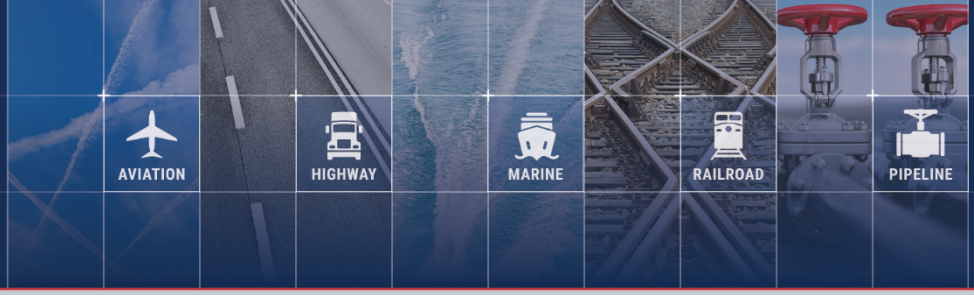

Aviation Investigation Final Report

Location:	SYLVAN SPRINGS, Alabama	**Accident Number:**	MIA95FA037
Date & Time:	December 10, 1994, 18:58 Local	**Registration:**	N6517C
Aircraft:	PIPER PA-32RT-300	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

BEFORE DEPARTURE THE PILOT WAS ADVISED OF THE FORECAST ALTITUDE OF THE FREEZING LEVEL AND WAS ALSO ADVISED THAT THE TEMPERATURE AT THE DEPARTURE AIRPORT WAS 15 DEGREES FAHRENHEIT ABOVE FREEZING. THE FLIGHT DEPARTED AND EN ROUTE EXPERIENCED WHAT THE PILOT REPORTED AS LIGHT RIME ICING. AT THE PILOT'S REQUEST THE FLIGHT WAS CLEARED TO RETURN AND THE CONTROLLER ADVISED THE PILOT THAT AN ALTERNATE AIRPORT WITH A NON-PRECISION INSTRUMENT APPROACH PROCEDURE WAS NEARBY. THE PILOT ELECTED TO CONTINUE TO THE DEPARTURE AIRPORT ON AN ASSIGNED HEADING AND REQUESTED A LOWER ALTITUDE. THE CONTROLLER CLEARED THE FLIGHT TO CRUISE 2,500 FEET. THE AIRPLANE COLLIDED WITH AN ELECTRICAL TOWER AND 250 KV CABLE ABOUT 90 FEET ABOVE GROUND LEVEL THEN IMPACTED THE GROUND. THE TOWER WAS LOCATED ABOUT 14.3 NM AND 266 DEGREES FROM THE DEPARTURE AIRPORT. EXAMINATION OF THE AIRFRAME REVEALED NO EVIDENCE OF PREIMPACT FAILURE OR MALFUNCTION. EXAMINATION OF THE ENGINE REVEALED NO EVIDENCE OF PREIMPACT FAILURE OR MALFUNCTION. THE AIRPLANE WAS NOT CERTIFICATED FOR FLIGHT INTO ICING CONDITIONS.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: POOR IN-FLIGHT PLANNING/DECISION BY THE PILOT-IN-COMMAND FOR FAILURE TO DEVIATE TO AN ALTERNATE AIRPORT AFTER ENCOUNTERING ICING CONDITIONS IN AN AIRPLANE NOT CERTIFICATED FOR FLIGHT IN ICING CONDITIONS. ALSO, FAILURE OF THE PILOT TO MAINTAIN ALTITUDE RESULTING IN THE INFLIGHT COLLISION WITH AN ELECTRICAL TOWER.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE - NORMAL

Findings
1. WEATHER CONDITION - ICING CONDITIONS
2. (C) IN-FLIGHT PLANNING/DECISION - POOR - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT

Findings
3. OBJECT - ELECTRICAL TOWER
4. (C) ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On December 10, 1994, about 1858 central standard time, a Piper PA-32RT-300, N6517C, registered to Oyvand Berg, operated by Air Carriers, Inc., as a 14 CFR Part 135 nonscheduled, domestic, cargo flight, collided with a power line and tower, then the ground near Sylvan Springs, Alabama. Instrument meteorological conditions prevailed at the time and an instrument flight rules (IFR) flight plan was filed for the flight. The airplane was destroyed and the commercial-rated pilot, the sole occupant, was fatally injured. The flight originated from the Birmingham Airport, Birmingham, Alabama, about 1737.

About 1336, the pilot contacted the Anniston, Alabama, Automated Flight Service Station (AFSS) by telephone and requested a standard weather briefing for two proposed round- trip flights. The first proposed round-trip flight was from Birmingham, Alabama, to Columbus, Georgia. The second proposed round-trip flight was from Birmingham, Alabama, to Memphis, Tennessee. The Air Traffic Control Specialist (Station) advised the pilot in part of the position of a cold front and its associated weather. The forecast freezing level in the Memphis area was slightly lower than 9,000 feet and the temperature at 6,000 feet was 3 degrees centigrade. The specialist also stated that "... two forty five [time] airmets that come out will probably lower the base of the airmet area for icing back behind the [cold] front." The pilot then filed IFR flight plans for the proposed flights.

The flight departed for the first round-trip flight, landed, and according to bank personnel, about 667 pounds of checks were provided for transportation. The flight returned to Birmingham, and before departure for Memphis, both fuel tanks were filled. About 1706, the pilot again contacted the Anniston AFSS and requested a weather update. The proposed round-trip flight was to the Memphis International Airport to offload the checks then return to Birmingham. The pilot stated that the altitude en route to Memphis would be 4,000 feet mean sea level (msl). The specialist advised the pilot that there is some icing conditions above 12,000 feet msl which corroborates flight paperwork found in the wreckage. The pilot was also advised that the recorded temperatures at 1650 at the Birmingham Airport and the Memphis International Airport were 47 and 37 degrees fahrenheit respectively. The forecast ceiling and tops in northern Alabama, were 1,000 broken, 5,000 overcast and the temperature in the Memphis area was "falling like a rock."

Review of recorded voice communications between the pilot and the Birmingham Air Traffic Control Tower (ATCT) revealed that about 1731, the pilot contacted the Flight Data/Clearance Delivery position and requested IFR clearance to the Memphis International Airport. The controller cleared the flight as filed in the IFR flight plan and advised the pilot in part that the transponder code was 2227. The pilot received clearance to taxi and about 1736, the flight

was cleared to take off. The flight departed and communications were then transferred to Birmingham Departure. About 1750, the pilot contacted the Anniston AFSS in flight position and advised the specialist that the flight just departed Birmingham. The cloud bases were 2,000 (feet), the clouds tops were 3,000 (feet), and the airplane was on top at 4,000 feet (msl). About 1759.30, the pilot was advised to contact the Memphis Air Route Traffic Control (ARTCC).

Review of recorded Memphis ARTCC communications revealed that about 1800, the pilot advised the Memphis ARTCC controller that the flight was at 4,000 (feet msl). About 1820 the pilot advised the ARTCC controller that "... I'm picking up some ah a little bit of rime icing I'd like to try to get out of it." The controller asked the pilot if she would like to descend and the pilot responded with "... I guess lower would be better." The flight was cleared to descend to 3,000 (feet msl) which the pilot acknowledged. About 1822.41, the pilot asked the controller "sir what altitude are you showing me at now," to which the controller responded 2,600 (feet). This corresponds to recorded radar data from the Memphis ARTCC. About 1823.14, the pilot advised the controller that "I'd like to do a 180 and turn back around probably go back to get out of this." About 1823.21, the flight was cleared direct to Birmingham, maintain 3,000 (feet) if able or at least 2,700 (feet). The pilot acknowledged the clearance, initiated a turn and about 1824.34, the controller advised the pilot "17C show you level now at 3,000 [feet]." Between 1827.40 and 1834.35 the Memphis ARTCC controller and the Birmingham ATCT controller communicated; however, the Memphis controller did not advise the Birmingham controller of the icing status of the accident airplane. About 1834.35, the accident pilot was advised to contact the Birmingham ATCT.

About 1830.10 the pilot of another airplane, flying at 3,000 (feet) who was also in contact with the Birmingham ATCT facility, advised the Birmingham controller that the outside air temperature at his altitude was 1 degree above freezing.

About 1834.59, the pilot contacted the Birmingham ATCT on that same frequency and advised the controller that the flight was at 3,000 (feet). The controller advised the pilot of the current weather conditions at the Birmingham Airport but excluded the temperature and dew point. About 1835.57, the pilot advised the Birmingham ATCT approach controller "...I've got a good bit of ice here I'm not able to lose if you could get me in as soon as possible." About 1837.11, the controller advised the pilot if she would like to descend 500 feet lower to which the pilot responded affirmative. About 20 seconds later the controller cleared the flight to descend and maintain 2,500 (feet) which was acknowledged by the pilot. About 1838.31, the controller cleared the flight to McDEN which is a Non-Directional Radio Beacon (NDB), and the pilot requested a vector as "I'm not picking it up yet." The controller advised the pilot to fly heading 125 degrees which was acknowledged by the pilot.

About 1838.48, the Birmingham ATCT approach controller advised the pilot that the Walker County-Bevill Field Airport (L02) was at her ten o'clock position and 11-12 miles. The pilot asked the controller if the airport has an instrument approach to which the controller responded affirmative, it has a VOR/DME approach. Review of the Airport Facility Directory

revealed that there is no weather data sources at the L02 airport. Review of the U.S. Terminal instrument approach procedures (IAP) for the VOR/DME approach to the L02 airport revealed that the minimum descent altitude (MDA) is 1160 feet msl. The IAP indicates that the height above airport (HAA) is 680 feet. A note in the IAP indicates that if unable to obtain local altimeter setting, increase all MDA's 160 feet. Weather observations taken about 1750 and 1850 at the Birmingham airport located about 35 nautical miles and 127 degrees from the L02 airport indicated that the ceiling was 900 overcast. About 1839.03, the pilot asked the controller for the distance from the L02 airport and the controller responded "...exactly uh 14 mile to the uh north due east of you." The pilot responded "...I might need to try that." The controller advised the pilot of a heading to parallel the final approach heading and advised the pilot that "If you're not familiar with the approach sir just let me know and I'll give you all the information you need." The pilot responded by saying that she wasn't familiar with the approach and requested help. The controller advised the pilot of the final approach course radial from the named VOR, named the final approach fix (FAF) and provided DME information but did not identify it as the FAF. The controller also provided altitudes to be at the FAF and at the missed approach.

About 1840.12, the pilot advised the controller "looks like I'm loosing a little bit of this let me keep on um coming in for VULCAN (VOR) um for Birmingham if you can just get me in as soon as possible." The controller advised the pilot that the current heading would place the airplane over the marker [LOM/IAF, Compass Locator at Outer Marker] if you want that to which the pilot responded affirmative. About 1842.13, the controller inquired about the status of the flight and the pilot responded "...I'm still not loosing all the ice." About 1842.20, the controller asked the pilot if she would like to proceed to the L02 Airport which was suggested earlier but the pilot responded "...I'll go on to Birmingham." The Birmingham ATCT approach controller advised the local controller that the accident airplane needed to get in as quick as she can due to the fact that she wasn't able to lose ice that had accumulated. About 1845.46, the approach controller asked the pilot what was the indicated airspeed to which she responded 110. Review of recorded radar data indicates that the groundspeed about that time was 136 knots. About 1848, the approach controller again inquired about the status of the icing and the pilot responded "...still got a good bit of it." About 1852.18, the approach controller advised the pilot that the current temperature at the Birmingham airport was 43 degrees (fahrenheit).

About 1852.55, the pilot advised the approach controller that "... I'm gonna need some help here to get in quick as I can I'm starting to lose control I'm starting to buff a little bit." About 13 seconds later the pilot asked the controller if the flight could descend and the controller advised the pilot "uh the lowest the lowest I can give you ma'am I can let you cruise 2,500 [feet msl]." There were no further recorded identifiable voice transmissions from the pilot.

According to several witnesses, it was a dark night near the accident site area. One witness who lives about 1 mile south of the accident site and was outside reported hearing an airplane flying "extremely low" in what he thought was treetop height. The witness heard the engine sound decrease "as if like coming in for landing." During the 30 seconds when he heard the

engine operating, the engine never "sputtered." He then observed a bright flash of light and called 911 via a portable telephone.

Another witness who lives about 2 miles south of the crash site and was outside first saw a bright orange light at the base of the clouds then observed another flash of light. He then heard the engine accelerate and stated that it sounded normal with no evidence of sputtering or missing. He then heard an explosion and felt the impact. He further stated that he did not observe the airplane flying nor could he tell which direction it was flying.

A witness who lives about 1/2 mile southeast of the crash site reported hearing the engine operating at reduced power. He then heard the engine accelerate and stated that it sounded normal. He then heard an explosion and saw a flash of light.

According to the Alabama Power Company personnel, a 230 KV power line was broken at 1858 hours, which was about 5 minutes after the last recorded identifiable voice communication from the pilot. The associated tower was located about 266 degrees and 14.3 nautical miles from the Birmingham Airport. The airplane descended, impacted the ground nose low then came to rest with the left wing, empennage, engine and propeller assembly, and instrument panel separated. The main body of the wreckage came to rest on the upslope of a valley in a wooded area.

PERSONNEL INFORMATION

Information pertaining to the pilot is contained in the NTSB Factual Report-Aviation and Supplement U. Additionally, review of company records revealed that she had flown about 161 hours since employment on September 12, 1994, in this make and model airplane. According to the Director of Operations she was only current in the accident make and model airplane. Review of her employment data sheet dated September 13, 1994, revealed that at that time she had accumulated about 90 hours total actual and simulated instrument flight time. Review of her training records revealed that on September 15, 1994, a certificate of ground training was issued which indicated that training in part was received on avoidance of icing conditions. The total ground training hours completed was documented as 8.5 and was signed off by the company instructor.

AIRCRAFT INFORMATION

Information pertaining to the airplane is contained in the NTSB Factual Report-Aviation and Supplements A & B. Additionally, according to the pilot's operating handbook, the airplane is not approved for flight in icing conditions. Review of the equipment list for the airplane revealed that an outside air temperature gauge was installed when the airplane was manufactured.

METEOROLOGICAL INFORMATION

Review of weather records revealed that an airmet update regarding icing and freeze level was issued on the day of the accident at 1445, and was valid until 2100 that same day. The forecast freezing level was between 12,000 and 24,000 feet msl in clouds. Additionally, review of a surface analysis weather depiction chart at 1800 revealed that a cold front was located east of Birmingham.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed evidence that the right wing of the airplane collided with an approximately 111-foot tall power line tower about 90 feet above ground level. Right wing components found adjacent to the tower were examined and found to exhibit slight heat damage. The first point of impact on the ground was located on the downslope of a hill about 175 feet from the tower. The aircraft wreckage was scattered along a magnetic heading of about 120 degrees with the fuselage coming to rest about 328 feet from the tower. According to the Alabama Power Company, the terrain elevation at the base of the power line tower is 651 feet msl. Examination of the aileron, elevator, and rudder flight control systems revealed no evidence of preimpact failure or malfunction. All components necessary to sustain flight were located in the vicinity of the damaged tower and accident site. A component of the right wing of the airplane remained suspended in the power line tower. Located in the wreckage was a cargo net with evidence that it had been secured to the attach points in the airplane. Scattered throughout the wreckage and terrain near the accident site were numerous checks some of which sustained slight heat damage. Examination of the airframe revealed no evidence of preimpact failure or malfunction. The engine tachometer was located and found to indicate about 2,400 rpm. The engine and propeller assemblies were removed from the accident site for further examination.

Examination of the engine assembly revealed in part that the dual magneto, servo fuel injector, governor, and engine-driven fuel pump housing were separated. Impact damage to the engine precluded rotation of the crankshaft. The No. 2 cylinder head was found to be separated from the barrel; however, impact damage was noted to the threaded portion of the cylinder barrel. The dual magneto clamps and fasteners were in place on each hold down stud assembly. The dual magneto was rotated by hand which revealed spark at each ignition coil. Disassembly of the engine revealed no evidence of preimpact failure or malfunction of the crankshaft, camshaft, or valve train. The vacuum pump driven components were not failed and disassembly of the vacuum pump revealed the rotor was impact damaged. The rotor vanes were not damaged. The separated fuel servo was not bench tested and the propeller was not examined.

MEDICAL AND PATHOLOGICAL

A post-mortem examination was conducted by Gregory G. Davis, M.D., Associate Coroner/Medical Examiner. The cause of death was listed as extensive and severe blunt force injuries.

A toxicological analysis of specimens of the pilot were conducted by the Armed Forces Institute of Pathology (AFIP) and the University of Alabama at Birmingham (UAB). The results of analysis by the AFIP were negative for ethanol, and tested drugs. The results of analysis by the UAB were negative for ethanol, and tested drugs of abuse.

FIRE

Cursory examination of the checks scattered throughout the wreckage and accident site area and an airplane component adjacent to the impact damaged tower revealed evidence of slight heat damage.

ADDITIONAL INFORMATION

Review of recorded Computer Data Reduction (CDR) Editor Listing and the corresponding CDR plot revealed that the last recorded radar data with altitude display was about 1853.10 hours. At that time the airplane heading was 104 degrees, the altitude was 2,600 feet (msl), and the groundspeed was 140 knots.

The wreckage and all retained components were released to Mr. Phil Powell, on December 12, 1994.

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:**	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	November 22, 1994
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1661 hours (Total, all aircraft), 161 hours (Total, this make and model), 1550 hours (Pilot In Command, all aircraft), 161 hours (Last 90 days, all aircraft), 64 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N6517C
Model/Series:	PA-32RT-300 PA-32RT-30	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	32R-7885030
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	November 29, 1994 100 hour	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	48 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3416 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	IO-540-K1G5D
Registered Owner:	BERG OYVIND	**Rated Power:**	300 Horsepower
Operator:	AIR CARRIERS, INC.	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	DKBA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	BHM ,644 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	18:50 Local	**Direction from Accident Site:**	86°
Lowest Cloud Condition:	Unknown	**Visibility**	7 miles
Lowest Ceiling:	Overcast / 900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	6°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BIRMINGHAM , AL (BHM)	**Type of Flight Plan Filed:**	IFR
Destination:	MEMPHIS , TN (MEM)	**Type of Clearance:**	IFR
Departure Time:	17:37 Local	**Type of Airspace:**	Class G

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.540721,-86.969902(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	JOHN F KEESEY; BIRMINGHAM , AL J G PARHAM; STOCKRIDGE , GA
Original Publish Date:	July 31, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=37637