



Aviation Investigation Final Report

Location:	Lewiston, Maine	Accident Number:	IAD02LA021
Date & Time:	December 20, 2001, 20:00 Local	Registration:	N207TA
Aircraft:	Cessna 208B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

Snow fell as the pilot cleared the airplane using a ladder and broom. A pre-takeoff contamination check was also conducted from the cockpit before the airplane taxied onto the snow-covered runway. Once on the runway, the pilot back-taxed its full length and deployed a 10-degree flap setting for departure. The pilot began the takeoff roll and rotated the airplane when it reached 90 knots. The main wheels lifted off momentarily, then settled back on the runway. The takeoff was aborted, but the airplane overran the runway departure end of the runway and collided with the localizer antenna. A post-accident review of the company operations manual by the operator and the Federal Aviation Administration resulted in more stringent de-icing requirements for the flight crews and the addition of takeoff performance planning, as well as aborted takeoff criteria considerations for operations on contaminated runways. Included in the new de-icing procedures was the mandatory use of de-icing fluid prior to taxi in freezing precipitation with outside air temperatures between plus 2 and minus 4 degrees Celsius.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to adequately ensure the wings were free of contamination prior to departure. Factors included the operator's inadequate de-icing procedures and the snowy weather conditions.

Findings

Occurrence #1: OVERRUN

Phase of Operation: TAKEOFF - ABORTED

Findings

1. (F) WEATHER CONDITION - SNOW
2. PROPER CLIMB RATE - NOT ATTAINED - PILOT IN COMMAND
3. (F) PROCEDURE INADEQUATE - COMPANY/OPERATOR MANAGEMENT
4. WING - CONTAMINATION
5. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2: OVERRUN

Phase of Operation: TAKEOFF - ABORTED

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: TAKEOFF - ABORTED

Factual Information

On December 20, 2001, about 2000 eastern standard time, a Cessna 208B, N207TA, was substantially damaged during an aborted takeoff from the Auburn/Lewiston Municipal Airport (LEW), Lewiston, Maine. Teleford Aviation, Inc., doing business as United Parcel Service, operated the airplane. The certificated commercial pilot was not injured. Instrument meteorological conditions existed at the time, for the flight destined for Manchester Airport (MHT), Manchester, New Hampshire. An instrument flight rules flight plan was filed for the cargo flight, conducted under 14 CFR Part 135.

According to the pilot, she arrived at the airport at 1915, and performed a preflight inspection of the airplane. Between 1928 and 1935, she loaded the airplane with cargo, then proceeded to remove snow from it by using a ladder and broom. The airplane was re-examined, and found free of any additional contamination. At 1955, the airplane taxied to the run-up area for a before takeoff check. All operational checks were normal and in accordance with limitations. At 1958, the pilot obtained her departure clearance, and was released for departure at 2000. At that time a second contamination check was conducted before she taxied slowly onto the runway due to unplowed conditions.

Once on the runway, the pilot back-taxied the full length of runway 04 and used a 10-degree flap setting for departure. The brakes were held, and the throttle was advanced to maximum takeoff limits for final checks. The pilot began the takeoff roll and rotated the airplane when it reached 90 knots. The main wheels lifted off momentarily, then settled back onto the runway.

The takeoff was aborted, the power lever was placed in the Beta/Reverse range, and the brakes were applied. The airplane slowed, but continued its slide down the center of the runway. The pilot secured the engine before the airplane overran the departure end of the runway. Once off the runway, right rudder was applied to avoid the localizer antenna. The airplane veered to the right and the left main tire caught anchor cables attached to the antenna. The airplane pivoted to the left, around the backside of the antenna, and came to rest.

During a subsequent telephone interview, the pilot added that snow had fallen throughout the preflight inspection, loading, taxi, and takeoff. After she cleaned the snow from the airplane, the surfaces were clear, but remained wet as the snow continued to fall. Before takeoff, the procedure she used was to visually check the leading edges, the cowl, the windscreen, and the struts, which were all clear of contamination. The second contamination check was performed from the cockpit, just prior to taking the runway. Both the preflight and the before-takeoff checks were completed per the Cessna manual.

There was about three-quarters of an inch of snow on the runway, and the company

operations manual allowed an inch. When the pilot was asked if the runway had been plowed at any time prior to her departure, she answered that it had not been, and that, in fact, it was done after she went back to the terminal. According to the Auburn Fire Department, the runway had not been plowed when they arrived on scene at 2018.

The pilot stated that she had flown for Teleford Aviation for about 1 year, and that this was her second winter season with the company. She recently completed a winter operations class and had received information from Cessna on the Caravan, as well as additional winter operations knowledge.

The pilot held a commercial pilot certificate with ratings for airplane single engine land, multi-engine land, and instrument airplane. Her most recent second-class medical certificate was issued February 5, 2001. The pilot reported that she had about 1,700 hours of flight experience, 700 hours of which were in the Caravan.

The pilot reported there were no mechanical anomalies with the airplane.

The weather reported at the airport at the time of the accident included a broken ceiling at 100 feet with an overcast layer at 800 feet. Visibility was 1 3/4 miles in light snow. The winds were from 360 degrees at 4 knots.

According to a meteorologist in the Auburn/Lewiston area, 5 inches of snow fell between 1400 on December 20, 2001, and 0700 on December 21, 2001. There was no weather observer at the Lewiston Airport to augment the AWOS system, and snow depth measurements were not available.

According to the Cessna Caravan Cold-Weather Operations Manual:

"No attempt should be made to take off with a load of ice or snow. Ice and snow on the wings will change the shape of the airfoil and disturb the flow of air over the wings, reducing available lift and airspeeds. Do not assume that light snow will melt or blow off during taxi-out or the takeoff run. Even if it does, it may reveal ice or frost beneath."

A review of the company operations manual by Teleford Aviation and the FAA after the accident resulted in new, more stringent de-ice requirements for the flight crews. Included in the new de-icing procedures was the mandatory use of de-icing fluid prior to taxi in freezing precipitation between plus 2 and minus 4 degrees Celsius.

Takeoff performance planning, as well as aborted takeoff criteria considerations for operation on contaminated runways were also added.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	31,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 single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	February 5, 2001
Occupational Pilot:		Last Flight Review or Equivalent:	November 8, 2001
Flight Time:	2029 hours (Total, all aircraft), 749 hours (Total, this make and model), 1950 hours (Pilot In Command, all aircraft), 126 hours (Last 90 days, all aircraft), 67 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N207TA
Model/Series:	208B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	0371
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	November 5, 2001 AAIP	Certified Max Gross Wt.:	8950 lbs
Time Since Last Inspection:	80.4 Hrs	Engines:	1 Turbo prop
Airframe Total Time:	5234.5 Hrs at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed, not activated	Engine Model/Series:	PT6A-114A
Registered Owner:	Teleford Aviation Inc	Rated Power:	675 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:	UPS	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:	LEW,288 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	20:55 Local	Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	1.75 miles
Lowest Ceiling:	Broken / 100 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / 0 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	360°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.54 inches Hg	Temperature/Dew Point:	1°C / -1°C
Precipitation and Obscuration:	Moderate - None - Snow		
Departure Point:	Lewiston, ME (LEW)	Type of Flight Plan Filed:	IFR
Destination:	Manchester, NH (MHT)	Type of Clearance:	IFR
Departure Time:	20:00 Local	Type of Airspace:	Unknown

Airport Information

Airport:	Auburn Lewiston Municipal Airp LEW	Runway Surface Type:	Asphalt
Airport Elevation:	288 ft msl	Runway Surface Condition:	Snow
Runway Used:	04	IFR Approach:	None
Runway Length/Width:	5001 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	44.048332,-70.283332

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	James Edwards; Portland, ME
Original Publish Date:	May 13, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=53941

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).