



National Transportation Safety Board Aviation Accident Final Report

Location:	COLONIE, NY	Accident Number:	NYC95FA042
Date & Time:	12/10/1994, 0223 EST	Registration:	N6069T
Aircraft:	PIPER PA-60-600	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

THE AIRPLANE WAS ON A POSITIONING FLIGHT AT NIGHT, CRUISING AT 6000 FT. ALSO, THE PILOT WAS OPERATING ON AN IFR FLIGHT PLAN AND WAS ON HIS 6TH FLIGHT AFTER REPORTING FOR DUTY AT 1530 EST. DURING A FREQUENCY CHANGE AND RADIO CHECK AT 0207 EST, THE PILOT'S RESPONSE WAS NORMAL. RADAR DATA REVEALED THAT ABOUT 16 MINUTES LATER, THE AIRPLANE ENTERED A RIGHT TURN, THEN DISAPPEARED FROM RADAR AT ABOUT 0222 EST AFTER ABOUT 255 DEGREES OF TURN. IT IMPACTED THE GROUND IN A STEEP NOSE DOWN DESCENT; DEBRIS FROM THE AIRPLANE WAS FOUND DOWN TO 6 FT BELOW THE SURFACE. DURING THE FINAL 15 MINUTES OF FLIGHT, THERE WERE NO RADIO TRANSMISSIONS ON THE ASSIGNED FREQUENCY. NO PREIMPACT MECHANICAL FAILURE OR MALFUNCTION WAS FOUND. THE PROPELLER BLADES HAD S-CURVES OR WERE BENT FORWARD; THEY ALSO HAD LEADING EDGE IMPACT DAMAGE AND ROTATIONAL SCORING. THE PILOT HAD FLOWN IN EXCESS OF 120 HOURS (110 HRS AT NIGHT) IN THE PRECEDING 30 DAYS. THERE WAS EVIDENCE THAT HE MAY HAVE LACKED CREW REST DURING THE DAY(S) BEFORE THE ACCIDENT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT TO MAINTAIN CONTROL OF THE AIRCRAFT, POSSIBLY FROM FALLING ASLEEP.

Findings

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

Findings

1. LIGHT CONDITION - DARK NIGHT
 2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On December 10, 1994, at 0223 eastern standard time, a Piper PA-60-600, N6069T, operated by U.S. Check, as Star Check 221 (Flight 221), struck the ground in Colonie, New York. The airplane was destroyed, and the pilot was fatally injured. Visual meteorological conditions prevailed, and Flight 221 was operated on an Instrument Flight Rules (IFR) flight plan under 14 CFR Part 91.

The pilot reported for duty at 1530 on December 9, 1994, and made his first departure from Buffalo, New York, about 1625. He was scheduled to terminate at Buffalo, about 0400, on December 10, 1994. Five flights were completed without incident.

At 0127, on December 10, 1995, the pilot departed Boston, Massachusetts, on his sixth flight of the night, a positioning flight to Buffalo. The flight was assigned a cruising altitude of 6000 feet by the Boston Air Route Traffic Control Center (ARTCC).

At 0207, control of Flight 221 was transferred from the Boston ARTCC, to Albany Approach Control. One minute later, there was a change in controllers, and a routine radio check was requested from the new controller. The pilot of Flight 221 replied, "two twenty one five by five." That was the last communications with Flight 221.

Several witnesses observed the accident. Some witnesses reported seeing the airplane in a descent, while other witnesses reported they heard a loud whine. Some witnesses reported that the engines were cutting in and out, while other witnesses reported that the engines were at full power. One witness reported that he saw a red glow in the vicinity of the right engine which was steady, and he described as a flame about 1 to 2 feet long.

An employee inside of K-Mart reported, "...I was in the front of K-Mart, by the front doors. At that time, I heard a high pitch whine that sounded like an airplane...I was looking out the door, I saw a flash...and then sparks and debris were going across [the road] away from me...",

Another witness, who was traveling eastbound on Route #2, reported, "...I see a small airplane cross [the road] and crash. The airplane struck the ground point first, then there was a large explosion and debris was all over the road..."

The accident occurred during the hours of darkness about 42 degrees, 44 minutes North, and 73 degrees, 43 minutes West.

PERSONNEL INFORMATION

The pilot held an Airline Transport Pilot Certificate. In addition, he held a Flight Instructor Certificate for single engine and multi-engine airplanes, and instrument airplane. He held a FAA 1st Class Airman Medical Certificate, issued on June 24, 1994, with no limitations.

According to company records, in the preceding 34 days, the pilot had flown 136 hours, including over 120 hours at night. This included the positioning flight on November 20, 1994, and the flights on the nights of December 8, and 9th. Additionally, he had flown over 220 hours, including 200 hours at night, in the preceding 90 days.

WRECKAGE AND IMPACT INFORMATION

The airplane was examined at the accident site on December 10th and 11th, 1994. A natural

gas fire burned at the impact site. The source of the fire was a buried 12 inch natural gas line. Additionally, power poles, power lines, and telephone lines were damaged.

The debris from the airplane was scattered along a magnetic heading of 150 degrees, for a distance of about 320 feet. The width of the debris area path was about 110 feet.

Melted metal was found on top of the impact crater. This included one propeller blade and pieces of aluminum.

Debris on the surface, outside of the impact crater, consisted of small pieces of metal, including fuselage and wing skin, fiberglass, and both wing tips. The right side emergency exit was found in an open field approximately 300 feet south of the impact crater. An upper engine cowling (side not identified) was found 350 feet from the impact crater on an easterly heading.

Debris from beneath the surface, at the impact crater, included both engines, propeller blades, wing area behind the engines, landing gear, pieces of the aft fuselage, and instruments from the cockpit. The angle of the engines, propellers, and debris in the ground was about 70 degrees down from the horizontal.

Several items in the impact crater and debris path had black soot on them. No soot was found within closed folds of bent metal. No melted metal spray patterns were found on any parts.

Several push/pull tubes from the flight control system were recovered. No breaks were observed between rod ends.

The engines had received impact damage. The nose of the left engine was buried about 5 1/2 feet in the ground. The nose of the right engine was resting against the gas main, about 4 feet deep. There was no evidence of fire on the engines.

The propeller hub from the left engine was buried 6 feet deep, with one propeller blade still attached. Propeller blades were found in the dirt, in the vicinity of the engines. The propeller blades either had "S" curves or the outboard sections were bent forward. The blades had leading edge impact damage and rotational scoring on the front surface.

Both vacuum pump shear shafts were intact. A gyro rotor, similar to those used in attitude indicators, was located in the wreckage, and had rotational scoring marks. The gyro face and instrument case were not recovered.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted by Barbara Chaitin, MD, medical examiner, Albany County, New York, on December 11, 1994.

Toxicological testing conducted by the Armed Forces Institute of Pathology, in Washington, D.C., was negative for drugs and alcohol.

ADDITIONAL DATA/INFORMATION

Recorded Radar Data

Recorded radar data was received from the Boston Air Route Traffic Control Center (ARTCC). The data revealed that the airplane was maintaining between 6100 and 6200 feet for 20 minutes prior to the accident. At 0220:49, the airplane began a right turn. At 0221:49, the airplane had completed 230 degrees of turn and was at 6200 feet. At 0222:01, the airplane had

completed 255 degrees of turn and descended to 5700 feet, after which radar contact was lost.

The accident site was 1,400 feet south of, and 800 feet east of the last radar contact. The terrain elevation was about 200 feet.

Pilot Work Schedule

The pilot was temporarily based in Buffalo, New York. His normal work schedule was to fly at night and sleep during the day (night schedule). On weekends, he would sleep at night and be awake during the day (day schedule).

The Director of Flight Operations (DO) reported that the pilot had discussed the long flight hours of the Buffalo assignment, and pointed out that he would exceed the maximum allowable flight time per quarter (500 hours), if he remained on the assignment for too long. The DO said he acknowledged this, and made plans to rearrange the flight assignment at Buffalo.

On the morning of November 28, following four days off, the pilot was awake at 0700 and left Sylvania, Ohio, at 0900, to drive to Buffalo (300+ miles). His duty started at 1630 and ended at 0530. During the week, he flew 34.3 hours and was on duty for 63.2 hours.

On the weekend prior to the accident, the pilot's duty ended at 0400, on December 3, in Buffalo. He was offered a round trip airline ticket between Buffalo, and Columbus. He elected to drive to Columbus, Ohio for the voluntary CRM class. He attended 2 days of classes (day schedule), on December 3 and 4. While in class, he told another pilot, "the run was long and I would sometimes get tired."

The pilot elected to remain in Columbus on the night of December 4. On the morning of December 5, the pilot was awake at 0730 and left Columbus at 0900 to drive to Buffalo (300+ miles). His duty started at 1530 and ended at 0430. During the week, he had accumulated about 37.5 hours of flight and about 66 hours of duty.

On the night of the accident, he had asked a friend (non- U.S. Check pilot) to fly with him. When asked why, he replied, "...to keep me awake...." Additionally, on the night of the accident, he told his fiancée, that at the end of his duty time, (estimated at 0400), he planned on resting until 0900, and then driving to Columbus.

NASA ASRS Reports

A review of the NASA Aviation Safety Reporting System (ASRS) revealed 22 reports concerning flightcrews falling asleep during their flights. Four of the reports involved single pilot operations, including 2 night cargo operations. Under, "CAVEAT REGARDING STATISTICAL USE OF ASRS INFORMATION", the report stated, "...Only one thing can be known for sure from ASRS statistics-they represent the lower measure of the true number of such events which are occurring...."

According to the AIRMAN'S INFORMATION MANUAL, Chapter 8. MEDICAL FACTS FOR PILOTS, Section 8. FITNESS FOR FLIGHT:

e. Fatigue - 1. Fatigue continues to be one of the most treacherous hazards to flight safety, as it may not be apparent to a pilot until serious errors are made. Fatigue is best described as either acute(short-term) or chronic(long-term).

2. A normal occurrence of everyday living, acute fatigue is the tiredness felt after long periods of physical and mental strain, including strenuous muscular effort, immobility,

heavy mental workload, strong emotional pressure, monotony, and lack of sleep. Consequently, coordination and alertness, so vital to safe pilot performance, can be reduced. Acute fatigue is prevented by adequate rest and sleep, as well as regular exercise and proper nutrition.

3. Chronic fatigue occurs when there is not enough time for full recovery between episodes of acute fatigue. Performance continues to fall off, and judgment becomes impaired so that unwarranted risks may be taken. Recovery from chronic fatigue requires a prolonged period of rest.

The wreckage was released to the insurance company, USAIG, on January 24, 1995.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	25, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	06/23/1994
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	1950 hours (Total, all aircraft), 335 hours (Total, this make and model), 1500 hours (Pilot In Command, all aircraft), 220 hours (Last 90 days, all aircraft), 127 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N6069T
Model/Series:	PA-60-600 PA-60-600	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	0674
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	10/26/1994, Annual	Certified Max Gross Wt.:	5500 lbs
Time Since Last Inspection:	78 Hours	Engines:	2 Reciprocating
Airframe Total Time:	10873 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed	Engine Model/Series:	IO-540-K
Registered Owner:	NEW CREATIONS INC.	Rated Power:	290 hp
Operator:	NEW CREATIONS INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	U.S. CHECK	Operator Designator Code:	BYSA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	ALB, 285 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	0240 EST	Direction from Accident Site:	270°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	15 Miles
Lowest Ceiling:	Overcast / 2500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	3°C / -1°C
Precipitation and Obscuration:			
Departure Point:	BOSTON, MA (BOS)	Type of Flight Plan Filed:	IFR
Destination:	BUFFALO, NY (BUF)	Type of Clearance:	IFR
Departure Time:	0127 EST	Type of Airspace:	Class C

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC): ROBERT L HANCOCK, **Report Date:** 07/31/1995

Additional Participating Persons: ALEX KELEMAN; ALBANY, NY
JERRY G MERCER; COLUMBUS, OH

Publish Date:

Investigation Docket: NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).