



National Transportation Safety Board Aviation Accident Final Report

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| Location: | Boise, ID | Accident Number: | WPR17LA078 |
| Date & Time: | 03/20/2017, 0405 MDT | Registration: | N158WA |
| Aircraft: | SWEARINGEN SA226 | Aircraft Damage: | Substantial |
| Defining Event: | Part(s) separation from AC | Injuries: | 1 None |
| Flight Conducted Under: | Part 91: General Aviation - Positioning | | |

Analysis

The airline transport pilot reported that he performed a preflight inspection of the airplane before departing on the repositioning flight. The takeoff roll was normal; however, just after the airplane lifted off, he heard a "pop" and felt a vibration. The pilot initially thought that one of the tires had blown, but as the vibration continued, he determined that he might have a problem with one of the propellers. The pilot subsequently returned to the airport and landed without further incident.

When the pilot shut down the left engine after landing, he noticed that the tip of one of the propeller blades was missing. Further examination of the blade revealed that about 4 inches of the blade tip had separated and penetrated the side of the fuselage.

Airport personnel later found additional pieces of propeller blade material on the runway, as well as what appeared to be the blade of a screwdriver and pieces of the handle.

Maintenance personnel reported that a mechanic had been working on the airplane just before the flight and had been called away from the task he was performing before it was completed; the airplane was subsequently returned to service. The mechanic left a screwdriver on the nose of the airplane in the windshield wiper area, in a position that the pilot could not see. It is likely that, during the takeoff roll, the screwdriver became dislodged from the area of the windshield wiper and impacted the left propeller.

Probable Cause and Findings

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

Company maintenance personnel's failure to remove a screwdriver that was left lodged in the windshield wiper area of the forward fuselage during maintenance and subsequently became dislodged on takeoff/initial climb and collided with a left propeller blade.

Findings

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| Personnel issues | Scheduled/routine maintenance - Maintenance personnel (Cause) Post maintenance inspection - Maintenance personnel (Cause) |
| Organizational issues | Oversight of maintenance - Operator |

Factual Information

On March 20, 2017, about 0405 mountain daylight time, a Swearingen SA226TC, N158WA, was substantially damaged due to foreign object damage to the airplane's fuselage during initial takeoff/climb from Boise Air Terminal/Gowen Field (BOI), Boise, Idaho. The airline transport pilot was not injured. The airplane was registered to and operated by Western Airlines LC of Boise as a 14 *Code of Federal Regulations* Part 91 positioning flight. Visual meteorological conditions prevailed at the time, and an instrument flight rules flight plan was filed and active. The flight was originating at the time and destined for Salt Lake International Airport (SLC), Salt Lake City, Utah.

In a written statement submitted to the National Transportation Safety Board investigator-in-charge, the pilot reported that prior to departing on the repositioning flight, he reviewed the maintenance data for the airplane (the Can) and found everything to be up to date. The subsequent preflight inspections, inclusive of the interior and exterior of the airplane revealed no anomalies. The pilot stated that at 0400 he called BOI ground control, obtained taxi clearance, and taxied to runway 10L where he began the takeoff roll. The pilot reported that everything was normal, rotated at 105 knots; shortly thereafter he heard a "pop", followed by a vibration. Thinking that he had a blown tire, he waited a few seconds to see if the frequency of the vibration would change as the tire rotation slowed. However, the vibration remained the same, which led him to think that there might be an issue with the propeller. The pilot radioed the BOI tower controller, advised him of his intention to return to the airport, and was instructed to turn right for Runway 10L. The pilot stated that on the downwind leg he thought there might be a problem with a propeller. However, after he inspected both propeller spinners to determine which propeller might be damaged, he determined that both were running smooth. The pilot further stated that as he had no indication as to which propeller was damaged and the vibration was light and not changing, he elected not to shut the engine down. The pilot then landed uneventfully, taxied to parking, and shut the right engine down first. The pilot then shut the left engine down. During the last few rotations of the propeller he observed the spinner wobble slightly; he then noticed that the tip of one of the blades was missing. The pilot stated that after having exited the airplane he observed that about four inches of one of the propeller blade tips was missing, as well as having observed two holes in the fuselage, [both caused by pieces of the propeller blade tip]. About 10 minutes later airport operations personnel delivered another piece of the propeller [blade], and what appeared to be the blade of a screwdriver and two pieces of a screwdriver handle. A further examination of the airplane revealed a third hole in the fuselage further back [of the left] wing root just below the window.

During a postaccident inspection of the airplane, a Federal Aviation Administration aviation safety inspector reported that maintenance had been performed on the airplane prior to the flight, and that the mechanic was called away from the task he was performing prior to it being completed. The inspector stated that a screwdriver was left on the nose of the airplane under the windshield wiper and out of sight of the pilot. Subsequently, on takeoff roll the screwdriver became dislodged and impacted the left propeller; remnants of two pieces of a propeller blade were found to have penetrated the left side fuselage and came to rest inside the cabin of the airplane. The screwdriver was subsequently located lying on the surface of the departure runway.

History of Flight

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| Initial climb | Part(s) separation from AC (Defining event) |
| Prior to flight | Aircraft maintenance event |

Pilot Information

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| Certificate: | Airline Transport | Age: | 62, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 4-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane Multi-engine; Airplane Single-engine | Toxicology Performed: | No |
| Medical Certification: | Class 2 Unknown | Last FAA Medical Exam: | 10/31/2016 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | 01/31/2017 |
| Flight Time: | 10700 hours (Total, all aircraft), 3161 hours (Total, this make and model), 7919 hours (Pilot In Command, all aircraft), 37 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

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| Aircraft Make: | SWEARINGEN | Registration: | N158WA |
| Model/Series: | SA226 TC | Aircraft Category: | Airplane |
| Year of Manufacture: | 1981 | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | TC411 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 3 |
| Date/Type of Last Inspection: | 03/04/2017, AAIP | Certified Max Gross Wt.: | 13230 lbs |
| Time Since Last Inspection: | 182 Hours | Engines: | 2 Turbo Prop |
| Airframe Total Time: | 28602.9 Hours as of last inspection | Engine Manufacturer: | Honeywell |
| ELT: | C126 installed, not activated | Engine Model/Series: | TPE-331-10UA |
| Registered Owner: | Western Airlines LC | Rated Power: | 940 hp |
| Operator: | On file | Operating Certificate(s) Held: | Commuter Air Carrier (135) |

Meteorological Information and Flight Plan

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| Conditions at Accident Site: | Visual Conditions | Condition of Light: | Night/Dark |
| Observation Facility, Elevation: | BOI, 2871 ft msl | Distance from Accident Site: | |
| Observation Time: | 0353 MDT | Direction from Accident Site: | |
| Lowest Cloud Condition: | Few / 6500 ft agl | Visibility | 10 Miles |
| Lowest Ceiling: | Overcast / 12000 ft agl | Visibility (RVR): | |
| Wind Speed/Gusts: | 7 knots / | Turbulence Type Forecast/Actual: | / None |
| Wind Direction: | 170° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 30.06 inches Hg | Temperature/Dew Point: | 9° C / 7° C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Boise, ID (BOI) | Type of Flight Plan Filed: | IFR |
| Destination: | Denver, CO (KAPA) | Type of Clearance: | IFR |
| Departure Time: | 0405 MDT | Type of Airspace: | Class C |

Airport Information

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|----------------------|--------------------------------------|---------------------------|-----------------|
| Airport: | Boise Air Terminal/Gowen Field (BOI) | Runway Surface Type: | Asphalt |
| Airport Elevation: | 2871 ft | Runway Surface Condition: | Wet |
| Runway Used: | 10L | IFR Approach: | None |
| Runway Length/Width: | 10000 ft / 150 ft | VFR Approach/Landing: | Traffic Pattern |

Wreckage and Impact Information

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|---------------------|--------|----------------------|------------------------|
| Crew Injuries: | 1 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | N/A | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 1 None | Latitude, Longitude: | 43.614444, -116.222778 |

Administrative Information

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| Investigator In Charge (IIC): | Thomas Little | Adopted Date: | 11/06/2018 |
| Additional Participating Persons: | Rudy Rossi; Federal Aviation Administration; Boise, ID | | |
| Publish Date: | 11/06/2018 | | |
| Note: | The NTSB did not travel to the scene of this accident. | | |
| Investigation Docket: | http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=94891 | | |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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.