Aviation Investigation Final Report

Location:	MUNICH, North Dakota	**Accident Number:**	CHI96LA064
Date & Time:	December 28, 1995, 11:00 Local	**Registration:**	N88384
Aircraft:	BELLANCA 7GCBC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Public aircraft		

Analysis

While making a precautionary landing the pilot applied carburetor heat during the downwind leg of his approach to a road. It was removed a short time later. While on final approach the pilot said the airplane began descending too rapidly. He said he applied power and the engine did not respond. The pilot said the airplane drifted to the right as it neared the road. He said he applied left aileron and it continued to drift to the right. The pilot said he could not recall if he had applied right rudder when he applied left aileron. The pilot said the ailerons didn't respond because the airplane was too slow. The airplane landed in snow next to the road and nosed over. The on-scene investigation found no mechanical anomalies that would prevent normal flight. According to pilot/operator handbook for the Bellanca 7GCBC, the pilot is directed to use carburetor heat only when 'atmospheric conditions indicate that icing is probable....' The temperature and dew point were 17 and 12 degress F. respectively. The FAA's carburetor icing chart shows carburetor icing was probable.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot allowed his airspeed to get too low and encountered a stall/mush condition. Factors associated with the accident were the pilot not being able to maintain directional control due to misuse of the controls for wind drift correction and improper use of the carburetor heat.

Findings

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

Findings
1. (F) CARBURETOR HEAT - IMPROPER USE OF - PILOT IN COMMAND
2. (C) AIRSPEED - LOW - PILOT IN COMMAND
3. (C) STALL/MUSH - ENCOUNTERED - PILOT IN COMMAND

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

Findings
4. TERRAIN CONDITION - SNOW COVERED
5. (F) DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: NOSE OVER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

On December 28, 1995, at 1100 central standard time (cst), a Bellanca 7GCBC, N88384, piloted by a commercially certificated pilot, was substantially damaged during a precautionary landing. The 14 CFR Part 91 public use flight was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The pilot and passenger reported no injuries. The flight local departed Devils Lake, North Dakota, at 0815 cst.

During the return flight to the departure airport the pilot said he noticed fog "...between [his] position and Devils Lake... ." He said he decided to land heading west on an east-west road because there was a 10 to 15 knot wind from the southwest. While on final approach the pilot said the airplane began to descend too fast. He said he added power and the engine did not respond. As the airplane neared the road, the pilot said it began drifting to the right. He said application of left aileron did not change the airplane's drift direction. The airplane landed in deep snow on the road's north side and nosed over shortly after touching down.

During an interview the pilot said he had the engine throttled back, but could not recall how far. He said he had temporarily applied carburetor heat earlier on his downwind leg. The pilot was asked if he applied right rudder when he had applied the left aileron for drift correction. He said he could not recall. The pilot said the ailerons were not responsive when he moved them to the left. He said he felt the reason for this was that his airspeed was too slow.

The on-scene investigation was conducted by Federal Aviation Administration (FAA) Principal Maintenance and Operations Inspectors (PMI and POI). The PMI said he did not find any anomalies with the engine or control system that would prevent normal flight. He said the wing fuel tanks were about half full. The POI said the pilot told him he jammed the throttle full forward when he realized he needed power to slow the airplane's descent.

The pilot was asked if he observed a change in engine RPM when he had applied carburetor heat. He said there was no indication of carburetor icing at the time he applied the carburetor heat. According to the Bellanca 7GCBC pilot's operating handbook, "...do not use carburetor heat when landing unless atmospheric conditions indicate that icing was probable... ." The reported temperature/dew point (17 and 12 degrees Fahrenheit respectively) at Devils Lake Municipal Airport, Devils Lake, North Dakota. According to the FAA's carburetor icing probability chart, there was the possibility for light carburetor icing during glide or at cruise power. Copy of the chart is appended to this report.

FAA Advisory Circular AC-91-13C states in part that when operating in cold air "...there may be a problem of keeping the engine warm enough for high power operation if needed. It may be desirable to use more power than normal..." during the descent. FAA Advisory Circular AC-20-113 says that carburetor "...heat should be applied for a short time to warm the induction

system before beginning a prolonged descent with the engine throttled back and left on during the descent."

Pilot Information

Certificate:	Commercial	**Age:**	48,Male
Airplane Rating(s):	Single-engine land; Multi-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:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 4, 1995
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1555 hours (Total, all aircraft), 925 hours (Total, this make and model), 1422 hours (Pilot In Command, all aircraft), 42 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELLANCA	**Registration:**	N88384
Model/Series:	7GCBC 7GCBC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	774-75
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	January 10, 1995 Annual	**Certified Max Gross Wt.:**	1650 lbs
Time Since Last Inspection:	893 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1084 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	O-320-A2B
Registered Owner:	LEROY NIELSON	**Rated Power:**	150 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DVL ,1455 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:		**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	-8°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DEVILS LAKE , ND (DVL)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	08:15 Local	**Type of Airspace:**	

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Precautionary landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	48.659988,-98.829124(est)

Administrative Information

Investigator In Charge (IIC):	Gattolin, Frank
Additional Participating Persons:	VERLE EDDISON; FARGO , ND
Original Publish Date:	April 18, 1996
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=10178