



National Transportation Safety Board Aviation Accident Final Report

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|--------------------------------|--------------------------------------|-------------------------|--------------------|
| Location: | PRENTISS, MS | Accident Number: | MIA94FA064 |
| Date & Time: | 02/03/1994, 0546 CST | Registration: | N6572M |
| Aircraft: | CESSNA T210M | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 2 Fatal, 1 Serious |
| Flight Conducted Under: | Part 91: General Aviation - Personal | | |

Analysis

THE COMMERCIAL PILOT WAS IN CRUISE FLIGHT AT 6,500 FEET AGL AT NIGHT WHEN HE BEGAN TO EXPERIENCE ENGINE PROBLEMS. THE PILOT INFORMED ATC AND STATED HE HAD AN AIRPORT STRAIGHT AHEAD AT ABOUT 11 MILES. ATC INFORMED THE PILOT THE AIRPORT WAS 15 MILES ON A HEADING OF 275 DEGREES. THE PILOT STATED HIS ENGINE WAS DEAD, DECLARED AN EMERGENCY, AND INITIATED A FORCED LANDING TOWARDS THE AIRPORT. THE AIRPLANE COLLIDED WITH TREES AND TERRAIN ABOUT 6 MILES EAST OF THE AIRPORT. THE AIRPLANE WAS CONSUMED BY POSTCRASH FIRE. EXAMINATION OF THE ENGINE REVEALED THE NUMBER FIVE PISTON CROWN STRUCTURE HAD SUSTAINED DETONATION/PRE-IGNITION DAMAGE FOR UNDETERMINED REASONS. THE NUMBER TWO CONNECTING ROD AND ROD BOLTS FAILED DUE TO AN OIL DISTRESS EVENT.

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 due to the number five piston crown structure sustaining detonation/pre-ignition damage for undetermined reasons. The number two connecting rod and rod bolts failed due to an oil distress event. This resulted in a subsequent in-flight collision with trees and terrain while attempting a forced landing at night.

Findings

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

Findings

1. ENGINE ASSEMBLY,PISTON - BURNED
2. ENGINE ASSEMBLY,PISTON - OPEN
3. (C) ENGINE ASSEMBLY,PISTON - UNDETERMINED
4. LUBRICATING SYSTEM - FOULED
5. ENGINE ASSEMBLY,CONNECTING ROD - OVERTEMPERATURE
6. ENGINE ASSEMBLY,CONNECTING ROD BOLT - OVERLOAD
7. ENGINE ASSEMBLY,CONNECTING ROD BOLT - SEPARATION

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

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

Findings

8. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On February 3, 1994, about 0546 central standard time, a Cessna T210M, N6572M, registered to D and D Manufacturing and Millwright Service, operating as a 14 CFR Part 91 personal flight, crashed in the vicinity of Prentiss, Mississippi. The airplane experienced a total loss of engine power while in cruise flight, and a forced landing was initiated. The airplane collided with trees and was destroyed by a postcrash fire. The commercial pilot and one passenger were fatally injured. One passenger sustained serious injuries. Visual meteorological conditions prevailed and a VFR flight plan was filed. The flight originated from Macon, Georgia, about 2 hours 11 minutes before the crash.

The survivor of the plane crash stated, he and the other passenger were sleeping when the pilot woke them up and informed them they were having engine problems. The engine was running rough and the engine oil temperature or cylinder head temperature was hot with the gauge indicating all the way to the right. The engine quit and the pilot tried to restart the engine several times without success. Just before the crash the pilot made a left turn, the airplane collided with trees and the ground and caught on fire. He exited the airplane through the windshield, and sustained serious thermal injuries. The pilot and other passenger did not get out of the airplane.

Transcripts of recorded communication between Houston center and N6572M, revealed that N6572M was VFR at 6,500 feet. At 0539:41, N6572M informed Houston center that he was having a little engine problem, and stated that he had an airport straight ahead at about 11 miles. Houston center informed the pilot the airport was on a 275 heading and 15 miles from his position. At 0541:10, N6572M reported my engine is out. The last recorded communication with N6572M was at 0545:00, and radar contact was lost at 0545:35, 5 miles east of the Prentiss Jefferson Davis Airport, Prentiss, Mississippi. Houston center requested the pilot of another airplane to attempt radio contact with N6572 which was uneventful. The pilot was requested to overfly the last known position of N6572 and see if he could locate the airplane. At 0554:54, the pilot informed Houston center that he was circling a fire on the ground, and then relayed directions through Houston center to emergency vehicles proceeding to the crash site.

A witness observed the airplane descending towards the west at about 0545, with the landing and navigation lights on. The witness did not hear any engine noise, and watched the airplane until it disappeared from view.

PERSONNEL INFORMATION

The pilot's logbook was consumed by postcrash fire. Additional information pertaining to the pilot-in-command, David K. Chapman, is contained in NTSB Form 6120.1/2 and NTSB Form 6120.4.

AIRCRAFT INFORMATION

Information pertaining to aircraft information is contained in NTSB Form 6120.4

METEOROLOGICAL INFORMATION

Visual meteorological conditions prevailed at the time of the accident. For additional

weather information, see NTSB Form 6120.4.

WRECKAGE AND IMPACT INFORMATION

The wreckage of N6572M was located about 5 miles east of Prentiss, Mississippi, west of St. Stephens Road.

Examination of the crash site revealed the left wing tip and left elevator collided with a tree while in a descending left turn about 80 feet above the base of the tree. The airplane continued forward about 236 feet. The left and right wing collided with trees about 30 feet above the base of the trees. The left and right fuel tanks were ruptured. The airplane collided with the terrain and came to rest on its left side on a heading of 142 degrees magnetic about 286 feet from the initial point of impact. The airplane was consumed by postcrash fire.

Examination of the propeller, airframe, and flight control system revealed no evidence to indicate any precrash mechanical failure or malfunction. Both header fuel tanks were consumed by postcrash fire. There was no evidence of torsional twisting or "s" bending on the propeller blades. Two propeller blades were bent aft and the remaining propeller blade was not damaged. All components necessary for flight were present at the crash site. Continuity of the flight control system was confirmed for pitch, roll, and yaw.

Examination of the engine revealed the No. 5 piston was burned through on the top portion of the crown structure under the steel insert to the piston interior. The characteristics of the burned area were typical of detonation/preignition; the cause/sources of the apparent detonation/preignition could not be determined. Additionally, the No. 2 connecting rod was separated from the crankshaft; the connecting rod bolts fractures featured neck down and overheat characteristics. All remaining connecting rods exhibited extreme temperatures as evidenced by the dryness and discoloration externally on the rod cap and beam. The connecting rod bearings were burned and the connecting rod bearing steel backing were extruded from the connecting rod caps. The engine oil was dark and a burned odor was present. There was no evidence of a precrash mechanical failure or malfunction of the engine accessories. See Teledyne Continental Motors Analytical Inspection Report.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot, David K. Chapman, was conducted by Dr. Steven T. Hayne, Mississippi State Medical examiner's office, Jackson, Mississippi, on February 3, 1994. The cause of death was smoke inhalation. Postmortem toxicology studies of specimens from the pilot were performed by the Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma. These studies were negative for neutral, and acidic drugs. Atenolol (0.148 ug/ml) was detected in the blood and urine. The source of the drug was not determined. Acetaminophen (5.500 ug/ml) was detected in the urine. Review of airman records on file with the Aeromedical Certification Division, Oklahoma City, Oklahoma, revealed the pilot had recorded on his application for a second class medical certificate dated January 29, 1993, that he did not currently use any medication. In addition he recorded that he did not have a history of high or low blood pressure.

TEST AND RESEARCH

An oil sample was submitted to the Shell Development Company for analysis. The results indicated that the oil was relatively typical of a used AEROSHELL OIL W 100 oil with some oxidation and a very high level of metals and dirt contamination. The viscosity of the oil was

20.6 at 100 degrees centigrade. The normal target viscosity is 19.5 to 20. The metal analysis revealed the sample contained 80 ppm silicon, 500+ ppm iron, 180+ ppm chrome, 150+ ppm nickel, and 980+ ppm aluminum, which indicates a total engine failure. The Teledyne Continental Motors Analytical Inspection Report states in part, "This aluminum would be material from the number 5 piston, indicating the piston burn through event was initiated prior to the oil distress event experienced by this powerplant." See Teledyne Continental Motors Analytical Inspection Report.

ADDITIONAL INFORMATION

The wreckage was released to Jimmie M. Rickerson, Aeronautical Investigations, Inc., Lawrenceville, Georgia, on February 4, 1994. The engine was released to Fred H. Fine, Product Analysis, Teledyne Continental Motors, Mobile, Alabama, on March 24, 1994.

Pilot Information

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|----------------------------------|---|--|----------------------------|
| Certificate: | Flight Instructor; Commercial | Age: | 36, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | Seatbelt, Shoulder harness |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane Multi-engine; Airplane Single-engine; Instrument Airplane | Toxicology Performed: | Yes |
| Medical Certification: | Class 2 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | 01/29/1993 |
| Occupational Pilot: | | Last Flight Review or Equivalent: | |
| Flight Time: | 6500 hours (Total, all aircraft), 8 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--------------------------------|---|-----------------|
| Aircraft Make: | CESSNA | Registration: | N6572M |
| Model/Series: | T210M T210M | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | 21061977 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 5 |
| Date/Type of Last Inspection: | 09/10/1993, 100 Hour | Certified Max Gross Wt.: | 3800 lbs |
| Time Since Last Inspection: | 120 Hours | Engines: | 1 Reciprocating |
| Airframe Total Time: | 2726 Hours | Engine Manufacturer: | CONTINENTAL |
| ELT: | Installed | Engine Model/Series: | TSIO-520R |
| Registered Owner: | D & D MANU & MILLWRIGHT SVC | Rated Power: | 310 hp |
| Operator: | D & D MANU & MILLWRIGHT SVC | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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|---|-----------------------|---|-------------------|
| Conditions at Accident Site: | Visual Conditions | Condition of Light: | Night/Dark |
| Observation Facility, Elevation: | MCB, 413 ft msl | Distance from Accident Site: | 25 Nautical Miles |
| Observation Time: | 0555 CST | Direction from Accident Site: | 220° |
| Lowest Cloud Condition: | Unknown / 0 ft agl | Visibility | 7 Miles |
| Lowest Ceiling: | Broken / 15000 ft agl | Visibility (RVR): | 0 ft |
| Wind Speed/Gusts: | / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 30 inches Hg | Temperature/Dew Point: | -2°C / -3°C |
| Precipitation and Obscuration: | | | |
| Departure Point: | MACON, GA (MCN) | Type of Flight Plan Filed: | VFR |
| Destination: | SAN ANTONIO, TX (SAT) | Type of Clearance: | None |
| Departure Time: | 0435 EST | Type of Airspace: | Class G |

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC): CARROL A SMITH **Report Date:** 12/07/1994

Additional Participating Persons: DALE CARTER; MOBILE, AL
RALPH K WETHERELL; WICHITA, KS
MELVIN R ATHEY JR.; JACKSON, MS

Publish Date:

Investigation Docket: NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).