



Aviation Investigation Final Report

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| Location: | Goodyear, Arizona | Accident Number: | LAX04LA229 |
| Date & Time: | May 29, 2004, 11:20 Local | Registration: | N501BD |
| Aircraft: | Simmons BD-5 | Aircraft Damage: | Substantial |
| Defining Event: | | Injuries: | 1 None |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The single-engine experimental airplane collided with sagebrush growing on an abandoned airport during a forced landing following a loss of engine power. The amateur-built airplane utilized a Honda EB-3 engine that was mounted at the rear of the airplane. Post-accident examination of the engine revealed the number 4 connecting rod had failed, and was discolored black, indicative of an overheating. The crankshaft throw for the number 4 connecting rod was also discolored black. No obstructions or anomalies with the lubrication system could be found.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The overheating and failure of the number 4 connecting rod, which resulted in a total loss of engine power during descent.

Findings

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

Findings

1. (C) ENGINE ASSEMBLY,CONNECTING ROD - OVERTEMPERATURE
2. (C) ENGINE ASSEMBLY,CONNECTING ROD - FAILURE,TOTAL

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

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: LANDING - ROLL

Findings

3. TERRAIN CONDITION - HIGH VEGETATION

Factual Information

On May 29, 2004, at 1120 mountain standard time, an experimental, amateur-built Simmons BD-5 airplane, N501BD, impacted sagebrush during a forced landing following a loss of engine power near Goodyear, Arizona. The airline transport pilot, the sole occupant, was not injured, but the single-engine airplane sustained substantial damage. The pilot owned and operated the airplane under the provisions of 14 CFR Part 91 as a personal cross-country flight. Visual meteorological conditions prevailed, and a flight plan had not been filed. The flight originated from Van Nuys, California, at 0940, and was destined for Goodyear for a fuel stop. The flight's final destination was Alamogordo, New Mexico.

During a telephone interview with the pilot, he reported that he started a descent into Goodyear for fuel. While in the descent, the engine experienced an abrupt loss of power. The pilot diverted to a closed airpark and set up for landing. The airpark had sagebrush growing over the abandoned runway. The airplane's right wing impacted the sagebrush, substantially damaging the wing, rupturing the fuel tank, and wrinkling the tail-skid area.

The airplane was moved to a hangar located at another airpark, where the pilot examined the converted Honda EB-3 engine. He reported seeing a hole punctured from the inside out near the oil pan. The airplane was transported to another hangar where a more detailed engine examination was performed.

The engine, which was mounted at the rear of the airplane, was removed and disassembled. Disassembly and examination of the engine revealed the #4 connecting rod had fractured and separated. The bottom of the #4 connecting rod and the #4 crankshaft throw was discolored black. The connecting rod section that would be closest to the crankshaft was bent almost 90 degrees from its original shape. Pieces of the bearing halves from the #4 connecting rod bearing were found in the bottom of the oil pan. All of the other bearings (both crankshaft and connecting rods) displayed no damage or discoloration. All of the other pistons moved freely in their respective cylinders and all other components were still coated with oil.

Examination of the crankshaft cradle revealed its oil feed tunnels and plugs were open and unobstructed. There were no noted anomalies with the oil pump.

The engine (serial number 0200148) was manufactured in 1978 and was overhauled 159.0 hours prior to the accident. The last annual inspection was conducted 3.9 hours prior to the accident.

Pilot Information

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| Certificate: | Airline transport | Age: | 66, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Center |
| 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 1 Valid Medical-w/ waivers/lim | Last FAA Medical Exam: | August 8, 2003 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | July 17, 2003 |
| Flight Time: | 12300 hours (Total, all aircraft), 16 hours (Total, this make and model), 7500 hours (Pilot In Command, all aircraft), 31 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|-----------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Simmons | Registration: | N501BD |
| Model/Series: | BD-5 | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | Yes |
| Airworthiness Certificate: | Experimental (Special) | Serial Number: | 1039 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 1 |
| Date/Type of Last Inspection: | April 29, 2004 Annual | Certified Max Gross Wt.: | 573 lbs |
| Time Since Last Inspection: | 3.9 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 159 Hrs at time of accident | Engine Manufacturer: | Honda |
| ELT: | Not installed | Engine Model/Series: | EB-3 |
| Registered Owner: | John K. Lewis | Rated Power: | 100 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: | GYR,968 ft msl | Distance from Accident Site: | 7 Nautical Miles |
| Observation Time: | 18:47 Local | Direction from Accident Site: | 130° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 10 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 250° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.79 inches Hg | Temperature/Dew Point: | 29°C / 8°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Van Nuys, CA (VNY) | Type of Flight Plan Filed: | None |
| Destination: | Goodyear, AZ (GYR) | Type of Clearance: | None |
| Departure Time: | 09:40 Local | Type of Airspace: | Class G |

Wreckage and Impact Information

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|----------------------------|--------|-----------------------------|-----------------------|
| Crew Injuries: | 1 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 1 None | Latitude, Longitude: | 33.616664,-112.366668 |

Administrative Information

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| Investigator In Charge (IIC): | Charnon, Nicole |
| Additional Participating Persons: | Harry Darting; Federal Aviation Administration; Scottsdale, AZ |
| Original Publish Date: | December 28, 2004 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=59343 |

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](#).