National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: CEN09FA126	Aircraft Registration Number: N604WP
Occurrence Date: 01/11/2009	Most Critical Injury: Fatal
Occurrence Type: Accident	Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Hayden	CO	81639	0942	MST	

Airport Proximity: Off Airport/Airstrip

Distance From Landing Facility: 1

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
PILATUS AIRCRAFT LTD	PC-12/45	Airplane

Revenue Sightseeing Flight: No

Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

HISTORY OF FLIGHT

On January 11, 2009, at 0942 mountain standard time (MST), N604WP, a Pilatus PC-12/45 single-engine turbo-prop airplane, was substantially damaged on impact with terrain following a loss of control shortly after takeoff from the Yampa Valley Airport (HDN), Hayden, Colorado. The private pilot and passenger were fatally injured. The airplane was owned and operated by the Rooney Consulting and Aviation LLC., of Bandon, Oregon. Instrument meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the 14 Code of Federal Regulations Part 91 personal flight. The 633-nautical mile cross-country flight, which was originating at the time of the accident, was destined for the Chino Airport (CNO), Chino, California.

According to the General Manager at Galaxy Aviation, a Fixed Base Operator (FBO) located at HDN, the pilot contacted him about 0730 and asked that the airplane be pulled from its heated hangar and fueled. The airport manager suggested to the pilot that they wait to pull the airplane until after he arrived in order to prevent falling snow from accumulating on the airplane. The pilot agreed and called again around 0800 to let the manager know that he and his passenger had arrived.

Three line crew members assisted in getting the airplane ready for departure. The line crew members reported that once the airplane was pulled outside, the pilot performed a walk around inspection before he and the passenger boarded the airplane. While the pilot and passenger remained in the airplane, the airplane was fueled about 0917, and then pulled out to the taxiway in an effort to prevent it from becoming stuck in the snow. The line crew also reported "heavy" snowfall from the time the airplane was pulled from the hangar until the airplane departed. In addition, two of the line crew members reported seeing an accumulation of "wet snow" on the airplane's wings. One of the two line crew members described the accumulation on the wings as probably a good inch of slushy wet snow. A line crew member also reported that the FBO manager had suggested to the pilot that he taxi to fuel and de-ice because of the accumulating heavy wet snow; however, the pilot declined.

The three line crew members described what they observed during the airplanes takeoff roll. One reported that the airplane did not take too long to takeoff and that it appeared normal. Another said it appeared as if the airplane was not picking up enough speed during takeoff. The third one stated that it was a slow takeoff roll as if the airplane was heavy. In addition, the FBO manager estimated the airplanes takeoff roll to be about 4,000 feet and then observed the airplane make a shallow right bank before flying out of sight.

Airport fire department personnel reported the airplane departed from runway 28 at 0939. A fireman, who observed the airplane takeoff, reported that the airplane appeared to level off momentarily about 500-feet above ground level (AGL) before entering a right turn. He then lost site of the airplane due to reduced visibility.

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Footage taken by an automated airport camera located on top of the airports terminal building, showed the airplane for about 5 seconds as it climbed and then appeared to level off or slightly descend, before leaving the cameras view.

When the pilot did not check in with the Denver Air Traffic Control Center after departure, a search was initiated, and the airplane was found adjacent to the airport a short time later. The airplane was fully engulfed in flames.

Radar data revealed that the airplane entered a right turn after takeoff. The right turn continued to tighten through approximate 270 degrees, until the airplane impacted the ground approximately 1 mile north-northwest from the approach end of runway 28. The data also revealed the airplane had momentarily leveled off about 200-feet AGL, and reached a maximum altitude of approximately 900-feet AGL during the turn.

PERSONNEL INFORMATION

The pilot, age 54, held a private pilot certificate with ratings for airplane single-engine land and instrument airplane. His last Federal Aviation Administration (FAA) third-class medical was issued on June 25, 2008, with the limitations that he must have glasses available for near vision, the medical was not valid for any class after June 30, 2009, and the medical was not valid outside the borders of the United States.

A copy of the pilots logbook revealed that as of the last entry dated March 10, 2008, the pilot had accumulated an estimated 867 flight hours; of which 82 hours were in the accident airplane. Included in that time were 55 flight hours of actual instrument conditions and 57 flight hours of simulated instrument conditions. The pilot had completed his most recent biannual flight review and instrument proficiency check on March 10, 2008. In addition, a training certificate indicated that the pilot had successfully completed recurrent training for the Pilatus PC-12/45 from American Air Safety Accreditations LLC., on March 10, 2008.

Per a signed document dated March 12, 2008, the pilot reported a total of 1,720 flight hours of which 559 hours where in turbine aircraft. On the pilots last medical application dated June, 25, 2008, the pilot listed a total of 2,000 flight hours with 150 flight hours in the previous 6 months.

Flight records for the 9 months preceding the accident were not recovered during the course of the investigation.

AIRPLANE INFORMATION

The 2004-model Pilatus Aircraft LTD., PC-12/45, serial number 604, was a pressurized low wing airplane, with a retractable landing gear, and was configured for 8 occupants. The airplane was powered by a single, Pratt & Whitney Canada PT6A-67B turbo-prop engine, rated at 1,200 horsepower, and was driving a four-bladed constant speed Hartzell propeller.

According to the airplanes logbooks, the airframe and engines most recent annual inspection was completed on January 2, 2008, with an airframe and engine total time of 558.4 hours.

According to a fuel receipt dated January 11, 2009, the airplane was fueled at HDN, about 0917, with 100 gallons of Jet A aviation fuel.

METEOROLOGICAL INFORMATION

At 0935, the automated weather observing system at Hayden Airport (HDN), reported wind from 100 degrees at 4 knots, visibility of 3/4 of a mile, overcast sky at 1,200 feet, temperature 19 degrees

Narrative (Continued)

Fahrenheit, dew point 18 degrees Fahrenheit, with an altimeter setting of 30.38 inches of Mercury.

The automated weather observation system at HDN did not have a precipitation discriminator; however, airport personnel were reporting heavy snowfall as the airplane was pulled from its hangar through the time the airplane departed.

According to the General Manager at Galaxy Aviation, the runway conditions at the time of the airplanes departure were reported as Thin Loose/Packed Snow.

AIDS TO NAVIGATION

The initial waypoint on the pilots filed flight plan was the Hayden VOR/DME (CHE). CHE was located 4.5 miles from the departure end of runway 28 on a heading of 301 degrees. To fly direct to the VOR the pilot would have needed to make a course correction of approximately 20 degree to the right, after takeoff.

COMMUNICATIONS

According to a transcript of weather service communications, on January 10, 2009, at 2036, the pilot contacted a Prescott Automated Flight Service Station (AFSS) weather briefer, and filed an IFR flight plan for 0700 the next morning. During the conversation the pilot reported that he had planned to leave that morning; however, because of high winds at his destination airport he elected to depart the next morning. The pilot discussed with the briefer that he needed to be at an engagement near his intended destination the next day at 1200 pacific standard time (PST). During the call he brought the subject of the engagement up several times and discussed what time he would need to leave in order to make the engagement.

On January 11, 2009, at 0721, the pilot again contacted a weather briefer at Prescott AFSS and inquired as to the expected winds at his destination airport for the estimated time of arrival. The pilot did not request weather conditions for his departure airport, and when asked if he would like weather information for his route of flight he declined; however, the evening before while talking to a weather briefer the pilot mentioned that he had been checking weather conditions with his personal computer.

According to a transcript of air traffic control communications, at 0937:20, the accident pilot contacted the Denver air route traffic control center sector 11 radar controller (referred to as Denver Center) and reported that he was holding short of runway 28 and that he had an IFR filed to Chino California.

At 0937:42 the controller stated that the pilot was cleared from Hayden Airport to Chino Airport as filed and instructed him to climb and maintain flight level 260, squawk 6533, and report when airborne to which the pilot acknowledged. At 0938:07 the controller informed the pilot that the weather is marginal and that the ceilings pretty low. The pilot acknowledged and asked if he was cleared for takeoff to which the controller replied, affirmative report airborne. At 0938:29 the pilot stated, well report airborne.

About 0939 airport personnel heard the pilot announce over the airports Unicom frequency that he was departing runway 28 and shortly thereafter heard the pilot report, headed to Craig VOR.

No further radio communications were received from the pilot.

AIRPORT INFORMATION

The Yampa Valley Airport (HDN) was a non-towered airport operated by Routt County. The field elevation was 6,606-feet mean sea level (MSL). The airport featured a single 10/28 asphalt runway

Narrative (Continued)

which was 9,998-feet long, by 150-feet wide. A left hand traffic pattern was noted for runway 28.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a snow covered field, approximately 1 mile north-northwest from the approach end of runway 28. Snow was in excess of 1 foot deep and investigators accessed the site via a snowcat. The airplane had impacted the ground while inverted and in a nose down attitude of approximately 70 degrees. The debris field encompassed an area approximately 265-feet long and approximately 50-feet wide, on a magnetic heading of 135 degrees. Following the onsite documentation, the airplane was recovered to a secure location. Another search of the area was performed after the spring thaw and additional parts were recovered. All major components of the airplane were accounted for.

The cabin area, forward fuselage, and sections of both wings were nearly consumed in the post crash fire. The empennage remained attached to a section of the aft fuselage. The horizontal and vertical stabilizers, each elevator and the rudder remained attached in their respective positions.

The aileron trim and the rudder trim were found in their neutral positions and the stabilizer trim was in the green take-off range. The landing gear and flaps were found in the fully retracted position. Partial control continuity was established for all flight controls; however, control continuity in the cockpit area could not be established due to thermal and impact damage.

The airplane was equipped with three components that included non-volatile memory. These included the Engine Instrument System (EIS), the Flap Control and Warning Unit (FCWU), and the Central Advisory and Warning Computer (CAWC). All three units were found impact and thermally damaged and no data could to be extracted. An electric attitude indicator was located and examined. The internal gyroscope and the gyroscope housing contained rotational scoring signatures consistent with operation at the time of impact.

The engine was located about 36 inches below the ground surface. The engine was removed and partially disassembled. Rotational signatures observed on the compressor, compressor turbine, and the power turbines were consistent with the engine producing power at the time of impact.

The propeller hub remained attached to the engine. Blade A remained attached to the hub and exhibited leading edge polishing and S bending. Blades B and C remaining attached to the hub, were pushed aft toward the engine, and exhibited leading edge polishing. Blade D was found separated from the hub and exhibited leading edge polishing.

No anomalies were found with either the engine or airframe that would have contributed to the loss of control.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on January 13, 2009, by the Jefferson County Coroners Office in Golden, Colorado.

The FAAs Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. The toxicology report stated no ethanol was detected in the liver or the muscle, and no drugs were detected in the liver.

TEST AND RESEARCH

Shortly after the accident, the fuel truck that had serviced the accident airplane was quarantined and the fuel tested. The results were negative for contamination.

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ADDITIONAL INFORMATION

The Federal Aviation Administration (FAA) issues Official FAA Holdover Time Tables to be used to determine a time period of protection that an airplane can be exposed to various weather conditions without adversely affecting the airplanes handling characteristics. According to Table 1B, Snowfall Intensities as a Function of Prevailing Visibility, when using the recorded temperature of 18 degrees Fahrenheit and the recorded visibility of 3/4 of a mile, the snowfall was categorized as moderate.

According to Table 1, FAA Guidelines for Holdover Times SAE Type I Fluid Mixtures as a Function of Weather Conditions and Outside Air Temperature, the holdover period for Type I deicing fluid for moderate snow and for a temperature of 18 degrees Fahrenheit, would result in a 4 to 6 minute window of protection from the time of being anti-iced to takeoff. If the snow was identified as heavy, as indicated by airport personnel, no holdover period was available.

The Pilatus PC-12 Pilot Operating Handbook (POH) and Airplane Flight Manual (AFM), dated September 3, 2007, section 2, page 2-15, contained the following limitation:

"The aircraft must be clear of all deposits of snow, ice and frost adhering to the lifting surfaces immediately prior to takeoff"
Updated on Mar 14 2011 10:39AM

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Landing Facility/Approach Information

Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
Yampa Valley Airport	HDN	6606 Ft. MSL	28	9998	150

Runway Surface Type: Asphalt

Runway Surface Condition: Snow

Approach/Arrival Flown: NONE

VFR Approach/Landing: None

Aircraft Information

Aircraft Manufacturer	Model/Series	Serial Number
PILATUS AIRCRAFT LTD	PC-12/45	604

Airworthiness Certificate(s): Normal

Landing Gear Type: Retractable - Tricycle

Amateur Built Acft?	Number of Seats:	Certified Max Gross Wt.	Number of Engines:
	8	LBS	1

Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:
Turbo Prop	Pratt & Whitney Canada	PT6A-67B	1200 HP

- Aircraft Inspection Information

Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time
Annual	01/2008	Hours	558 Hours

- Emergency Locator Transmitter (ELT) Information

ELT Installed?/Type	ELT Operated?	ELT Aided in Locating Accident Site?
Yes / Unknown	No	No

Owner/Operator Information

Registered Aircraft Owner	Street Address	City	State	Zip Code
ROONEY CONSULTING & AVIATION LLC	56006 PARKERSBURG RD	BANDON	OR	97411-7404

Operator of Aircraft	Street Address	City	State	Zip Code
ROONEY CONSULTING & AVIATION LLC	56006 PARKERSBURG RD	BANDON	OR	97411-7404

Operator Does Business As:

Operator Designator Code:

- Type of U.S. Certificate(s) Held: None

Air Carrier Operating Certificate(s):

Operating Certificate:

Operator Certificate:

Regulation Flight Conducted Under: Part 91: General Aviation

Type of Flight Operation Conducted: Personal

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First Pilot Information

Name	City	State	Date of Birth	Age
On File	On File	On File	On File	54

Sex: M | Seat Occupied: Left | Occupational Pilot? No | Certificate Number: On File

Certificate(s): Private

Airplane Rating(s): Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Current Biennial Flight Review? 03/2008

Medical Cert.: Class 3 | Medical Cert. Status: With Waivers/Limitations | Date of Last Medical Exam: 06/2008

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air
Total Time	867	82	867		40	55	57			
Pilot In Command(PIC)	867	82	867							
Instructor										
Instruction Received										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

Seatbelt Used? Unknown | Shoulder Harness Used? Unknown | Toxicology Performed? Yes | Second Pilot? No

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point	State	Airport Identifier	Departure Time	Time Zone
Hayden	CO	HDN	0939	MST

Destination	State	Airport Identifier
Chino	CA	CNO

Type of Clearance: IFR

Type of Airspace:

Weather Information

Source of Wx Information:

Internet

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
HDN	0935	MST	6606 Ft. MSL	1 NM	240 Deg. Mag.

Sky/Lowest Cloud Condition: Partial Obscuration Ft. AGL

Condition of Light: Day

Lowest Ceiling: Overcast 1200 Ft. AGL

Visibility: 0.75 SM

Altimeter: 30.38 "Hg

Temperature: -7 °C

Dew Point: -8 °C

Weather Conditions at Accident Site: Instrument Conditions

Wind Direction: 100

Wind Speed: 4

Wind Gusts:

Visibility (RVR): Ft.

Visibility (RVV) SM

Precip and/or Obscuration:

Blowing - Snow

Accident Information

Aircraft Damage: Destroyed

Aircraft Fire: Ground

Aircraft Explosion None

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers	1				1
- TOTAL ABOARD -	2				2
Other Ground					
- GRAND TOTAL -	2				2

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Administrative Information

Investigator-In-Charge (IIC)

Timothy LeBaron

Additional Persons Participating in This Accident/Incident Investigation:

Randy Kind
Federal Aviation Administration
Denver, CO

Konrad Oetiker
Pilatus Aircraft Ltd
Stans, Switzerland,

Paul Crosby
Pratt & Whitney Canada
Bridgeport, WV

Bob Renshaw
Pilatus Aircraft Ltd
Broomfield, CO