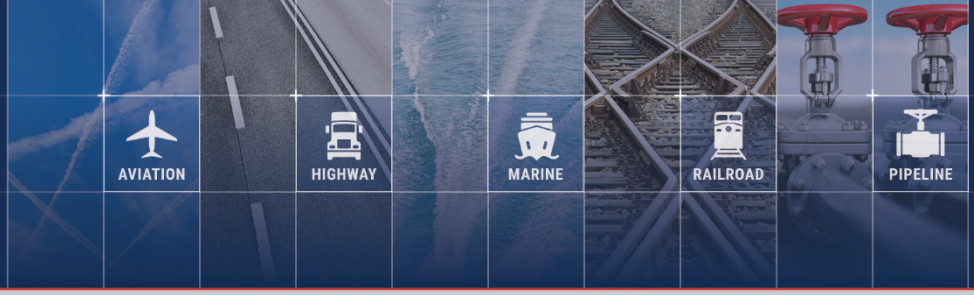

Aviation Investigation Final Report

Location:	RICHMOND, Virginia	**Accident Number:**	NYC99LA073
Date & Time:	March 9, 1999, 18:30 Local	**Registration:**	N5454F
Aircraft:	Piper PA-32R-300	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The pilot departed in VMC conditions towards the destination airport. As the flight progressed, the cloud base began to lower and the visibility decreased. Unable to maintain VFR, the pilot obtained an IFR clearance and was told to climb to 2,000, then to 4,000 feet. While climbing from 2,000 feet to 4,000 feet, ice accumulation was noticed on the windshield of the airplane. Level at 4,000 feet, the ice accumulation continued, and the airplane descended back to 2,000 feet where ice no longer accumulated. On approach, as the airplane descended through a cloud layer about 500 feet from the ground, the ice began to shed from the airplane. Due to ice remaining on the windshield, the pilot had difficulty judging the distance to the runway and had to look through the side window of the airplane to maintain visual reference with the ground. The airplane touched down on the runway hard, and the main landing gear pushed up through the wings. Records revealed that the pilot did not obtain a weather briefing from FSS. An AIRMET was issued for light occasional moderate rime and mixed icing in clouds and precipitation below 22,000 feet along the pilot's route of flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight planning/preparation which resulted in flight into icing weather conditions. A factor related to the accident was restricted visibility through the icy windshield during landing.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CLIMB

Findings
1. WEATHER CONDITION - ICING CONDITIONS
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND

Occurrence #2: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
3. (F) WINDOW,FLIGHT COMPARTMENT WINDOW/WINDSHIELD - ICE
4. DISTANCE/ALTITUDE - MISJUDGED - PILOT IN COMMAND

Factual Information

On March 9, 1999, about 1830 Eastern Standard Time, a Piper PA-32R-300, N5454F, was substantially damaged while landing at the Richmond International Airport (RIC), Richmond, Virginia. The certificated commercial pilot was not injured. Instrument meteorological conditions prevailed and no flight plan was filed for the non-scheduled cargo flight conducted under 14 CFR Part 135.

The pilot stated in a telephone interview that he departed the Patrick Henry Airport, Newport News, Virginia, about 1800, in visual meteorological conditions (VMC), destined for RIC. As the flight progressed towards RIC, the cloud base started to lower and the visibility decreased. Unable to maintain visual flight rules, the pilot contacted Richmond Approach to obtain an IFR clearance. The pilot was given the clearance and asked to climb to 2,000 feet. The pilot was then issued further clearance to climb and maintain 4,000 feet. While climbing from 2,000 feet to 4,000 feet the pilot noticed ice accumulation on the windshield. Level at 4,000 feet, the pilot decided that the accumulation was continuing and asked for clearance back to 2,000 feet. The pilot was cleared to 2,000 feet and to proceed direct to the airport. Leveling at the assigned altitude, the airplane no longer accumulated ice, and was cleared for a VOR approach. On the approach, the pilot decided not use flaps for landing and kept the airspeed about 130 knots. As the airplane descended through a cloud layer about 500 feet above the ground, the ice began to shed from the airplane. Due to remaining ice on the windshield, the pilot had difficulty judging the distance to the runway, and had to look through the left side window to keep visual reference with the ground. The pilot estimated the airplane was still about 5 feet above the ground, and about 100 knots, when it touched down hard on the runway. The main landing gear pushed up through the wings of the airplane, but it continued to roll. Unaware of any damage, the pilot taxied the airplane to the ramp area, and parked.

The pilot further stated that he was required to obtain his own weather prior to the flight, and that he received a weather briefing from a Flight Service Station (FSS) over the telephone between 1200 and 1400. In his filed NTSB Form 6120.1/2, Pilot/Operator Aircraft Accident Report, the pilot stated that he obtained his weather from an Automatic Terminal Information Service recording, a National Weather Service forecast, and the Weather Channel. A review of FSS weather briefing records by a Federal Aviation Administration Inspector revealed no access to computerized data using the pilot's access code or phone conversations with a weather briefer by the pilot.

The weather reported at RIC, at 1820 was, 800 feet overcast, 2 statute miles of visibility, with light freezing rain and mist. In the remarks section of the report, the surface visibility was 5 miles, and a ceiling of 500 feet variable to 1,100 feet. A review of the pilot reports for March 9, 1999, revealed that an airplane reported moderate rime icing between

2,000 and 3,000 feet, 15 miles to the northwest of RIC, at 1723.

The 1649 RIC terminal area forecast called for 6 statute miles of visibility, scattered clouds at 1,000 feet, and an overcast layer at 3,000 feet. The forecast included temporary conditions for 5 statute miles of visibility with light snow pellets, overcast clouds at 1,000 feet.

The 1659 PHF terminal area forecast called for 6 statute miles of visibility, scattered clouds at 800 feet, and an overcast layer at 2,500 feet. The forecast included temporary conditions between 1600 and 2300 for 3 statute miles of visibility with light snow and rain, and an overcast layer at 800 feet.

An AIRMET was issued at 1545, valid to 2200, for Virginia that advised of light occasional moderate rime and mixed icing in clouds and precipitation below 22,000 feet. The conditions were forecasted to spread eastward and continue beyond 2200.

At 1345, a synopsis was issued for the Virginia area, which included broken clouds at 1,000 feet, overcast clods at 4,000 feet, visibility of 3 to 5 statute miles with light snow and mist, and occasional light freezing rain. The outlook was for IFR ceilings, snow and mist.

The pilot reported that he had trained and worked as a pilot in warm climate areas in the past, with no experience of flight into icing conditions.

According to the pilot's operating handbook for the PA-32R-300, a placard in the airplane read the following:

THIS AIRCRAFT APPROVED FOR V.F.R., I.F.R, DAY AND NIGHT NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135. When asked about the limitations of the airplane for flight into known or forecasted icing conditions, the pilot stated that he knew of the limitation and that it was placarded on the instrument panel of the airplane.

According to FAA Advisory Circular AC 135-9, FAR PART 135 ICING LIMITATIONS:

"Aircraft equipped with functioning equipment meeting Part 135.227(b) and a placard prohibiting operation in icing conditions may depart on a flight when light or moderate icing is forecast or reported to exist for the intended route to be flown. However, continued flight in actual icing conditions is not permitted since such flight does not comply with the placard or the operating limitation in the aircraft flight manual."

FAR Part 135.227(c)(1) stated:

"Except for an airplane that has ice protection provisions that meet section 34 of Appendix A, or those for transport category airplane type certification, no pilot may fly under IFR into known or forecast light or moderate icing conditions."

Pilot Information

Certificate:	Commercial	**Age:**	25,Male
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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	January 13, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1700 hours (Total, all aircraft), 300 hours (Total, this make and model), 1650 hours (Pilot In Command, all aircraft), 300 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N5454F
Model/Series:	PA-32R-300 PA-32R-300	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	32R-7780012
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	February 3, 1999 100 hour	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	125 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	8590 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540
Registered Owner:	BELLEFONTE, INC.	**Rated Power:**	300 Horsepower
Operator:	RAM AIR FRIEGHT	**Operating Certificate(s) Held:**	Air cargo
Operator Does Business As:	RAM AIR FRIEGHT	**Operator Designator Code:**	FFKA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	RIC ,168 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	18:20 Local	**Direction from Accident Site:**	200°
Lowest Cloud Condition:	Unknown	**Visibility**	2 miles
Lowest Ceiling:	Overcast / 800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	30°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	-1°C / -1°C
Precipitation and Obscuration:	Light - Freezing - Rain		
Departure Point:	NEWPORT NEWS , VA (PHF)	**Type of Flight Plan Filed:**	IFR
Destination:	(RIC)	**Type of Clearance:**	IFR
Departure Time:	18:00 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	RICHMOND INT. AIRPORT RIC	**Runway Surface Type:**	Asphalt
Airport Elevation:	168 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	20	**IFR Approach:**	VOR
Runway Length/Width:	6607 ft / 150 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:**	37.499694,-77.320297(est)

Administrative Information

Investigator In Charge (IIC):	Demko, Stephen
Additional Participating Persons:	JOHN PHELPS; RICHMOND , VA
Original Publish Date:	June 22, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45943