Aviation Investigation Final Report

Location:	Fairbanks, Alaska	**Accident Number:**	ANC05FA116
Date & Time:	July 30, 2005, 10:30 Local	**Registration:**	N3188C
Aircraft:	Cessna 180	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot departed on a Title 14, CFR Part 91 cross-country personal flight en route to his remote lodge, so that his sole passenger, a heavy equipment mechanic, could work on equipment at the lodge. When the flight did not return at the prearranged time, an aerial and ground search was initiated. The wreckage was located 6 days later along the pilot's intended route, about 37 miles from the departure airport, and about 7 miles north of the pilot's remote lodge. The airplane had collided with tree covered terrain. A postimpact fire incinerated the airplane. Family members of the pilot reported that the pilot had undergone heart bypass surgery about 3 months before the accident. At the time of the accident, the pilot did not possess a valid medical certificate. A friend of the passenger reported that prior to departure, at the direction of the pilot, the airplane was loaded with six 5-gallon (plastic) fuel containers of diesel fuel, a 150 pound iron stove, the mechanic's tools, several bags of groceries, and a large cooler/ice chest. The friend reported that on previous flights with the accident pilot, the passenger felt uncomfortable because, "[the pilot] would never put a seat in for him." She said that he would routinely be required to sit on a plastic bucket or a small ice chest during the flight to the remote lodge. A single seat frame, located adjacent to the pilot's station, was discovered within the burned wreckage. The estimated gross weight of the airplane at the time of the accident was approximately 2,837 pounds, or about 287 pounds over the allowable gross weight. A toxicological examination of the pilot revealed the presence of Fluoxetine (trade name Prozac), a prescription antidepressant drug, whose usage is prohibited by the FAA.

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 sufficient altitude/clearance from objects and terrain during cruise flight, which resulted in an in-flight collision with tree-covered terrain.

Findings

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

Findings
1. OBJECT - TREE(S)
2. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. USE OF INAPPROPRIATE MEDICATION/DRUG - PILOT IN COMMAND
4. FUSELAGE,SEAT - NOT INSTALLED
5. TERRAIN CONDITION - GROUND
6. AIRCRAFT WEIGHT AND BALANCE - EXCEEDED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On July 30, 2005, at an estimated time of 1030 Alaska daylight time, a wheel equipped Cessna 180 airplane, N3188C, collided with tree-covered terrain, about 37 miles south of Fairbanks, Alaska. The airplane was being operated as a visual flight rules 14 CFR Part 91 cross-country personal flight when the accident occurred. The airplane, operated by the pilot, was destroyed by impact and postimpact fire. The certificated private pilot and the sole passenger both sustained fatal injuries. Visual meteorological conditions prevailed at the flight's departure point, and no flight plan was filed. The flight originated at a private airstrip at North Pole, Alaska, about 0945, and was en route to the accident pilot's remote lodge.

Family members and friends of both the pilot and passenger reported to search personnel that the purpose of the flight was to transport the passenger, a heavy equipment mechanic, to the pilot's remote lodge so he could work on some heavy equipment at the lodge. The flight was reported overdue to the Alaska State Troopers on August 2, at 2121, when the airplane did not return to North Pole in the evening hours on August 1, the previously scheduled return time. The Federal Aviation Administration (FAA) issued a missing aircraft notice on August 2, at 2154.

Search personal searched along the flight's anticipated route of flight. No emergency locator transmitter (ELT) signal was received from the airplane. On August 4, about 1630, the burned wreckage was located about 7 miles north of the pilot's remote lodge, in a heavily wooded area. According to search personal, the wreckage site was concealed by 75-foot tall trees, and was only visible when observed from directly above the accident site.

During an interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on August 6, a friend of the passenger reported that on the morning of July 30, she drove the passenger to the pilot's home adjacent to the private airstrip where the airplane departed. Soon after arriving, the pilot instructed the passenger to fill six 5-gallon (plastic) fuel containers with diesel fuel, and then place them in the airplane. She said that additional items loaded were a large iron stove, the mechanic's tools, several bags of groceries, and a large blue cooler/ice chest. The friend noted that on previous flights with the accident pilot, the passenger felt uncomfortable because "[the pilot] would never put a seat in for him." She said that he would routinely be required to sit on a plastic bucket or a small ice chest during the flight to the remote lodge.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with airplane single-engine land rating. According to

FAA airmen records on file in the Airman and Medical Records Center, the most recent third-class medical certificate was issued to the pilot on June 9, 2003, which expired on June 30, 2005. A representative with the FAA's Airman and Medical Records Center said there were no pending applications for a medical certificate for the accident pilot.

During an interview with the National Transportation Safety Board investigator-in-charge on August 6, family members reported that the pilot had undergone heart bypass surgery, about 3 months before the accident.

No personal flight records were located for the pilot, and the aeronautical experience listed on page 3 of this report was obtained from a review of the airmen Federal Aviation Administration (FAA) records on file in the Airman and Medical Records Center located in Oklahoma City, Oklahoma. On the pilot's application for a medical certificate, dated June 9, 2003, the pilot indicated that his total aeronautical experience consisted of about 3,000 hours, of which none was accrued in the previous 6 months.

AIRCRAFT INFORMATION

The airplane had an annual inspection on August 6, 2004. At that time, the airframe had accumulated a total time in service of 3,145.5 hours. The engine had accrued a total time in service of 1,556.4 hours, and 58.4 hours in service since a major overhaul.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Fairbanks, Alaska, which is 37 miles north of the accident site. On July 30, 2005, at 1056, an automated weather observation system was reporting, in part: Wind, variable at 2 knots; visibility, 5 statute miles with smoke; clouds and ceilings, 11,000 feet broken, 15,000 feet broken, 20,000 feet overcast; temperature, 55 degrees F; dew point, 43 degrees F; altimeter, 29.79 inHg.

At 1053, an automated weather observation system at Nenana, Alaska, located 42 miles northwest of the accident site, was reporting, in part: Wind, 050 degrees (true) at 6 knots; visibility, 7 statute miles; clouds and ceilings, 7,000 feet scattered, 9,000 feet scattered; temperature, 54 degrees F; dew point, 40 degrees F; altimeter, 29.77 inHg.

COMMUNICATION

No communications were received from the pilot.

WRECKAGE AND IMPACT INFORMATION

On August 5, the NTSB IIC traveled by helicopter to the accident scene with two Alaska State Troopers, and a FAA airworthiness inspector from the Fairbanks Flight Standards District Office.

All of the airplane's major components were found at the main wreckage area.

The airplane collided with trees about 75 feet tall. The main portion of the airplane was located about 600 feet beyond the initial impact point. The initial crash path was marked by several broken treetops on a magnetic heading of approximately 130 degrees. From the initial impact with trees, the wreckage path continued for about 300 feet, then veered slightly to the left on a magnetic heading of approximately 090 degrees, and continued the remaining 300 feet to the wreckage point of rest. (All heading/bearings noted in this report are oriented toward magnetic north.) Several trees and limbs were knocked down and burned in the main wreckage area.

With the exception of separated portions of the airframe and wing sections, a postcrash fire incinerated the fuselage, cockpit, and cabin area.

The first piece of airplane wreckage discovered along the debris path was approximately 4 feet of the outboard end of the left wing. It was not fire damaged. The left aileron, damaged and torn along the inboard end, was still attached to the wing segment.

The empennage was intact, but fire damaged, and was torn from the main fuselage, about 3 feet forward of the vertical stabilizer attach point. The empennage was located horizontally, wedged into a broken portion of a tree. The elevators remained attached to the stabilizers. The outboard end of the right stabilizer was bent upward. The inboard leading edge of the left stabilizer was curled upward and aft. The lower half of the leading edge of the vertical stabilizer was crushed aft.

Due to impact and postimpact fire damage, the flight controls could not be moved by their respective control mechanisms. The continuity of the flight control cables was established to the cabin/cockpit area.

The inboard portion of the wings and fuselage were destroyed by fire.

The engine sustained impact damage to the underside/front portion of the engine. The exhaust tubes were crushed and folded, producing sharp creases that were not cracked or broken along the creases. The propeller blades had leading and trailing edge gouging, and chordwise scratching.

Several trees were broken and toppled at the wreckage site. Various small tree sections along the path of wreckage debris displayed sharp cuts orientated on about a 45-degree angle to the vertical axis of each section. These segments averaged about 3 inches in diameter, and were between 10 to 15 inches long. Each end of the cut limbs were sliced at parallel angles to the long axis of the section, each resembling a parallelogram.

A single seat frame, located adjacent to the pilot's station, was discovered within the burned

wreckage. There was no evidence that a second, passenger seat, was installed at the time of the accident. According to a family member of the pilot, there were three seats discovered in the garage at the pilot's home after the accident.

Additional items discovered among the incinerated wreckage were a large iron stove weighing about 150 pounds, various tools, and two large hydraulic jacks.

Examination of the airplane wreckage did not reveal evidence of any pre-impact mechanical anomalies.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Alaska State Medical Examiner, 4500 South Boniface Parkway, Anchorage, Alaska, on August 8, 2005. The autopsy report noted the cause of death for the pilot was blunt force injury and fire/heat related changes.

A toxicological examination was conducted by the FAA's Civil Aeromedical Institute (CAMI), and a CAMI report dated October 12, 2005 noted 0.414 micrograms/ml of fluoxetine detected in the pilot's lung and 0.827 micrograms/ml of fluoxetine detected in the pilot's muscle tissue, in conjunction with unspecified levels of norfluoxetine in both tissues.

Fluoxetine (trade name Prozac) is a prescription antidepressant medication also indicated for the treatment of obsessive-compulsive disorder, panic disorder, and bulimia nervosa (an eating disorder). Norfluoxetine is an active metabolite of fluoxetine. The FAA prohibits the use of such drugs by pilots. The toxicological examination revealed no alcohol.

FIRE ASPECTS

A postaccident fire consumed most of the airplane.

SEARCH AND RESCUE

Search personnel from the Civil Air Patrol, Alaska State Troopers, along with various friends and family members of both the pilot and passenger, performed an extensive aerial and surface search along the pilot's proposed route of flight.

On August 4, about 1630, six days after the accident, a passing helicopter crew, not previously involved in the search, noticed an area of burned and discolored treetops in a heavily wooded area located about 7 miles north of the pilot's remote lodge. During a closer inspection, the helicopter crew hovered the helicopter over the burned treetops, and subsequently discovered the burned wreckage located in the heavily wooded area.

TESTS AND RESEARCH

Weight & Balance

According to the Cessna 180 Flight Manual, the maximum takeoff gross weight of the airplane is 2,550 pounds.

The accident airplane's most current Weight/Balance and Equipment List, dated August 10, 2004, listed the airplane's empty weight as 1,722.5 pounds, the center of gravity was listed as 40.0 inches, and the moment arm was 68,968.3 inch pounds. The computed empty weight included the pilot's seat, unusable fuel, engine oil, and 850 x 6 main landing gear tires. The airplane's reported useful load was 819.3 pounds.

The weights used to determine the airplane's estimated gross weight at the time of the accident were based on the airplane's most current weight and balance records, the reported weight and reported location of each occupant when the accident airplane departed, and the estimated weight and location of the additional gear/cargo reported by witnesses to the NTSB IIC.

According to the engine manufacturer, at an engine power setting between 70 to 75 percent, the airplane's fuel consumption rate, including takeoff, climb, and cruise flight, is about 14 gallons per hour. At the time of departure from North Pole, the fuel in the airplane was estimated to be about 30 gallons (180 pounds). Using an estimated fuel consumption rate of 14 gallons per hour, with .6 hours time en route to the accident site, the estimated fuel consumed is about 8.4 gallons, or 50.4 pounds.

Empty weight of airplane: 1,722.5 pounds
A/C Fuel @ 30.0 gallons 180.0 pounds
En route fuel burn (.6 Hrs @ 14 Gal/Hr): (50.4 pounds)

Pilot's weight from 6/9/03 medical 205.0 pounds
Passenger (family estimate) 210.0 pounds
Cargo: Diesel fuel in jugs in cabin area 195.0 pounds
Cargo: Iron stove in cabin area 150.0 pounds
Cargo: Passenger's tools/Jacks 200.0
Cargo: Witness reported groceries/cooler 25.0

The estimated gross weight of the airplane at the time of the accident was 2,837.1 pounds.

ADDITIONAL INFORMATION

The Safety Board released the wreckage, located at accident site, to the owner's family on August 7, 2005. The Safety Board retained no parts or components.

Pilot Information

Certificate:	Private	**Age:**	71,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 None	**Last FAA Medical Exam:**	June 1, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	3000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N3188C
Model/Series:	180	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	30987
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	August 1, 2004 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	58.4 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3145.5 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	O-470-L
Registered Owner:	Warren W. Prax	**Rated Power:**	230 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FAI,434 ft msl	**Distance from Accident Site:**	37 Nautical Miles
Observation Time:	10:56 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:		**Visibility**	5 miles
Lowest Ceiling:	Broken / 11000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.79 inches Hg	**Temperature/Dew Point:**	13°C / 6°C
Precipitation and Obscuration:	Light - None - Smoke		
Departure Point:	North Pole , AK	**Type of Flight Plan Filed:**	None
Destination:	Fairbanks , AK	**Type of Clearance:**	None
Departure Time:	09:45 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	64.318885,-147.818328

Administrative Information

Investigator In Charge (IIC):	Johnson, Clinton
Additional Participating Persons:	Roderick Beaman; Federal Aviation Administration; Fairbanks , AK
Original Publish Date:	March 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=62142