



Aviation Investigation Factual Report

Location:	Olympia, Washington	Accident Number:	SEA05FA013
Date & Time:	October 29, 2004, 23:54 Local	Registration:	N53161
Aircraft:	Cessna 172P	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Factual Information

HISTORY OF FLIGHT

On October 29, 2004, about 2354 Pacific daylight time, a Cessna 172P, N53161, registered to a private individual and operated by Eagle Flight Center of Troutdale, Oregon, as a 14 CFR Part 91 personal flight, collided with mountainous terrain located about 6 miles west of the Olympia, Washington, Airport. Visual meteorological conditions were reported at the Olympia Airport and no flight plan was filed. The aircraft was substantially damaged and the private pilot, the sole occupant, was fatally injured. The flight departed from Paine Field, Everett, Washington, about one hour prior to the accident and was destined to Troutdale, Oregon.

Personnel from Eagle Flight Center reported that on October 29, the pilot rented the aircraft and checked out the gas card around 1700. The aircraft was to be returned by noon on 10/30/04.

The Supervisor of the Air Traffic Controllers at Paine Field reported that she listened to the tower tapes following the accident and reported that the aircraft arrived in the Paine Field area about 1930. The pilot indicated to the controller that she could not see the field and the controller responded that she was right over the field. The pilot then asked if the lights could be turned up, which they were. The pilot then entered a left downwind and landed without incident. The controller reported that the next encounter with the aircraft was about 2045 when it departed from the airport. The tower closed at 2100.

The pilot's cousin reported that he had received a call from the pilot indicating that she was flying up to visit him and would be arriving about 1800. The cousin informed her that he thought that the ceiling was low, however, the pilot assured him that she had checked the weather. About 2000, the cousin received a call from the pilot indicating that she had arrived. The cousin then met her at the airport. The pilot reported to her cousin that she had gotten lost finding the airport, but that the controller helped her out. About 2045 they took off for a local flight for about 45 minutes before returning to Paine Field. The cousin reported that she got lost finding the airport, and that he helped her out. When they landed, they taxied to the fuel pumps at Regal Air. The pilot was unable to get fuel from Regal Air and instead utilized a mobile fueler from Everett Jet Center. The cousin reported that he left around 2200. About 2210, he received a call from the pilot who indicated that she received fuel from the mobile fueler.

The fueler from Everett Jet Center reported that he fueled the aircraft from a truck with 18.3 gallons of fuel around 2200. The fueler reported that it was very windy and had blown over the ladder while he was attaching the ground cable. He reported that the pilot was walking around inspecting the aircraft and appeared confident and joking around. The fueler made the

comment about the wind and asked the pilot if she had to leave that night. He also reported that he could arrange to have the aircraft tied down for the night and arrange transportation as the weather would probably be better the next day. The pilot declined the offers.

At 2244, the pilot contacted Seattle Approach reporting that she was three miles southwest of Paine Field and requested flight following to Troutdale, Oregon.

Two residents of Olympia, and about five miles north of the accident site, contacted the NTSB Investigator-In-Charge (IIC) following the accident and reported hearing the engine of a small aircraft over or near their residence sometime around mid-night. Both witnesses reported that the weather was strong, gusting winds and heavy rain at the time. Both reported that the engine sounded like it was "mis-firing or cutting out for brief moments," or "power surging."

Radar contact and communications with the aircraft were lost at 2353. The flight path had been over mountainous terrain at the time. Search agencies were notified and the wreckage was located on October 30, 2004, at 0840, about 200 feet below a 1,700 foot ridge line in a clear-cut area.

PERSONNEL INFORMATION

At the time of the accident the pilot held a private pilot certificate for single-engine land aircraft which was issued on July 29, 2004. The pilot's flight log book was not located and presumed destroyed in the accident. Personnel from Eagle Flight Center where the pilot had received instruction for the private pilot certificate and was currently working on the instrument rating and commercial certificate, reported that the pilot had accumulated about 105 flight hours at the time of the accident. About 48 hours was as pilot-in-command and about 10 hours had been accumulated during night time operation.

AIRCRAFT INFORMATION

Maintenance logbooks indicated that an annual inspection was accomplished on September 1, 2004, at an airframe total time of 10,181.9 hours. Check-out records for the aircraft indicated that on October 27, 2004, the last flight before the accident flight, the ending tachometer reading was 10,246.1. No open discrepancies were noted for the aircraft.

The aircraft was equipped with a Textron Lycoming O-320-D2J engine. The maintenance logbooks indicated that the engine was overhauled on February 13, 2003. The engine had accumulated about 958 hours since major overhaul at the time of the accident.

METEOROLOGICAL INFORMATION

At 2214, the pilot contacted Seattle Flight Service requesting a standard VFR weather briefing from Paine Field to Troutdale, Oregon, departing at 30 minutes past the hour. The pilot reported that the flight duration would be one and a half hours at 5,500 feet.

The specialist reported airmets for mountain obscurement and occasional moderate turbulence below 15,000 feet and occasional moderate rime or mixed icing. The freezing levels were dropping from 4,000 to 5,000 feet on up to 16,000 feet. A cold front was moving on shore with a moist and unstable air mass with a moderate south, southwesterly flow aloft.

The winds at Paine Field were from 170 degrees at 19 knots, with a visibility of 10 miles. The ceiling was 4,400 feet broken, 6,000 feet broken and 12,000 feet overcast. The temperature was 11 degrees C.

Light rain was reported throughout western Washington with ceilings anywhere from 3,000 feet to 6,000 feet broken to overcast. Visibilities were from four to nine miles.

At Troutdale, the wind was calm, with a visibility of 10 miles. The ceiling was 3,800 feet overcast. The temperature was 11 degrees C, and the dewpoint was 9 degrees C.

Pilot reports from 20 miles northwest of Seattle, reported heavy snow at 6,000 feet, with a temperature of -1 degrees C. Another pilot report from 35 miles northwest of Seattle, reported at 3,000 feet, light rain and turbulence, with a 7,000 foot broken ceiling.

The en route forecast reported broken clouds at 1,500 feet, 3,000 feet to 5,000 feet overcast with occasional light rain. Winds were forecast from 200 degrees at 18 knots, with gusts to 28 knots.

Paine Field's forecast through midnight was wind from 170 degrees at 16 knots, gusting to 26 knots with light rain. The ceiling was 3,500 feet broken and 4,000 feet overcast. Occasional visibilities were three miles in moderate rain.

For Troutdale, the forecast was 2,200 feet broken and 3,500 feet overcast through midnight.

The winds en route at 3,000 feet were from 200 degrees at 42 knots, and at 6,000 feet were from 230 degrees at 53 knots, with temperature at minus 1 degrees C.

The pilot then asked the specialist for the wind at 6,000 feet again. The specialist reported 230 degrees at 53 knots, and at 3,000 feet, 42 knots. The pilot acknowledged "Wow" with laughter.

The pilot then asked for the weather at Toledo and the Centralia, Washington area. The specialist reported that Toledo did not report that late in the evening.

The specialist then gave the pilot the weather at Olympia and reported few clouds at 4,300 feet and 4,900 feet overcast.

The conversation ended at 1023.

The weather reported at the Olympia Airport at 2354 indicated few clouds at 1,500 feet, scattered clouds at 2,100 feet and overcast at 3,000 feet with rain and fog. Visibility was three miles. The winds were from 200 degrees at 14 knots, gusting to 25 knots.

COMMUNICATIONS

At 2244, the pilot contacted Seattle approach control reporting that she was three miles southwest of Paine Field and requested flight following to Troutdale. The controller responded and told the pilot to squawk 4667. The pilot repeated the squawk as 4467 and requested vectors to Olympia. The controller questioned the pilot if she was now landing at Olympia. The pilot responded that she was not landing at Olympia, but wanted help in getting out of class bravo airspace. The controller then asked the pilot to verify that she was squawking 4667. The pilot responded that she was squawking 4467. The controller then instructed her again to squawk 4667. The pilot then changed the squawk code and the controller verified radar contact 10 miles southwest of Paine and gave her the current altimeter setting of 29.87.

At 2251, the controller told the pilot to maintain VFR conditions and if she wanted vectors, he suggested a heading of 180 degrees.

At 2300, the controller notified the pilot that he was showing her at 2,200 feet and the current Seattle altimeter was 29.86. The pilot replied thanks.

At 2309, the pilot contacted Seattle approach asking if he could tell her how far she was from Olympia. The controller responded that she needed to turn to the south as she was about to enter the temporary flight restriction off to the east. He indicated that she was 37 miles from Olympia. Shortly thereafter, the controller asked the pilot why she turned eastbound toward the temporary flight restriction and indicated that as long as she was heading south she would be fine.

At 2329, the controller contacted the pilot indicating that he would not be able to talk to her at her current altitude as she was heading toward high terrain, and he asked if she had good separation with the terrain. The pilot responded that with the weather conditions she wanted to go into Olympia and requested vectors. The controller instructed her to maintain VFR and head 130 degrees for initial vectors to Olympia. Shortly thereafter, the controller asked the pilot if she was ready for the weather at Olympia. The pilot responded affirmative. The controller advised her that the winds were 190 degrees at 14 knots, gusting to 24 knots. Visibility was 6 miles with light rain and mist. The ceiling was 4,000 feet overcast and the temperature was 10 degrees C. The dewpoint was 8 degrees C. The altimeter was 29.89.

At 2331, the pilot asked the controller how far she was from Olympia. The controller advised her that she was 24 miles northwest of Olympia. The pilot responded that her ground speed was slow, and the controller advised her that he was showing only 70 knots over the ground.

At 2337, the controller advised the pilot that the Olympia Airport was at her 12:00 o'clock and

12 miles. He asked her to advise him when she had the airport in sight.

At 2342, the controller advised the pilot that the airport was at 12:00 o'clock and seven miles. The controller then asked her if the airport was in sight. The pilot responded no and that she was in rough turbulence.

At 2346, the controller advised the pilot that the airport was about her 10:00 o'clock position and seven miles. The controller then gave her a heading of 110 degrees heading to the airport. Shortly thereafter, the controller radioed the pilot indicating that it looked like she was heading westbound again and then asked her if she was turning back towards the east. The pilot responded that she would get back to him.

At 2348, the controller radioed the pilot indicating that she was in a 4,000 foot minimum vector altitude (MVA) area and suggested that she climb and turn to the east. Shortly thereafter, the controller radioed that radar contact was lost indicating that she was in a 4,000 foot MVA and suggested she turn to the north and say her altitude. The pilot responded that she was climbing to 3,000 or anything...(unintelligible). The controller then asked the pilot if she was still going into Olympia. The pilot responded that she did not see the airport, and that she had a lot of rain and asked if she should go back to Tacoma. The controller responded that he suggested that she land at Olympia as there was a bad storm passing Olympia about 100 degrees heading from her that was only five miles away. The pilot's response was unintelligible. The controller asked the pilot for her intentions, eventually getting a response from the pilot that she still intended to land at Olympia. The controller then instructed the pilot to turn to a heading of 100 degrees as it looked like the airport was open to the south. The controller continued to instruct the pilot to maintain the 100 degree heading as the airport was about 5 miles away.

At 2352, the pilot responded thank you.

At 2353, the controller asked the pilot if she could see the ground. There was no response from the pilot.

At 2354, the controller radioed the pilot that radar contact was lost four miles west of the airport when he last saw her. He asked her if she had the airport in sight. There was no response from the pilot after this time.

WRECKAGE AND IMPACT INFORMATION

On site inspection of the wreckage was accomplished on October 31, 2004, by investigators from the National Transportation Safety Board, Federal Aviation Administration and Cessna Aircraft Company. The wreckage was located on the western face, and about 200 feet below a 1,700 foot ridge line. The top of the ridge line was lined with fir trees in height to about 100 feet. The accident site located at 47 degrees 00.079 north latitude, 123 degrees 03.593 west longitude was in a clear-cut area with a two year growth of fir trees and ground cover. The

terrain angle was estimated to be 55 degrees. A valley was noted to the north with another ridge line in the distance. The valley floor was about 200-300 feet below the accident site. The valley ran along a 240/60 degree heading.

Initial impact was noted to a dead tree snag. A fresh break to the snag was noted about 30 feet above ground level. An approximate 40 foot section of the top of the snag was laying at the base of the tree. Another section of tree measuring about 10 feet in length had fresh breaks at both ends. About 15 feet uphill of the snag another eight foot section of the tree was noted with fresh breaks at both ends. The diameter of the trunk of the tree sections was between 10 to 12 inches.

Small pieces of debris from the aircraft was noted traveling uphill about 50 feet from the snag between a heading of 150 degrees and 185 degrees. An impact crater was noted to the soft ground about 150 feet uphill along the ground surface. About 30 feet southwest of the crater, the main wreckage was located.

The left wing had separated from the fuselage at the wing root and was laying inverted on the ground. The lift strut remained attached at the wing attach point. A circular indentation was noted at the wing root. The indentation was 14 inches in diameter. The structure was crushed aft about 21 inches. Within the folds of the aluminum structure, fragments of wood fibers were noted. Heat distress was noted at the root section. The flap remained attached to the respective hinges and was retracted. The aileron surface was bent over to the top of the wing. The outboard end of the surface was torn from the hinge and folded over. The remainder of the surface remained attached at the hinges. Flight control cables remained attached and present in the wing with the ends near the root broken and frayed.

The right wing was in place relative to the fuselage with the inboard section at the root severely burned. Flight control cables remained in place, however, the aileron cable ends were frayed. The flap actuator was in the retracted position. The majority of the length of the leading edge of the wing was crushed aft with the severity of the crushing at the tip which was crushed aft about 21 inches. Both the flap and aileron remained attached to their respective hinges. A significant amount of fuel remained within the wing tank. The lift strut remained attached to the wing attach point.

The cockpit area and aft fuselage was positioned inverted and destroyed by fire. The engine had separated from the firewall and was position above the burn area, resting against a small fir tree.

The empennage was below the fuselage burn area and was positioned right-side up. The eight foot section displayed severe heat distress at the forward end. The emergency locator transmitter was found within this burn area and was severely heat distressed. Control cables from the rudder, elevator and elevator trim tab remained attached to the aft end and were intact to the cockpit controls. Both sides of the horizontal stabilizer remained attached with the elevators attached to their respective hinges. The trim tab was found deflected slightly up.

The vertical stabilizer remained attached with the rudder attached to its respective hinges. Damage was noted to the top cap.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was accomplished on the pilot by Sigmund Menchel, MD, Thurston County. The pilot's cause of death was listed as due to: "Multiple blunt trauma injuries."

Toxicological samples were sent to the Federal Aviation Administration Civil Aeromedical Institute, Oklahoma City, Oklahoma, for analysis. The findings were positive for Dextromethorphan which was detected in blood and liver.

ADDITIONAL INFORMATION

Radar data provided from the U.S. Air Force 84 RADES/OLAD, indicated that the flight tracking was maintaining an altitude of about 2,000 feet while heading in a southwesterly direction from Paine Field. At about 2329, the flight tracking indicated a turn to the southeast. The flight was at 1,500 feet and maintained this heading varying altitude from 1,500 feet to about 2,600 feet. At about 2346, the flight tracking turns to the west away from Olympia, and travels about four miles at about 1,500 to 1,800 feet before turning back to the east toward the Olympia Airport. The altitude increases to about 2,800 feet before descending back down to 2,000 feet. The last recorded target was at 2353 at 47 degrees 00.35 minutes north latitude, 123 degree 03.16 minutes west longitude, at an elevation of 2,000 feet.

An engine inspection and teardown was accomplished on November 1, 2004, by investigators from the National Transportation Safety Board, Cessna Aircraft Company and the Federal Aviation Administration. During the inspection, the top spark plugs and the rocker box covers were removed. The crankshaft was found to rotate easily by hand. Accessory gear and valve train continuity was established. Compression was developed in each cylinder. Both magnetos were removed from their mounting and rotated by hand. A spark was produced from each tower. The bottom spark plugs were removed. All top and bottom spark plugs displayed normal operating signatures. The vacuum pump was removed from its mounting. The drive shaft was intact and the pump was easily rotated by hand. The pump was opened and found that the rotor was fractured, however, the vanes were intact. Oil was present in the engine. The oil suction screen was removed and found clear.

The propeller assembly remained attached to the crankshaft at the crankshaft flange. Impact damage was noted to the forward crankcase. The spinner was crushed flat against the propeller hub. Both propeller blades remained attached to the hub. Propeller blade "A" displayed a slight aft bend with slight "S" bending deformation. Propeller blade "B" displayed a significant aft bend and "S" bending deformation near the tip of the blade. Approximately 3.5 inches of the blade tip was torn away. Severe chordwise scratches were noted to the blade back, and severe leading edge gouges were noted.

The wreckage was recovered from the accident site by personnel from AvTech Services on October 31, 2004, and transported to Maple Valley, Washington. The wreckage was released to the owner's representative on November 16, 2004.

Pilot Information

Certificate:	Private	Age:	20, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	April 1, 2003
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	July 29, 2004
Flight Time:	105 hours (Total, all aircraft), 48 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N53161
Model/Series:	172P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	17274694
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	September 1, 2004 Annual	Certified Max Gross Wt.:	2407 lbs
Time Since Last Inspection:	68 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	10250 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-D2J
Registered Owner:	Paul Etchemendy	Rated Power:	160 Horsepower
Operator:	Eagle Flight Center	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:	OLM,206 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	23:54 Local	Direction from Accident Site:	85°
Lowest Cloud Condition:	Few / 1500 ft AGL	Visibility	3 miles
Lowest Ceiling:	Overcast / 3000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	14 knots / 25 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.88 inches Hg	Temperature/Dew Point:	10°C / 8°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	Everett, WA (PAE)	Type of Flight Plan Filed:	None
Destination:	Troutdale, OR (TTD)	Type of Clearance:	None
Departure Time:	22:45 Local	Type of Airspace:	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	47.001945,-123.06639

Administrative Information

Investigator In Charge (IIC):	Eckrote, Debra
Additional Participating Persons:	Harvey W Tharps; FAA/FSDO; Renton, WA Thomas Teplik; Cessna Aircraft Company; Wichita, KS
Report Date:	May 3, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60485

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](#).