Aviation Investigation Final Report

Location:	FORKS TOWNSHIP, Pennsylvania	**Accident Number:**	NYC96FA061
Date & Time:	February 9, 1996, 20:51 Local	**Registration:**	N4655F
Aircraft:	Cessna P206A	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot/owner had flown a round-trip between his base airport and another airport during the day. He flew another round-trip that evening. During the return leg, the airplane struck the top of an unlighted 928 feet mean sea level (MSL) tower 2 miles from the destination airport. The destination airport field elevation is 399 feet MSL. The recommended pattern altitude for the airport was 1,400 feet MSL. The tower lighting was listed out of service by a NOTAM issued 15 days prior to the accident. There was no record of the pilot receiving a weather briefing or NOTAMs. No temporary repairs to restore the tower lighting had been initiated. The 928 feet MSL tower was depicted on the VFR navigation chart with the symbol for group obstructions. Another 775 feet MSL tower was positioned on the same hill, about 2,100 feet east of the 928 feet MSL tower. The top of that tower was illuminated by a single flashing red light. The FAA did not have the authority to deny or approve construction of obstructions to air navigation, or to mandate the marking and lighting of the obstructions, or the repair of lighting outages. The Federal Communication Commission (FCC) did require marking and lighting of radio towers with licensed FCC transmitters. The FCC did not publish a time limit in which lighting outage had to be repaired.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain a proper altitude, and insufficient obstruction lighting requirements established by the Federal Aviation Administration and the Federal Communications Commission.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CRUISE

Findings
1. (F) LIGHT CONDITION - DARK NIGHT
2. (C) OBJECT - TOWER
3. (C) INSUFFICIENT STANDARDS/REQUIREMENTS - FAA(ORGANIZATION)
4. (C) INSUFFICIENT STANDARDS/REQUIREMENTS - OTHER GOVT ORGANIZATION
5. (C) PROPER ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On February 9, 1996, at 2051 eastern standard time, a Cessna P206A, N4655F, was. destroyed during a collision with a tower near Forks Township, Pennsylvania. The airline transport pilot was fatally injured. Night visual meteorological conditions prevailed for the personal flight that originated at Pittstown, New Jersey, about 2040. No flight plan had been filed for the flight conducted under 14 CFR Part 91.

According to witnesses, the pilot purchased the airplane in November, 1995, and based it at the Easton Airport (N43), Easton, Pennsylvania. On February 9, 1996, he flew N4655F from N43 to the Sky Manor Airport (N40), Pittstown, New Jersey, and topped off the fuel tanks. The pilot returned to N43, about 1730, and again flew back to Sky Manor. The pilot had dinner at N40, and then departed on the last leg for Easton.

In a police report that contained summaries of witness interviews, a witness 1/2 of a mile southeast of the accident stated:

"...he saw the aircraft gliding down. [He] heard a buzzing noise, but he is not sure if the aircraft engine was running. [He] said the aircraft was low as though it were going down...Aircraft was traveling parallel to McCartney St. and veered left. Approximately 10 seconds after seeing the aircraft, [he] heard what he thought was a gunshot."

Three witnesses near the accident scene stated that they were about to inform a radio station that their tower obstruction lights were not on, when they observed an airplane collide with the tower. One of the witnesses stated that he heard the airplane's engine running when the collision occurred.

The accident occurred during the hours of darkness about 40 degrees, 43 minutes north latitude, and 75 degrees, 13 minutes west longitude.

PERSONNEL INFORMATION

The pilot, Mr. Donald C. Cory, held an Airline Transport Pilot Certificate with a rating for airplane multiengine land, and a Commercial Pilot Certificate with a rating for airplane single engine land. He also held a Flight Instructor Certificate for airplane single engine land and instrument airplane.

His most recent Federal Aviation Administration (FAA) First Class Medical Certificate was issued on January 11, 1996.

Mr. Cory's pilot log book was located; however, it did not contain any flight hours from his employment with the airlines. Mr. Cory's total flight time was estimated to be about 24,500 hours, of which approximately 3,500 hours were in single engine airplanes. He had accumulated about 30 hours flying experience in this make and model.

OTHER DAMAGE

The airplane struck a tower owned and operated by WEEX, Inc., Easton, Pennsylvania. The tower held antennas for the commercially licensed WIPI, AM, and WODE, FM, radio stations. The top of the tower was 928 feet above mean sea level (MSL). A 10 foot section of the top of the tower was bent over on a magnetic bearing of approximately 315 degrees.

COMMUNICATIONS

There was no record of the pilot receiving a weather briefing, notices to airmen, or filing a flight plan.

AERODROME INFORMATION

The Easton Airport was located about 2 miles northwest of the 928 foot antenna. The airport field elevation was 399 feet MSL, and the recommended traffic pattern altitude was 1,400 feet MSL. Runway 36/18 was the only lighted runway, and there was no visual glideslope indicator available for runway 36.

WRECKAGE AND IMPACT INFORMATION

The airplane wreckage was examined at the accident site on February 10, 1996, and revealed that all major components of the airplane were accounted for at the scene. The airplane came to rest nose down at a ground elevation of about 400 feet MSL, about 650 feet north of the tower.

The right wing was separated from the fuselage, and located about 250 feet east of the tower in the center of a road. The inboard leading edge of the wing contained orange paint marks, similar to the orange paint found on the top of the tower. Several pieces of the right wing, horizontal stabilizer, and the right main landing gear were scattered around the base of the tower. A 5-inch-diameter tree branch at the wreckage site displayed an area with a smooth cut. The cut was at an approximate 60 degree angle to the length of the branch.

Aileron control cable ends remained attached to the ailerons. The broken ends of the cables extended from the wings where they were separated from the fuselage. Further control continuity was not confirmed due to impact damage. Examination of the flap handle and actuators indicated that the flaps were retracted.

The engine and propeller remained attached to the fuselage, and were removed to a hanger for further examination. The propeller hub and blades were attached to the engine. Two of the three propeller blades displayed chord wise twisting and scratches. The tips of the blades displayed similar twisting, curling, wrinkling, and gouges.

Examination of the engine revealed the left and right magneto flanges received impact damage, and the magnetos were separated from the accessory case. The magnetos remained attached to the spark plug leads, and when the magnetos were rotated by hand, spark was observed at the end of the leads.

The engine fuel pump shaft was not sheared and rotated freely in the pump. The fuel control screen was opened and contained some debris and fuel; however, the screen was not clogged. The fuel manifold was absent of debris and fuel.

The propeller hub and blades were rotated and the engine crankshaft rotated freely. Valve train continuity was confirmed on all cylinders. Compression was determined on all cylinders by the thumb method, except the number five cylinder. The oil cooler was observed to be compressed into the number five cylinder barrel, and the valve cover was broken free of the cylinder. All spark plugs were absent of debris, and were light gray in color.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on Mr. Donald C. Cory, on February 10, 1996, by Dr. Isiadore Mihalakis, of the North Hampton County Coroner's Office, Easton, Pennsylvania.

Toxicological testing was conducted by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, and the North Hampton County Coroner's Office, Easton, Pennsylvania.

The toxicological testing report from the North Hampton County Coroner's Office was positive for 0.03 percent ethanol in the blood, and in 0.06 percent ethanol in the gastric.

According to 14 CFR Part 91, which addressed the use of alcohol and drugs, it stated, "No person may act or attempt to act as a crewmember of a civil aircraft...While having a .04 percent by weight or more alcohol in the blood..."

ADDITIONAL INFORMATION

The top of the 928 foot tower was about 2 miles south, and 1/2 mile east, of Easton's runway 36 center line. The top of the tower was 428 feet above ground level (AGL), and was located on the north, down slope side of a hill, at approximately 500 feet above mean sea level (MSL). The hill top south of the tower was about 575 feet MSL. A tower about 150 feet AGL was positioned about 100 feet north of the 928 foot tower. The 928 foot tower was equipped with lighting as specified by the Federal Communication Commission Rules. The 150 foot

tower was not lighted.

A review of the engineering data for the 928 foot tower revealed that the actual height of the tower, with the obstruction lighting installed, was 930.5 feet MSL.

The 928 foot tower obstruction lights were reported out of service by the radio station on January 24, 1996, about 1955, to the Williamsport Flight Service Station. Williamsport issued a notice to airmen (NOTAM), about 2040, regarding the lighting outage. The NOTAM was valid until February 9, 1996. On February 8, 1996, at the request of the radio station, the NOTAM was reissued, valid until February 24.

During an interview with the radio station's engineer, he stated that he expected the lights to be inoperative for at least 6 weeks, and no temporary repairs were initiated by the radio station. He stated that the Austin Ring lighting transformer that was inoperative had to be custom made.

An engineering firm in the Allentown area was consulted by the NTSB Investigator about temporary repairs. The engineering firm representative stated that a "lighting choke" could have been used as a temporary repair, and could have had the lights operating within 24 hours. The cost of the repair was estimated at less than $500.

A third tower was situated along the same hill, about 2,100 feet east of the 928 foot tower. The top of the third tower was about 775 feet MSL. The top of the tower was illuminated by a single flashing red light, as specified by the Federal Communications Commission Rules.

The New York Sectional Aeronautical Chart depicted the location of the accident tower by the symbol for "group obstruction." Next to the symbol was the number "928," which according to the map legend, represented "elevation of the top above mean sea level." The symbol did not depict the number of towers that it represented, the individual tower heights, the proximity of the towers, or lighting.

A review of the New York Sectional revealed that the 16 mile direct route between Sky Manor and Easton, crossed directly over the group obstruction marking on the sectional. During the accident flight, only the 775 foot tower was illuminated.

A plot of the direct route between Sky Manor and Easton, and the actual route flown, revealed that the airplane flew east of the direct route between the two airports. A review of an Easton road map revealed that the co-owner of the airplane resided about 900 feet east of the actual route flown.

Obstruction Lighting and Marking

According to 14 CFR Part 77, the FAA was charged with the responsibility to identify obstructions to air navigation,. The criteria contained in the regulation required the FAA to

determine what constituted an obstruction. It did not authorize the FAA to deny or approve the construction of towers, water tanks, or any structure that could be classified as an obstruction to air navigation. A review of Part 77 revealed that it also did not address the marking and lighting of the obstructions, or the repair of lighting outages of marked obstructions.

The FAA did published recommended obstruction marking and lighting requirements in an Advisory Circular, AC No: 70/7460-1J. A review of the Advisory Circular (AC) revealed that paragraph six discussed the Federal Communication Commission (FCC). The paragraph stated that changes or upgrades to original FAA determinations must also be filed with the FCC, and that the structures would be subject to inspection and enforcement of the marking and lighting requirements by the FCC.

A survey of several local radio stations revealed that they did not possess this Advisory Circular, and were not aware of it.

Part 17 of the FCC Rules established mandatory requirements that applied to towers with transmitters licensed by the FCC. These Rules mirrored the FAA Advisory Circular for the marking and lighting of obstructions, and addressed the hours of lighting operation, and reporting tower lighting outages.

In a section of Part 17 titled, "Basis and Purpose," it stated:

"The rules in this part are issued pursuant to the authority contained in Title III of the Communications Act of 1934, as amended, which vests authority to the Federal Communications Commission to issue licenses for radio stations...and to require the painting, and/or illumination of radio towers if, and when in its judgment such towers constitute, or there is a reasonable possibility that they may constitute, a menace to air navigation...."

The FAA provided a recommendation in their AC regarding light failure notification, which stated:

"...Any outage should be corrected as soon as possible...Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light regardless of its position should be reported immediately to the nearest automated flight service station [AFSS]..."

The FCC Rules stated that in addition to the notification of the FAA within 30 minutes of lighting outages, "...Such reports shall set forth the condition of the light or lights, the circumstances which caused the failure, and the probable date for restoration of service..."

Under Part 17.56 of the Rules, "Maintenance of Lighting Equipment," it stated:

"Replacing or repairing of lights, automatic indicators or automatic control or alarm systems shall be accomplished as soon as practicable."

The FAA Advisory Circular, and the FCC Rules did not specify a maximum time limit in which obstruction lighting must be repaired.

After the accident, the Safety Board Investigator contacted a local flight service station on two separate occasions and received briefings for local VFR flights. The flights were from Morristown, New Jersey, to Allentown, Pennsylvania; and Andover, New Jersey, to Harrisburg, Pennsylvania. The routes were over or near Easton, Pennsylvania. During the briefings, the tower lighting outage near Easton was not given until the investigator specifically requested NOTAMS for Easton.

Prior to January 1, 1996, the FAA was required to notify the FCC of tower lighting outages that exceeded 15 days; however, at the request of the FCC, a new Advisory Circular published January 1, 1996, changed the reporting of tower lighting outages to the FCC to occur after 30 days.

The airplane wreckage was released on February 10, 1996, to John Frenchko, a co-owner of the airplane.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	56,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):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	January 11, 1996
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	24500 hours (Total, all aircraft), 30 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4655F
Model/Series:	P206A P206A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P2060255
Landing Gear Type:	Tricycle	**Seats:**	6
Date/Type of Last Inspection:	June 12, 1995 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	39 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1853 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520-A1O
Registered Owner:	DONALD C. CORY	**Rated Power:**	285 Horsepower
Operator:		**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:**	Night/dark
Observation Facility, Elevation:	ABE ,394 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	20:50 Local	**Direction from Accident Site:**	260°
Lowest Cloud Condition:	Unknown	**Visibility**	15 miles
Lowest Ceiling:	Broken / 6000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	3°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PITTSTOWN , NJ (N40)	**Type of Flight Plan Filed:**	None
Destination:	EASTON , PA (N43)	**Type of Clearance:**	None
Departure Time:	20:40 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	EASTON N43	**Runway Surface Type:**	
Airport Elevation:	399 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

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:**	40.680919,-75.219833(est)

Administrative Information

Investigator In Charge (IIC):	Pearce, Robert
Additional Participating Persons:	THOMAS LAHOVSKI; ALLENTOWN , PA STEPHEN T WILSON; WICHITA , KS GEORGE M HOLLINGSWORTH; MOBILE , AL
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Investigation Class:	Class
Note:	
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