Aviation Investigation Final Report

Location:	Agness, Oregon	**Accident Number:**	SEA06FA119
Date & Time:	June 17, 2006, 09:00 Local	**Registration:**	N38SP
Aircraft:	Cessna 180	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane departed for a short flight between two private airstrips located less than 1 mile apart on opposite sides of a river in an area of rugged mountainous terrain. A witness at the departure airstrip reported the airplane's takeoff was uneventful. A witness at the destination airstrip reported hearing the airplane fly over heading downstream and stated that it was the pilot's routine before landing fly over. Witnesses, who were river rafting less than 1 mile downstream of the destination airstrip, observed the airplane over fly them heading downstream at an altitude of about 150 feet agl. They reported that the airplane entered a steep left turn, completed approximately 180 degrees of turn, collided with a tree and then impacted rocky terrain on the river bank. Examination of the airframe and engine revealed no evidence of any discrepancies that would have prevented normal operation of the airplane. The pilot had a history of allergies, and toxicological testing detected brompheniramine (a sedating antihistamine, available over the counter) in the pilot's blood at .223 ug/ml. The pilot also had a severe color vision deficiency. When the accident occurred, the skies were clear, and the sun was in the east at an altitude of 34.3 degrees above the horizon. As the pilot turned the airplane left from a downstream (southerly) heading to an upstream (northerly) heading, he would have been heading east directly toward the rising sun approximately midway through the turn.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain obstacle clearance while maneuvering at low altitude, which resulted in an in-flight collision with a tree and subsequent collision with rocky terrain. A contributing factor was the sun glare.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: MANEUVERING

Findings
1. LOW ALTITUDE FLIGHT/MANEUVER - PERFORMED - PILOT IN COMMAND
2. (F) LIGHT CONDITION - SUNGLARE
3. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
4. IMPAIRMENT(DRUGS) - PILOT IN COMMAND
5. PHYSICAL IMPAIRMENT(VISUAL DEFICIENCY) - PILOT IN COMMAND
6. OBJECT - TREE(S)

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - ROCK(S)/BOULDER(S)

Factual Information

HISTORY OF FLIGHT

On June 17, 2006, approximately 0900 Pacific daylight time, a Cessna 180, N38SP, collided with a tree and then impacted terrain while maneuvering in the Rogue River canyon about 11 miles northeast of Agness, Oregon. The commercial pilot, who was the owner and operator of the airplane, and the three passengers aboard received fatal injuries. The airplane was destroyed by impact and fire damage. Visual meteorological conditions prevailed for the local personal flight conducted under 14 CFR Part 91, and no flight plan was filed. The airplane departed from the Paradise Lodge airstrip about 0855, and the intended destination was the Half Moon Bar Lodge airstrip. These two airstrips are located on opposite banks of the Rogue River, with the Half Moon Bar Lodge airstrip on the east bank less than 1 mile south of the Paradise Lodge airstrip.

During an interview conducted by the NTSB investigator-in-charge (IIC), the Paradise Lodge manager reported that the pilot had been flying into the lodge for 9 years and was very familiar with the area. The pilot and his wife had flown to the lodge from their home in California the day before the accident. The lodge manager recalled that the pilot told him he had stopped and refueled the airplane in Medford, Oregon, located approximately 70 miles away, before flying into the lodge. The purpose of the accident flight was to deliver 3 flats of strawberries that the pilot had brought with him from California to the staff at Half Moon Bar Lodge. Aboard the airplane for the flight were the pilot, his wife, and two other lodge guests, who the pilot had invited to go along for the planned flight to Half Moon Bar and return. There was no baggage aboard the airplane other than the 3 flats of strawberries. At the Paradise Lodge airstrip, takeoffs and landings are made heading downstream. The lodge manager stated that he watched the airplane depart. Before takeoff, the pilot performed an engine run up, and the "engine was running strong." The takeoff was made downriver, and it was a "normal" takeoff.

The NTSB IIC also interviewed the managers of Half Moon Bar Lodge. They reported that the pilot had been into and out of the Half Moon Bar and Paradise Lodge airstrips "many times." At the Half Moon Bar Lodge airstrip, takeoffs and landings are made heading upstream. One of the managers heard the airplane fly over heading downstream. She stated that it was the pilot's routine "hello be landing soon" fly over.

A group of 12 river rafters located less than 1 mile downstream from Half Moon Bar Lodge witnessed the accident. During a telephone interview conducted by the NTSB IIC, one of the rafters reported that the airplane flew over them heading downstream at a "low" altitude. The airplane then banked "sharply" to the left and turned back upstream. While still in a steep left bank, the airplane's left wing hit a tree, and the airplane entered a nose dive, impacted the river bank, and within seconds burst into flames. This witness reported that the sound of the

airplane's engine was "at a high pitch."

Another rafter, interviewed by telephone by the NTSB IIC, reported that the airplane flew past their position heading downstream (south) on the right side (when facing downstream) of the canyon at an altitude of about 150 feet agl. The airplane entered a left turn and after completing 90 degrees of turn, the bank shallowed slightly, then steepened. After the bank steepened, the airplane "side slipped down a little." As the airplane completed 180 degrees of turn, it impacted a tree. The right wing, left wing strut and tail contacted the tree. The airplane then descended at a 45 degree angle, impacted the river bank and caught fire. This witness reported that the airplane's engine "sounded like it was running absolutely fine."

During telephone interviews and in written statements, the other rafters reported similar observations.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with single and multi-engine land airplane ratings. The certificate had the following limitation: Night flying prohibited. The pilot also held a mechanic certificate with airframe and power plant ratings and an inspection authorization. His most recent third-class medical certificate was issued on January 7, 2005, with the limitations: Must have glasses available for near vision. Not valid for flights requiring color signal control during daylight hours.

According to an insurance application completed by the pilot on March 5, 2006, he had accumulated a total flight time of 5,614 hours of which 4,496 hours were in the Cessna 180 make and model. The application also indicated that the pilot completed his most recent biennial flight review in June 2004.

AIRCRAFT INFORMATION

Examination of copies of the airplane's maintenance records covering the time period from 1997 to the time of the accident indicated that the pilot was performing the majority of the maintenance on the airplane. According to the records, the pilot performed the most recent annual inspection of the 1955 Cessna 180 on May 1, 2006, at an airframe total time of 7,113 hours. As of that date, the engine, a P-Ponk O-470-50, S/N 2124, had accumulated 953 hours since major overhaul.

METEOROLOGICAL INFORMATION

One of the river rafter witnesses stated that there was "a down river breeze, not strong" and estimated the wind speed as "in the 2 to 3 mph range." Another of the river rafter witnesses stated that "the day was generally very clear and sunny. There was no noticeable wind that I detected."

According to the U.S. Naval Observatory, at the accident location of longitude west 123 degrees 56 minutes and latitude north 42 degrees 41 minutes, at 0900, the sun was at an altitude of 34.3 degrees and an azimuth of 88.6 degrees.

WRECKAGE AND IMPACT INFORMATION

An on scene examination of the wreckage was conducted by the NTSB IIC and an FAA inspector on June 18, 2006. The accident site was located on the east bank of the Rogue River near river mile 42.7 about 1 mile south of Half Moon Bar Lodge airstrip. The main wreckage was resting at the edge of a rock cliff that dropped about 25 to 30 feet to the surface of the river. Approximately 200 yards upslope to the east-southeast of the main wreckage, a branch was freshly broken midway up a fir tree that was about 100 to 120 feet tall. The first evidence of ground contact was found about 50 feet east of the cliff face and consisted of paint chips and fragments of the green navigation light lens from the right wingtip. The right wingtip and about 3 feet of the outboard right wing and right aileron were found adjacent to the point of first ground contact. There was a semi-circular indentation in the leading edge skin of this wing section consistent with impact with a tree branch about 3 inches in diameter.

The main wreckage consisted of the inverted fuselage and tail group, the left wing, the right wing (with the exception of the separated outboard section), and the engine. All cockpit instrumentation and avionics were destroyed by fire. The wings were displaced from their normal positions and found lying approximately parallel to the fuselage with the right wing lying inverted on top of the left wing. The inboard portion of the right wing was destroyed by fire. The majority of the right flap was destroyed by fire. The inboard portion of the right aileron remained attached to the wing and was fire damaged. The inboard portion of the left wing was destroyed by fire. The entire left flap was destroyed by fire. The left aileron remained attached to the wing and was fire damaged.

The fuselage and the forward portion of the tail cone were destroyed by fire. The aft portion of the tail cone sustained minimal fire damage, and the vertical and horizontal stabilizers remained attached to the tail cone. The rudder remained attached to the vertical stabilizer, and both elevators remained attached to their respective horizontal stabilizers. Fir tree branches with diameters of less than 1/4 inch were found lodged between the left horizontal stabilizer and the fuselage. The outboard left horizontal stabilizer and elevator were bent upward about 90 degrees, the outboard leading edge of the left horizontal stabilizer was crushed aft, and the left stabilizer end cap was separated. During recovery of the airplane, recovery personnel located the left stabilizer end cap near the base of the fir tree with the broken branch.

The propeller separated from the engine crankshaft and was found adjacent to the main wreckage. One blade remained attached at the hub and the other blade separated from the hub. Both blades displayed "S" bending, leading edge gouges and chordwise scratches.

The wreckage was recovered from the accident site and transported to HLM Air Services in Independence, Oregon, where it was further examined on August 24, 2006, under the

supervision of an NTSB investigator, by representatives from Cessna Aircraft Company and Teledyne Continental Motors. Examination of the engine did not reveal any abnormalities that would have prevented normal operation and production of power.

Continuity of the elevator, stabilizer trim, and rudder control cables was established from the control surfaces to the forward tail cone area, where the cables had been cut by recovery personnel. The elevator cables were observed attached to the forward bell crank in the cockpit area, and the tube between the forward bell crank and the control tee was connected. The rudder cables were observed attached to the rudder pedal assembly. Aileron control cable continuity was established from the left aileron to the left wing root area, where the cables had been cut by recovery personnel, and from the right aileron to the inboard area of the right wing, where one cable was separated in overload and one had been cut by recovery personnel. The aileron control cables were observed attached to the control tee.

The left flap bell crank was observed separated from the wing structure. The left flap cables remained attached to the flap bell crank and had been cut inboard of the bell crank by recovery personnel. The left flap push/pull rod remained attached to the flap bell crank, and the other end of the push/pull rod remained attached to the melted remains of the flap attach point.

The right flap bell crank remained attached to the right wing. The right flap cables remained attached to the flap bell crank and had been cut inboard of the bell crank by recovery personnel. The right flap push/pull rod was not identified in the recovered wreckage. However, review of photos taken by the NTSB IIC and recovery personnel confirmed that the right flap push/pull rod was present at the accident site in its expected position in the right wing.

The flap handle was observed separated from structure, precluding determination of the pre-impact handle position. The flap cables remained attached to the flap handle.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was conducted by the Office of the Medical Examiner, Jackson County, Oregon. Toxicology tests conducted by the FAA's Toxicology and Accident Research Laboratory were negative for carbon monoxide and cyanide. Ethanol at 27 mg/dL and N-propanol at 2 mg/dL were detected in blood, and the toxicology report stated the ethanol was from sources other than ingestion. Brompheniramine was detected in blood (0.223 ug/ml) and in liver (unquantified), and acetaminophen was detected in blood (at 3.286 ug/ml). Brompheniramine is a sedating antihistamine available over-the-counter in several cold and allergy preparations, often in combination with acetaminophen. Acetominophen is an over-the-counter pain-reliever and fever-reducer, often known by the trade name Tylenol.

Review of the pilot's FAA medical records dating from 1963 through 2005 revealed that he had a long history of allergies, treated with nasal steroids, desensitization therapy (shots), and over-the-counter antihistamines.

The pilot's FAA medical records also revealed that he had a significant color vision deficiency. He missed all or nearly all of the test plates on a commonly used color vision test (Ishihara) on several occasions and was unable to distinguish between red, green, and white signal lights except at night.

ADDITIONAL INFORMATION

The wreckage was released to a representative of the owner on August 24, 2006.

Pilot Information

Certificate:	Commercial	**Age:**	60,Male
Airplane Rating(s):	Single-engine land; Multi-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 With waivers/limitations	**Last FAA Medical Exam:**	January 1, 2005
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 1, 2004
Flight Time:	5614 hours (Total, all aircraft), 4496 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N38SP
Model/Series:	180	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	31668
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	May 1, 2006 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	7113 Hrs as of last inspection	**Engine Manufacturer:**	P-Ponk
ELT:	Installed, not activated	**Engine Model/Series:**	O-470-50
Registered Owner:	On file	**Rated Power:**	265 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

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**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Agness, OR	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	08:55 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	3 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal	**Latitude, Longitude:**	42.684165,-123.930274

Administrative Information

Investigator In Charge (IIC):	Struhsaker, Georgia
Additional Participating Persons:	Ron Holloway; FAA FSDO; Portland, OR Tom Teplik; Cessna Aircraft Company; Wichita, KS Joshua Cawthra; Teledyne Continental Motors; Mobile, AL Dennis Hogenson; NTSB ; Seattle, WA
Original Publish Date:	June 27, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=63934