Aviation Investigation Final Report

Location:	Koliganek, Alaska	**Accident Number:**	ANC04FA102
Date & Time:	September 4, 2004, 13:00 Local	**Registration:**	N2899M
Aircraft:	Piper PA-12	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot and one passenger departed on a cross-country personal flight in a tundra tire-equipped airplane to go hunting. According to a friend, prior to departure, the pilot added fuel to both of the airplane's 19-gallon wing fuel tanks, and filled three containers with a total of 15 gallons of fuel. He placed the fuel containers in the rear cargo compartment, along with a tent, rifles, ammunition, a cook stove, and other camping items. The pilot-rated passenger's most recent third-class medical certificate listed his weight as 245 lbs. Following the accident, a passing pilot noted a plume of smoke and located the accident airplane nose down in the tundra, fully engulfed in fire. The airplane wreckage came to rest in a near vertical attitude, about one-quarter of a mile from a slightly elevated plateau located to the northwest of the accident site, commonly used as a landing site by pilots with tundra-tire equipped airplanes. Postaccident investigation revealed that the estimated gross weight of the airplane at takeoff was 1,912 pounds, 162 pounds in excess of the airplane's maximum takeoff gross weight. Due to extensive fire damage, the airplane's weight and center of gravity at the time of the accident could not be determined. Examination of the airplane revealed no evidence of any preimpact mechanical anomalies.

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 adequate airspeed while on approach to land, which resulted in an inadvertent stall and an uncontrolled descent.

Findings

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

Findings
1. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
2. STALL - INADVERTENT - PILOT IN COMMAND

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

Findings
3. TERRAIN CONDITION - TUNDRA

Factual Information

HISTORY OF FLIGHT

On September 4, 2004, at an estimated time of 1300 Alaska daylight time, a tundra tire-equipped Piper PA-12 airplane, N2899M, was destroyed by impact and postimpact fire after colliding with tundra-covered terrain, about 13 miles north-northeast of Koliganek, Alaska. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight when the accident occurred. The commercial pilot, and the pilot-rated passenger, received fatal injuries. Visual meteorological conditions prevailed in the area. No flight plan was filed, nor was one required. The flight originated at the Iliamna Airport, Iliamna, Alaska, about 1030.

After departure from the Iliamna Airport, a family friend reported that the pilot intended to fly to an area around Koliganek for the purpose of hunting Caribou, and then return to Iliamna the next day. The family friend added that prior to departing, the pilot packed three containers of additional fuel, totaling 15 gallons, in the airplane's baggage compartment, located behind the rear passenger's seat.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), on September 7, a pilot that was flying close to the area where the accident occurred, said that on the day of the accident, he noticed a plume of smoke over the flat, tundra-covered terrain northeast of Koliganek. Upon closer examination, he located the accident airplane nose down in the tundra, fully engulfed in fire. The pilot said that he was eventually able to land close to the accident site, and hike to the accident airplane's location. He said that by the time he reached the accident site, most of the airplane's wreckage had been consumed by fire.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with airplane single-engine land, and instrument airplane ratings. He also held a commercial helicopter rating. His most recent third-class medical certificate was issued on May 25, 2004, and contained no limitations. On the pilot's application for a medical certificate, dated May 25, 2004, he indicated that his total aeronautical experience consisted of 1,708 hours, of which 110 were accrued in the previous 6 months.

According to the pilot's personal logbook, his total aeronautical experience consisted of about 1,605.0 hours. The last entry in the logbook was dated July 24, 2004. The family member estimated that the accident pilot had flown about 30 additional hours, in the accident airplane, since the last logbook entry. A logbook entry indicated that the pilot underwent a biennial flight review on May 16, 2004.

AIRCRAFT INFORMATION

The airplane had an annual inspection on May 20, 2004. At that time, the airplane had accumulated a total time in service of 4,795.2 hours. The engine had accrued a total time in service of 1,411.5 hours since new, and 177.9 hours since the last engine overhaul.

Airframe and engine maintenance records revealed that on February 6, 1978, the accident airplane had been retrofitted with the installation of a 160 horsepower, Lycoming O-320-B2B engine. The original engine in a Piper PA-12 uses a Lycoming O-235, 115 horsepower engine. The engine was installed in accordance with a Federal Aviation Administration (FAA) approved supplemental type certificate (STC) SA4-456.

On May 1, 1988, the airplane was retrofitted with the installation of extended flaps, flap control system, and modified ailerons. The new flaps were installed in accordance with an FAA approved STC, SA-660.

According to the airplane's weight and balance records, dated February 28, 1996, the empty weight, with tundra tires, was 1,095 pounds. The records indicated the airplane had a maximum gross weight of 1,750 pounds, and the useful load was 655 pounds.

METEOROLOGICAL INFORMATION

The closest official weather observation station is Iliamna, Alaska, which is located 65 nautical miles east of the accident site. On September 4, 2004, at 1253, an automated weather observation system was reporting, in part: Wind, 320 degrees (true) at 9 knots; visibility, 10 statute miles; clear; temperature, 57 degrees F; dew point, 30 degrees F; altimeter, 30.16 inHg.

COMMUNICATIONS

No communications were received from the pilot.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board investigator-in-charge (IIC), and a Federal Aviation Administration (FAA) operations inspector from the Anchorage Flight Standards District Office (FSDO), examined the airplane wreckage at the accident site on September 5, 2004.

The airplane wreckage was found in a near vertical, nose down attitude, in an area of soft, tundra-covered terrain. The terrain around the accident site consisted of flat, tundra-covered terrain. The airplane wreckage came rest about one-quarter of a mile from a slightly elevated plateau, located to the northwest of the accident site. According to local pilots, this slightly elevated plateau is commonly used by pilots with tundra-tire equipped airplanes.

A postaccident fire ignited a 1-acre fire that extended to the southeast of the accident site.

All of the airplane's components were located at the main wreckage area. The airplane's longitudinal axis was oriented on a 250-degree magnetic heading.

Except for the tubular fuselage frame, empennage, and about 2 feet of the outboard portions of both wings, the airplane was consumed by fire.

Both wings had significant spanwise leading edge aft crushing. The outboard half of the left wing had leading edge aft crushing, with more crushing evident along the lower portion of the outboard edge. A single 3 inch deep depression was visible in the tundra, extending from the tip of the left wing, to a point about 3 feet inboard. The depression matched that of the left wing's leading edge. The right wing had leading edge aft crushing. A single 1 inch deep depression was visible in the tundra, extending from the tip of the left wing, to a point about 2 feet inboard. The depression matched that of the right wing's leading edge.

Although burned, both wing lift struts assemblies remained attached to their respective wing and fuselage attach points.

Small portions of paint chips and windshield fragments were found on the ground, around the wreckage point of rest.

Both wing fuel tanks were ruptured and partially consumed by fire. The inboard portion of both wings and the cockpit and cabin area, were incinerated by the postaccident fire.

The remaining aft portion of the tail assembly and empennage remained attached to the fuselage. The tubular structure was melted and twisted downward from its original vertical position. The vertical stabilizer, elevator, and the rudder sustained fire damage, but remained attached.

The flight control surfaces remained connected to their respective attach points. Due to the 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 instrument panel was destroyed by fire.

The engine assembly was buried in the tundra, and could not be inspected at the accident site. After the wreckage was recovered, a follow-up engine examination was conducted on September 19, 2004, in Wasilla, Alaska. The engine sustained fire and impact damage. Both propeller blades remained attached to the engine crankshaft. Both propeller blades had extensive leading edge destruction, "S" bending, torsional twisting, and aft bending of about 30 degrees. No evidence of any preimpact mechanical malfunction was discovered during the wreckage and engine examination.

There was no rear seat control stick discovered during the wreckage examination.

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 September 7, 2004. The cause of death for the pilot was attributed to multiple impact injuries and fire.

A toxicological examination was conducted by the FAA's Civil Aeromedical Institute (CAMI) on October 4, 2004, and was negative for drugs or alcohol.

FIRE

A postcrash fire incinerated most of the airplane.

TESTS AND RESEARCH

During a telephone conversation with the accident pilot's family friend on September 6, 2004, he reported that prior to departure from Iliamna, the pilot added fuel to the accident airplane's wing mounted fuel tanks. He said that the pilot filled three containers with additional fuel, totaling 15 gallons, and then placed them in the airplane's baggage compartment, located behind the rear passenger's seat. In addition, the family friend noted that the passenger aboard the accident airplane was also a rated pilot. A review of the pilot-rated passengers most recent third-class medical certificate, issued to the pilot on July 10, 2003, listed his weight as 245 lbs.

During the on-scene portion of the investigation, the NTSB IIC and the FAA operations inspector discovered remnants of a tent, rifles and ammunition, a cook stove, and other various camping gear items. The postaccident fire destroyed a majority of the material.

The accident airplane was equipped with two 19-gallon wing mounted fuel tanks.

The following weights were used to estimate the airplane's gross weight at takeoff:

Empty weight of airplane:	1,085.0 pounds
Pilot's weight from 05/25/04 medical:	184.0 pounds
Passenger's weight from 07/10/2003 medical:	245.0 pounds
Fuel, 38 gallons:	228.0 pounds
Additional fuel filled containers (totaling 15 gallons):	90.0 pounds
Hunting / camping gear (estimated):	80.0 pounds

The estimated gross weight of the airplane at takeoff was 1,912 pounds, or approximately 162 pounds in excess of the maximum takeoff gross weight of 1,750 pounds. Due to extensive fire damage, the airplane's gross weight and balance at the time of the accident could not be determined.

WRECKAGE RELEASE

The Safety Board released the wreckage, located at accident site, to the owner's representatives on September 5, 2004. The Safety Board retained no parts or components.

Pilot Information

Certificate:	Commercial	**Age:**	31,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
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 Without waivers/limitations	**Last FAA Medical Exam:**	May 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 1, 2004
Flight Time:	1605 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N2899M
Model/Series:	PA-12	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	12-1320
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	May 1, 2004 Annual	**Certified Max Gross Wt.:**	1750 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4795.2 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-320-B2B
Registered Owner:	Ryan D. Hoerner	**Rated Power:**	160 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:	ILI,186 ft msl	**Distance from Accident Site:**	65 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	14°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Iliamna, AK (ILI)	**Type of Flight Plan Filed:**	None
Destination:	Koliganek, AK	**Type of Clearance:**	None
Departure Time:	10:30 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:**	59.912498,-157.012496

Administrative Information

Investigator In Charge (IIC):	Johnson, Clinton
Additional Participating Persons:	William K Bohman; FAA, Anchorage Flight Standards District Office ; Anchorage, AK
Original Publish Date:	September 13, 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=60055