Aviation Investigation Final Report

Location:	Johnstown, Pennsylvania	**Accident Number:**	NYC07FA051
Date & Time:	December 26, 2006, 15:55 Local	**Registration:**	N400CS
Aircraft:	Cessna 414	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The airplane encountered in-flight icing, and the pilot diverted to an airport to attempt to knock the ice off at a lower altitude. During the instrument approach, the pilot advised the tower controller of the ice, and that it depended on whether or not the ice came off the airplane if she would land. As the airplane broke out of the clouds, it appeared to tower personnel to be executing a missed approach; however, it suddenly "dove" for the runway. The tower supervisor noticed that the landing gear were not down, and at 75 to 100 feet above the runway, advised the pilot to go around. The airplane continued to descend, and by the time it impacted the runway, the landing gear were only partially extended, and the propellers and airframe impacted the pavement. The pilot then attempted to abort the landing. The damaged airplane became airborne, climbed to the right, stalled, and nosed straight down into the ground.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper decision to abort the landing with a damaged airplane. Contributing to the accident were the damage from the airplane's impact with the runway, the pilot's failure to lower the landing gear prior to the landing attempt, and the in-flight icing conditions.

Findings

Occurrence #1: WHEELS UP LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. LANDING GEAR - OTHER
2. CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
3. (F) PROCEDURES/DIRECTIVES - DELAYED - PILOT IN COMMAND

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
4. TERRAIN CONDITION - RUNWAY

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CLIMB

Findings
5. (F) AIRFRAME - PREVIOUS DAMAGE
6. ABORTED LANDING - PERFORMED - PILOT IN COMMAND
7. (C) PLANNING/DECISION - IMPROPER - PILOT IN COMMAND

Occurrence #4: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #5: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
8. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On December 26, 2006, at 1555 eastern standard time, a Cessna 414, N400CS, operated by Flight Source, LLC, was destroyed when it impacted terrain at John Murtha Johnstown-Cambria County Airport (JST), Johnstown, Pennsylvania. The certificated commercial pilot and the flight nurse were fatally injured. The flight was operating on an instrument flight rules flight plan, between Morgantown Municipal-Walter L. Bill Hart Field (MGW), Morgantown, West Virginia, and Teterboro Airport (TEB), Teterboro, New Jersey. The positioning flight was conducted under 14 Code of Federal Regulations Part 91.

According to company personnel, the airplane was en route to Teterboro to embark a patient for medical transport.

According to a Federal Aviation Administration (FAA) partial air traffic control transcript, at 1521, the pilot contacted Cleveland Center climbing though 3,400 feet for 8,000 feet. The pilot was told to proceed direct to Stillwater, direct Teterboro, and maintain 9,000 feet, which the pilot acknowledged.

At 1527, the pilot requested a climb to 13,000 feet, as "we're getting iced up pretty bad here." The controller then cleared the airplane to 13,000 feet. When queried about the icing conditions, the pilot responded that the temperature was "about minus three…and we're getting moderate mixed."

At 1529, the pilot noted, "I can't climb any farther," and requested 7,000 feet. The controller approved a descent to 5,000 feet, and "if you want to level off on descent, that's approved."

At 1531, the pilot noted that at 7,000 feet, "we're keeping up with it, I'd like to stay here for now," which was approved.

At 1538, when queried by the controller, the pilot stated "we're just barely keeping up with it," and requested 5,000 feet, and 3,000 feet "as we head eastbound." The controller advised the pilot, "I can't do three out in that area," and cleared the pilot to descend to 5,000 feet.

The pilot then responded, "I'll keep that as an option for now…I may get to a point where I can't hold my altitude…maybe making an approach to an airport just to get me down to, like twenty five hundred feet to shed the ice off and go a missed and then continue on my way." The controller responded that "right now, you're pretty much lined up for the localizer at Johnstown, so if you need to do that just let me know," which the pilot acknowledged.

About 1 minute, 20 seconds later, the pilot requested the "localizer at Johnstown, and see if I can get some of this off and then I'll continue on my way."

Over the next several minutes, the controller coordinated the approach sequencing with another controller, and at 1542, provided a heading for the instrument landing system (ILS) runway 33 approach, and a descent to 5,000 feet, which the pilot acknowledged.

At 1543, the controller provided the pilot the airport weather, which included winds from 300 degrees at 15, gusting to 20 knots, visibility 7 miles, a 300-foot overcast, temperature 0 degrees Celsius (C), dew point -1 degree C, and a ceiling variable from 200 to 600 feet.

The pilot acknowledged the weather, and also stated, "if our ice comes off, we intend to go missed."

The controller then coordinated with the Johnstown Tower, and received a more current weather observation. At 1545, the controller advised the pilot that the weather included an overcast cloud layer at 500 feet, temperature 0 degrees C, dew point -1 degree C, and visibility 4 miles.

At 1546, the controller provided a final vector, and cleared the pilot for the ILS runway 33 approach.

At 1549:36, the controller noted that the airplane was established on the localizer, radar service terminated, "change over to Johnstown Tower one two five point seven five."

At the time of the accident, the tower was being staffed by an air traffic control supervisor, an air traffic control specialist, and an air traffic control trainee. According to the supervisor, since neither the pilot nor Cleveland Center had declared an emergency to the tower, the trainee was the primary controller, backed by the supervisor.

At 1549:52, the pilot reported that the airplane was on the "i-l-s three three," and the trainee asked if she was going to execute a missed approach or a full stop landing.

At 1550:04, the pilot replied, "it depends if my ice comes off or not...if the ice does not come off we're gonna land."

At 1550:17, the tower trainee replied, "roger and keep me advised."

There were no further transmissions from the pilot.

According to the tower supervisor, just before the airplane "broke out" of the clouds, he told the trainee to provide the pilot with the current winds.

At 1554:13, the trainee radioed, "wind check three one zero at seventeen gust twenty one."

According to the tower supervisor, who was then using binoculars, he saw the airplane break out of the clouds about 300 feet above the ground, right of course, approximately over taxiway B. The airplane appeared to be turning slightly to the right and climbing, and all three controllers commented that they thought the airplane was executing a missed approach. "All of a sudden," the airplane made a rapid turn to the left, toward the runway, and "began dropping like a rock, just dropping." The supervisor saw that the landing gear was not down, and told the trainee to warn the pilot.

At 1554:21, the trainee radioed, "check wheels down."

At 1554:23, when the airplane was "about 75-125 feet," the supervisor radioed, "go around, go around, go around."

The supervisor then saw the airplane make a "hard" landing, about 2,000 feet beyond the runway threshold, on the left side of the runway, "like a Navy carrier landing." He also saw a "puff of dust," and thought the airplane had landed half on and half off the runway. He then observed the airplane take off again, "almost perfectly; it flew straight ahead" for 2,000 to 3,000 feet, and the landing gear was then down. The airplane subsequently made a right turn, "like in a midfield, right closed pattern," but then made "a steep nose dive into the grass infield."

An employee of a fixed base operator reported that he was at the fuel farm when he heard and saw the airplane climbing up from runway 33. He initially saw it "at 20 feet, the motors were pulling strong and hard, but it did not sound like a normal noise coming from the props and engine." The airplane then climbed to "approximately 150 feet and [traveled] a total distance of approximately 1,000 feet" before it began to "lean to the right with the left wing vertical...I hoped it was some kind of military aircraft flying maneuvers." The airplane was "still powering when it arched and took a nose dive to the ground."

According to a report filed by a local police officer, a witness in the passenger terminal stated that he saw the airplane "coming in at a very steep angle and at a high rate of speed." The airplane then "struck the runway" and "debris [flew] from the plane." The airplane then "went straight up nose first...to approximately 100 feet...and rolled toward the terminal building." It subsequently "took a nosedive straight down in to the ground" and "burst into flames" 20 to 30 seconds later.

Additional witnesses in the passenger terminal relayed similar observations.

PERSONNEL INFORMATION

The pilot, age 47, held a commercial pilot certificate with ratings for airplane single engine land, multi-engine land, and instrument airplane. She also held a flight instructor certificate for airplane single and multi-engine, and instrument airplane. Her latest FAA second class medical application was dated May 22, 2006.

According to company records, the pilot had a total of 3,547 flight hours, and 382 hours of flight time with the company. The pilot's last flight before the accident flight was on December 23, 2008, when she flew 9.2 hours during a 14-hour duty day.

The pilot passed an FAR 135 Airman Competency/Proficiency check on September 6, 2006.

According to the pilot's husband, she returned home from another trip on December 23, and was at home all day on December 24 and 25. They were having brunch at a restaurant on December 26, when the company called about the flight. The pilot's husband also noted that she slept well on the nights of December 24 and 25, and that there were no issues at home. He also did not indicate any significant issues with the company.

AIRCRAFT INFORMATION

The airplane, which was manufactured in 1975, was powered by two Teledyne Continental TSIO-520 NB engines. The latest 100-hour inspection was completed on December 20, 2006, at a total aircraft time of 5,893.4 hours.

The airplane was equipped with deicing wing boots, electric propeller deicing, and an alcohol system for deicing the windshield.

On April 14, 2006, Airworthiness Directive 05-18-20, "Propeller De-icer Bond" was complied with.

On April 14, 2006, the propeller deice brush blocks were removed and replaced on both engines.

On May 2, 2006, the left engine de-ice flow control valve was removed and replaced. "Performed operational check of surf. Deice sys. - No defects noted at this time"

AIRPORT INFORMATION

Runway 33, consisting of grooved asphalt, was 7,003 feet long and 150 feet wide. Touchdown zone elevation was 2,260 feet.

METEOROLOGICAL INFORMATION

Weather, reported at the airport at 1554, included winds from 300 degrees true, at 16, gusting to 21 knots, visibility 5 statute miles, mist, a broken cloud layer at 700 feet, an overcast cloud layer at 1,400 feet, temperature 0 degrees C, dew point -1 degree C, altimeter setting 29.56 inches Hg.

Weather, reported at the airport at 1607, included winds from 310 degrees true, at 13 knots,

3/4 mile visibility, light snow and mist, a broken cloud layer at 700 feet, an overcast cloud layer at 1,400 feet, temperature 0 degrees C, dew point -1 degree C, altimeter setting 29.56 inches Hg.

At 1422, the pilot contacted the Cleveland Automated Flight Service Station to file two flight plans, one for 9,000 feet, the accident flight, and another for 10,000 feet from Teterboro to the Milwaukee area. The pilot also received weather briefings for each intended flight. During the briefing, the briefer advised of "moderate icing conditions from the freezing level to seventeen thousand feet," and "southwest Pennsylvania light to moderate rime icing. The briefer also reported temperatures in several states, and stated, "so pretty much you can expect ice…from about two thousand feet and you'll have to keep a close eye on it…they just say moderate ice now." The briefer also noted that the lowest freezing level was at 6,000 feet.

WRECKAGE AND IMPACT INFORMATION

An examination of runway 33 revealed an initial series of 12 gouges near the left side, beginning just prior to the 5,000-foot remaining sign (or 2,000 feet beyond the approach end of the runway.) The positions of the gouges correlated to the airplane's left engine propeller and ranged from approximately 43 inches apart at the beginning, to 47 inches apart at the end of the 40-foot series. The series veered about 20 degrees toward the runway's left edge.

About 70 feet beyond the end of the initial gouges, and just beyond the 5,000-foot remaining sign, were black skid marks. The skid mark positions correlated to landing gear wheels, with the main gear skid marks about 45 inches inboard from the normal, gear-fully-down position.

Immediately beyond the skid marks were two additional, parallel series of gouges, the same distance apart as the accident airplane's propellers would have been. Both series of gouges continued along the 20-degree veer toward the runway's left edge, and were about 20 feet in length. The distances between the seven gouges from the right gouge series increased from about 26 inches at the beginning, to about 52 inches by the end.

Between the two parallel series of gouges, about 20 feet beyond the original skid marks, were paint scrapings of the same color as the airplane's paint.

The left series of gouges continued in a straight line, into the grass next to the runway, at increasing distances between each gouge. About 40 feet beyond the runway, there was an additional gouge, in a position consistent to where the airplane's left tip tank would have been.

The gouges, along with paint chips, ice chunks and displaced clumps of grass, continued to angle off for about 200 feet, then minimized as the path angled back toward the runway for another 200 feet, in a direction towards the final crash site. There were no additional marks on the runway.

The accident site was located in the airport's midfield area, between runways 33, 23, and

taxiway G, in the vicinity of 40 degrees, 18.95 minutes north latitude, 78 degrees, 50.05 minutes west longitude.

There was no wreckage path, but there were ground craters that correlated to the positions of the leading surfaces of the airplane's right wingtip tank, right engine, nose compartment, and left engine. The majority of the wreckage was displaced about 20 feet to the left of the craters.

All flight control surfaces were accounted for at the scene, and control continuity was confirmed from the cockpit area to all flight control surfaces. Main wing leading edges were accordion-shaped and pushed aft. The cockpit area and cabin were fire-damaged, and almost all cockpit instruments and gauges were destroyed.

Flap positions could not be determined. The landing gear were down and the tires were inflated. The undersides of both main landing gear doors exhibited longitudinal (fore to aft) paint and metal scraping, as did the remnants of the underside of the nose compartment.

The nose landing gear was about 50 feet from the main wreckage, and the tire was inflated.

The left engine was separated from the wreckage, and all three propeller blades were separated from the hub. All of the blades exhibited severe tip damage and bending. Two of the blades also exhibited multiple coiling along the outboard third of their lengths.

The right engine remained attached to the fuselage by cables. One of the propeller blades was separated from the hub, and exhibited blade tip damage, as well as severe coiling along the outboard third of its length. The two remaining propeller blades were broken in the hub, and exhibited missing blade tip material, as well as outboard coiling.

Both engines exhibited severe impact damage.

The runway had been swept of debris and ice, and airplane remnants near the initial propeller strikes had been removed from the grass prior to Safety Board arrival. However, photographs of the runway before it was cleared, along with a statement, were provided by an initial responder. According to the responder, he "proceeded to runway 33 and noticed a large amount of ice pieces, which started at the 2,000-foot mark and extended in a 'V' pattern approximately for 1,000 feet." He also noted that the ice pieces ranged in size from "long horizontal pieces, to golf ball and baseball sizes." In addition, he observed the left wing tip tank in two pieces in the grass, along with three belly antennas.

MEDICAL AND TOXICOLOGICAL INFORMATION

On December 27, 2007, an autopsy was performed on the pilot at the Conemaugh Valley Hospital, Johnstown, Pennsylvania. Cause of death was determined to be "multiple traumatic injury due to blunt force trauma." Toxicological testing could not be performed.

Pilot Information

Certificate:	Commercial; Foreign	**Age:**	47,Female
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1	**Last FAA Medical Exam:**	May 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 1, 2006
Flight Time:	3547 hours (Total, all aircraft), 68 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N400CS
Model/Series:	414	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	414-0613
Landing Gear Type:	Retractable - Tricycle	**Seats:**	5
Date/Type of Last Inspection:	December 1, 2006 100 hour	**Certified Max Gross Wt.:**	6350 lbs
Time Since Last Inspection:	11 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	5904 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO 520
Registered Owner:	Wharf Place LLC	**Rated Power:**	310 Horsepower
Operator:	Flight Source LLC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	O9UA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	JST,2277 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:54 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	5 miles
Lowest Ceiling:	Broken / 700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.55 inches Hg	**Temperature/Dew Point:**	0°C / -1°C
Precipitation and Obscuration:	N/A - None - Mist		
Departure Point:	Morgantown, WV (MGW)	**Type of Flight Plan Filed:**	IFR
Destination:	Teterboro, NJ (TEB)	**Type of Clearance:**	IFR
Departure Time:	15:20 Local	**Type of Airspace:**	

Airport Information

Airport:	Murtha Johnstown JST	**Runway Surface Type:**	Asphalt
Airport Elevation:	2284 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	33	**IFR Approach:**	ILS
Runway Length/Width:	7003 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	40.315834,-78.834167

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	Scott Alexander; FAA/FSDO (Allegheny); Pittsburgh, PA Henry Soderlund; Cessna Aircraft Company; Wichita, KS Mark Shipley; Flight Source LLC; Morgantown, WV
Original Publish Date:	September 26, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65072