Aviation Investigation Final Report

Location:	MOUNT STORM, West Virginia	**Accident Number:**	BFO96LA040
Date & Time:	January 27, 1996, 01:20 Local	**Registration:**	N162GA
Aircraft:	Aerostar 601	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The pilot stated that the airplane was in cruise flight at 8,000 feet MSL, when the right engine lost power. He advised ATC of the loss of power and received radar vectors toward an airport. The pilot said he maintained the best single-engine rate-of-climb speed, but the airplane's altitude 'drifted down.' When the airplane entered clouds, it began to accumulate structural icing and would not maintain sufficient altitude. The airplane impacted mountainous terrain about 16 miles northwest of the airport. The pilot stated that he had departed on the cargo flight with 5 hours of fuel on board for what he estimated to be a 2 1/2 hour flight. Also, he reported that conditions were dark and foggy, when the accident occurred. Postaccident examination of the engines and their systems revealed no evidence of preimpact mechanical malfunction. Examination of the airplane wreckage revealed no evidence of preimpact failure of the airframe or its systems. During a postaccident engine test run, the right engine started normally and operated satisfactorily.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: loss of power in the right engine for undetermined reason(s), and the accumulation of structural ice on the airplane, which resulted in an increased rate of descent and a subsequent forced landing before the pilot could reach an alternate airport. Factors relating to the accident were: the adverse weather (icing) conditions, darkness, fog, and the lack of suitable terrain in the emergency landing area.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CRUISE

Findings
1. 1 ENGINE
2. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: DESCENT

Findings
3. WEATHER CONDITION - CLOUDS
4. (F) WEATHER CONDITION - ICING CONDITIONS
5. (C) AIRFRAME - ICE

Occurrence #3: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
6. (F) LIGHT CONDITION - DARK NIGHT
7. (F) WEATHER CONDITION - FOG
8. (F) TERRAIN CONDITION - NONE SUITABLE
9. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

On January 27, 1996, at about 0120 eastern standard time (EST), an Aerostar 601, N162GA, lost engine power on the right engine during cruise flight and crashed in mountainous terrain near Mount Storm, West Virginia. The pilot, the sole occupant, reported serious injuries. The airplane was destroyed. Instrument meteorological conditions prevailed and an Instrument Flight Rules (IFR) flight plan was filed. The flight was conducted under 14 CFR Part 135. The flight originated from Grand Rapids, Michigan, at approximately 2230. The intended destination was Norfolk, Virginia.

The pilot reported that he was dispatched to fly 108 lbs of automotive parts to Norfolk. He stated that he satisfactorily completed a preflight inspection, and confirmed that the airplane had five hours of fuel on board. The pilot stated that the airplane had been in cruise flight at 8,000 feet Mean Sea Level (MSL) for about 1 1/4 hours, when the right engine lost power. The pilot stated: "...I noticed that the fuel flow was indicating zero. Operation of the Boost Pump and repositioning the Fuel Selector had no effect on the fuel flow. I followed the Emergency Checklist but was unable to re-start the failed engine. I then secured the engine according to the checklist and notified ATC that I had a power plant failure. I maintained [best rate of climb, single engine]and the airplane drifted down. When I entered the clouds I began to accumulate ice. I declared an emergency and requested vectors to the nearest airport...was unable to maintain altitude... ."

According to a Federal Aviation Administration (FAA) Inspector, the pilot advised Air Traffic Control (ATC) that the airplane engine had lost engine power, requested emergency landing assistance. ATC gave the pilot radar vectors towards Grand County Airport, in Petersburg, West Virginia. The airplane was about 16 miles northwest of the Grand County Airport, when ATC lost radar and radio contact. The airplane impacted mountainous terrain.

Postaccident examination revealed no evidence of preimpact airframe, engine or fuel system anomaly. The left engine had separated from the main wreckage. There was oil leaking from the left ngine, and the oil filter was damaged. The left engine propeller blades had cuts and gouges in the leading edge of the blades, and exhibited evidence of chordwise scratches. The left engine propeller spinner was crushed. The right engine remained attached to the main wreckage. The three propeller blades were in the feathered position. It was determined that both engines and their accessories should be shipped to Lycoming's Reciprocating Engine Division, at Williamsport, Pennsylvania, for further examination.

Further engine examination was conducted on February 27, 1996, under the supervision of the NTSB. The examination of the right engine included removing the engine driven fuel pump to confirm its integrity prior to rotation. The pump drive shaft was intact and turned freely when rotated by hand. The pump was reinstalled and the engine crankshaft was rotated manually,

which resulted in the operation of the cylinder valves, confirmation of compression in each cylinder, and magneto spark.

A check of the right engine magneto timing revealed that the left magneto was set at approximately 20 degrees Before Top Dead Center (BTDC), and the right magneto was set at approximately 14 degrees BTDC. The right engine was mounted on a test stand, placed in a test cell, and test run with this magneto timing. The engine started normally and appeared to operate satisfactorily throughout the test run. A copy of the test log is appended. There was no evidence of preimpact anomaly that would preclude engine operation.

Further examination of the left engine did not reveal any preimpact anomalies or discrepancies that would have precluded the engine from producing power.

Pilot Information

Certificate:	Airline transport	**Age:**	36,Male
Airplane Rating(s):	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 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 23, 1995
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4048 hours (Total, all aircraft), 70 hours (Total, this make and model), 4011 hours (Pilot In Command, all aircraft), 110 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerostar	**Registration:**	N162GA
Model/Series:	601 601	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	61-0050-95
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	January 20, 1996 AAIP	**Certified Max Gross Wt.:**	5500 lbs
Time Since Last Inspection:	14 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	5791 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-540-S1A5
Registered Owner:	CZARS, INC.	**Rated Power:**	290 Horsepower
Operator:	GRAND AIR EXPRESS	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	GXPA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	W99 ,961 ft msl	**Distance from Accident Site:**	18 Nautical Miles
Observation Time:	01:08 Local	**Direction from Accident Site:**	165°
Lowest Cloud Condition:	Unknown	**Visibility**	1.5 miles
Lowest Ceiling:	Broken	**Visibility (RVR):**	
Wind Speed/Gusts:	30 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	2°C / 1°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	GRAND RAPIDS , MI (GRR)	**Type of Flight Plan Filed:**	IFR
Destination:	NORFOLK , VA (ORF)	**Type of Clearance:**	IFR
Departure Time:	10:30 Local	**Type of Airspace:**	Class E

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	39.269729,-79.240592(est)

Administrative Information

Investigator In Charge (IIC):	Drake-nurse, Beverley
Additional Participating Persons:	KIM BARNETT; BALTIMORE , MD JAMES BROWN; WILLIAMSPORT , PA
Original Publish Date:	November 11, 1996
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=9128