Aviation Investigation Final Report

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

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

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

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

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

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.ntsb.gov/Docket?ProjectID=59343