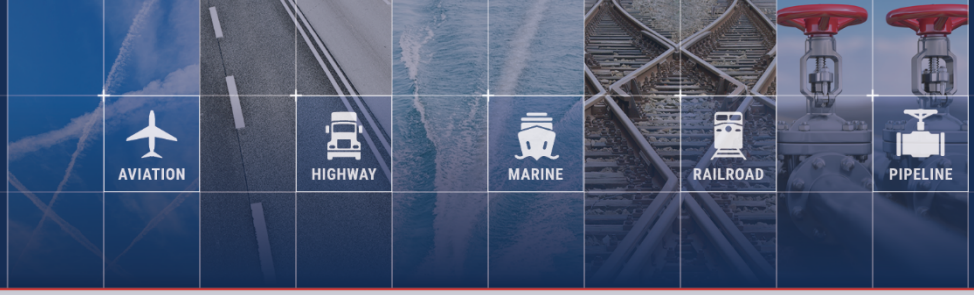

Aviation Investigation Final Report

Location:	LAPEER, New York	**Accident Number:**	NYC93FA080
Date & Time:	April 12, 1993, 09:51 Local	**Registration:**	N292SP
Aircraft:	PIPER PA-32R-301	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal, 2 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

THE PURPOSE OF THE FLIGHT WAS INSTRUMENT TRAINING. WX WAS OBTAINED AND AN IFR FLIGHT PLAN WAS FILED THE EVENING BEFORE THE FLIGHT; NO FURTHER UPDATED WX BRIEFING WAS OBTAINED. CURRENT AIRMETS CALLED FOR, AND PIREPS REPORTED, INFLIGHT ICING FOR THE ROUTE AND DESTINATION. THE AIRPLANE WAS NEITHER DE-ICING NOR ANTI-ICING EQUIPPED. JUST BEFORE THE APCH CLEARANCE WAS ISSUED TO THE PILOT, ANOTHER AIRCRAFT ON THE SAME FREQUENCY WAS ISSUED A PIREP FOR MODERATE ICING. A VOR APCH TO THE ORIGINAL DESTINATION WAS INITIATED. THE CLOUD CEILING WAS 500 FT BELOW THE MINIMUM DESCENT ALTITUDE. A MISSED APPROACH WAS EXECUTED. THE INSTRUCTOR RADIOED SEVERAL TIMES ABOUT ENCOUNTERING ICING CONDITIONS AND HIS INABILITY TO MAINTAIN ALTITUDE. ATC ISSUED PROGRESSIVELY LOWER ALTITUDES, WITH A FINAL EMERGENCY VECTORING ALTITUDE OF 2300 FT, BASED ON THEIR EMERGENCY OBSTRUCTION VIDEO MAP (EVOM). OBSTRUCTIONS 2300 FT HIGH WERE DEPICTED IN THE AREA ON THE EOVM. THE AIRPLANE, WITH LANDING GEAR EXTENDED, IMPACTED TREES AT 2000 FT ELEVATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT'S IMPROPER INFLIGHT DECISION TO CONTINUE FLIGHT INTO KNOWN ICING CONDITIONS. FACTORS WHICH CONTRIBUTED TO THE ACCIDENT WERE: THE PILOT'S FAILURE TO OBTAIN UPDATED WEATHER INFORMATION PRIOR TO DEPARTURE, THE ICING CONDITIONS, AND THE DEGRADED AIRCRAFT PERFORMANCE DUE TO AIRFRAME ICE AND THE PILOT'S FAILURE TO RETRACT THE LANDING GEAR.

Findings

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

Findings
1. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. (F) WEATHER CONDITION - ICING CONDITIONS
3. (C) FLIGHT INTO KNOWN ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND

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

Findings
4. (F) WING - ICE
5. (F) GEAR RETRACTION - NOT PERFORMED - PILOT IN COMMAND
6. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On Monday, April 12, 1993, at about 0951 eastern daylight time, a Piper PA 32, N292SP, piloted by Robert Freeman, impacted trees in a wooded area, 10 miles south of the Cortland Chase Field, Cortland, New York. The airplane was destroyed. Both pilots and one passenger were fatally injured, and two passengers received minor injuries. Instrument meteorological conditions prevailed. An instrument flight plan had been filed for the flight operating under 14 CFR 91.

The purpose of the flight was to conduct instrument training for the non instrument rated pilot, Ethel Karp, by a certified flight instructor, Robert Freeman, while returning three college students to Cortland, New York.

The flight instructor called Bridgeport Automated Flight Service (AFS) at 1613 on April 11, 1993, for a weather forecast for the next day. The AFS informed Mr. Freeman that the aviation forecast was only through 7:00 A.M. on the morning of the 12th. The AFS then provided the following:

"... the outlook after 7:00 A.M. at Bradley field ...marginal V.F.R. due to the ceiling with rain drizzle and fog...Ithaca New York it says marginal V.F.R. due to the ceilings, at Binghamton it says I.F.R. after 7:00 A.M. due to fog, becoming V.F.R. by 10:00 A.M." the AFS the stated to Mr. Freeman, :...you know you best bet is to ah check back after 8:00 o'clock tonight..." Mr. Freeman stated that, "... After 8:00 I'll talk, I'll try it then..."

Approximately 2 hours later, at 1821, a computer weather briefing was requested and received, through the Direct User Access Terminal System (DUATS), for N292SP. At 2059, a second DUATS briefing was requested for N292SP.

A person contacted Bridgeport AFS, at 2131, and filed an instrument flight plan for N292SP. No weather was obtained during this telephone call.

On April 12, 1993, at 0754, N292SP was issued an instrument flight rules (IFR) clearance by Groton Air Traffic Control Tower to Cortland, New York, and at 0801, N292SP departed form the Groton Airport. N292SP was issued a climb to 6,000 feet and remained at that altitude until the initial descent into Cortland, New York.

According to pilot reports, the tops of the clouds in the Ithaca, New York area, were 4,000 feet. The two surviving passengers stated that the enroute flight was conducted over the cloud layers.

The pilot of N292SP made contact with Binghamton TRACON and asked, "...are you V.F.R. right there sir." The radar controller replied, "ah negative we're showing measured ceiling five hundred overcast visibility one zero." N292SP then inquired , "ok any idea what's going on up at Cortland." The radar controller said, "november two sierra papa you contact AWOS (Automated Surface Observing System), at Cortland, on one three two point two five. N292SP read back the frequency change."

The Cortland ASOS records reported an 800 foot overcast ceiling until 0901, then lowering to 600 foot overcast. The visibility remained at 10 miles for both reports.

0908:00: N292SP advised approach control, "ah two sierra pop ah looks like we're going to have to prepare for a miss over to ah Ithaca do you have Ithaca's weather." The controller requested N292SP to "standby," and he contacted Elmira Approach Control via telephone to obtain the Ithaca weather. At 0910:11, the controller transmitted, "ah two sierra papa Ithaca weather estimated ceiling one thousand overcast visibility seven temperature three one dew point two niner wind three five zero at one zero altimeter two niner eight niner." The controller advised N292SP, "and november tow sierra papa your cleared to the Ithaca Airport via present position direct Binghamton VOR direct Cortland maintain six thousand." N292SP acknowledged the clearance.

0921:19: the controller instructed N292SP,"...turn right heading three one zero vector final approach course V.O.R. alpha into Cortland." N292SP acknowledged the heading. At 09222:23, the controller transmitted to the flight crew of another airplane inbound to Binghamton, "...have moderate rime ice reports four thousand to three thousand on final runway three four also light to moderate mixed icing three thousand to two thousand on final reported by a Beech nineteen hundred."

After several transmissions between the controller and N292SP, the controller instructed, "november two sierra papa descend and maintain four thousand;" followed by: "...present position ah correction fly present heading join the final approach course V.O.R. alpha into Cortland." At 0930:38, the controller issued N292SP the approach clearance, which was acknowledged.

0932:20: the controller provided a USAir flight, the icing PIREPS that he had provided earlier.

0935:35: the controller advised N292SP, "...show you over IILEN now radar service terminated...freq change to advisory frequency approved." N292SP responded, "changing the frequency two sierra pop."

0939:28: N292SP transmitted, "Binghamton approach ah Saratoga two sierra pops on the miss ah heading for CORTA." The controller acknowledged N292Sp, and transmitted, "...your cleared to the Ithaca airport via radar vectors turn right heading two zero zero vector to final approach course Ithaca maintain four thousand." N292SP acknowledged the altitude and

received further instructions from the controller to squawk a transponder code and ident. At 0943:25, the controller instructed, "...contact Elmira one two four point three good day." N292SP acknowledged the frequency change.

0943:43: N292SP transmitted, "Elmira approach this is nine two sierra papa ah with you four thousand." The controller responded, "...fly heading two one zero vector to the I.L.S. final approach course runway three two at Ithaca standby for the weather." N292SP acknowledged the heading and at 0945:30 transmitted, "Elmira two sierra pop picking up some problems some ice ah can we have lower." The radar controller said, "november two sierra papa say again you're coming in weak." N292SP replied, "yeah we're picking up some prop ice ah can you get us lower." At 0945:51, the controller instructed N292SP, "...descend and maintain three thousand seven hundred." N292Sp replied, "three thousand seven hundred we're at three thousand five hundred two four zero." N292SP replied, " two four zero and can we expect lower we're getting a load of ice up here."

After several transmissions between the controller and N292Sp confirming the assigned heading, Elmira approach provided the Ithaca weather to N292SP at 0947:34, "...estimated ceiling five hundred broken seven hundred overcast visibility four fog wind three four zero at one one Ithaca altimeter two niner eight niner." N292SP replied, "two niner eight niner and ah can we expect to get lower soon." the controller said, "two sierra papa maintain three thousand six hundred that's as low as I can go right now you can expect lower in three miles." At 0948:00 N292SP transmitted, "roger we're having a hard time holding on to three three." The controller responded, " you need to maintain a mul...the ah the altitudes I give you can't just arbitrarily go lower."

0948:33: N292SP transmitted, "two sierra papa ah any way chance of lower." Three seconds later N292SP stated, " two sierra papa I need help." At 0948:42, the controller transmitted, " two sierra papa maintain three thousand one hundred." After an unintelligible transmission from N292SP, the controller transmitted, "three sierra papa descend and maintain two thousand three hundred this is an emergency vectoring altitude two thousand three hundred." N292SP responded, "two thousand three hundred here we go." N292SP then transmitted, "say again the heading you want us on." The controller replied, "fly heading two four zero." N292SP acknowledged the heading and at 0949:15, the controller advised, " november two sierra papa radar contact lost."

N292SP advised, "okay we're establishing ourselves on the two four zero and we're gonna [sic] make that altitude I think." At 0949:43, N292SP inquired, "say again the altitude for two four zero." N292SP inquired, "say again the altitude for two four zero." N292SP advised, "two thousand three hundred we have an awful lot of ice we barely maintain." The controller responded, "two sierra papa roger that's an emergency vectoring altitude that's as ah low as I can go in that area at this time." At 0951:34, the controller transmitted, " piper two sierra papa how's the icing." There were no further communications with the airplane.

One of the surviving passengers, Kerrie rogers, stated; "...I believe it was sometime around

9:40AM we were in the Cortland area and the windshield was icing up. We couldn't land at the Cortland Airport because of the fog and we couldn't see the ground. We were all wearing earphones so we could hear the transmissions...For about the last three to five minutes of the flight Mr. Freeman took over the flying. The windshield was icing up bad and the plane was also taking on ice and getting shaky..."

Another surviving passenger, Matthew Massaro, stated; "...During the trip we were listening to the conversations of the pilot for the fun of it...The copilot called on the radio and asked permission to go to a lower elevation because of an icing condition. I looked out the windshield and all I could see was ice. I believe that the pilot was getting freaked by the weather condition. Mr. Freeman asked if she wanted him to take over and she said yes. I think he took over at that time. It was only a minute before the plane went down. Just before we hit the plane was like jerking and dropping a little. The engine did not sound like it was having a problem. Mr. Freeman was calm while talking on the radio and there was no warning that we were in trouble."

The accident occurred during the hours of daylight at approximately 42 degrees, 28 minutes north latitude, and 76 degrees, 8 minutes west longitude.

PERSONNEL INFORMATION

The flight instructor, Mr. Robert W. Freeman, held a commercial Pilot Certificate with the ratings for airplane single engine land and sea, and instrument airplane. He also held a Flight Instructor Certificate for airplane single engine land and instrument airplane.

His most recent Federal Aviation Administration (FAA) Second Class Medical Certificate was issued on January 18, 1993.

Mr. Freeman's pilot log book was located; however, starting in 1991 through the present, the log book was not current. Mr. Freeman's total flight time was estimated to be about 6,000 hours, of which approximately 1,600 hours were as a flight instructor. He had about 300 hours flying experience in the PA32.

Mrs. Ethel B. Karp held a Private Pilot Certificate with a rating for airplane single engine land. She was not instrument rated.

Her most recent FAA Third Class Medical Certificate was issued on April 4, 1992.

Mrs. Karp's pilot log book could not be located. It is estimated she had a total of approximately 150 flying hours with about 80 hours in N292SP.

METEOROLOGICAL INFORMATION

According to the DUAT and the National Weather Service records, the forecast for April 12,

1993, available to N292SP the evening of April 11, 1993, called for scattered to broken clouds at 3,000 feet, with a chance of light rain showers in the Ithaca, New York area.

The National Weather Service data available to the flight crews the morning of April 12, 1993, indicated the following:

The ceiling at Ithaca was at an estimated 1,200 broken between 0550 and 0750.

The Binghamton weather forecast for April 12, 1993, issued at 0408, valid until 1000, called for a ceiling of 1,100 overcast, occasionally 1,100 scattered and a chance of light snow showers. Amendment number one to this forecast, issued after N292SP departed, changed the forecast calling for a ceiling of 500 overcast, occasionally 1,200 overcast and a chance of flight rain showers or light snow showers.

AIRMETS (Airman's Meteorological Information) issued for the Cortland/Ithaca called for: IFR...occasional ceilings below 1,000 overcast and visibility below 3 miles due to precipitation and fog, and for light, occasional moderate rime/mixed icing in the clouds and in the precipitation, from the freezing level to 13,000 feet.

Pilot Reports (PIREP) available through FAA Flight Service, prior to departure and in flight, reported light mixed icing at 8,000 feet in the Utica, New York area, and light to moderate rime ice at 2,500 feet in the Rochester, New York area.

Pilot Reports transmitted on N292SP's frequency by Binghamton Approach were; "...reports of moderate rime icing from four thousand to three thousand on final runway three four also light to moderate mixed icing form three thousand to two thousand reported by a beech nineteen hundred at one two five four."

According to the Airman's Information Manual, the definition of moderate icing is; "The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing and anti icing equipment or diversion is necessary."

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site on April 13, 1993. From the time of the accident, to the time of examination, 5 inches of snow had fallen on the wreckage. The examination revealed that all major components of the airplane were accounted for at the scene, and that the airplane came to rest inverted on an approximate heading of 020 degrees, at a ground elevation of about 1900 feet above mean sea level (MSL).

Initial tree impact scars start approximately 250 feet from the wreckage at approximately 2,000 feet MSL. Tree impact scars become progressively lower on the trees in the direction of the wreckage. The tree scars indicate a general direction of 230 degrees. Several pieces of the wing and horizontal stabilizer sheet metal, and the nose gear door, were found along the

tree impact flight path. A 12 inch diameter tree, 12 feet from the main wreckage, sustained major impact scars 10 feet above the ground.

The engine was separated from the fuselage and was found 52 feet short of the main wreckage along the tree impact flight path. The propeller and hub were separated from the engine. The engine case was intact and not broken. The crank shaft flange on the engine was bent, and contained propeller hub attaching bolts, which were bent and twisted. Engine rotation was not accomplished due to the bent crank shaft. Some fire damage was observed to the accessory section of the engine and fire wall area. The throttle body, of the fuel injection system, was broken free from the bottom of the engine. The remainder of the fuel injection system, spark plugs, spark plug wire and magnetos were all intact and connected.

The propeller hub and blades were located intact approximately 90 feet beyond the engine and 70 feet south east from the main wreckage. All three blades displayed cord wise twisting and scratches. The tips of the three blades displayed similar twisting and curling, and the tips of two blades showed similar gouging.

The nose strut and wheel were separated from the fuselage at the attaching points and found 70 feet from the airplane in an area between the engine and the propeller hub.

The left wing was separated from the fuselage at the attaching points and found 52 feet beyond the tail of the main wreckage with the left main gear attached. The wing section was laying upside down with the gear extension locking lever bolt sheared, which allowed the landing wheel to pivot freely back into the wheel well.

The main wreckage was found inverted 3 feet from an 18 inch diameter tree. The tree had impact scars starting approximately 10 feet above the ground, down to 3 feet above the ground. The rear seat of the passenger compartment, where the fatal passenger was located, was abeam a tree. Cable control continuity was established to the elevator attaching point, right wing and the rudder.

The nose compartment of the fuselage was compressed aft and upward. The cabin roof, instrument panel and windshield were all compressed and buckled inward. The right wing was attached to the fuselage, and the right main gear was extended and locked position.

The flap handle and actuators indicated the flaps were in the up position. The landing gear actuators indicated the landing gear was extended. Examination of the cockpit area produced no useful information due to impact damage.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on Mr. Robert Freeman and Mrs. Ethel Karp, on April 13, 1993, by Dr. Erik K. Mitchell, of the Onondaga County Medical Examiners Office, Syracuse, New York. The results indicated that both pilots died of, "multiple blunt traumatic injuries."

The toxicological testing report, from the FAA toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, revealed negative for drugs and alcohol for Mr. Robert Freeman.

AIR TRAFFIC CONTROL

The Group Chairman's summarized interview with the controller working N292SP, stated: "...He [the Elmira Controller] said he then selected the Emergency Obstruction Video Map (EOVM) to determine that an altitude of 2,300 feet could be issued...He said that his last observation of the data block for N292SP indicated that the airplane was descending out of 3,000 feet, the data block went into COAST, then there was nothing...When asked about his rational for leaving N292SP on a heading of 240 degrees, he replied that even though he had issued the pilot a lower altitude, it was his intent to vector the airplane to an ILS approach at Ithaca..."

The Group Chairman's summarized interview with the Controller In Charge, stated:

"...His understanding of the EOVM was that it was to be used for aircraft in emergency situations. He said that the elevations depicted on the map would allow clearance from terrain and obstructions and that any vectors that were issued were only advisory in nature...When asked if a pilot had to be notified that vectors would be only as an advisory, he replied, "yes sir"...When asked to refer to a copy of the facilities EOVM and to explain what "23" would indicate, he said that an aircraft was at 2,300 feet would "barely" clear any obstructions at that altitude..."

The purpose of the emergency obstruction video map (EOVM), as stated in the Air Traffic Control Manual, 7110.65G is:

"The EOVM is intended to facilitate advisory service to an aircraft in an emergency situation wherein an appropriate terrain/obstacle clearance minimum altitude can not be maintained...When providing emergency vectoring service, the controller shall advise the pilot that any headings issued are emergency advisories intended only to direct the aircraft toward and over an area of lower terrain/obstacle elevation."

The Elmira Air Traffic Control Facility SOP (Standard Operation Procedures) stated, the minimum vectoring altitude (MVA) for the area that the accident occurred in, was 3100 feet. It further states that prominent man made obstacles, displayed on the EOVM are depicted by an inverted "v", and that the associated elevations are rounded up to the nearest 100 feet.

A review of the Elmira EOVM revealed that two prominent obstacles, at depicted elevations of 2,300 feet, were in the flight path of N292SP.

ADDITIONAL INFORMATION

N292SP was not equipped with any anti icing or deicing systems, except for the heated pitot tube. The Pilot's Operating Handbook (POH) stated: "THIS AIRCRAFT APPROVED FOR V.F.R., I.F.R., DAY AND NIGHT NON ICING FLIGHT..."

Additionally, N292SP was not equipped with the Piper Automatic Gear Extension System.

The POH also stated, when initiating a Go Around: "...Retract the landing gear and slowly retract the flaps when a positive climb is established."

When the pilot of N292SP initiated the VOR approach to the Cortland County Chase Field, the lowest reported ceiling was approximately 500 feet below the minimum descent altitude for that approach.

The airplane wreckage was released on April 12, 19993, to David A. Surace, a representative of the owners insurance company.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	58,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 18, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	6000 hours (Total, all aircraft), 300 hours (Total, this make and model), 6000 hours (Pilot In Command, all aircraft), 85 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N292SP
Model/Series:	PA-32R-301 PA-32R-301	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3213038
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 30, 1992 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	236 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	347 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-K1G5D
Registered Owner:	E. G. AND H. INC.	**Rated Power:**	300 Horsepower
Operator:	E.G. AND H. INC.	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ITH ,1099 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	09:50 Local	**Direction from Accident Site:**	330°
Lowest Cloud Condition:	Unknown	**Visibility**	4 miles
Lowest Ceiling:	Broken / 500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	-1°C / -2°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	GROTON , CT (GON)	**Type of Flight Plan Filed:**	IFR
Destination:	CORTLAND , NY (N03)	**Type of Clearance:**	IFR
Departure Time:	08:01 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:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal, 2 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal, 2 Minor	**Latitude, Longitude:**	42.439315,-76.029418(est)

Administrative Information

Investigator In Charge (IIC):	Pearce, Robert
Additional Participating Persons:	TONY JAMES; ROCHESTER , NY JAMES BROWN; WILLIAMSPORT , PA RICHARD J WENTWORTH; WASHINGTON , DC THOMAS P CARMODY; WASHINGTON , DC
Original Publish Date:	September 27, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=38576