



Aviation Investigation Final Report

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| Location: | Sylvan Grove, Kansas | Accident Number: | DEN07LA133 |
| Date & Time: | August 1, 2007, 16:15 Local | Registration: | N7441W |
| Aircraft: | Walker Lancair IV | Aircraft Damage: | Substantial |
| Defining Event: | | Injuries: | 1 Serious |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The airplane had been fully serviced with fuel and oil prior to takeoff. During the initial climb to 10,500 feet, the electronic manifold pressure gauge malfunctioned so the pilot managed power "by throttle position." He reduced power when the number 2 cylinder head temperature increased more than the other cylinder head temperatures. Almost immediately upon leveling off, the engine lost power. When the fuel boost pump was switched to HIGH, the engine "fired and achieved lower power for 30 seconds." Mixture control manipulation restarted the engine, but after a few seconds there was "an explosion and a lot of smoke." The engine stopped but [the propeller] "appeared to be turning freely" all the way down. The pilot made a rapid descent and landed in an open field. The airplane rolled about 400 feet, crested a small rise, then struck a ground depression that collapsed the landing gear. The airplane then slid sideways for another 300 feet. The pilot used his cellular telephone to alert authorities of the accident. FAA inspectors examined the engine, a Continental TSIO-550-B-1-B (s.n. 802008), and found evidence of catastrophic engine failure. An oil line to the turbocharger wastegate actuator had come loose, causing oil starvation and high heat distress. A hole in the engine case exposed the number 5 journal and imprints from rod bolt strikes. The airplane was built in 1992. The engine had a total time of 88 hours.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A catastrophic engine failure due to oil starvation when an oil line to the turbocharger wastegate actuator came loose. Contributing factors in this accident were the unsuitable terrain on which to make a forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF

Phase of Operation: CRUISE - NORMAL

Findings

1. (C) LUBRICATING SYSTEM,OIL LINE - NOT SECURED
2. (C) FLUID,OIL - STARVATION
3. ENGINE ASSEMBLY,CONNECTING ROD BOLT - FAILURE

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING

Findings

4. (F) TERRAIN CONDITION - NONE SUITABLE
5. TERRAIN CONDITION - OPEN FIELD
6. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On August 1, 2007, approximately 1615 central daylight time, a Walker Lancair IV, N7441W, piloted by an airline transport-certificated pilot, was substantially damaged when it collided with terrain during a forced landing following a loss of engine power three miles southeast of Sylvan Grove, Kansas. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91 without a flight plan. The pilot was seriously injured. The cross-country flight originated at Junction City, Kansas (3JC), and was en route to Farmington, New Mexico (FMN). Its final destination was Santa Barbara, California (SBA).

The pilot had just purchased the airplane and was ferrying it home. According to the pilot's accident report dictated to an FAA inspector from his hospital bed, the airplane had been "fully serviced with fuel and oil" prior to his departure. During the initial climb to 10,500 feet, the electronic manifold pressure gauge malfunctioned so he managed power "by throttle position." He reduced power when the number 2 cylinder head temperature increased more than the other cylinder head temperatures. Almost immediately upon leveling off, the engine lost power. When the fuel boost pump was switched to HIGH, the engine "fired and achieved lower power for 30 seconds." Mixture control manipulation restarted the engine, but after a few seconds there was "an explosion and a lot of smoke." The engine stopped but [the propeller] "appeared to be turning freely" all the way down. The pilot made a rapid descent and landed in an open field. The airplane rolled about 400 feet, crested a small rise, then struck a ground depression that collapsed the landing gear and buckled the firewall. The airplane then slid sideways for another 300 feet. The pilot used his cellular telephone to alert authorities of the accident.

FAA inspectors examined the engine, a Continental TSIO-550-B-1-B (s.n. 802008), and found evidence of catastrophic engine failure. An oil line to the turbocharger wastegate actuator had come loose, resulting in oil starvation and high heat distress. A hole in the engine case exposed the number 5 journal and imprints from rod bolt strikes. The airplane was built in 1992. The engine had a total time of 88 hours.

Information

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| Certificate: | Airline transport; Commercial | Age: | 74, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | Glider; Helicopter | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 3 Without waivers/limitations | Last FAA Medical Exam: | June 1, 2007 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | July 1, 2007 |
| Flight Time: | 8700 hours (Total, all aircraft), 3 hours (Total, this make and model), 8500 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--|---------------------------------------|-----------------|
| Aircraft Make: | Walker | Registration: | N7441W |
| Model/Series: | Lancair IV | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | Yes |
| Airworthiness Certificate: | Experimental (Special) | Serial Number: | LIV-076 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 4 |
| Date/Type of Last Inspection: | August 1, 2007 Condition | Certified Max Gross Wt.: | 3550 lbs |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 90 Hrs at time of accident | Engine Manufacturer: | Continental |
| ELT: | Installed, activated, did not aid in locating accident | Engine Model/Series: | TSIO-550-B |
| Registered Owner: | Bruce A. Stratton | Rated Power: | 350 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: | RSL,1862 ft msl | Distance from Accident Site: | 29 Nautical Miles |
| Observation Time: | 15:53 Local | Direction from Accident Site: | 240° |
| Lowest Cloud Condition: | Few / 3900 ft AGL | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 14 knots / 18 knots | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 150° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.9 inches Hg | Temperature/Dew Point: | 32°C / 22°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Junction City, KS (3JC) | Type of Flight Plan Filed: | None |
| Destination: | Farmington, NM (FMN) | Type of Clearance: | None |
| Departure Time: | 13:55 Local | Type of Airspace: | |

Wreckage and Impact Information

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|----------------------------|-----------|-----------------------------|----------------------|
| Crew Injuries: | 1 Serious | Aircraft Damage: | Substantial |
| Passenger Injuries: | | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 1 Serious | Latitude, Longitude: | 38.993888,-99.595275 |

Administrative Information

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| Investigator In Charge (IIC): | Scott, Arnold |
| Additional Participating Persons: | Gary Watson; FAA Flight Standards District Office; Wichita, KS |
| Original Publish Date: | December 20, 2007 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | |
| Investigation Docket: | https://data.ntsb.gov/Docket?ProjectID=66370 |

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](#).