Aviation Investigation Final Report

Location:	HAINES, Alaska	**Accident Number:**	ANC02FA010
Date & Time:	January 15, 2002, 08:20 Local	**Registration:**	N30004
Aircraft:	Piper PA-32	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The commercial certificated air taxi pilot, the sole occupant, was scheduled to depart on a domestic passenger flight for an intermediate airport, located 14 miles south of the departure airport. The pilot was to pick up two passengers for a continuing flight to the planned destination. The route of the flight was along fjord type terrain, consisting of steep mountain slopes above a long inlet of water. The flight to the intermediate airport usually took about 10 minutes. The pilot delayed his departure for about 10 minutes while he waited for weather conditions along the route to improve. After departure, the pilot reported via radio that he was at a commonly used visual reporting point, about four miles south of the departure airport. The airplane did not arrive at the intermediate airport, and no further communication was received from the accident airplane. An aerial search located the wreckage in an area of steep forested terrain, 300 feet above the inlet water. The airplane collided with several trees before descending to the ground. Visual meteorological conditions prevailed at the intermediate airport, but low cloud conditions prevailed along the route of flight from the departure airport. At the time of the accident, an automated weather observation system (ASOS), located 5 miles southwest of the accident site, was reporting the weather conditions, in part, as having a visibility of four statute miles in light freezing rain and mist; clouds and sky condition, 800 feet overcast; temperature, 32 degrees F; dew point, 31 degrees F. The terminal forecast for the departure airport, and the area forecast, contained low visibilities in light rain and mist. An AIRMET was issued for mountain obscuration in clouds and precipitation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued VFR flight into instrument meteorological conditions, and subsequent collision with trees while in cruise flight. Factors in the accident were weather conditions

consisting of freezing rain, mist, and low ceilings.

Findings

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

Findings
1. OBJECT - TREE(S)
2. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
3. (F) WEATHER CONDITION - FREEZING RAIN
4. (F) WEATHER CONDITION - DRIZZLE/MIST
5. (F) WEATHER CONDITION - LOW CEILING

Factual Information

HISTORY OF FLIGHT

On January 15, 2002, about 0820 Alaska standard time, a Piper PA-32 airplane, N30004, sustained substantial damage during an in-flight collision with trees and terrain, about five miles northeast of the Haines Airport, Haines Alaska. The airplane was being operated as a visual flight rules (VFR) domestic passenger flight under Title 14, CFR Part 135, when the accident occurred. The airplane was operated as Flight 1894 by Skagway Air Services Inc., Skagway, Alaska. The commercial certificated pilot, the sole occupant, received fatal injuries. Visual meteorological conditions prevailed at the Haines airport, but low cloud conditions prevailed along the route of flight. A VFR flight plan was filed. The flight originated at the Skagway Airport, about 0810.

The director of operations for the operator reported the flight was scheduled to depart Skagway for Haines, where the pilot was to pick up passengers for a continuing flight to Juneau, Alaska. The distance from Skagway to Haines is about 14 miles. The route of the flight is along fjord type terrain consisting of steep mountain slopes above a long inlet of water (Taiya Inlet). The slopes of the inlet have areas of steep forested terrain. The director of operations said he visually checked the weather conditions from Skagway toward Haines about 0600. He said he could see to Taiya Point, a point of land along the west side of the Taiya Inlet about 10 miles south of Skagway. The director of operations said the weather that he could see consisted of scattered clouds about 800 to 900 feet along the west side of the inlet.

The pilot delayed his departure for about 10 minutes while he waited for weather and light conditions along the route to Haines to improve. The route of flight was intended to be along the east shoreline of the Taiya Inlet. After departure, the pilot contacted the Juneau Automated Flight Service Station (AFSS) at 0812 and filed a VFR flight plan. He stated: "...ah yes sir, good morning, Skagway for Haines and Juneau; PA-32; four hours on the fuel; one hour en route; be one and three; pilot's name is Matthis; I do have the advisories." The pilot reported to company personnel via radio, that he was at Paradise Valley, a visual reporting point about four miles south of Skagway, located on the east side of the inlet. The airplane did not arrive in Haines, and no further communication was received from the accident airplane. The director of operations said the flight from Skagway to Haines usually takes about 10 minutes.

When the accident airplane did not arrive in Haines, the director of operations began an aerial search in a fixed-wing airplane along the route of flight, but was unable to visually locate any wreckage. He notified search personnel of the missing airplane, and continued an aerial search in a helicopter. An emergency locator transmitter (ELT) signal was received in the area of Haines. The director of operations located the airplane wreckage at 1030, about 300 feet

above the water on the east side of the Chilkoot Inlet, in an area of steep forested terrain.

PERSONNEL INFORMATION

Pilot Information

The pilot held a commercial pilot certificate with an airplane single-engine land rating. The most recent second-class medical certificate was issued to the pilot on April 12, 2001, and contained no limitations.

According to company records, the pilot's total aeronautical experience consisted of about 2,862 hours, of which about 1,400 hours were accrued in the accident airplane make and model. In the preceding 90 and 30 days prior to the accident, company records listed a total of 95.8 and 17.8 hours respectively.

In the three days prior to the accident, the pilot flew 2.7 hours on January 12, zero hours on January 13, and 2.7 hours on January 14.

Company Information

In the Operations Specifications issued to the company by the FAA, ultimate operational control of all flights is assumed by the owner of Skagway Air, and the director of operations.

The company's Operations Manual states that operational control of flights means the exercise of authority over initiating, conducting, or terminating a flight. The final authority over conducting or terminating a flight is a joint decision between the pilot-in-command, and the director of operations. The company manual lists, in order from (a) to (e), the persons having operational control with respect to flight; the president, director of operations, chief pilot, director of maintenance, and the pilot-in-command.

AIRCRAFT INFORMATION

At the accident scene, the airplane's tachometer recording hour meter indicated 8,264.39 hours. The airplane's hobbs meter indicated 4,446.0. The most recent annual inspection of the airplane and engine was accomplished on October 24, 2001, 92.1 hours before the accident. In addition, a 50 hour inspection was completed on December 15, 2001, 48.7 hours before the accident. The engine had accrued a total time in service of 3,433 hours. The maintenance records note that a major overhaul was accomplished on October 24, 2001.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Haines, Alaska, located 5 nautical miles southwest of the accident site. At 0654, an automated surface observation system (ASOS) was reporting, in part: Wind, 290 degrees (true) at 9 knots; visibility, 5 statute miles in unknown

precipitation and mist; clouds and sky condition, few at 1,000 feet, 1,500 feet overcast; temperature, 32 degrees F; dew point, 31 degrees F; altimeter, 30.40 inHg; remarks, unknown precipitation began at 0641, freezing rain began at 0603, freezing rain ended at 0641.

At 0753, the ASOS at Skagway was reporting, in part: Wind, 270 degrees (true) at 6 knots; visibility, 10 statute miles; clouds and sky condition, 2,000 feet scattered, 2,900 feet scattered, 5,000 feet overcast; temperature, 37 degrees F; dew point, 36 degrees F; altimeter, 30.36 inHg;

At 0821, the ASOS at Haines was reporting, in part: Wind, 280 degrees (true) at 4 knots; visibility, 4 statute miles in light freezing rain and mist; clouds and sky condition, 800 feet overcast; temperature, 32 degrees F; dew point, 31 degrees F; altimeter, 30.35 inHg; remarks, unknown precipitation ended at 0821, freezing rain began at 0821, snow began at 0755, snow ended at 0758.

A terminal forecast for Skagway, issued on January 15 at 0232 and valid from 0300 to 0300 on May 16, was reporting, in part: Wind, 220 degrees (true) at 15 knots; visibility, greater than 6 statute miles in light rain; clouds and sky condition, 5,000 feet overcast. Temporary changes expected between 0300 and 0900; visibility, 4 statute miles in light rain; 2,000 feet overcast. From 0900, wind, 200 degrees at 10 knots; visibility, greater than 6 statute miles in light rain; 2,000 feet scattered, 3,000 feet overcast. Temporary changes expected between 0900 and 1500, visibility, 3 statute miles in light rain and mist; 1,500 feet overcast. From 1500, wind 200 degrees at 18 knots, gust to 28 knots; visibility, greater than 6 statute miles in light rain showers; 3,000 feet overcast. From 2100, variable wind at 3 knots; visibility, greater than 6 statute miles; 3,000 feet scattered, 4,000 feet broken, 6,000 feet overcast. There is a 30 percent probability between 2100 and 0300 on May 16, of light rain and snow showers; 3,000 feet overcast. The amended forecast limited to clouds, visibility, and wind conditions.

An area forecast for the eastern gulf coast of Alaska and southeast Alaska, issued on January 15 at 0545, stated, in part: Synopsis, valid until 2400; a 1012 milibar low near Middleton Island, Alaska, moves to north of Burwash, Canada, by 1800 and southeast of Whitehorse, Canada, by 2400. An associated front over the western gulf of Alaska moves northeast to be over the northeast gulf coast by 0900, and completely across the southeast panhandle by 2100. A new ridge builds over the eastern gulf of Alaska by 2400. Lynn Canal and Glacier Bay, valid until 1800; clouds and weather, AIRMET for mountain obscuration, mountains obscured in clouds and precipitation, no change; 1,200 feet scattered, 3,500 feet broken, 5,000 feet overcast, merging layers, tops at 25,000 feet. Occasionally, 700 feet scattered, 1,200 feet broken to overcast, 3,500 feet overcast; visibility, 4 statute miles in mist, light rain and mist; isolated ceilings below 1,000 feet, visibility below 3 statute miles in mist. From 0900, 1,200 feet broken, 2,500 feet overcast, tops at 25,000 feet, visibility, 4 statute miles in light rain and mist. Surface wind from the southeast with gusts to 25 knots. Outlook, valid from 1800 to 1300 on May 16; marginal VFR conditions with ceilings due to mist.

COMMUNICATIONS

Review of the air to ground radio communications tapes maintained by the FAA at the Juneau AFSS revealed that the pilot communicated with the "inflight 2" position and opened his flight plan. No unusual communications were noted between the accident airplane and Juneau AFSS. The pilot's communications with company personnel were not recorded.

A transcript of the air to ground communications between the airplane and Juneau AFSS is included in this report.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC) examined the airplane wreckage at the accident site on January 18, 2002. The airplane collided with several trees on the east side of the Chilkoot Inlet, and then descended to the ground. The accident location is across the inlet (east) from Taiya Point. A path of wreckage debris from the first observed point of tree contact to the wreckage point of rest, was on a magnetic heading of 170 degrees. (All heading/bearings noted in this report are oriented toward magnetic north.)

The first observed portion of the airplane was about four feet of the outboard end of the right wing. The separated portion had the right aileron attached to the wing structure at its outboard hinge, but was torn from the wing at its inboard hinge. The leading edge of the wing segment had "U" shaped aft crushing and folding. Adjacent to the wing segment was portions of spruce tree tops. The average tree height in the area of the accident was about 60 feet.

Adjacent to the separated right wing segment, was about 4 feet of the outboard end of the left wing with the aileron attached at the outboard hinge, but torn from the wing at its inboard hinge. The wing segment had extensive aft crushing and tearing of wing and spar material, from the leading edge to the aft end of the wing structure. The outboard left wing tip tank was separated from the wing segment.

About 5 yards south of the outboard segment of left wing, was the inboard segment of the left wing. It was torn and separated at the fuselage attach points. The leading edge had extensive aft crushing, tearing and folding, exposing the forward face of the wing spar. The left flap was attached to the wing segment at its inboard pivot, but broken from the wing at its outboard pivot point. The upper, inboard spar attach point had forward bending at the point of separation. The left main landing gear wheel and strut was separated from the wing structure and located downhill from the wing.

About 10 yards east of the inboard left wing segment was the outboard left wing tip tank, separated from the rest of the wing. It was standing in a vertical position with aft crushing of the leading edge at the outboard tip. Adjacent to the tip tank was a broken portion of spruce tree top about 10 inches in diameter. A broken portion of empennage fairing and interior insulation were lodged in tree branches above the wing segment.

About 10 yards south of the left wing tip tank was the upper portion of the right door and upper

portion of the door's window frame. The upper door latch was found in the latched position.

About 15 yards south of the tip tank was the fuselage point of rest, lying on its left side with the nose/engine oriented toward the north. The empennage was folded aft, pivoted to the right and almost parallel to the longitudinal axis of the fuselage. The vertical stabilizer and rudder were crushed and folded under the empennage. The right horizontal stabilizer was fractured about mid-span and displaced downward.

The upper half of the fuselage was crushed downward and torn aft at the bottom of the front windshield. A large tree limb was embedded in the crushed cabin structure. The upper cockpit/cabin structure was crushed aft to about the rear seat area.

The inboard section of the right wing was separated from the fuselage at the wing root, and was positioned on the ground perpendicular to the forward right side of the fuselage. About six feet from the right wing root, the outboard end of the wing was torn away. The point of separation had extensive aft leading edge crushing and tearing, back to the wing spar. The wing flight control cables were attached to the wing segment and fuselage. Due to the impact and damage, the flight controls could not be moved by their respective control mechanisms.

About a 40 feet long segment of separated tree trunk was lying over the aft end of the empennage. The broken end of the tree segment had a sharp angled cut surface. Just above the cut end, a shallow oval-shaped cut was visible on the tree bark surface.

The propeller assembly separated from the engine crankshaft, and was lying next to the right front portion of the fuselage. Both blades were loose in the hub and had leading edge gouging, chordwise scratching, "S" bending, torsional twisting, and aft curling of the blade tips. The propeller dome had minor denting. The dome had tearing and bending along the edge of the "U" shaped opening for one of the blades, adjacent to the leading edge of the blade root. The propeller attaching bolts were sheared from the crankshaft flange.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Alaska State Medical Examiner, 4500 S. Boniface Parkway, Anchorage, Alaska, on January 17, 2002. The examination revealed the cause of death for the pilot was attributed to blunt force injuries.

A toxicological examination was conducted by the FAA's Civil Aeromedical Institute (CAMI) on February 27, 2002, and was negative for alcohol or drugs.

SEARCH AND RESCUE

The director of operations for the company initiated an aerial search after the airplane did not arrive in Haines. He initially utilized an airplane but was unable to locate the crash site. He then utilized a helicopter to narrow the search area by listening to the airplane's ELT. U.S.

Coast Guard personnel confirmed a fatality at the accident scene. The pilot was recovered from the accident site by Skagway Search and Rescue personnel.

ADDITIONAL INFORMATION

The Safety Board did not take custody of the wreckage. No parts or components were retained by the Safety Board.

Pilot Information

Certificate:	Commercial	**Age:**	39,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 12, 2001
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 8, 2001
Flight Time:	2862 hours (Total, all aircraft), 1400 hours (Total, this make and model), 2700 hours (Pilot In Command, all aircraft), 96 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N30004
Model/Series:	PA-32	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32-7840120
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 24, 2001 Annual	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:	93 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	8258 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	IO-540-K1G5
Registered Owner:	SKAGWAY AIR SERVICES INC.	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	Commuter air carrier (135), On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	FYOA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PAHN,16 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	08:21 Local	**Direction from Accident Site:**	135°
Lowest Cloud Condition:		**Visibility**	4 miles
Lowest Ceiling:	Overcast / 800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	253°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.35 inches Hg	**Temperature/Dew Point:**	0°C / -1°C
Precipitation and Obscuration:	N/A - None - Unknown obscuration		
Departure Point:	SKAGWAY, AK (PAGY)	**Type of Flight Plan Filed:**	VFR
Destination:	HAINES, AK (PAHN)	**Type of Clearance:**	None
Departure Time:	08:10 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	59.273887,-135.367492

Administrative Information

Investigator In Charge (IIC):	ERICKSON, SCOTT
Additional Participating Persons:	MICK J GREEN; FAA-AL-JNU FSDO 05; JUNEAU, AK MIKE O'DANIEL; SKAGWAY AIR SERVICE; SKAGWAY, AK
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