



National Transportation Safety Board Aviation Accident Final Report

Location:	KOTZEBUE, AK	Accident Number:	ANC00FA052
Date & Time:	05/01/2000, 0630 AKD	Registration:	N3935Z
Aircraft:	Piper PA-18	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot, the holder of an expired student pilot certificate, departed a remote village with a load of whale meat. The route of flight was along the coast of the Bering Sea, over snow-covered terrain, adjacent to snow-covered sea ice. The weather conditions along the route consisted of low ceilings with areas of fog and snow showers. The pilot did not file a flight plan. He was not reported overdue, and no ELT signal was received from the airplane. The wreckage was discovered by passing villagers about 3/4 mile inland from the coastline. The airplane collided with terrain and came to rest inverted. No preimpact mechanical malfunction was discovered. According to relatives, the pilot, who was not an aviation mechanic, maintained the airplane himself, and no maintenance records were located.

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 his failure to maintain control of the airplane due to spatial disorientation. Factors in the accident were weather conditions consisting of low ceilings, fog, a whiteout, and the pilot's lack of certification.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE

Findings

1. (F) WEATHER CONDITION - LOW CEILING
2. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
3. (F) LACK OF CERTIFICATION - PILOT IN COMMAND
4. (F) WEATHER CONDITION - FOG
5. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
6. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND
7. (F) WEATHER CONDITION - WHITEOUT

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

Findings

8. TERRAIN CONDITION - SNOW COVERED

Factual Information

HISTORY OF FLIGHT

On May 1, 2000, about 0630 Alaska daylight time, a ski-equipped Piper PA-18 airplane, N3935Z, collided with snow-covered terrain 33.5 miles west-northwest of Kotzebue, Alaska, at latitude 67 degrees, 13.29 minutes north and longitude 163 degrees, 43.43 minutes west. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight when the accident occurred. The airplane was operated by the pilot. The pilot, the sole occupant and holder of an expired student pilot certificate, received fatal injuries. Instrument meteorological conditions prevailed in the area of the accident. The flight originated from Kivalina, Alaska, about 0500.

The pilot departed Kotzebue in the accident airplane on April 30, 2000, at 1502. According to personnel at the Federal Aviation Administration (FAA) Flight Service Station (FSS) at Kotzebue, the pilot did not obtain a weather briefing from the facility, nor did he file a flight plan.

On May 1, 2000, about 1900, the Alaska State Trooper's office in Kotzebue was notified that the accident airplane was discovered by passing villagers traveling on snowmachines along the coast near Cape Krusentern. The airplane was found inverted about 3/4 mile east of the coastline. In conversations with family members, the Troopers learned that the pilot flew to Kivalina the day before the accident. On May 1, the pilot departed Kivalina with a load of whale meat. The pilot had not filed a flight plan for the return flight to Kotzebue, and had not been reported overdue.

On the evening of May 1, Alaska State Trooper personnel responded to the accident scene and recovered the pilot from the wreckage.

PERSONNEL INFORMATION

The pilot held a student pilot/third class medical certificate that was issued on October 21, 1997. The medical certificate contained the limitation that the pilot must wear corrective lenses. A student pilot certificate is valid for 24 months.

No personal flight records were located for the pilot. The aeronautical experience listed on page 3 of this report was based on estimates provided by relatives. Review of records on file in the Federal Aviation Administration (FAA) Airman and Medical Records Center located in Oklahoma City, revealed that on the pilot's application for medical certificate, dated October 21, 1997, the pilot indicated that his total aeronautical experience consisted of "none."

AIRCRAFT INFORMATION

The airplane airframe and engine maintenance records were not located. A relative of the pilot stated that the pilot, who was not an aviation mechanic, performed the maintenance on the airplane. The relative said an inspection of the engine had recently been completed by the pilot. At the accident scene, the recording hour meter in the RPM gauge indicated 5,095.13 hours.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Kotzebue. On May 1, 2000, at 0553, an Aviation Routine Weather Report (METAR) at Kotzebue was reporting, in part: Wind, 290

degrees (true) at 8 knots; visibility, 2 statute miles in mist; clouds and sky condition, 100 feet overcast; temperature, 15 degrees F; dew point, 12 degrees F; altimeter, 29.63 inHg.

At 0602, a METAR at Kotzebue was reporting in part: Wind, 280 degrees (true) at 6 knots; visibility, 5 statute miles in mist; clouds and sky condition, 100 feet overcast; temperature, 15 degrees F; dew point, 12 degrees F; altimeter, 29.63 inHg.

An automated surface observation system (ASOS) is located at Kivalina, 37 miles northwest of the accident site. At 0453, the ASOS was reporting, in part: Wind, 090 degrees (true) at 3 knots; visibility, 10 miles; clouds and sky condition, clear; temperature, minus 2 degrees F; dew point, minus 6 degrees F; altimeter, 29.59 inHg.

At 0540, the ASOS at Kivalina was reporting, in part: Wind calm; visibility, 10 miles; clouds and sky condition, 300 feet scattered; temperature, minus 4 degrees F; dew point, minus 7 degrees F; altimeter, 29.59 inHg.

The weather conditions reported to the Trooper's office by villagers in the area of the accident included low ceilings, fog, and scattered snow showers.

COMMUNICATIONS

No radio communications were received from the pilot on the day of the accident.

No emergency transmitter locator (ELT) signal was received from the accident airplane.

WRECKAGE AND IMPACT INFORMATION

Following the recovery of the pilot by Alaska State Trooper personnel on May 1, 2000, the accident scene was visited by relatives and friends of the pilot. They removed the pilot's personal equipment, about 300 pounds of whale meat, the propeller, and the airplane's ELT.

The propeller was located and examined outside a relative's home in Kotzebue on May 2, 2000, by an Alaska State Trooper, the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), and an FAA airworthiness inspector. The examination revealed that the bolts utilized to attach the propeller to the engine crankshaft flange were sheared at the aft side of the propeller. The sheared bolts had slight necking of their normal diameter at the point of separation. The edges of three bolt holes on the rear of the propeller had curling and gouging of a portion of their diameter. The propeller blades were each curled aft, about two feet inboard from the tip. The blades had trailing edge gouging, torsional twisting, slight spanwise scratching near each tip, and slight "S" bending. The tip of one blade was fractured. Frozen snow/ice and tundra debris was adhering to the fractured end. According to the Trooper, the propeller was found at the accident site, 165 feet from the initial point of impact.

The Alaska State Trooper, the NTSB IIC, and the FAA inspector then traveled to the accident scene and examined the airplane wreckage. A path of wreckage debris and ground scars from the first observed point of ground contact to the wreckage point of rest, was on a magnetic heading of 070 degrees. (All heading/bearings noted in this report are oriented toward magnetic north.)

The first observed point of ground contact was a near vertical, wedge shaped disruption of the snow, about 6 six inches deep, and about three feet long. The right wing position light bulb lens was located at that initial point of contact. About 30 feet further along the wreckage path, a shallow depression was found in the snow. About 55 feet from the initial point of ground contact, a circular disruption of the snow and tundra was found. In the area of soil disruption,

small pieces of paint chips, and small pieces of broken plexiglass were found. Larger pieces of broken plexiglass and soil were scattered along the wreckage path to the airplane's point of rest.

The airplane came to rest inverted about 270 feet from the initial point of ground contact. All of the airplane's major components were found at the main wreckage area. The fuselage was bent and buckled about 15 degrees to the right along the airplane's longitudinal axis, just aft of the rear cabin area. The tail of the airplane was pointed in the direction of travel along the wreckage path. The empennage was undamaged.

The upper portion of the trailing end of the left ski was fractured about 12 inches aft of the axle. The right ski was bent slightly upward, aft of the axle, and had impact damage at the tip.

The upper portion of the cockpit area, including the wing spar carry-through, was crushed and broken in an aft and downward direction. The right wing was fractured at the inboard end, and was found in a near vertical, leading edge down position. The underside of the wing had 45 degree diagonal wrinkling of the wing surface that was evident from mid-span of the leading edge, to the inboard, trailing edge of the wing. The right wing lift struts were buckled about mid-span, and were attached at their respective ends to the wing and fuselage. The outboard third of the wing, from the lift strut attach point outward, had leading edge aft crushing, and was canted aft about 15 degrees. The outboard wingtip was crushed and broken in an aft direction, and was bent slightly upward. The right wing aileron and flap remained attached to their respective attach points.

The left wing and portions of the left fuselage tube structure were torn away from the fuselage at their inboard attach points. The wing was found lying upright and flat on the snow, angled outboard from the left side of the fuselage about 45 degrees. The left wing aileron and flap were attached to their respective attach points. The leading edge of the wing had inward crushing at the inboard end. The outboard end of the wing, and about three feet of the leading edge, were buckled and crushed in a forward and upward direction. The left wing lift struts remained attached to their respective wing and fuselage attach points.

The flight control surfaces remained connected to their respective attach points. The continuity of the flight control cables was established to the cockpit area. The stabilator trim tab actuator was found in a neutral position.

The instrument panel was buckled and distorted. It was bent to the left and was found angled upward about 45 degrees, facing to the left outboard side of the airplane. The front seat of the airplane was broken from its attach points and was found adjacent to the instrument panel.

The filament of the aft, fuselage mounted position light bulb was attached to its support posts. The filament was tightly coiled. Two landing light bulbs were installed in the left wing. One bulb filament was attached to its support posts and was tightly coiled. The second bulb filament was broken from its support posts.

The engine sustained impact damage to the front and rear portions of the engine. It was broken away from the firewall and was in an upright position. The crankshaft flange was bent aft at one propeller bolt through-hole extension. The bolt extension was torn from the flange and was not found. The crankshaft could be rotated by hand. Gear and valve train continuity was established, and compression in each cylinder was noted when the crankshaft was rotated by hand. The exhaust tubes were bent and folded, producing sharp creases that were not cracked or broken along the creases.

Snow/ice was found frozen on and around the front portion of the engine. It was adhering to the generator pulley, starter ring gear, oil cooler, and several exhaust tubes.

The aft end of each magneto was impact damaged, and each had damage to the spark plug wires. One of the engine magnetos was equipped with an impulse coupling. Hand rotation of the engine allowed the coupling to function. Spark from the magnetos could not be produced with hand rotation of the engine.

The massive electrode spark plugs were each dry and without visible lead fouling. The number two and number four plugs each had a slight sooty appearance.

The oil screen housing was impact damaged. Examination of the screen revealed a slight amount of metal flakes on the interior of the screen.

Each wing contained two fuel tanks per side. Amber colored fuel was found in the right outboard fuel tank. The other fuel tanks were impact damaged.

The carburetor was undamaged. Fuel was noted in the accelerator pump. The airbox was bent and distorted, but the carburetor heat actuating arm was intact. The throttle cable was attached to the carburetor throttle arm. The mixture cable was pulled off the mixture actuating arm. The engine fuel strainer was broken away from the firewall and was not located.

At the conclusion of the wreckage examination, the pilot's relatives and friends arrived to recover the airplane. A relative reported that when he previously removed the pilot's personal possessions and the propeller, he also removed the ELT from the airplane. He stated that when he turned it to the "ON" position, the ELT transmitted a signal.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Alaska State Medical Examiner, 5700 E. Tudor, Anchorage, Alaska, on May 3, 2000.

A toxicological examination was conducted by the FAA's Civil Aeromedical Institute (CAMI) on June 13, 2000. The examination was negative for alcohol or drugs.

WRECKAGE RELEASE

The Safety Board released the wreckage, located at the accident site, to the owner's representatives on May 2, 2000. No parts or components were retained by the Safety Board.

Pilot Information

Certificate:	Student	Age:	37, Male
Airplane Rating(s):	None	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Expired	Last FAA Medical Exam:	10/21/1997
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	600 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3935Z
Model/Series:	PA-18 PA-18	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	18-7781
Landing Gear Type:	Ski; Tailwheel	Seats:	1
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	1750 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	5095 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-B2B
Registered Owner:	GORDON W. ITO	Rated Power:	160 hp
Operator:	GORDON W. ITO	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Partial Obscuration / 0 ft agl	Visibility	5 Miles
Lowest Ceiling:	Overcast / 100 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	-9° C
Precipitation and Obscuration:			
Departure Point:	KIVALINA, AK (KVL)	Type of Flight Plan Filed:	None
Destination:	KOTZEBUE, AK (PAOT)	Type of Clearance:	None
Departure Time:	0500 ADT	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC): SCOTT ERICKSON **Report Date:** 07/10/2001

Additional Participating Persons: CALEB GLICK (FAA); FAIRBANKS, AK

Publish Date:

Investigation Docket: NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).