



Aviation Investigation Final Report

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|--------------------------------|--------------------------------------|-------------------------|------------|
| Location: | New Fairfield, Connecticut | Accident Number: | IAD05FA068 |
| Date & Time: | May 24, 2005, 11:19 Local | Registration: | N756PN |
| Aircraft: | Cessna R182 | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 2 Fatal |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The airplane was in cruise flight, at 4,000 feet, when the engine lost oil pressure. The pilot reported the difficulty to air traffic control, was given vectors to an airport 10 miles to the south, and cleared for a descent. About 2 minutes after the pilot's initial call, he reported the engine had seized. Unable to reach the airport, the pilot attempted the forced landing in a sports field of relatively short length. The airplane glided low over the field, but continued beyond the end where it hit trees. The airplane then impacted the ground, and a postcrash fire ensued. A subsequent examination of the engine revealed that the aluminum-clad bearings from the number two connecting rod had failed, and that the rod beam and cap had separated.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the aluminum-clad, number two connecting rod bearings, which resulted in a total loss of engine power. A factor was the relatively short forced landing area.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings

1. (C) ENGINE ASSEMBLY, BEARING - FAILURE
2. ENGINE ASSEMBLY, CONNECTING ROD - FRACTURED

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings

3. OBJECT - TREE(S)
4. (F) TERRAIN CONDITION - SHORT RUNWAY/LANDING AREA

Factual Information

HISTORY OF FLIGHT

On May 24, 2005, at 1119 eastern daylight time, a Cessna R182, N756PN, was destroyed when it impacted trees and terrain in New Fairfield, Connecticut. The certificated airline transport pilot and the passenger were fatally injured. Visual meteorological conditions prevailed, and the airplane was operating on an instrument flight rules flight plan from Malone-DuForte Airport (MAL), Malone, New York, to Long Island Mac Arthur Airport (ISP), Islip, New York. The personal flight was being conducted under 14 CFR Part 91.

A review of radio transmissions revealed that at 1115, as the airplane was approaching Danbury, Connecticut, from the north at 4,000 feet, the pilot reported "an oil pressure problem" to New York Approach Control and asked, "What's the nearest airport? We need to land." The controller responded that the closest airport was Danbury, and that it was "one o'clock and one zero miles." The pilot responded, "Papa November's heading over towards Danbury."

Shortly thereafter, the controller advised the pilot that the airport was 10 miles to the south, and to fly a heading of 180. The pilot repeated the 180 heading, and reported that he was going to start a descent and was clear of clouds. The controller then told the pilot to descend at his discretion.

The controller subsequently began to coordinate the emergency with Danbury Tower personnel via telephone, but came back on the radio frequency and cleared the airplane down to 3,000 feet, which the pilot acknowledged.

After coordinating with Danbury Tower, the controller asked the pilot for the fuel state and number of persons onboard, and the pilot responded, "We've got two hours of fuel and two onboard."

At 1117, after the controller advised that the airport was 12 o'clock and 7 miles, the pilot stated, "I think the engine is seizing here; we're not going to make the airport I don't think." About 20 seconds later, he stated, "we've lost all power."

The controller subsequently stated that the airport was at "twelve thirty, five miles," and the pilot responded, "That's not going to happen. We're going to land on a field. I've got a school off to my right. We're going to take it into a field."

The controller then stated that he'd "advise everyone of [the pilot's] intentions," and provided the pilot with the Danbury Tower frequency. The pilot responded, "Okay, I'm not going to make Danbury, we're not going to make Danbury," then stated, "I've got a ah, looks like a field down

here to my right. Looks like about the best I can do. Doesn't look very long but we're going to land in a field."

The controller then asked if the pilot had any landmarks "in sight that we can pass along [unintelligible], and the pilot responded, "Nah, looks like a school or something over here."

There were no further transmissions from the pilot.

A witness to the accident reported seeing the airplane "very low," heading from west to east. The witness first thought the airplane was a glider because he could not hear an engine. He also thought the pilot was trying to land the airplane in a "sports field" next to a school driveway, and the airplane appeared to be "about 12 feet off the ground." However, the airplane was still airborne when it reached the opposite end of the field, and "went up at a steep climb. It then clipped the top of [some] trees and went straight down."

Another witness saw the airplane "flying very low. It was over a field, and it appeared that the pilot was attempting to gain altitude and clear the trees on the other side of the field. The plane then clipped the top of the trees by about 10 feet, then appeared to go straight down. I then heard a loud noise."

The accident occurred during daylight hours, in the vicinity of 41 degrees, 27.55 minutes north latitude, and 073 degrees, 30.07 minutes west longitude.

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate with an airplane multiengine land rating, and a commercial airplane single engine land rating. The pilot was also a certificated flight instructor. On the application for his latest Federal Aviation Administration (FAA) third class medical certificate, issued July 20, 2004, the pilot reported 2,800 hours of flight time.

The pilot was also an FAA air traffic controller.

AIRCRAFT INFORMATION

The airplane, which was manufactured in 1979, was powered by a Lycoming O-540 series engine. According to maintenance records, the engine was factory overhauled in June 1998.

In December 1999, the engine was "disassembled, cleaned, inspected, repaired as necessary for a prop strike, reassembled and test cell run" at Teledyne Mattituck Services, Incorporated, Mattituck, New York. The tachometer reading at the time was 4518.9, and time since the last overhaul was 462 hours.

On March 18, 2005, the engine had a 100-hour inspection, which, according to the mechanic, included changing and inspecting the oil filter. The mechanic also reported that no metal

chips were seen in the filter at that time. The airplane's tachometer reading on that date was 6,104 hours, and the time since the last overhaul was 2,046 hours.

The estimated time between the 100-hour inspection and the accident was 45-50 hours. The engine was not on an oil analysis program.

METEOROLOGICAL INFORMATION

Weather, reported at Danbury Airport at 1115, included variable winds at 3 knots, 10 statute miles visibility, ceiling 3,900 feet above the ground, temperature 55 degrees Fahrenheit, dew point 45 degrees Fahrenheit, and an altimeter setting of 29.65 inches of mercury.

An FAA inspector, who was flying in the vicinity of the accident just after it occurred, noted that the smoke from a postimpact fire rose vertically.

WRECKAGE AND IMPACT INFORMATION

The wreckage site was located near an approximately 600-foot by 400-foot sports field. The field was sectioned, approximately in half, by a baseball field surrounded by chain link fence. A stand of trees was located at the southeast corner of the sports field, beginning about 40 feet from the field's perimeter fence. One tree, at the beginning of the stand, had the top sheered off about 60 feet above the field elevation. Another tree, with about a 1-foot diameter trunk, located 125 degrees magnetic and about 60 feet from the first tree, also had sheered branches. Near the base of the second tree was the wreckage of the airplane.

The airplane had been mostly consumed by fire. Remnants remained of the left wing and tail section. All flight controls were accounted for at the scene, and control continuity was confirmed to where all flight control surfaces would have been.

All cockpit instruments were destroyed in the postimpact fire.

The engine sustained fire damage, and there was one hole in the top of the crankcase and one in the bottom, in the vicinity of the No. 2 cylinder. The oil sump was burned away and the oil suction screen was missing.

None of the three propeller blades exhibited significant chordwise scratching or leading edge nicks. One of the blades was bent beneath the engine.

On May 26, 2005, an engine examination was conducted under Safety Board supervision at the Lycoming Engines plant, Williamsport, Pennsylvania. During the examination, the No. 2 connecting rod beam was found fractured, and the rod cap and connecting bolts were missing.

When the two halves of the engine were separated, the No. 2 connecting rod bearing was missing, the No. 3 and No. 5 bearings were heavily scored and extruded, and the No. 4 bearing

was heavily scored. All of the rod bearings exhibited heat damage.

The oil pump exhibited internal scoring, the screen from the engine to the propeller governor had metal particles on the engine inlet side, and the oil filter paper contained metal particles within the folds.

On-site electron microscopic examination of the particles on the propeller governor screen revealed properties consistent with aluminum bearing material and steel bearing-backing material.

MEDICAL AND PATHOLOGICAL INFORMATION

On May 25, 2005, an autopsy was conducted on the pilot at the State of Connecticut, Office of the Chief Medical Examiner, Farmington, Connecticut. Toxicological testing was subsequently performed at the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma.

ADDITIONAL INFORMATION

Bearing Information

According to the December 1999 build-up list, Superior Air Parts rod bearings, SL-13521 were used during the Mattituck inspection and reassembly.

Lycoming Engines had also been using a similar bearing, LW-13212. Further research revealed that the Superior bearing and the Lycoming bearing were essentially identical, and were aluminum-clad bearings manufactured by KS Bearings, Inc.

According to a representative of Lycoming Engines, the company had utilized the aluminum clad bearings for over 30 years, "with successful service experience." However, "in recent years, there were some noticeable increases in abnormal bearing wear that prompted Lycoming to move to new copper cast bearing with improved fatigue life. Lycoming engines has recalled aluminum-clad bearings from our distributor stocks and has not provided them as spares for several years."

On September 23, 2004, Lycoming Engines issued Service Instruction 1512, "Main and Connecting Rod Bearing Upgrade," which "requires the use of the upgraded bearing whenever new bearings are installed."

On May 2, 2007, Superior Air Parts issued Service Bulletin B07-03, which referred to Lycoming's Service Instruction, and stated that its bearings were also to be replaced whenever new bearings were installed.

Wreckage Release

On May 26, 2005, the engine was released for shipment to the recovery company. On September 12, 2005, the airframe release was acknowledged by a representative of the owner's insurance company.

Pilot Information

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| Certificate: | Airline transport; Flight instructor | Age: | 60, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane single-engine | Toxicology Performed: | Yes |
| Medical Certification: | Class 3 | Last FAA Medical Exam: | July 1, 2004 |
| Occupational Pilot: | UNK | Last Flight Review or Equivalent: | |
| Flight Time: | 2800 hours (Total, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Cessna | Registration: | N756PN |
| Model/Series: | R182 | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | R18201125 |
| Landing Gear Type: | Tricycle | Seats: | 4 |
| Date/Type of Last Inspection: | September 1, 2004 100 hour | Certified Max Gross Wt.: | 3100 lbs |
| Time Since Last Inspection: | 45 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 6150 Hrs at time of accident | Engine Manufacturer: | Lycoming |
| ELT: | Installed, not activated | Engine Model/Series: | O-540 |
| Registered Owner: | GACE Flying Club, Inc. | Rated Power: | 235 Horsepower |
| Operator: | | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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|---|----------------------------------|---|------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | DXR,455 ft msl | Distance from Accident Site: | 7 Nautical Miles |
| Observation Time: | 11:15 Local | Direction from Accident Site: | 180° |
| Lowest Cloud Condition: | | Visibility | 10 miles |
| Lowest Ceiling: | Overcast / 3900 ft AGL | Visibility (RVR): | |
| Wind Speed/Gusts: | 3 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.64 inches Hg | Temperature/Dew Point: | 13°C / 7°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Malone, NY (MAL) | Type of Flight Plan Filed: | IFR |
| Destination: | Islip, NY (ISP) | Type of Clearance: | IFR |
| Departure Time: | | Type of Airspace: | Class E |

Wreckage and Impact Information

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|----------------------------|---------|-----------------------------|----------------------|
| Crew Injuries: | 1 Fatal | Aircraft Damage: | Destroyed |
| Passenger Injuries: | 1 Fatal | Aircraft Fire: | On-ground |
| Ground Injuries: | N/A | Aircraft Explosion: | On-ground |
| Total Injuries: | 2 Fatal | Latitude, Longitude: | 41.459167,-73.501113 |

Administrative Information

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| Investigator In Charge (IIC): | Cox, Paul |
| Additional Participating Persons: | Mark Hesselton; FAA/FSDO; Windsor Locks, CT Aaron Spotts; Textron Lycoming ; Williamsport, PA David Shonka; Cessna Aircraft Company; Wichita, KS Jason Lukasik; Teledyne Continental (Mattituck); Mobile, AL |
| Original Publish Date: | July 25, 2007 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | The NTSB traveled to the scene of this accident. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=61536 |

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](#).