



Aviation Investigation Final Report

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|--------------------------------|---|-------------------------|-------------|
| Location: | Page, Arizona | Accident Number: | WPR17LA144 |
| Date & Time: | June 23, 2017, 16:00 Local | Registration: | N71001 |
| Aircraft: | Cessna U206F | Aircraft Damage: | Substantial |
| Defining Event: | Powerplant sys/comp malf/fail | Injuries: | 6 None |
| Flight Conducted Under: | Part 135: Air taxi & commuter - Non-scheduled - Sightseeing | | |

Analysis

The commercial pilot, who was the pilot flying, reported that, while he, the copilot, and four passengers were returning to the airport following a sightseeing flight and while the airplane was at 7,500 ft, it would no longer climb. The airplane then slowly started to descend about 350 ft per minute. Unable to stop the descent, the pilots attempted to troubleshoot the problem but were unable to regain engine power. The pilot initiated a precautionary landing onto a dirt road. When the airplane was about 125 ft above ground level, the copilot took control of the airplane and landed it on the road. During the landing roll, the left wing impacted bushes before coming to rest. As the pilots retarded the throttle to idle, the throttle and about 2 ft of the throttle control cable came out of the control panel.

Metallurgical examination of the throttle cable wires revealed flat fracture surfaces that were perpendicular to the wires' axes, and no evidence of necking or other deformation was found, which is consistent with a progressive fracture mechanism, such as fatigue. Therefore, the throttle control cable likely failed due to fatigue and resulted in the pilots' inability to control the engine power.

A review of the airplane's maintenance logbooks revealed that the throttle control cable was installed more than 20 years before the accident. The airplane maintenance manual indicated that the engine controls, including the throttle control cable, should be replaced at every engine overhaul. The operator reported that the last engine overhaul was completed 163 hours before the accident. The logbooks did not indicate that the throttle control cable had been replaced during the overhaul. Given the evidence, maintenance personnel likely failed to replace the throttle control cable at the last engine overhaul, which led to the cable fracturing in flight due to fatigue and the subsequent inability of the pilots to control the engine power.

Probable Cause and Findings

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

The failure of the throttle control cable due to fatigue and maintenance personnel's failure to replace the cable at the last engine overhaul, which resulted in the pilots' inability to control engine power and led to a precautionary landing during which the airplane impacted bushes.

Findings

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| Aircraft | Power lever - Fatigue/wear/corrosion |
| Aircraft | Power lever - Failure |
| Aircraft | Power lever - Incorrect service/maintenance |
| Personnel issues | Replacement - Maintenance personnel |
| Personnel issues | Lack of action - Maintenance personnel |
| Environmental issues | (general) - Effect on operation |

Factual Information

History of Flight

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| Enroute-cruise | Powerplant sys/comp malf/fail (Defining event) |
| Enroute-cruise | Loss of engine power (total) |
| Uncontrolled descent | Attempted remediation/recovery |
| Landing | Off-field or emergency landing |
| Landing | Collision with terr/obj (non-CFIT) |

On June 23, 2017, about 1600 mountain standard time, a Cessna U206F airplane, N71001, sustained substantial damage after the pilot executed a precautionary landing about 28 miles southeast of Page, Arizona. The two commercial pilots and four passengers were not injured. The airplane was registered to, and operated by, American Aviation Inc. as a Title 14 *Code of Federal Regulations* Part 135 scenic flight. Visual meteorological conditions prevailed at the time of the accident and a company visual flight rules flight plan had been filed. The flight originated from Page, Arizona at an unknown time.

The pilot in command (PIC) reported that while they were returning to the airport at 7,500 ft, the airplane would no longer climb; it then slowly started to descend at about 350 ft per minute. Unable to stop the descent, the pilots attempted to troubleshoot the problem, but were not able to restore engine power. The PIC initiated a precautionary landing onto a dirt road. About 125 ft above the ground, the co-pilot took control of the airplane and landed softly onto the road. During the landing roll, the airplane's left wing impacted juniper bushes before it came to rest. As the pilots retarded the throttle to idle, the throttle came out of the control panel along with about two ft of the throttle cable.

During a postaccident examination by a Federal Aviation Administration inspector, it was noted that the throttle control cable separated from the rod end of the throttle body control. Review of the maintenance logs indicated the throttle cable was last installed in 1996.

The throttle cable, to include the rod end, and rod end sleeve were removed from the airplane and sent to the National Transportation Safety Board (NTSB) Materials Laboratory for further examination.

The NTSB Materials Laboratory reported that digital microscope images of the rod end, which was within the rod end sleeve, exhibited two circumferential bands of wear on the ends. The bands were heavier on one side of the pieces, and the band closest to the end had less damage compared to the other band. Corresponding wear was observed on the inner surface of the mating guide piece. The wire strands were observed, and the fracture surfaces were flat and perpendicular to the axes of the strands. No necking or thinning of the individual strands consistent with overstress separation was observed.

Cessna Maintenance Manual indicates that the engine controls and linkages should be examined "each 50 hours for general condition and freedom of movement. These controls are not repairable. Replace throttle, propeller, and mixture controls at each engine overhaul." The operator reported the airplane's

annual inspection was completed about 43 hours prior to the accident, and the overhaul 163 hours prior to the accident. The logbooks did not show that the cable had been replaced.

Pilot Information

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| Certificate: | Commercial | Age: | 37, Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 1 With waivers/limitations | Last FAA Medical Exam: | September 23, 2016 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | June 4, 2017 |
| Flight Time: | 535 hours (Total, all aircraft), 15 hours (Total, this make and model), 285 hours (Pilot In Command, all aircraft), 15 hours (Last 30 days, all aircraft) | | |

Co-pilot Information

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| Certificate: | Commercial | Age: | 27, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Right |
| Other Aircraft Rating(s): | Helicopter | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 2 Without waivers/limitations | Last FAA Medical Exam: | May 18, 2017 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | March 16, 2017 |
| Flight Time: | 685 hours (Total, all aircraft), 35 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--------------------------------|---------------------------------------|--------------------------|
| Aircraft Make: | Cessna | Registration: | N71001 |
| Model/Series: | U206F | Aircraft Category: | Airplane |
| Year of Manufacture: | 1973 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | U20602115 |
| Landing Gear Type: | Tricycle | Seats: | 6 |
| Date/Type of Last Inspection: | June 1, 2017 100 hour | Certified Max Gross Wt.: | 3600 lbs |
| Time Since Last Inspection: | 43 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 9970 Hrs as of last inspection | Engine Manufacturer: | Continental |
| ELT: | Installed, not activated | Engine Model/Series: | IO-520 LCF |
| Registered Owner: | AMERICAN AVIATION INC | Rated Power: | 300 Horsepower |
| Operator: | AMERICAN AVIATION INC | Operating Certificate(s) Held: | On-demand air taxi (135) |

Meteorological Information and Flight Plan

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| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | PGA,4316 ft msl | Distance from Accident Site: | 28 Nautical Miles |
| Observation Time: | 15:53 Local | Direction from Accident Site: | 120° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 6 knots / 15 knots | Turbulence Type Forecast/Actual: | / None |
| Wind Direction: | 250° | Turbulence Severity Forecast/Actual: | / N/A |
| Altimeter Setting: | 29.92 inches Hg | Temperature/Dew Point: | 39°C / -1°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Page, AZ (PGA) | Type of Flight Plan Filed: | Company VFR |
| Destination: | Page, AZ (PGA) | Type of Clearance: | Unknown |
| Departure Time: | | Type of Airspace: | |

Wreckage and Impact Information

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|----------------------------|--------|-----------------------------|---------------------------|
| Crew Injuries: | 2 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | 4 None | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 6 None | Latitude, Longitude: | 36.913318,-111.45609(est) |

Administrative Information

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| Investigator In Charge (IIC): | Link, Samantha |
| Additional Participating Persons: | Daniel Teske; Federal Aviation Administration; Las Vegas, NV |
| Original Publish Date: | April 13, 2020 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | The NTSB did not travel to the scene of this accident. |
| Investigation Docket: | https://data.ntsb.gov/Docket?ProjectID=95521 |

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](#).