



# Aviation Investigation Final Report

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|                                |                                      |                         |                    |
|--------------------------------|--------------------------------------|-------------------------|--------------------|
| <b>Location:</b>               | Bryan, Texas                         | <b>Accident Number:</b> | CEN20LA370         |
| <b>Date &amp; Time:</b>        | August 30, 2020, 13:45 Local         | <b>Registration:</b>    | N7469P             |
| <b>Aircraft:</b>               | Piper PA24                           | <b>Aircraft Damage:</b> | Substantial        |
| <b>Defining Event:</b>         | Fuel exhaustion                      | <b>Injuries:</b>        | 3 Fatal, 1 Serious |
| <b>Flight Conducted Under:</b> | Part 91: General aviation - Personal |                         |                    |

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## Analysis

The pilot was taking three passengers for a local sightseeing flight. A security video at the airport showed the airplane took off from runway 15. There were no video recordings of or witnesses to the accident. The airplane wreckage was located on a flat grass field off of the departure end of runway 15 on airport property and sustained substantial damage to the fuselage, both wings, and the empennage.

An onsite examination of the airframe found the fuel tank selector handle in the right main position. The right main fuel cell was not damaged and did not contain fuel; however, fuel was likely available in the other three fuel tanks. Rotational signatures on the propeller were consistent with it not being driven at the time of impact. A postaccident examination of the engine revealed no preimpact mechanical malfunctions or failures that would have precluded normal operation.

Toxicology testing showed that the pilot had used the allergy medication cetirizine. Cetirizine may sometimes cause drowsiness, but whether cetirizine effects contributed to the accident could not be determined.

Based upon the available evidence, the lack of damage to the propeller is consistent with a loss of engine power and it is likely that the engine lost power shortly after takeoff. The reason for the loss of engine power was likely due to fuel starvation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A total loss of engine power on takeoff due to fuel starvation.

## Findings

|                         |                                    |
|-------------------------|------------------------------------|
| <b>Aircraft</b>         | Fuel - Fluid level                 |
| <b>Personnel issues</b> | Use of available resources - Pilot |

## Factual Information

### History of Flight

|                |                                  |
|----------------|----------------------------------|
| <b>Takeoff</b> | Fuel exhaustion (Defining event) |
| <b>Takeoff</b> | Loss of engine power (total)     |

On August 30, 2020, about 1345 central daylight time, a Piper PA-24-250 airplane, N7469P, sustained substantial damage when it was involved in an accident near Bryan, Texas. The pilot and two passengers were fatally injured, and one passenger sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to a family member, the pilot had purchased the airplane about 2 weeks before the accident and the purpose of the flight was for the pilot to take his family members sightseeing in the local area.

Security video footage at Coulter Field Airport (CFD), Bryan, Texas, showed that the airplane took off from runway 15; the video did not show the accident. The airplane wreckage was located crashed on a flat grass field off of the departure end of runway 15 on airport property.

The surviving passenger was unable to recall any events from the accident.

### Pilot Information

|                                  |   |  |                  |
|----------------------------------|---|--|------------------|
| <b>Certificate:</b>              | Private   | <b>Age:</b>                              | 53, Male         |
| <b>Airplane Rating(s):</b>       | Single-engine land  | <b>Seat Occupied:</b>                    | Left             |
| <b>Other Aircraft Rating(s):</b> | None  | <b>Restraint Used:</b>                   | Lap only         |
| <b>Instrument Rating(s):</b>     | None  | <b>Second Pilot Present:</b>             | No               |
| <b>Instructor Rating(s):</b>     | None  | <b>Toxicology Performed:</b>             | Yes              |
| <b>Medical Certification:</b>    | Class 3 With waivers/limitations  | <b>Last FAA Medical Exam:</b>            | February 7, 2020 |
| <b>Occupational Pilot:</b>       | No  | <b>Last Flight Review or Equivalent:</b> | May 14, 2020     |
| <b>Flight Time:</b>              | (Estimated) 226.4 hours (Total, all aircraft), 130.9 hours (Pilot In Command, all aircraft) |  |                  |

## Aircraft and Owner/Operator Information

|                                      |  |                                       |                  |
|--------------------------------------|--|---------------------------------------|------------------|
| <b>Aircraft Make:</b>                | Piper  | <b>Registration:</b>                  | N7469P           |
| <b>Model/Series:</b>                 | PA24 250   | <b>Aircraft Category:</b>             | Airplane         |
| <b>Year of Manufacture:</b>          | 1961   | <b>Amateur Built:</b>                 |                  |
| <b>Airworthiness Certificate:</b>    | Normal   | <b>Serial Number:</b>                 | 24-2660          |
| <b>Landing Gear Type:</b>            | Retractable - Tricycle                                     | <b>Seats:</b>                         | 4                |
| <b>Date/Type of Last Inspection:</b> | August 11, 2020 Annual                                     | <b>Certified Max Gross Wt.:</b>       | 2900 lbs         |
| <b>Time Since Last Inspection:</b>   | 6.74 Hrs   | <b>Engines:</b>                       | 1 Reciprocating  |
| <b>Airframe Total Time:</b>          | 3325.52 Hrs at time of accident                            | <b>Engine Manufacturer:</b>           | Lycoming Engines |
| <b>ELT:</b>                          | C91 installed, activated, did not aid in locating accident | <b>Engine Model/Series:</b>           | O-540-A1D5       |
| <b>Registered Owner:</b>             | On file  | <b>Rated Power:</b>                   | 250 Horsepower   |
| <b>Operator:</b>                     | On file  | <b>Operating Certificate(s) Held:</b> | None             |
| <b>Operator Does Business As:</b>    | On file  | <b>Operator Designator Code:</b>      | None             |

## Meteorological Information and Flight Plan

|   |                                  |   |                  |
|---|----------------------------------|---|------------------|
| <b>Conditions at Accident Site:</b>     | Visual (VMC)                     | <b>Condition of Light:</b>                  | Day              |
| <b>Observation Facility, Elevation:</b> | KCLL, 328 ft msl                 | <b>Distance from Accident Site:</b>         | 8 Nautical Miles |
| <b>Observation Time:</b>                | 13:53 Local                      | <b>Direction from Accident Site:</b>        | 193°             |
| <b>Lowest Cloud Condition:</b>          | Few / 5000 ft AGL                | <b>Visibility:</b>                          | 10 miles         |
| <b>Lowest Ceiling:</b>                  |                                  | <b>Visibility (RVR):</b>                    |                  |
| <b>Wind Speed/Gusts:</b>                | 5 knots / 21 knots               | <b>Turbulence Type Forecast/Actual:</b>     | None / None      |
| <b>Wind Direction:</b>                  | 140°                             | <b>Turbulence Severity Forecast/Actual:</b> | N/A / N/A        |
| <b>Altimeter Setting:</b>               | 29.78 inches Hg                  | <b>Temperature/Dew Point:</b>               | 35°C / 22°C      |
| <b>Precipitation and Obscuration:</b>   | No Obscuration; No Precipitation |   |                  |
| <b>Departure Point:</b>                 | Bryan, TX (CFD)                  | <b>Type of Flight Plan Filed:</b>           | None             |
| <b>Destination:</b>                     | Bryan, TX (CFD)                  | <b>Type of Clearance:</b>                   | None             |
| <b>Departure Time:</b>                  | 14:30 Local                      | <b>Type of Airspace:</b>                    | Class G          |

The calculated density altitude for the accident site was 3,205 ft. above mean sea level.

## Airport Information

|                             |                   |                                  |         |
|-----------------------------|-------------------|----------------------------------|---------|
| <b>Airport:</b>             | Coulter Field CFD | <b>Runway Surface Type:</b>      | Asphalt |
| <b>Airport Elevation:</b>   | 366 ft msl        | <b>Runway Surface Condition:</b> | Dry     |
| <b>Runway Used:</b>         | 15                | <b>IFR Approach:</b>             | None    |
| <b>Runway Length/Width:</b> | 4000 ft / 75 ft   | <b>VFR Approach/Landing:</b>     | None    |

## Wreckage and Impact Information

|                            |                    |                             |                          |
|----------------------------|--------------------|-----------------------------|--------------------------|
| <b>Crew Injuries:</b>      | 1 Fatal            | <b>Aircraft Damage:</b>     | Substantial              |
| <b>Passenger Injuries:</b> | 2 Fatal, 1 Serious | <b>Aircraft Fire:</b>       | None                     |
| <b>Ground Injuries:</b>    |                    | <b>Aircraft Explosion:</b>  | None                     |
| <b>Total Injuries:</b>     | 3 Fatal, 1 Serious | <b>Latitude, Longitude:</b> | 30.71567,-96.331323(est) |

An onsite examination of the airframe confirmed flight control continuity. The fuel tank selector handle was found in the right main position and was able to smoothly rotate through all the other positions with the detents plainly noted in each position. The right main fuel cell was visible from the wing root. The inboard forward portion of the right main fuel cell was observed with no tears or damage noted. Manual manipulation of the fuel cell did not reveal the presence of any usable fuel in what appeared to be the lowest portion of the fuel cell.

A postaccident examination of the engine revealed no preimpact mechanical malfunctions or failures that would have precluded normal operation. The three bladed constant speed metal propeller remained attached at the crankshaft flange. The propeller blades remained attached to the propeller hub. Rotational signatures on the propeller were consistent with it not being driven at the time of impact.

The pilot's daughter posted three photographs of the airplane on social media before the flight. One photograph, taken by the daughter sitting in the front right seat, showed the right side of the instrument panel and included the fuel gauges. Based on the image, the following estimates were established regarding the airplane's fuel status right before the accident: Left inboard fuel tank (main): About 1/4 full. Left outboard fuel tank (auxiliary): Between 1/2 to 3/4 full. Right inboard fuel tank (main): Between empty to 1/4 full. Right outboard fuel tank (auxiliary): About 3/4 full.

## Medical and Pathological Information

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The Travis County (Texas) Medical Examiner's Office, Austin, Texas, performed the pilot's autopsy. According to the autopsy report, the cause of death was blunt force injuries, and the manner of death was an accident. Toxicology testing performed by the Travis County Medical Examiner's office was negative for tested-for substances, and a vitreous chemistry was unremarkable.

The FAA Forensic Sciences Laboratory, Oklahoma City, Oklahoma, detected cetirizine in urine and at 216 nanograms per milliliter (ng/mL) in heart blood. Oxymetazoline was detected in urine but not heart blood.

Cetirizine, sometimes marketed as Zyrtec, is an antihistamine medication that is available over the counter and is commonly used to treat allergy symptoms. The intended medicinal effects of cetirizine generally occur at blood cetirizine levels ranging from about 190 ng/mL to 1450 ng/mL. Cetirizine typically carries a warning that users may experience drowsiness and should be careful when driving a motor vehicle or operating machinery. Data on psychomotor impairment from cetirizine is mixed, with some studies, but not others finding mildly impairing effects. The FAA states that pilots should not fly within 48 hours of using cetirizine and should not use it more than 1-2 times per week.

Oxymetazoline, sometimes marketed as Afrin, is a medication commonly used as a nasal decongestant spray. It is available over the counter and generally is not considered impairing.

## Additional Information

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The Piper PA-24-250 Owner's Handbook discusses preflight inspection areas for the airplane. This document discusses the fuel tanks and states for the pilot to ensure that, "the fuel tanks are full or are at a safe level of proper fuel."

The Federal Aviation Administration (FAA) Pilot's Handbook of Aeronautical Knowledge FAA-H-8083-25B discusses fuel quantity gauges and states in part:

*The fuel quantity gauges indicate the amount of fuel measured by a sensing unit in each fuel tank and is displayed in gallons or pounds. Aircraft certification rules require accuracy in*

*fuel gauges only when they read “empty.” Any reading other than “empty” should be verified. Do not depend solely on the accuracy of the fuel quantity gauges. Always visually check the fuel level in each tank during the preflight inspection, and then compare it with the corresponding fuel quantity indication.*

## Administrative Information

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|--|---|
| <b>Investigator In Charge (IIC):</b>     | Hodges, Michael   |
| <b>Additional Participating Persons:</b> | Stephen Ragin; FAA Houston FSDO; Houston, TX<br>Jon Hirsch; Piper Aircraft; Vero Beach, FL<br>Ryan Enders; Lycoming Engines; Williamsport, PA<br>Kevin Stahl; McCauley Propeller Systems; Wichita, KS |
| <b>Original Publish Date:</b>            | July 12, 2022   |
| <b>Last Revision Date:</b>               |   |
| <b>Investigation Class:</b>              | <a href="#">Class 3</a>   |
| <b>Note:</b>                             | The NTSB did not travel to the scene of this accident.  |
| <b>Investigation Docket:</b>             | <a href="https://data.ntsb.gov/Docket?ProjectID=101884">https://data.ntsb.gov/Docket?ProjectID=101884</a>   |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).