



Aviation Investigation Final Report

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|--------------------------------|--------------------------------------|-------------------------|------------------|
| Location: | Ludington, Michigan | Accident Number: | CEN10FA465 |
| Date & Time: | July 23, 2010, 10:17 Local | Registration: | N82531 |
| Aircraft: | Cessna U206F | Aircraft Damage: | Substantial |
| Defining Event: | Loss of engine power (total) | Injuries: | 4 Fatal, 1 Minor |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The pilot reported that he was crossing Lake Michigan at 10,000 feet above mean sea level when the engine lost power. He was near the mid-point (about 24 miles from the shoreline) of the lake with a 40-knot headwind, so he turned around to return to shore. He attempted to restart the engine but was unsuccessful. The pilot ditched the airplane about 5 miles from shore and it quickly sank. Postaccident inspection of the airplane revealed that the firewall fuel strainer gasket did not provide a complete seal between the fuel screen and the fuel strainer's upper body. A portion of the gasket was positioned over the exit port, which created a gap. This allowed debris in the fuel to migrate to the engine's fuel inlet filter screen in the fuel metering assembly. The inspection of the fuel inlet filter screen revealed that it was partially obstructed with debris. The orifice of the fuel inlet passage contained the same debris that obstructed the flow of fuel through the orifice to the fuel screen. The airplane had undergone an annual maintenance inspection about 7.5 hours prior to the accident. The mechanic, who had an inspection authorization, reported that he did not inspect the gasket on the firewall fuel strainer, nor did he remove and inspect the fuel inlet filter screen as required by the manufacturer's service manual. The debris was composed of materials similar to wood chips, sawdust, paint, varnish, cloth, glass fibers, metal shavings, sand, and soil. The source of the contaminants was not determined. The postaccident inspection revealed no other preexisting airframe anomalies. The engine was run on a test stand and the engine produced the rated horsepower. The airplane's owner's manual indicated that the glide distance for an airplane at 10,000 feet above the water's surface was 15 miles.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total loss of engine power due to fuel starvation as a result of accumulated debris in the

fuel system from an undetermined source. Also causal was the inadequate annual maintenance inspection that did not include inspection of the firewall fuel strainer and the fuel inlet screen.

Findings

| | |
|-------------------------|------------------------------------------------------|
| Aircraft | Fuel filter-strainer - Inadequate inspection |
| Aircraft | Fuel filter-strainer - Malfunction |
| Personnel issues | Scheduled/routine inspection - Maintenance personnel |

Factual Information

History of Flight

| | |
|--------------------------|-----------------------------------------------|
| Enroute-cruise | Loss of engine power (total) (Defining event) |
| Emergency descent | Ditching |

HISTORY OF FLIGHT

On July 23, 2010, at 1017 eastern daylight time (edt), a Cessna U206F, N82531, sustained substantial damage when it was ditched in Lake Michigan about 5 miles west of Ludington, Michigan, after a loss of engine power. The airplane was owned and operated by the pilot as a personal flight under 14 Code of Federal Regulations Part 91. It departed the Gratiot Community Airport (AMN), Alma, Michigan, at 0850 and was en route to Rochester International Airport (RST), Rochester, Minnesota. The single-engine airplane was over Lake Michigan at 10,000 feet above mean sea level (msl) when the engine lost power. The pilot reversed course but was unable to reach the shore, and he ditched the airplane. The pilot survived and was rescued by a fishing boat about 38 minutes later. The pilot rated passenger and three other passengers did not survive. Visual meteorological conditions prevailed at the time of the accident. An instrument flight rules (IFR) flight plan was activated.

On July 23, 2010, about 0659, the pilot rated passenger called the Princeton Automated Flight Service Station to obtain a weather brief and to file an IFR flight plan. The briefer informed him that there was an airmen's meteorological information (AIRMET) for IFR conditions for the entire route of flight that was valid until about 1100 - 1400. There was a Convective significant meteorological information (SIGMET) to the south that paralleled the route of flight. The briefer reported that the winds aloft were from 260 degrees at 41 knots at 9,000 feet, and 270 degrees at 35 knots at 12,000 feet. The pilot rated passenger filed the flight plan and identified the flight as a "lifeguard" flight.

The pilot reported that the purpose of the flight was to take one of the passengers to the Mayo Clinic in Rochester, Minnesota, for medical treatments. The flight was a personal flight and was not associated with a charity organization. The patient and his wife were seated in the aft seats, seats 5 and 6. The patient's doctor was sitting in the middle row on the left in seat 3. The pilot was in the left front seat and the pilot rated passenger was in the right front seat, seat 2. The fuel tanks were filled to capacity the night before the flight. The pilot reported that after climbing to 10,000 feet msl, he leaned the fuel mixture to approximately 14 gallons per hour (gph).

The pilot reported that all of the instrument readings were within normal limits as they crossed the shore near Ludington, Michigan. The head winds were about 40 knots "directly on the nose." Near mid-point over the lake (about 24 statute miles from the shoreline), the engine

began to misfire and lose power, with the fuel flow dropping to about 11 gph. The pilot attempted to regain power by pushing in the mixture control to full rich but without effect. About 1005, the pilot contacted the Minneapolis Air Route Traffic Control Center (ARTCC) and reported that the airplane was losing power. He reversed course toward the Michigan shoreline. The fuel flow dropped to about 8 gph. The pilot switched fuel tanks and adjusted the mixture control in and out to try to regain power. He attempted to prime the engine but that had no effect. He reported that he turned on the high boost pump and got a short burst of power for about 30 - 45 seconds, but then the engine "failed completely."

The airplane descended through a cloud layer. About 1012, the airplane was about 12 miles from Ludington and about 2,300 feet above mean sea level (msl) and the airplane was still in the clouds. The surface weather at Ludington indicated that the cloud bases were at 1,800 feet msl. The pilot reported that they had a few minutes before water impact after breaking out of the clouds, so he had everyone don and inflate their life vests. Before impact, the pilot unlatched the pilot's door on the left side of the airplane, and he had the front door of the rear cargo door unlatched. The pilot reported that he did not lower the flaps since the cargo doors would not open if the flaps were extended.

The pilot reported that when he ditched the airplane, either the tail or the landing gear hit the water as he pulled up to go over a swell. The airplane pitched forward, flipped over on its back, and began to fill with water. The pilot unbuckled his seat belt and shoulder harness, fell a short distance, pushed the door open, and got out. He reported that the airplane was sinking rapidly. He saw the right seat passenger and the doctor in the water. A wave hit the pilot and when he resurfaced "everything was gone." He kept yelling but got no response. He eventually started to swim toward the shoreline. About 30 minutes later a US Coast Guard helicopter flew over him but they did not spot him. A few minutes later a fishing boat spotted him and rescued him from the water. He was transferred to a Coast Guard vessel and was taken to shore.

Using side scanning sonar, the Michigan State Police Dive Team located the airplane in about 173 feet of water on July 30. The dive team recovered all the bodies, with the last body being recovered on the morning of August 1, 2010.

The airplane was found resting on its main landing gear on the sandy lake bottom. The airframe and engine were separated by the water impact. Both were raised to the surface by a local commercial recovery service on August 1, 2010. The airframe and engine were taken to a local facility where the National Transportation Safety Board (NTSB) conducted its on-site investigation.

PERSONNEL INFORMATION

The 66-year-old pilot held a private pilot certificate with a single-engine land and airplane instrument ratings. He reported that he had 2,660 total flight hours with 1,200 hours in a Cessna 206. He had logged 25 hours of flight time in the last 90 days, and 7 hours in the last 30 days. He held a third-class medical certificate that was issued in November 2008.

The pilot reported that he had flown similar "lifeguard" flights in the airplane with the pilot rated passenger in the past. He reported that the pilot rated passenger performed copilot duties when he flew with him. The pilot rated passenger also owned an airplane. When they flew in the pilot rated passenger's airplane, the accident pilot would perform copilot duties.

The 70-year-old pilot rated passenger held a private pilot certificate with a single-engine land and airplane instrument ratings. He held a third-class medical certificate that was issued on November 17, 2009. He had 2,150 hours of total flight time at the time of his medical examination.

AIRCRAFT INFORMATION

The airplane was a single-engine Cessna U206F, serial number U-206-01734, manufactured in 1972. It was designed to seat six and it had a maximum gross weight of 3,600 pounds. The airplane was equipped with a pilot (left) side door and a clamshell rear door serving the back two rows of seats. The accident airplane had its middle, right seat (Seat 4) removed. The engine was a 300-horsepower Continental IO-520-F3B, serial number 280171R.

Annual Inspections

The airplane's maintenance logbooks indicated that four different inspection authorization (IA) mechanics had conducted the required annual maintenance inspections on the airplane within the last ten years. The logbooks indicated that the same IA mechanic had performed the last three annual maintenance inspections. On September 27, 2007, the IA mechanic performed his first annual maintenance inspection of the airplane. The total airframe time was 3,893.4 hours. His second annual inspection of the airplane was conducted on October 1, 2008, and the airplane had a total time of 3,908.1 hours. The last annual maintenance inspection was conducted on November 5, 2009, and it had a total time of 3,938.0 hours. At the time of the accident, the airplane had flown 7.5 hours since the last inspection and had a total time of 3,945.5 hours.

FAA inspectors interviewed the IA mechanic concerning the annual maintenance inspections he had conducted on the accident airplane. According to the FAA inspectors, the IA mechanic reported that he used the inspection checklists provided by the pilot/owner in order to conduct the annual maintenance inspections. The pilot/owner provided the IA mechanic with the Cessna Service Manual for "Stationair Series, Skywagon 206 Series and Super Skylane Series, 1969 thru 1971." The service manual indicated the items that needed to be inspected during a 50-hour inspection and 100-hour (annual) inspection. In the section of the checklist covering the "Engine Compartment," Item 29 states that the "Fuel-air control unit screen" is required to be checked during every 100-hour inspection. In the section of the checklist covering the "Fuel System," Item 2 states that the "Fuel strainer screen and bowl" is required to be checked during every 100-hour inspection.

The Cessna Service Manual provides the following information about the fuel strainer:

"Section 13-42. FUEL STRAINER DISASSEMBLY. (See figure 13.9.) To disassemble and assemble the strainer, proceed as follows:

- a. Turn off fuel selector valve.
- b. Disconnect strainer drain tube and remove safety wire, nut, and washer at bottom of filter bowl and remove bowl.
- c. Carefully unscrew standpipe and remove.
- d. Remove filter screen and gasket. Wash filter screen and bowl in solvent (Federal Specification P-S-661, or equivalent) and dry with compressed air.
- e. Using a new gasket between filter screen and top assembly, install screen and standpipe. Tighten standpipe only finger tight.
- f. Using all new O-rings, install bowl. Note that step-washer at bottom of bowl is installed so that step washer seats against O-ring. Connect strainer drain tube.

The engine manufacturer's "Operator's Manual for IO-520 Series Aircraft Engines, FAA Approved September 1980," also provided a checklist for 100-hours inspections of the engine. Item 14 of the 100-hour inspection checklist stated: "Fuel Metering Unit Inlet Screen: Inspect and clean."

According to the FAA inspectors, the IA mechanic reported that during the last annual inspection of the fuel strainer screen and bowl, he removed the bowl and found some water in it, but he did not remove the screen or gasket. According to the FAA, he also stated several times during the interview that he never checks the fuel metering inlet fuel screen, and that he did not check it during the last annual inspection.

The aircraft logbook indicated that during the annual maintenance inspection on May 20, 2004, the following entry was made by a different IA mechanic: "Replaced fuel strainer cable assy [assembly] and replaced strainer screen assy [assembly]." The engine logbook for the same annual inspection had this entry: "Removed engine primer system and capped at engine."

METEOROLOGICAL INFORMATION

At 0955, the observed surface weather observation at Ludington (LUD), Michigan, was: wind 290 degrees at 6 knots with gusts to 17 knots; visibility 10 miles; ceiling 1,800 feet overcast; temperature 24 degrees Celsius; dew point 22 degrees Celsius; altimeter 29.81 inches of mercury.

At 1016, the observed surface weather observation at Ludington (LUD), Michigan, was: wind 270 degrees at 7 knots; visibility 10 miles; ceiling 1,600 feet overcast; temperature 24 degrees Celsius; dew point 22 degrees Celsius; altimeter 29.82 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The postaccident inspection of the airframe and engine occurred on August 2 - 3, 2010. The inspection revealed that the fuselage was intact; however, the empennage was partially separated with extensive wrinkling and bending around the tailcone section aft of the rear seats. Some of the damage to the empennage was a result of the recovery effort. Both wingtips exhibited aft crushing. The engine was separated from the fuselage. The nose landing gear was separated from the fuselage and not recovered. All flight control surfaces remained attached to the airframe structure. Flight control cable continuity was established from all flight controls to all the primary and secondary flight control surfaces. The elevator trim tab measurement equated to about 10 degrees up. The flaps were found down about 30 degrees. The flap indicator and flap switch were found at the 20 degree position. The push pull rods to lift the flaps were cut by rescue divers during the recovery of the bodies. The rear cargo doors were found in the closed position, but they opened and closed normally. The key was still in the ignition and on the "Both" position.

The inspection of the airplane's fuel system revealed that about 60 gallons of fuel remained in the wing fuel tanks, about 30 gallons in each side. About the first five gallons drained from the wings appeared to be a mixture of fuel and water. The remaining liquid drained was light blue in color and appeared to be aviation fuel. Both wing fuel bladder tanks and exit port screens were clean. The fuel boost pump was removed and drained of water. The boost pump operated when it was powered by a 12 volt battery. The airplane was equipped with the optional fuel primer and the fuel primer control lever in the cockpit; however, the fuel line was capped-off (not operational) at the firewall.

The inspection of the firewall fuel strainer revealed that the gasket did not provide a complete seal between the fuel screen and upper body. Instead, a portion of the gasket was positioned over the exit port which created a gap between the fuel screen and the upper body of the fuel strainer.

The inspection of the engine revealed that all the cylinders and engine accessories remained attached to the crankcase. Oil was present in the engine. The crankshaft was rotated and drive train continuity to the cylinders and accessories was confirmed. All damage observed was consistent with impact. The propeller remained attached to the engine crankshaft flange. Both propeller blades exhibited aft bending toward the non-cambered side of the propeller blade.

The inspection of the engine's throttle and fuel metering assembly revealed that the fuel inlet filter screen was safety wired. The safety wire was removed and the fuel inlet screen was removed from the fuel metering assembly. The removal of the fuel inlet screen required a consistent pull (it did not come out freely) to remove it. The visual inspection of the inlet screen revealed that it was partially obstructed by debris that had become attached to the screen. The orifice of the fuel inlet passage was inspected. It contained the same debris material that obstructed the fuel screen and the debris blocked a majority of the orifice opening.

The firewall fuel strainer, the fuel inlet screen, and debris found in the fuel inlet screen were

sent to the NTSB Materials Laboratory for examination. The engine was shipped to the engine manufacturer for further inspection.

MEDICAL AND PATHOLOGICAL INFORMATION

No autopsies were performed.

SURVIVAL ASPECTS

The pilot reported that he used the life vests that were in the pilot rated passenger's airplane since he could not find his life vests the night prior to the flight. He put the life vests in the seat pockets so that they would be accessible to the passengers. He reported that the passengers donned their life vests during the descent prior to water impact. He had the pilot rated passenger take the controls momentarily while he donned his life vest. He stated that he heard "a couple of the vests go off" while still inside the airplane.

During recovery of the airplane and its occupants, the patient and his wife were found in the airplane with the patient still seated in seat 6. The patient still had his vests on, but the wife's vest had come off and it was found in the airplane. Both life vests were deflated when the bodies were recovered. The pilot rated passenger and the patient's doctor were found on the lake bottom within 50 yards of the airplane. The doctor still had his vest on but in a deflated condition. The pilot rated passenger was not wearing a life vest. A life vest was found near the copilot's seat, seat 2, in a deflated condition.

The inspection of the life vests revealed that they were manufactured in the 1980's and the CO2 cartridges used to inflate the vests were also manufactured in the 1980's. The inspection of the life vests revealed that passenger life vests had one CO2 cartridge attached to the vest. All the cartridges were found expended during the on-site inspection. The pilot's vest had two CO2 cartridges but only one cartridge had been expended. The pilot reported that he was not aware that the vest had two cartridges.

Search Conditions

According to the Mason County Sheriff's Department, the weather was cloudy with good visibility during the initial on-scene search for the wreckage and survivors. The water temperature was between 68 and 72 degrees Fahrenheit on the surface with 2 to 4 foot seas. The waters current appeared to be moving north towards Big Sauble Lighthouse, and then moving to the northwest from the lighthouse.

Cessna Stationair Owner's Manual

The Cessna Stationair Owner's Manual provided information and procedures for emergency landing without engine power, ditching, clamshell cargo doors, cargo door emergency exit procedures, and glide distance.

Emergency Landing Without Engine Power

The Emergency Procedure section of the airplane Owner's Manual provides the procedures for "Emergency Landing Without Engine Power." The procedure stated the following:

If an engine stoppage occurs, establish a flaps up glide at 85 MPH. If time permits, attempt to restart the engine by checking for fuel quantity, proper fuel selector valve position, and mixture control setting. Also check that engine primer is full in and locked and ignition switch is properly positioned.

If all attempts to restart the engine fail and a forced landing is imminent, select a suitable field and prepare for the landing as follows:

1. Pull mixture control to idle cut-off position.
2. Turn fuel selector valve "OFF".
3. Turn off all switches except master switch.
4. Approach at 90 MPH.
5. Extend wing flaps as necessary with gliding distance of field
6. Turn off master switch.
7. Unlatch cabin doors prior to final approach.
8. Land in a slightly tail-low attitude.
9. Apply heavy braking.

Ditching

The Emergency Procedure section of the airplane Owner's Manual provides the procedures for "Ditching." The ditching procedures state:

1. Plan approach into wind if winds are high and seas are heavy. With heavy swells and light wind, land parallel to swells.
2. Approach with flaps 40 degrees and sufficient power for a 300 ft./min rate of descent at 75 MPH.
3. Unlatch the cabin door.
4. Maintain a continuous descent until touchdown in level attitude. Avoid a landing flare because of difficulty in judging airplane height over a water surface.
5. Place folded coat or cushion if front of face at time of touchdown.
6. Evacuate airplane through cabin doors. If necessary, open window to flood cabin compartment for equalizing pressure so that door can be opened.
7. Inflate life vests and raft (if available) after evacuation of cabin.

Information on Cargo Door

The airplane's Owner's Manual states that when conducting the "Before Entering the Airplane" checklist during the preflight, it is important check the cargo doors are securely latched and locked. An "IMPORTANT" note states:

"The cargo doors must be fully closed and latched before operating the electric wing flaps. A

switch in the upper door sill of the front cargo door interrupts the wing flap electrical circuit when the front door is opened or removed, thus preventing the flaps being lowered with possible damage to the cargo door or wing flaps when the cargo door is open."

The Owner's Manual section titled "Cargo Door Emergency Exit" states the following information:

"If it is necessary to use the cargo door as an emergency exit and the wing flaps are not extended, open the forward door and exit. If the wing flaps are extended, open the doors in accordance with the instructions shown on the placard which is mounted on the forward cargo door."

The red placard found on the front cargo door of the accident airplane stated:

EMERGENCY EXIT OPERATIONS

1. OPEN FWD CARGO DOOR AS FAR AS POSSIBLE.
2. ROTATE RED LEVER IN REAR CARGO DOOR FWD.
3. FORCE REAR CARGO DOOR FULL OPEN.

Glide Distance

The Operator's Manual indicated that the maximum glide distance for the airplane with the following parameters: 1) Speed 85 mph indicated airspeed; 2) Propeller windmilling; 3) Flaps up; and 4) Zero wind. The Maximum Glide chart indicated that the maximum glide distance from a height of 10,000 feet above the terrain is a ground distance of 15 statute miles.

TESTS AND RESEARCH

Life Vests

The life vests were tested at a manufacturer's facility. The vests were overdue their inspection requirements. The pressure tests indicated that the vests inflated when new CO2 cartridges were used and held pressure. No anomalies were found with the life vests that would have precluded normal inflation and operation. Federal Aviation Regulation (FAR) Part 91 regulations do not require life vests for each occupant if the airplane is operated not for hire.

Engine Inspection

The engine was sent to the manufacturer for inspection and operational testing. The engine was put on a test stand and run. The engine experienced a normal start. The engine RPM was advanced to 1,200 rpm and held for 5 minutes to stabilize; 1,600 rpm and held for 5 minutes to stabilize; 2,450 rpm and held for 5 minutes to stabilize; and at full throttle and held for 5 minutes to stabilize. The throttle was rapidly advanced from idle to full throttle six times and it accelerated and decelerated without hesitation or interruption in power. It produced rated horsepower.

NTSB Materials Laboratory Examination

The NTSB Materials Laboratory examined the debris found in the fuel metering assembly's fuel inlet screen. The examination of the material removed from the filter revealed several categories of materials present within the mixture. The materials present included: 1) cellulosic material similar to wood and sawdust; 2) non-metallic amber-colored flakes similar to varnish or shellac; 3) thin, ribbon-like metallic shavings; 4) white flakes similar to paint; 5) granular particulates similar to sand or dirt; and 6) fibers similar to fabric and glass fibers.

Pilot Information

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|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------|
| Certificate: | Private | Age: | 66, Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 3 With waivers/limitations | Last FAA Medical Exam: | November 7, 2008 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | January 11, 2009 |
| Flight Time: | 2660 hours (Total, all aircraft), 1200 hours (Total, this make and model), 2361 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--------------------------------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Cessna | Registration: | N82531 |
| Model/Series: | U206F | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | U-206-01734 |
| Landing Gear Type: | Tricycle | Seats: | 5 |
| Date/Type of Last Inspection: | November 5, 2009 Annual | Certified Max Gross Wt.: | 3600 lbs |
| Time Since Last Inspection: | 8 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 3946 Hrs at time of accident | Engine Manufacturer: | Continental |
| ELT: | Installed, activated, did not aid in locating accident | Engine Model/Series: | IO-520-F3B |
| Registered Owner: | FREED CONSTRUCTION | Rated Power: | 300 Horsepower |
| Operator: | Jerry Freed | 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: | LUD,1047 ft msl | Distance from Accident Site: | 5 Nautical Miles |
| Observation Time: | 09:55 Local | Direction from Accident Site: | 90° |
| Lowest Cloud Condition: | | Visibility | 10 miles |
| Lowest Ceiling: | Overcast / 1800 ft AGL | Visibility (RVR): | |
| Wind Speed/Gusts: | 7 knots / 17 knots | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 290° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.8 inches Hg | Temperature/Dew Point: | 24°C / 22°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Alma, MI (AMN) | Type of Flight Plan Filed: | IFR |
| Destination: | Rochester, MN (RST) | Type of Clearance: | IFR |
| Departure Time: | 08:50 Local | Type of Airspace: | |

Wreckage and Impact Information

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|----------------------------|------------------|-----------------------------|---------------------------|
| Crew Injuries: | 1 Minor | Aircraft Damage: | Substantial |
| Passenger Injuries: | 4 Fatal | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 4 Fatal, 1 Minor | Latitude, Longitude: | 44.001667,-86.663612(est) |

Administrative Information

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|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Investigator In Charge (IIC): | Silliman, James |
| Additional Participating Persons: | Tom Kozura; FAA Grand Rapids FSDO; Grand Rapids, MI Seth Buttner; Cessna Aircraft Company ; Wichita, KS Rodney Martinez; Teledyne Continental Motors; Mobile, AL |
| Original Publish Date: | July 18, 2011 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | The NTSB traveled to the scene of this accident. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=76896 |

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](#).