



Aviation Investigation Final Report

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|--------------------------------|-----------------------------|-------------------------|-------------|
| Location: | Latah, Washington | Accident Number: | SEA01LA146 |
| Date & Time: | August 4, 2001, 11:45 Local | Registration: | N4237X |
| Aircraft: | Rockwell S-2R | Aircraft Damage: | Substantial |
| Defining Event: | | Injuries: | 1 None |
| Flight Conducted Under: | Part 137: Agricultural | | |

Analysis

During an aerial application flight, the number six cylinder exhaust valve rocker boss cracked, and the engine would not produce enough power to keep the aircraft airborne. The pilot therefore made an emergency landing in a nearby lentil field. Although the touchdown was uneventful, during the landing roll, the aircraft went over a slight rise and became temporarily airborne. When it touched down again its propeller dug into the soft terrain, and the aircraft was thrown sideways, collapsing the main gear and bending the left wing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of a cylinder head exhaust rocker shaft boss while the aircraft was performing aerial application. Factors include soft terrain and a drop-off in the field where the emergency landing took place.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings
1. (C) ENGINE ASSEMBLY, CYLINDER - CRACKED

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING

Findings

2. (F) TERRAIN CONDITION - DROP-OFF/DESCENDING EMBANKMENT
3. (F) TERRAIN CONDITION - SOFT

Factual Information

On August 4, 2001, approximately 1145 Pacific daylight time, a Rockwell S-2R, N4237X collided with the terrain during a forced landing about three miles east of Latah, Washington. The commercial pilot, who was the sole occupant, was not injured, but the aircraft, which was owned and operated by the pilot, sustained substantial damage. The 14 CFR Part 137 agricultural application flight, which had been airborne for about 40 minutes, was being operated in visual meteorological conditions. No flight plan had been filed. There was no activation of an ELT.

According to the pilot, he had just completed spraying a field, and was preparing to return to Tekoa, Washington, for refueling and reloading when the aircraft's engine started popping and running rough. Soon thereafter, the power output of the engine dropped to what the pilot thought was about 30 percent of normal. He therefore made a forced landing in a nearby field of mature lentils. Although the initial touchdown was uneventful, during the landing roll, the aircraft went off a slight rise and became momentarily airborne. When the aircraft touched down again, it was nose-low, resulting in the propeller coming in contact with the terrain. As the propeller dug into the soft terrain, the aircraft was thrown sideways, collapsing the main gear and bending the left wing.

A post-accident inspection of the engine revealed that the exhaust valve rocker shaft boss on the number six cylinder had cracked. According to the FAA Inspector who monitored the inspection, with the boss cracked, the exhaust valve would not open, and the detonating fuel-air mixture backfired into the intake plenum. No other engine anomalies were discovered, and the age and total time of the cylinder could not be determined.

Pilot Information

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|----------------------------------|---|--|-------------------|
| Certificate: | Commercial | Age: | 42, Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Rear |
| Other Aircraft Rating(s): | None | Restraint Used: | |
| Instrument Rating(s): | None | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 2 Valid Medical-w/ waivers/lim | Last FAA Medical Exam: | September 7, 2000 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | |
| Flight Time: | 4956 hours (Total, all aircraft), 2256 hours (Total, this make and model), 4889 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 110 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Rockwell | Registration: | N4237X |
| Model/Series: | S-2R | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Restricted (Special) | Serial Number: | 2008R |
| Landing Gear Type: | Tailwheel | Seats: | 1 |
| Date/Type of Last Inspection: | March 26, 2001 Annual | Certified Max Gross Wt.: | |
| Time Since Last Inspection: | 290 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 6076 Hrs at time of accident | Engine Manufacturer: | P&W |
| ELT: | Not installed | Engine Model/Series: | R1340 |
| Registered Owner: | Gregory R. Faunce | Rated Power: | 600 Horsepower |
| Operator: | | Operating Certificate(s) Held: | |

Meteorological Information and Flight Plan

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|---|----------------------------------|---|----------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | | Distance from Accident Site: | |
| Observation Time: | | Direction from Accident Site: | |
| Lowest Cloud Condition: | Clear | Visibility | 25 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | | Temperature/Dew Point: | 24°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Tekoa, WA | Type of Flight Plan Filed: | None |
| Destination: | | Type of Clearance: | None |
| Departure Time: | 11:05 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: | 47.240699,-117.109397(est) |

Administrative Information

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| Investigator In Charge (IIC): | Anderson, Kurt |
| Additional Participating Persons: | Mark Durham; Spokane FSDO |
| Original Publish Date: | October 17, 2001 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | The NTSB traveled to the scene of this accident. |
| Investigation Docket: | https://data.ntsb.gov/Docket?ProjectID=52989 |

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](#).