



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region
March 16, 2017

SUMMARY OF AIRPLANE EXAMINATION – WPR16FA120

This document contains 4 embedded photos

A. ACCIDENT

Location:	De Smet, Idaho
Date:	June 6, 2016
Aircraft:	Rockwell International S-2R
NTSB Investigator-in-Charge	Thomas Little

B. EXAMINATION PARTICIPANTS

Thomas Little
Air Safety Investigator
National Transportation Safety Board
Western Pacific Region
Federal Way, Washington

Colby Barron
Principal Maintenance Inspector
Federal Aviation Administration
Flight Standards District Office
Spokane, Washington

David Studtmann
Air Safety Investigator
Honeywell Aerospace
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C. SUMMARY

On June 6, 2016, about 0745 Pacific daylight time, a Rockwell International S-2R, a restricted category agricultural airplane, was substantially damaged following a collision with powerlines and subsequent impact with trees while engaged in aerial application about 3 nautical miles west of De Smet, Idaho. The airplane was owned and operation by Faunce Ag Aviation Inc., Tekoa, Washington. The commercial pilot, who was the sole occupant and owner of the airplane, sustained fatal injuries. Visual meteorological conditions prevailed for the aerial application flight, which was being operated in accordance 14 Code of Federal Regulations Part 137, and a flight plan was not filed. The flight departed a private airstrip near Tekoa at an estimated time of 0700.

A survey of the accident site was conducted on June 7, 2016, by representatives from the National Transportation Safety Board and the Federal Aviation Administration. As a result of the onsite examination, it was revealed that all necessary components for flight were accounted for. Additionally, and subsequent to the airplane having been recovered to a secured salvage facility located in Deer Park, Washington, on June 8, 2016, a detailed layout examination was performed by representatives from the NTSB, FAA, and Honeywell Aerospace. The results of the examination revealed no evidence of preimpact mechanical malfunctions or issues was noted with any of the recovered components.

D. DETAILS OF THE EXAMINATION

1.0 Accident site examination and photos

On June 7, 2017, an onsite examination of the wreckage was conducted by investigators from the NTSB and FAA. The results of the investigation revealed that the airplane had come to rest amongst a stand of fir trees located directly south of the field being treated by the accident pilot. A county dirt road that ran in an east/west orientation separated the stand of trees to the south and the field being sprayed to the north. A set of power lines, also oriented in an east/west direction, were installed on the north side of the county road. It was observed that the airplane had collided with the power lines on a southeasterly heading, and subsequently came to rest among the stand of trees about 170 feet from the powerlines at an at rest heading of about 320 degrees. The onsite examination also revealed that the pilot began his spray pass along the extreme south side of the field flying from west to east about, 1,000 feet west of the where it had come into contact with the powerlines. Additionally, about 660 ft from where the pilot entered the field on the accident spray pass, and directly in line with the pilot's flight path, was a set of guy wires that supported one of the powerline poles. The guy wires were projected into the field on a south to north orientation for about 60 ft, where they were then anchored into the ground. To maintain clearance with the guy wires, the pilot would have had to have initially banked to the left to avoid them, and after clearance would have then had to bank back to the right to reestablished the airplane on the original spray pass heading to the east.

However, during the survey of the area an outboard section of the airplane's right wing, which measured about 2 feet in length, was located about 160 ft east-southeast of the guy wires. Additionally, black and yellow paint chips, consistent with the airplane's wing's paint scheme, were located about 100 ft southeast of the guy wires. The physical evidence was consistent with the outboard section of the right wing having impacted the guy wires, which then resulted in the airplane veering to the right, colliding with the powerlines that bordered the field to the south, and then proceeding uncontrollably across the country road and into the stand of trees on a southeasterly heading. The airplane subsequently impacted numerous trees on a heading of about 140 degrees before finally impacting a tree with its left wing. This resulted in the airplane spinning around to the left and coming to rest on a heading of about 320 degrees, which was nearly the reciprocal of the heading from which the airplane had entered the stand of trees after having collided with the powerlines.



Figure 1 - view of main wreckage looking north



Figure 2 - view of empennage looking southeast

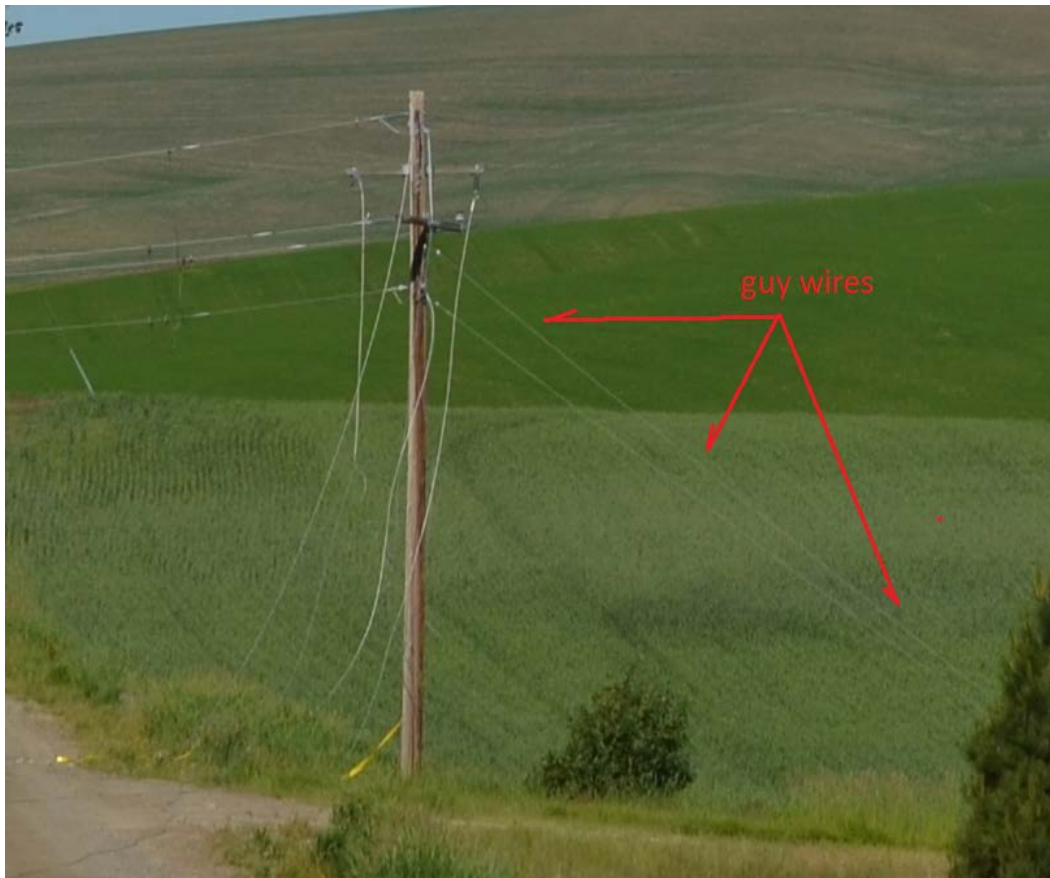


Figure 3 - photo of guy wires looking west in the direction from which the airplane was approaching



Figure 4 - photo looking northwest at trees impacted after impact with powerlines

2.0 Follow-up examination notes

A follow-up examination of the airframe and engine was conducted at the facilities of Discount Aircraft Services, Deer Park, Washington, July 8, 2016. The results of the examination revealed the following:

2.0.1 Airframe examination notes

The following airframe examination notes were compiled in concert by investigators from the NTSB and the FAA on July 7th and 8th, 2016:

The airplane came to rest partially on its left side on a measured magnetic heading of about 320 degrees, and on an impact magnetic heading of about 140 degrees. The area where the airplane came to rest was populated by numerous fir trees, estimated to be between 80 to 100 feet high. Thick knee-to-wait high vegetation also covered the area. The accident site was bordered on the north by De Smet Road, which itself bordered the field being treated on the south. Powerlines that ran east to west/west to east bordered De Smet Road on the north and the field being sprayed on the south.

The airplane's cockpit sustained extensive impact force damage during the accident sequence. The pilot's seat was located directly outside of the cockpit to the left.

The right wing was destroyed due to impact forces, along with the respective fuel cell. Only the inboard 7 feet of the spar remained attached to the fuselage. The remainder of the wing was observed extensively fragmented and distorted. The outboard section of the wing, about 30 inches, was observed to have signatures present consistent with a wire strike; in this instance guy wires that bordered the south side of the field, and the flight path of the airplane. This section of the wing was located about 160 feet east-southeast of the first point of impact with the guy wires. Additionally, black and yellow paint chips, consistent with wing's color scheme, were located about 100 feet southeast of the first point of impact.

The right aileron was destroyed due to impact forces.

The inboard one-half of the right flap remained partially attached to the trailing edge of the associated wing. It was observed bent down and aft 90 degrees. The remainder of the aileron was separated from the wing and destroyed.

The right wing fuel cell was breached and destroyed due to impact forces. The fuel cap was found in place and tight to touch.

The left wing was observed separated from the fuselage, and destroyed due to impact forces. The wing's leading edge was completely separated from the forward spar. The entire span of the wing, inclusive of both forward and aft spars, were observed bent, twisted, and mangled.

The left aileron had separated from the trailing edge of its respective wing at all attach point due to impact forces, and was bent, twisted, and mangled.

The left flap, which was bent and twisted, remained attached to its respective wing at all attach point.

The left wing fuel cell was breached and destroyed due to impact forces. The fuel cap was not observed or located during the examination.

The rudder remained attached to the vertical stabilizer at all attach points, with damage to the rudder assessed as minimal. The fixed trim tab was bent to the left. Rudder cable observed attached to both control arms in the lower rudder area. The cable prior to the control arm were separated due to overload forces.

Both elevator were observed bent back and 90 degrees to each other, with minimal damage to both upper and lower surfaces; some puncture holes observed in both. Each remained attached to its respective horizontal stabilizer at all attach points. Both elevator trim tabs were observed deflected downward about 30 to 45 degrees.

The aft fuselage from the cockpit to the empennage sustained significant impact damage, was bent twisted and mangled throughout, and had separated from the empennage. The empennage was located about 40 south of the main wreckage.

The tail wheel remained attached to the bottom aft of the empennage at all attach points. No damage observed.

The right main landing gear remained attached to the fuselage at all attach points, with minimal damage observed. And inspection of the attached wire cutter revealed no indication of a wire strike.

The left main landing gear was observed separated from the fuselage due to impact forces, and came to rest about 60 feet due north of the main wreckage. Both of the landing gear's support structures were bent and twisted due to impact forces. Examination of the wire cutter revealed no evidence of a wire strike.

There was no evidence of any thermal damage to the fuselage.

The examination of the airframe revealed no preimpact anomalies that would have precluded normal operation.

2.0.2 Engine and propeller examination notes

The following engine/propeller examination notes were provided to the NTSB IIC by the

Honeywell Aerospace air safety investigator who performed his examination of the engine and propeller on July 8th:

The engine was a TPE331-252M, serial number P03069, part number 3101300-2.

The Hartzell propeller blades appeared to be on the start locks.

One of the blade pitch change linkages was separated from its collar.

All 3 propeller blades remained attached to the propeller hub. The blade tips were separated from each of the blades.

Two of the propeller blades exhibited leading edge gouging inboard of the separated blade tips.

The propeller and reduction gearbox rotated freely.

Rotation of the power section did not produce a corresponding rotation of the propeller; thus, the power section was no longer connected to the reduction section of the engine.

The engine power section was free to rotate and produced a corresponding rotation of the scavenge oil pump gerotors.

The oil filter bypass indicator was in the retracted position.

The feather valve was not connected to any airframe linkages.

No debris, metallic or otherwise debris was noted on the engine chip detector.

The fuel shutoff valve index mark was at the 12 o'clock position (automatic position).

One of the first-stage compressor impeller vanes was bent opposite the direction of rotation.

There were metal spray deposits on the suction side of the third-stage stator vanes, which is indicative of operation at the time of impact with terrain.

PLA on FCU ~ 82 degrees, PPC ~ 82 degrees.

Speed lever on FCU at 0 degrees.

The examination of the engine and propeller revealed no preimpact mechanical anomalies with either that would have precluded normal operation.