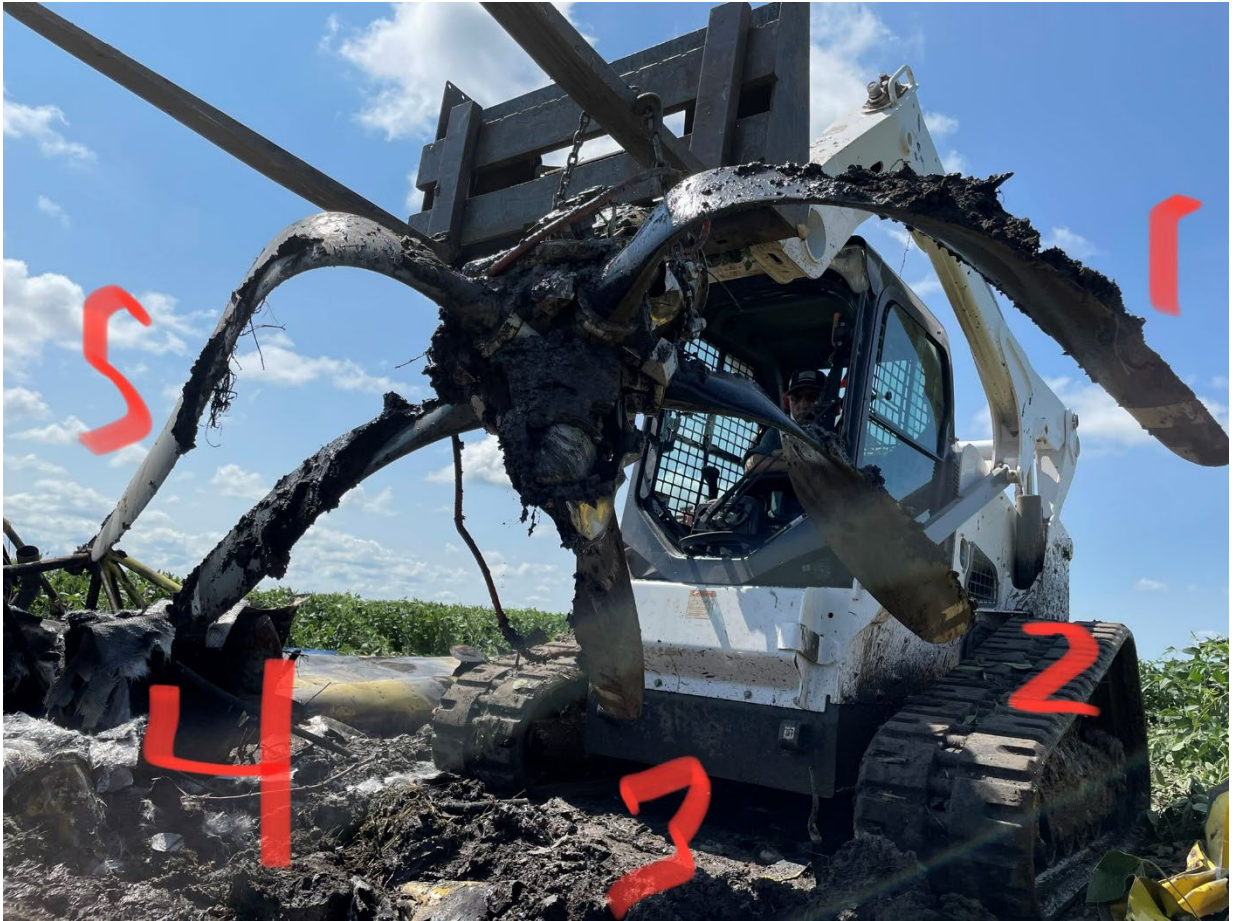


Figure 2. Propeller after it was removed from the impact crater.

5.0 Pilot Information

Pilot Certificate info: COMMERCIAL PILOT ASEL. This pilot reported civil flight experience that included 450 total and 150 hours in last six months as of exam dated 11/30/2022. This pilot was 73 inches tall and weighed 206 lbs. at the time of the last exam. This pilot was issued a Second Class Medical Certificate without limitation. Pilot reported the following medications (17a): None
Current exam 11/30/2022: The pilot reported his occupation as "Pilot - Rice Flying". The pilot reported no concerns and no significant issues were identified by the AME. Prior exams: There are prior Second Class exams in 2020 and 2021. The pilot reported no other concerns and no significant issues were identified by previous AMEs.

Air Tractor AT-802 type rating exemption approved by the FAA. To be exempt from type rating, AT-802 pilots must meet one of the requirements below (the full exemption letter is included in the end of the AT-802 AFM).

5. Except as provided in Condition and Limitation No. 6, before any pilot can serve as pilot-in-command (PIC) in the AT-802 or AT-802A airplane, as applicable, that pilot must have successfully completed the applicable training in accordance with Air Tractor's approved training program described in Condition and Limitation No. 2.

6. Pilots who have logged at least 100 hours of flight time, with at least 10 hours in the preceding 12 months, in an AT-502/602 series airplane need not complete the training requirements of Condition and Limitation No. 2. A record of this flight time must be made available by the pilot upon request to any representative of the FAA Administrator.

6.0 Aircraft Information

Air Tractor AT-802, Serial Number 802-0698, manufactured in 2017
Owner: Rice Flying, LLC, Poplar Bluff, Missouri 63901

The owner stated that the airplane was maintained by Late Aircraft Repair, Pocahontas, Arkansas. Owner stated that the logbooks are with Late Aircraft Repair, and will be reviewed at a later date.

7.0 Meteorological Information

KEZZ 081655Z AUTO 25004KT 10SM CLR 25/19 A3002 RMK AO2 T02550195

KCDJ 081651Z AUTO 25005KT 26/18 A3001 RMK AO1 SLP151 T02610183

KLWD 081653Z AUTO 26005KT 10SM SCT050 BKN055 BKN070 24/19 A3001 RMK AO2 SLP156 T02390194

Submitted by:

Joshua Lindberg
Senior Air Safety Investigator