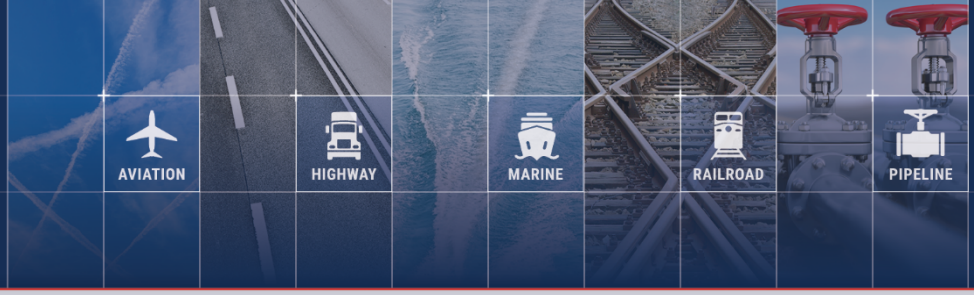

Aviation Investigation Final Report

Location:	SELLERSBURG, Indiana	**Accident Number:**	CHI95FA018
Date & Time:	October 20, 1994, 00:35 Local	**Registration:**	N40509
Aircraft:	PIPER PA-23-250	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	5 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

DUE TO WEATHER, THE PILOT MADE A MISSED APPROACH AT AN AIRPORT ABOUT 10 MILES SOUTHEAST OF THE ALTERNATE AIRPORT. HE THEN DIVERTED TO THE ALTERNATE, WHERE HE WAS CLEARED FOR AN ILS RUNWAY 18 APPROACH. AFTER PASSING THE FINAL APPROACH FIX, THE PILOT WAS CLEARED TO CONTACT THE AIRPORT'S ADVISORY SERVICE. AS THE AIRPLANE CONTINUED INBOUND, IT COLLIDED WITH A QUARRY WALL ABOUT 2 MILES NORTH OF THE AIRPORT AND 1/4 MILE EAST OF THE LOCALIZER CENTERLINE. ELEVATION AT THE TOP OF THE QUARY WALL WAS 480' MSL; AIRPORT ELEVATION WAS 474' MSL; DECISION HEIGHT FOR THE APPROACH WAS 674' MSL. AN EXAMINATION OF THE AIRPLANE REVEALED NO PREIMPACT FAILURE, BUT THE AIRPLANE WAS EXTENSIVELY DAMAGED BY IMPACT AND GROUND FIRE. A FRIEND REPORTED THAT THE PILOT BEGAN HIS WORK DAY AT 0830 EST.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT TO FOLLOW IFR PROCEDURES BY ALLOWING THE AIRCRAFT TO DEVIATE LEFT OF THE ILS LOCALIZER COURSE, BY NOT MAINTAINING THE PROPER ILS GLIDE PATH, AND BY CONTINUING DESCENT BELOW THE ILS DECISION HEIGHT.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings
1. LIGHT CONDITION - DARK NIGHT
2. WEATHER CONDITION - FOG
3. FLIGHT TO DESTINATION ALTERNATE - PERFORMED - PILOT IN COMMAND
4. (C) IFR PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
5. (C) PROPER GLIDEPATH - NOT MAINTAINED - PILOT IN COMMAND
6. (C) DECISION HEIGHT - NOT USED - PILOT IN COMMAND

Factual Information

History of Flight

On October 20, 1994, at 0035 eastern standard time (est), a Piper PA-23-250, N40509, registered to All American Air, Incorporated, of Louisville, Kentucky, and piloted by an instrument rated commercial pilot, was destroyed during a collision with a stone quarry wall. The airplane had been given radar vectors for an ILS runway 18 approach at the Clark County Airport, Jeffersonville, Indiana, shortly before the accident. Instrument meteorological conditions prevailed at the time of the accident. The airplane had been operating on an IFR flight plan. The pilot and four passengers were fatally injured. The flight departed Dayton, Ohio, at 2347 est.

During the afternoon of October 19, 1994, the pilot of N40509 had made an IFR flight from Louisville, Kentucky, to Dayton, Ohio. Before this flight he obtained a weather briefing from the Federal Aviation Administration's (FAA) Louisville, Kentucky, Flight Service Station (FSS). During the conversation the pilot said he would "...be back tonight before midnight... ." The pilot was told that a frontal system was moving from the northwest and that it would be going "...through the Cincinnati, Ohio, and Louisville, Kentucky, area around eight to ten o'clock..." in the evening.

The briefer gave the current weather conditions for Louisville, Kentucky, and Dayton, Ohio. The information showed instrument meteorological conditions for both locations. The pilot then filed two IFR flight plans for flights between the two cities.

Before departing Dayton, the pilot called the FAA's Dayton FSS for a weather update briefing. The update consisted of current weather for Dayton International Airport, Bowman, and Standiford Airport in Louisville, Kentucky. He was told that the visibility at Standiford and Bowman was two and three miles respectively. Both airports were reporting fog, according to the briefer. The pilot made minor changes to a previously filed IFR flight plan and concluded the briefing. He did not ask for surface weather trends at either airport. The briefer did not supply temperature/dew point spreads for either airport.

At 2359, N40509 approached the Louisville, Kentucky, area. The FAA Approach Control (ATC) at the Standiford Airport advised the pilot that Bowman Airport's ceiling and visibility were "...sky partially obscured, visibility a half mile fog... ." The pilot told ATC that he'll "...try the VOR 24 at Bowman and then upon the miss we'll have to come into Standiford." At 0001:52, ATC told the pilot, "...Standiford is below minimums right now...expect a VOR 24 approach at ...Bowman and I'll have the ...missed approach instructions for you momentarily." The pilot replied that if he could not complete the instrument approach and landing at Bownman Airport he "...wanted to try the ILS 18 at Clark County... ."

About 10 minutes later, N40509 was cleared for the Bowman Airport VOR 24 approach. N40509 shot and reported the missed VOR approach to ATC. The ATC controller acknowledged the pilot's missed approach report and asked if the pilot wanted to do the runway 18 ILS at the Clark County Airport. The pilot confirmed his desire to do the approach.

N40509 was given heading and altitude instructions followed by the Standiford Airport's current weather: "...measured 800 overcast, visibility a quarter mile, fog, winds calm." The pilot was then given radar vectors toward the Clark County Airport. About two minutes after receiving the weather, the pilot of N40509 was told to turn the airplane to a heading 200 degrees, that he was two miles from the final approach fix, and to maintain 2,500 feet above mean sea level. He was cleared for the ILS 18 approach at Clark County Airport, Jeffersonville, Indiana. Two minutes later ATC told the pilot he was "...just inside Happs [final approach fix], now change to advisory approved... ." The pilot acknowledged ATC's communication.

Personnel Information

The pilot's logbook records were not at the accident scene. According to the pilot's wife he always kept the logbooks in his flight case that he took with him when he flew. She said she looked for the logbooks and could not locate them.

According to the FAA airman certification records, the pilot had 1,041 hours as of May 10, 1993. The records showed he had 15 hours total time in the Piper PA-23-250, 1 hour was shown as pilot-in-command flight time. The actual amount of flight time in the Piper PA-23-250 and his recency of experience were not able to be determined.

FAA records showed the pilot had received two notices of disapproval for his multi-engine commercial certificate with an instrument rating. The records showed he had been issued the notices of disapproval on June 28, 1992, and May 10, 1993. The June 28, 1992, notice said, "Upon reapplication you will be reexamined on the following: Area of operation VI all tasks, first failure." The second notice said, "Upon reapplication you will be reexamined on the following: pilot operation 4, 5, 6, 8, 9. Single engine ILS approach, Pilot operation 6, task B." The pilot received his commercial pilot certificate with a multi-engine and instrument rating on May 19, 1993.

Aircraft Information

N40509's airframe logbook showed it received an annual inspection on August 25, 1994. At that time its total airframe time was 7,198.1 hours (tach time). The entry showed 1,195.2 hours hobbs meter reading.

N40509's left engine logbook entry dated August 20, 1994, showed it had 2,149 hours since major overhaul. Its right engine logbook entry dated August 20, 1994, showed it had 2,395 hours since major overhaul. According to the airframe logbook N40509 had a pitot-static and

transponder check on November 2, 1993. Records showing a VOR accuracy check were not located in the wreckage or aircraft logbook.

Wreckage and Impact Information

N40509's wreckage was located in a stone quarry approximately two miles north of the Clark County Airport, Jeffersonville, Indiana. The airplane had collided at the midpoint of a 60-foot high quarry wall. Its wreckage was found at the base of this wall, burnt and covered with stone fragments.

The empennage's right side was fire damaged, its left side showed sooting. No evidence of airflow sooting was found on the empennage's rivets. The fuselage and wings had been consumed by fire. Portions of the wing's main spar were found with fire and collision damage. Both engines were damaged by collision with the quarry wall and subsequent fire. The major portions of both engine cases had been melted.

N40509's right engine vacuum pump drive shaft was torsionally separated at its junction with the engine case. Its rotor vanes were cracked, the pumps housing was oblong shaped. The left engine's vacuum pump had been destroyed by fire.

The left engine case was melted, exposing an intact crankshaft and camshaft. The crankshaft propeller extension end had separated aft of its main bearing journal. Both propeller blades were separated from their hub. One blade was curved forward, the outer half of the blade had separated. The second blade was bent aft about 70 degrees at its mid-span position. The outer portion of the blade was curved 45 degrees outward at its mid-span position. Both propeller blades had various sized knicks and gouges in their leading edges. The front cylinders were bent aft, one of them separated from its piston. Crush and fire damage was observed on the front cylinders fins.

The right engine case was melted, exposing an intact crankshaft and camshaft. The number 1 cylinder had separated from the engine case. The number 2 cylinder was bent aft about 2 degrees; its cooling fins showed collision and fire damage. The propeller crankshaft extension had separated from its crankshaft mounting. The propeller blades displayed multiple forward and aft bends along their span. The leading edges of the blades had various sized knicks and gouges in them.

An altimeter setting of 29.78 was observed in the airplane's altimeter. The altimeter's hands read 580 feet above mean sea level (msl). The tachometer RPM needles had placed witness marks on its face. The right RPM needle witness mark was at 1200 RPM, the left was at 1275 RPM. The witness marks were identified with the naked eye and confirmed by a 10 power magnifying glass. N40509's radios front sides were destroyed. One navigation radio's omni bearing selector had an indentation of 185 degrees with a partial "OFF" flag indication.

An examination of the heading indicator's gyro rotor and case showed case scuffing. Scuff

marks on the rotor was not identifiable due to fire damage and corrosion on its vanned surface. The center of the rotor vanes showed abrasive marks and slight depressions along their center. The attitude indicator gyro unit was found separate of the instrument case. Examination revealed scuffing on the gyro rotor and internal portions of its case.

Additional Information

The Clark County Airport's runway 18 ILS localizer centerline is approximately 1/4 mile west of N40509's collision point of the quarry wall. A topographical map was provided by the Sellersburg Stone Company showed that the quarry's wall top, struck by N40509, was 480 feet above mean sea level (msl). The Clark County Airport's published touchdown zone elevation is 474 feet msl. The decision height for the runway 18 ILS was shown on the instrument approach plate as 709 feet msl when the local altimeter setting was not available. Approach minima on the approach chart showed the 709 feet msl altitude is associated with the "Louisville/Standiford altimeter setting... ."

ATC radar tracking data showed N40509 passed over the ILS runway 18 final approach fix at 2,400 feet msl at 0033:31. At 0034:00, N40509 was reported to be at 2,100 feet msl to the left of the instrument approach localizer centerline. The information showed a course correction and then a constant heading flight path to the last altitude and position point provided by the radar track data. That time was 0035:24 at an altitude of 1,100 feet msl.

The "Standiford Airport, Louisville, Kentucky, radar coverage north of the Clark County Airport normally extends down to approximately 1,500 feet," according to the Standiford Airport's FAA Control Tower Air Traffic Manager. He stated, "Standiford Approach did not receive nor issue a low altitude alert in conjunction with the ILS 18 approach conducted by N40509... ."

During the flight into the Louisville, Kentucky, area ATC gave him an altimeter setting of 29.97. The pilot acknowledged the setting by repeating it to the controller. The controller gave the pilot the same altimeter setting about 14 minutes later.

The pilot did not acknowledge the altimeter setting. At 0027:42 est, the ATC controller advised the pilot that the Clark County Airport was not providing surface weather information. When the controller cleared N40509 for the runway 18 ILS approach, he gave him the Standiford Airport's surface weather but not the altimeter setting. A review of Standiford's surface weather reports from the time N40509 arrived in the area to the time of the accident revealed the 29.97 altimeter setting had not changed.

According the FAA's Air Traffic Controller Handbook, 7110.65H, Section 7, entitled Altimeter Settings, the controller should, "When issuing clearance to descend below the lowest usable flight level, advise the pilot of the altimeter setting of the weather reporting station nearest the point the aircraft will descend below that flight level." Section 7 of the handbook states, "Provide current approach information to arriving aircraft where your facility/sector provides approach control services on first radio contact." The handbook continues, "...issue approach

information by including the following: ...5) Altimeter setting for the airport of intended landing. 4-92a5 Reference.--Chapter 2, Section 7, Altimeter settings."

According to one of the persons to first locate N40509, the only light that was on at the quarry was a vapor light over the office. He said the visibility was less than 10 feet. An employee of the quarry said he turned the quarry lights on after the accident when police and rescue personnel were arriving.

A friend of the pilot said the pilot had started his work day at 0830 on October 19, 1994.

The wreckage was release to Patrolman Jeff Zeeland of the Sellersburg, Indiana, Police Department on October 20, 1994.

The autopsy was performed by a pathologist at the Louisville Medical Center, Louisville, Kentucky, on October 21, 1994.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	43,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 28, 1993
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1041 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N40509
Model/Series:	PA-23-250 PA-23-250	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	27-7405240
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	August 25, 1994 Annual	**Certified Max Gross Wt.:**	5200 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540-C4B5
Registered Owner:	ALL AMERICAN AIR, INC.	**Rated Power:**	250 Horsepower
Operator:		**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:**	Night/dark
Observation Facility, Elevation:	JVY ,474 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	00:45 Local	**Direction from Accident Site:**	20°
Lowest Cloud Condition:		**Visibility**	0.25 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	17°C / 17°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	DAYTON , OH (DAY)	**Type of Flight Plan Filed:**	IFR
Destination:	LOUISVILLE , KY (LOU)	**Type of Clearance:**	IFR
Departure Time:	22:47 Local	**Type of Airspace:**	Airport advisory area;Class G

Airport Information

Airport:	JEFFERSONVILLE/CLARK CO. JVY	**Runway Surface Type:**	Asphalt
Airport Elevation:	474 ft msl	**Runway Surface Condition:**	
Runway Used:	18	**IFR Approach:**	ILS
Runway Length/Width:	5500 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	4 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	Unknown
Total Injuries:	5 Fatal	**Latitude, Longitude:**	38.390888,-85.749801(est)

Administrative Information

Investigator In Charge (IIC):	Gattolin, Frank
Additional Participating Persons:	ROBERT BISONETTE; INDIANAPOLIS , IN GARY TEMPLE; INDIANAPOLIS , IN
Original Publish Date:	July 31, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=9718