National Transportation Safety Board
Aviation Accident Final Report

Location:	Willow, AK	**Accident Number:**	ANC13FA004
Date & Time:	10/15/2012, 1557 AKD	**Registration:**	N27PH
Aircraft:	GRUMMAN AIRCRAFT ENG CORP C-1A	**Aircraft Damage:**	Destroyed
Defining Event:	Unknown or undetermined	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The airline transport-rated pilot was on the first leg of a flight to deliver fuel to a remote mining site. About 30 minutes after departure, a primary radar track, thought to be that of the accident airplane, showed the airplane make a 180-degree turn back toward the point of departure. Two witnesses described hearing the airplane pass overhead, and both said that "the airplane did not sound right." One witness stated that the airplane flew directly overhead of his location under a low ceiling and was going very slow.

The airplane was severely damaged by a postimpact fire and explosion. A review of on-scene photographs by an NTSB fire and explosives investigator determined that there was no evidence of an in-flight fire.

Analysis of weather in the area around the time of the accident showed that although the ceiling was low, the weather did not play a significant role in the accident.

An NTSB on-scene examination of the airframe revealed no preaccident mechanical anomalies that would have precluded normal operation. However, due to the disposition of the wreckage, a detailed examination of the engines could not be accomplished on-scene. The wreckage was not recovered from the accident site. The circumstances leading up to the accident could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of control of the airplane for reasons that could not be determined because the wreckage was not recovered from the accident site.

Findings

Personnel issues	Aircraft control - Pilot (Cause)
Not determined	Not determined - Unknown/Not determined (Cause)

Factual Information

HISTORY OF FLIGHT

On October 15, 2012, about 1557 Alaska daylight time, a twin-engine Grumman C-1A "Trader" airplane, N27PH, was destroyed when it collided with tree-covered terrain and incurred a postcrash fire and explosion about 19 miles west of Willow, Alaska. The airline transport rated pilot, who was the only occupant, was fatally injured. The airplane was registered to Fuel Services, LLC, Anchorage, Alaska, and was being operated as a 14 CFR Part 91 visual flight rules (VFR) cross-country fuel transport flight when the accident occurred. Marginal visual meteorological conditions were reported at the airplane's point of departure. The accident flight originated from the Wasilla Airport, Wasilla, Alaska, about 1520, en route to the Nixon Fork Mine, about 28 miles northeast of McGrath, Alaska.

According to the co-owner of the airplane, the purpose of the flight was to transport approximately 900 gallons of diesel fuel to a company owned tank that supplies fuel for a mining operation.

When the airplane did not arrive at its destination, the co-owner of the airplane reported it overdue to the Federal Aviation Administration (FAA) at 1757. After being notified of the overdue airplane, personnel from the 11th Air Force's Rescue Coordination Center initiated a search for the missing airplane along its supposed route of flight. On the morning of October 16, an Air National Guard C-130 Hercules was able to locate the wreckage. Rescue personnel aboard a HH-60G helicopter were able to reach the site later that morning, and confirmed the pilot was deceased.

Two witnesses reported seeing the airplane fly over their locations. The first witness saw the airplane as it was flying northwest at an altitude that he estimated at 3,000 to 4,000 feet under an overcast layer. He stated that the airplane did not sound "normal," but he did not notice anything unusual, like smoke, trailing the airplane.

The second witness stated that he saw the airplane fly over his cabin headed southeast at an estimated altitude of 300 to 400 feet. He stated that the airplane sounded like it was "struggling," but he could not see anything abnormal about the airplanes appearance.

Primary radar data taken from the Anchorage Terminal Radar Approach Control Facility (TRACON), shows an unidentified aircraft, believed to be the accident airplane, depart the Wasilla airport about 1522. After departure, the track proceeded to the Northwest with cruising groundspeeds of between 180 and 193 knots. No altitude or transponder code data was transmitted by the airplane. Around 1343 the radar track changed direction and proceeded to the southeast. Groundspeeds after the track changed direction started at 143 knots, and gradually decreased to a low of 117 knots about 5 minutes before the accident. The last radar plot for the airplane was at 1556:47, approximately 5.5 nautical miles from the accident site, and showed a heading of 088 degrees, and a groundspeed of 175 knots.

PERSONNEL INFORMATION

The pilot, age 62, held an Airline Transport Pilot Certificate with airplane multiengine land, airplane multiengine sea, airplane single engine land, airplane single engine sea, and rotorcraft-helicopter ratings. His most recent first-class medical was issued on February 7, 2012, with the limitation that he must have glasses available for near vision.

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. On the pilot's application for medical certificate, dated February 7, 2012, he indicated that his total aeronautical experience was about 25,000 hours, of which 200 were in the previous 6 months.

AIRCRAFT INFORMATION

The airplane was a surplus United States Navy, high-wing, twin-engine, transport airplane manufactured by the Grumman Aerospace Corporation in 1957. It was powered by two Wright R-1820-82WA Cyclone, nine cylinder radial piston engines, each capable of producing 1,525 horsepower.

No logbooks or other maintenance records were located, and according to the owner were onboard the airplane at the time of the accident, and destroyed by the postcrash fire.

METEOROLOGICAL INFORMATION

The closest weather reporting station to the accident site is the Skwentna Airport, Skwentna, Alaska, about 22 miles west. About 63 minutes before the accident, at 1452, a weather observation was reporting, in part: Wind, 350 degrees (true) at 10 knots, gusting to 18 knots; visibility, 15 statute miles; sky condition, scattered at 1,500 feet, 3,000 feet overcast; temperature, 30 degrees F; dew point, 23 degrees F; altimeter, 29.11 inches Hg.

There were two witness reports that included weather conditions from their viewpoint. The first, near Willow, reported that there was an overcast layer about 5,000 feet agl, with no precipitation. The second, about 14 miles northwest of the accident site, reported an overcast ceiling between 600 and 1000 feet, with occasional snow showers. He said that the airplane was flying below the ceiling, going in, and out of some of the low clouds.

See the NTSB Meteorology Report in the public docket for this accident for more detailed weather information.

COMMUNICATIONS

No communications were noted with the accident airplane

WRECKAGE AND IMPACT INFORMATION

The airplane impacted in tree covered terrain on an approximate heading of 125 degrees. Portions of the fragmented airplane were scattered along a debris path oriented along a magnetic heading of 130 degrees, and measured about 240 feet from the point of initial impact to the furthest piece of wreckage. The initial point of impact was noted to be a birch tree, approximately 60 feet from the first point of ground impact.

The first point of ground impact was noted to be the left wing tip. The left wing tip structure was found buried approximately 1 foot under the ground. An impact scar, consistent with the left wing leading edge, extended from the initial ground impact point. Fragments of the left wing were found adjacent to the ground scar. From the first point of impact to the first ground scar, it could be surmised that the angle of impact was approximately 60 degrees nose down.

A postimpact fire and explosion destroyed most of the airplane's structure.

There was an impact crater of size and shape consistent with the left engine and propeller. A second impact crater consistent with the fuselage was adjacent to the first crater. The second

crater contained the empennage, the left engine and propeller, and left engine nacelle. A tree adjacent to the second crater on the southwest edge had significant scraping and marks, as well as two pieces of embedded metal which looked like it came from a propeller. The marks were consistent with contact from the right engine propeller and the empennage.

The empennage remained mostly intact, and came to rest upside down on the edge of the second impact crater. The horizontal stabilizer was mostly undamaged. The vertical stabilizer sustained fire damage consistent with the postimpact fire. No anomalies were noted with either the pitch or rudder trim systems.

Just adjacent to the second crater on the north edge, were the right engine propeller, and the remains of the cockpit and forward fuselage.

A second area of severely burned wreckage was located approximately 15 feet forward of the second impact crater on an approximate 125 degree heading. Amongst the charred wreckage were the remains of the fuselage, a large section of the right wing and engine nacelle, the right engine, and various other pieces of burned wreckage.

The left engine, located in the first impact crater, was partially buried. No anomalies were noted to the visible portion of the exterior of the engine case. The exhaust tubes had malleable bending and folding, producing sharp creases that were not cracked or broken along the creases. The left propeller remained attached to the engine. All three blades were bent aft and exhibited a slight amount of torsional S-bending. The left propeller hub also showed rotational scoring.

The right engine, located in the second area of wreckage, sustained severe thermal damage during the postaccident fire. The exhaust tubes showed no signs of ductile folding. The right propeller separated from the engine at the crankshaft. All three blades showed leading edge gouging, chord wise scratching, and torsional S-bending.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was done under the authority of the Alaska State Medical Examiner, Anchorage, Alaska, on October 17, 2012. The examination revealed that the cause of death for the pilot was attributed to blunt force injuries.

A toxicological examination by the FAA's Civil Aeromedical Institute (CAMI) on January 9, 2013 was negative for any carbon monoxide, alcohol, or drugs.

FIRE

A review of the on-scene photos by an NTSB fire and explosives investigator revealed that there was no evidence of an in-flight fire.

ORGANIZATIONAL AND MANAGEMENT INFORMATION

The company was set up to transport fuel to support mining operations at various locations throughout Alaska. Since the operator leased the fuel farms that they delivered fuel to, it was not required for them to operate as a FAR Part 135 carrier.

ADDITIONAL INFORMATION

About 3 months prior to the accident, the airplane was involved in a gear up landing, which required inspection of the engine, and replacement of the engine propellers for both engines. The operator told the NTSB IIC that the inspections were satisfactory, but could not provide

documentation to support.

A more detailed examination of the airframe and engines was not possible because the wreckage was never recovered from the accident site.

The operator did not fill out the required NTSB Pilot/Operator accident reporting form 6120.1.

History of Flight

Enroute	Unknown or undetermined (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Airline Transport	**Age:**	62
Airplane Rating(s):	Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With Waivers/Limitations	**Last FAA Medical Exam:**	02/07/2012
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	25000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GRUMMAN AIRCRAFT ENG CORP	**Registration:**	N27PH
Model/Series:	C-1A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Restricted	**Serial Number:**	136791
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	WRIGHT
ELT:	C91A installed, not activated	**Engine Model/Series:**	R-1820 SER
Registered Owner:	Fuel Services, LLC	**Rated Power:**	1475 hp
Operator:	Fuel Services, LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	PASW	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	1452 ADT	**Direction from Accident Site:**	280°
Lowest Cloud Condition:	Scattered / 1500 ft agl	**Visibility**	14 Miles
Lowest Ceiling:	Overcast / 3000 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / 18 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	-1°C / -5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wasilla, AK (PAWS)	**Type of Flight Plan Filed:**	None
Destination:	Nixon Fork Mine, AK (AK40)	**Type of Clearance:**	None
Departure Time:	1420 ADT	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-Ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	61.833611, -150.560556 (est)

Administrative Information

Investigator In Charge (IIC):	Christopher R Shaver	**Report Date:**	04/10/2014
Additional Participating Persons:	Christina Bryant; FAA Anchorage FSDO; Anchorage, AK Pete Hageland; Type Certificate Holder for the Accident Airplane; Fairbanks, AK		
Publish Date:	04/10/2014		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=85340		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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.