Aviation Investigation Final Report

Location:	LEXINGTON, Virginia	**Accident Number:**	NYC00FA245
Date & Time:	August 30, 2000, 17:30 Local	**Registration:**	N6411P
Aircraft:	Piper PA-24-250	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The non-instrument rated pilot was conducting a cross county flight from New York to Florida. Radar data revealed the airplane was traveling southwest and was level at 8,700 feet, when it made a right turn at 1727:42. The airplane continued to the right and at 1727:47, the airplane's altitude indicated 8,500 feet. The airplane descended to 8,300 feet at 1727:51, and 5,300 feet at 1728:05. There were no further radar returns observed from the airplane. Witnesses reported observing the airplane break-up in-flight, before the main wreckage impacted a sidewalk. All major portions of the airplane were located with-in 1/4 to 1/2 miles of the main wreckage. Weather information obtained for the flight indicated an area of instrument flight rules (IFR) conditions in the immediate vicinity of the accident site. A larger area of marginal visual meteorological conditions surrounded the IFR area. There was no record that the pilot had received a pre-flight weather briefing prior to the flight. The airplane's most recent annual inspection was performed 13 months prior to the accident. The pilot's estimate total flight experience was about 400 hours. He pilot had logged 2 hours of 'actual' and 36 hours of 'simulated' instrument flight experience; all of which had been logged about 10 years prior to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's attempted VFR flight into instrument meteorological conditions that resulted in spatial disorientation. A factor in this accident was the pilot's inadequate preflight planning.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) WEATHER CONDITION - CLOUDS
2. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
3. (C) VFR FLIGHT INTO IMC - PERFORMED - PILOT IN COMMAND
4. SPATIAL DISORIENTATION - PILOT IN COMMAND

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

Factual Information

HISTORY OF FLIGHT

On August 30, 2000, about 1730 Eastern Daylight Time, a Piper PA-24-250, N6411P, was destroyed during an in-flight break-up and collision with the ground in Lexington, Virginia. The certificated private pilot and passenger were fatally injured. Marginal visual meteorological conditions prevailed and no flight plan had been filed for the personal flight that departed the Eastern West Virginia Regional/Shepherd Airport (MRB), Martinsburg, West Virginia, destined for the Columbia Metropolitan Airport (CAE), Columbia, South Carolina. The flight was conducted under 14 CFR Part 91.

According to the pilot's brother-in-law, the airplane was based at Republic Airport (FRG), Farmingdale, New York. The pilot departed FRG about 1400, with the intent of visiting family members who lived in Boca Raton, Florida. He did not know the pilot's proposed route of flight.

According to an airframe and powerplant mechanic who was based at the Spruce Creek Airport, Daytona Beach, Florida, the pilot had called him about 1 week before the accident to schedule an annual inspection for the airplane, to be conducted during the pilot's stay in Florida. At that time, the pilot informed him that the airplane's annual inspection had expired. The mechanic informed the pilot that he would need to obtain a ferry permit, and he replied he would "take care of that." The next time the mechanic spoke to the pilot was on the day of the accident, about 1345, when the pilot called to tell him that he was "on his way."

According to a transcript provided by the Federal Aviation Administration (FAA), at 1722:52, the pilot of N6411P contacted the Roanoke Airport Air Traffic Control Tower. The pilot received the current Lynchburg Airport altimeter setting and replied, "altitude ninety two going back down to eighty five." There were no further transmissions from the airplane.

Radar data obtained from the FAA revealed the airplane was traveling southwest and was level at 8,700 feet, when it made a right turn at 1727:42. The airplane continued to the right and at 1727:47, the airplane's altitude indicated 8,500 feet. The airplane descended to 8,300 feet at 1727:51, and 5,300 feet at 1728:05. There were no further radar returns observed from the airplane.

A witness near the accident site stated he suddenly heard an engine noise from an airplane, and it was "revving real loud." He further stated:

"The plane came out of the clouds still intact, and it was spiraling down. The left wing at the tail broke off first and then it just started breaking up. It was corkscrewing toward the ground

and I lost site of it as it went behind the trees."

Another witness who observed the airplane stated that he heard a "whistling" sound, looked up, and heard a loud explosion, which was followed by "parts falling everywhere." The airplane then made a nosedive and corkscrewed to the right. He stated the airplane was traveling at a "tremendous speed."

Several witnesses reported they looked up and observed an airplane spinning and/or "breaking apart" before they lost sight of it.

The accident occurred during the hours of daylight approximately 37 degrees, 47 minutes north latitude, and 79 degrees, 26 minutes west longitude.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single engine land rating. He was not instrument rated. According to the pilot's family, the pilot had owned the airplane for about 15 years, and flew about six times a year. His most recent flight was about 1 month prior to the accident. Additionally, they reported the pilot had flown to Florida several times prior to the accident.

Review of the pilot's logbook revealed the most recent entry was dated September 1, 1999. The pilot's total estimated flight experience was about 400 hours, of which, about 270 hours were accumulated in the accident airplane. The pilot had logged 2 hours of "actual" and 36 hours of "simulated" instrument flight experience; all of which had been logged as May 5, 1990. Additionally, the pilot's most recent documented biennial flight review was conducted in December 1997.

The pilot held a FAA third class medical certificate, which was issued on April 4, 2000.

AIRCRAFT INFORMATION

Review of maintenance records revealed the airplane's most recent annual inspection was performed on July 21, 1999. A check of FAA records did not reveal any evidence that the pilot had obtained a ferry permit for the flight.

Review of the recorded tachometer times during prior annual inspections revealed the airplane had been operated for about 31 hours during the year prior to the annual inspection. Additionally, between June 2, 1995 and June 30, 1998, the airplane had been operated for about 90 hours.

METEOROLOGICAL INFORMATION

According to a Federal Aviation Administration inspector, there was no record that pilot had obtained a pre-flight weather briefing prior to the flight. Additionally, review of air traffic

control communications for the flight revealed that that the pilot had not received any in-flight weather advisories.

Weather observations taken at an airport about 30 miles south-southeast of the accident site reported the following conditions:

At 1654: wind variable at 5 knots, visibility 2 miles in moderate rain and mist, ceiling broken at 2,000 feet, overcast layer at 3,000 feet, temperature 22 degrees C, dew point temperature 21 degrees C, altimeter 30.04 inches of mercury (Hg).

At 1712: wind from 040 degrees at 11 knots gusting to 17 knots, variable from 350 to 090 degrees, visibility 6 miles in light rain and mist, ceiling broken at 2,200 feet, overcast at 2,700 feet, temperature 23 degrees C, dew point 22 degrees C, altimeter 30.03 inches of Hg.

At 1746: wind from 040 degrees at 9 knots gusting to 15 knots, variable from 360 to 070 degrees, visibility 10 miles in light rain, a few clouds at 1,500 feet, scattered clouds at 2,100 feet, ceiling broken at 5,000 feet, temperature 23 degrees C, dew point 21 degrees C, altimeter 30.05 inches of Hg.

At 1754: wind from 040 degrees at 10 knots gusting to 16 knots, visibility 10 miles, ceiling broken at 1,800 feet, second broken layer of clouds at 5,000 feet, temperature 22 degrees C, dew point 21 degrees C, altimeter 30.05 inches of Hg.

Review of a National Weather Service (NWS) weather depiction chart for 1800 on the day of the accident, indicated an area of instrument flight rules (IFR) conditions over western Virginia in the immediate vicinity of the accident site. Surrounding the IFR area was a larger area of marginal visual flight rules (MVFR) conditions over southern Maryland, Virginia (except the extreme western portion), eastern North Carolina and South Carolina. The station models over Virginia indicated ceilings from 900 to 5,500 feet, and visibilities down to 2 miles in light to moderate rain.

Review of Geostationary Operational Environmental Satellite number-8 (GOES-8) data revealed an enhanced area of clouds which extended from the Atlantic Ocean westward into Maryland and Virginia, was located immediately to the south of the accident site.

The synopsis section of the NWS area forecast (FA) that was current at the time of the accident described a ridge of high pressure extending from Maine coastal waters to western Pennsylvania, which was expected to shift slowly east-northeast. Moist easterly onshore flow was expected to continue from southern New York, Pennsylvania, New Jersey southward. An elongated upper level low pressure area extending from southeast Virginia to the Georgia coastline was expected to shift slowly westward.

The forecast for western Virginia and Maryland was for a ceiling of broken to overcast layer of clouds with bases at 4,000 to 5,000 feet MSL and tops to 9,000 feet. Between 2000 and 2300,

the broken to overcast ceiling was expected to lower to 3,000 to 4,000 feet, with a second broken layer at 10,000 feet, cloud tops were expected to 15,000 feet. Occasional visibility restricted 3 to 5 miles in mist and widely scattered light rain showers. The outlook from 0200 to 0800 was for expected IFR conditions due to low ceilings and visibility in moderate rain showers, drizzle, and mist. The accident occurred within this regional forecast area.

WRECKAGE AND IMPACT INFORMATION

The main wreckage of the airplane impacted a sidewalk on Washington Street, in the city of Lexington, Virginia. The wreckage was found inverted and oriented on a magnetic bearing of 230 degrees. The front section of the airplane, which included the engine and propeller, was buried in the ground and not visible. The remainder of the main wreckage included the left wing, portions of the fuselage, and portions of the empennage.

The main spar separated into three sections and was impact damaged.

Examination of the left wing revealed the inboard section remained attached to the spar splice and extended outward 6 feet. The outboard 1-foot of the spar was bent upward and aft. The second spar section measured approximately 7 feet 2 inches in length. The outboard section of the left wing measured approximately 6 feet 8 inches, and was compressed aft from its leading edge toward the trailing edge. The left wing tip tank was separated and compressed aft approximately 1 foot 10 inches.

The right wing, right aileron, right wing tip fuel tank, vertical stabilizer, rudder, outboard portions of the horizontal stabilator, and other miscellaneous portions of the airplane were found within 1/4 to 1/2 miles from the main wreckage.

The right wing was separated into three main sections. The inboard section of the main spar was attached at the spar splice and extended outward 5 feet 10 inches. The corresponding wing section was separated from the main spar and displayed severe impact damage. The top main spar cap was bent 10 degrees upward and 30 degrees aft. A section of the bottom spar cap, approximately 2-feet 6-inches long was observed twisted 90 degrees counter-clockwise from the wing root, and bent aft 45 degrees. A second section of the bottom spar cap measured approximately 2 feet 3 inches in overall length. A 2-inch portion on the inboard side of the spar cap was curled upward about 120 degrees toward the outboard end, the area also contained a forward curl of about 120 degrees toward the outboard end.

The right wing tip fuel tank, which was painted red, was intact and separated from the wing. A 2-foot section of the wing tip fuel tank, which was located 1 foot aft of the forward edge, displayed impact damage and chipped paint.

A 3-foot section of the left outboard horizontal stabilator, a 4-foot section of the right outboard horizontal stabilator, and the vertical stabilizer were found in the vicinity of the main wreckage. Red paint transfer was observed on the separated portion of the right outboard horizontal

stabilator and on the right side of the vertical stabilizer. The horizontal stabilator main spar was bent downward and aft.

Due to the fragmented nature of the wreckage, flight control continuity could not be confirmed.

The engine sustained significant impact damage and the crankcase was fractured in several locations. The top portions of the number 1 and 3 cylinders were separated, and the entire number 5 cylinder was separated at the flange.

Both propeller blades were separated and the propeller hub was not located. One blade displayed significant chordwise scratching and gouges. Additionally, the leading edge was curled back, and about 2-inches of the blade tip was missing. The other blade contained "S" bending, and the outboard third of the blade was curled back more than 90 degrees.

Examination of eight spark plugs that were removed or liberated from the engine revealed they were gray in color, and their electrodes were not damaged.

Both magnetos were separated and damaged. The left magneto could be rotated; however, it did not produce spark. The right magneto could not be rotated.

The oil pressure and suction screens were absent of debris.

Examination of the airplane's vacuum pump revealed the drive coupling was intact and it rotated freely. Additionally, the internal vanes were intact.

An unidentified liberated gyro rotor was observed at the main wreckage site. The gyro rotor contained circumferential scoring.

The carburetor, alternator, starter, and propeller governor were not located.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot and passenger on August 31, 2000, by the Office of the Chief Medical Examiner, Roanoke, Virginia.

Toxicological testing was conducted by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

ADDITIONAL INFORMATION

Re-fueling Information

The airplane was equipped with wing tip fuel tanks per an FAA approved supplemental type certificate. Each wing tip fuel tip had a capacity of 15 gallons.

The airplane's fuel load prior to takeoff from FRG could not be determined.

According to the owner of the fixed-base-operator at MRB, where the airplane was parked, the accident airplane did not receive fuel or any other services from the FBO. He added that there were no other FBO's on the airport, which provided fuel services.

Wreckage Release

The airplane wreckage was released on September 1, 2000. According to a representative of the Lexington Police Department, the wreckage remained at the local volunteer fire department warehouse until September 12, 2000. At that time, the wreckage was taken to the Rockbridge County landfill by the Lexington Department of Public Works and covered due to the biological public safety hazard it presented.

Pilot Information

Certificate:	Private	**Age:**	44,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 4, 2000
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	400 hours (Total, all aircraft), 270 hours (Total, this make and model), 300 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6411P
Model/Series:	PA-24-250 PA-24-250	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-1521
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 21, 1999 Annual	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:	30 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	O-540
Registered Owner:	LETOUR FLYING SERVICE	**Rated Power:**	250 Horsepower
Operator:	JACK A. GAMBINO	**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:	LYH ,938 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	17:46 Local	**Direction from Accident Site:**	155°
Lowest Cloud Condition:	Scattered / 1500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 5000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / 15 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	40°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	74°C / 70°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	MARTINSBURG , WV (MRB)	**Type of Flight Plan Filed:**	None
Destination:	COLUMBIA , SC (CAE)	**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	37.779323,-79.43962(est)

Administrative Information

Investigator In Charge (IIC):	Schiada, Luke
Additional Participating Persons:	MANUEL M CARVALHO; RICHMOND , VA ROBERT MARTELLOTTI; CENTREVILLE , VA EDWARD G ROGALSKI; BELLEVIEW , FL
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Last Revision Date:	
Investigation Class:	Class
Note:	
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