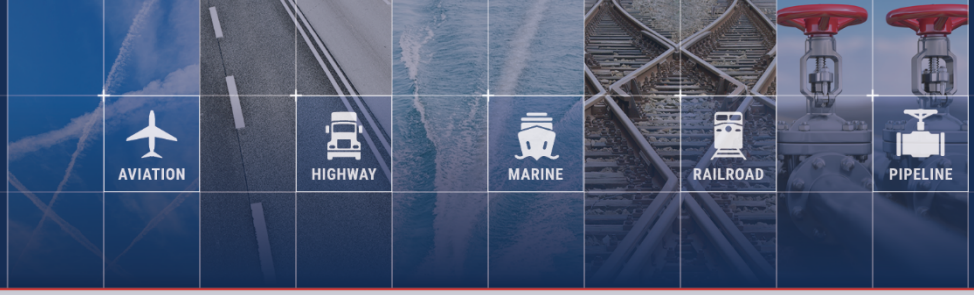

Aviation Investigation Final Report

Location:	North Lima, Ohio	**Accident Number:**	IAD04FA017
Date & Time:	April 18, 2004, 20:30 Local	**Registration:**	N5369P
Aircraft:	Piper PA-24-250	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was practicing landings to runway 28. The sun had set, but there was still residual light to the west. The airplane took off, completed a circuit at a low altitude, and just barely cleared trees and wires on the final approach to a landing. As the pilot taxied the airplane back to the approach end of the runway, a witness saw that the cockpit instrument lights were on. The airplane took off again, and flew another circuit at low altitude, then impacted trees as it was turning onto the final approach leg. One area resident heard engine "backfires," while others thought the engine "just didn't sound right," and had an "odd noise," but didn't hear any backfires. Two airline transport pilots, who were watching the airplane from the airport ramp, did not note any engine problems, and an examination of the airplane after the accident also did not reveal any airframe or engine anomalies. The runway had a precision approach path indicator (PAPI), described by one of the airline transport pilots as "brilliant red." The pilot had an eye examination about 6 months prior to the accident. On a questionnaire, he stated "yes" to whether bright lights bothered him, and "yes" to having trouble with night vision.

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 safe altitude clearance from trees. Factors included the night lighting conditions and the pilot's diminished night vision capability.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. (F) LIGHT CONDITION - NIGHT
2. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) PHYSIOLOGICAL CONDITION - PILOT IN COMMAND
4. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On April 18, 2004, about 2030 eastern daylight time, a Piper PA-24-250, N5369P, was destroyed when it impacted trees while turning onto the final pattern approach leg at Youngstown Elser Metro Airport (4G4), North Lima, Ohio. The certificated private pilot was fatally injured. Night visual meteorological conditions prevailed, and no flight plan had been filed for the local personal flight, which was conducted under 14 CFR Part 91.

According to several witnesses, the pilot was practicing landings in anticipation of an upcoming trip. The sun had set, but there was still residual light in the western sky.

According to an airline transport pilot who had been standing on the ramp, the accident airplane initially made a "normal" takeoff from runway 28, and there were no sounds of any engine anomalies. The airplane remained in the traffic pattern and during its first landing approach, "came off the base leg below the tree line."

The pilot mentioned to the other people standing with him that the airplane was "really low out there." It then appeared that the airplane climbed, cleared the tree line, then descended down to the runway. The airplane also appeared to be under power during the entire approach, and landed "flat." After landing, it rolled to a stop, exited the runway, and taxied back to the threshold of runway 28 via the taxiway.

The airplane made another "normal" takeoff, and again there were no sounds of any engine anomalies. Because the first approach was so low, the witness watched the second approach more intently. The airplane flew another low base leg, and the witness stated, "Man, he's really low again." A colleague, another airline transport pilot, then stated, "I think he's between the trees and us," but the first witness responded that he thought the airplane was on the other side of the tree line, and noted that the left wing landing light was illuminated, and flickering as if passing behind tree branches. Then, as it appeared the airplane was clearing the tree line, the witness heard a "whomp," and the airplane "pointed up" and appeared to go into an immediate climb. The witness could clearly see the airplane's belly and noticed that the tail and engine were still attached to the airframe. Just as the airplane reached the vertical position, it began to cartwheel, or rotate clockwise to the right, then burst into a fireball.

A second witness, another airline transport pilot, stated he had a view of both ends of the runway when the accident pilot first took off to the west. When the accident airplane made its first approach, the first witness made a comment that the airplane was low and flat, and that he thought it had to climb to get above the trees. However, the pilot made a successful landing, "even though the airplane didn't clear the power lines by very much." Touchdown

speed seemed to be "slightly slow," although the second witness didn't know what the speed should have been. Rollout was normal, and the airplane exited the runway, then taxied back to the approach end of the runway via the taxiway. "For what ever reason, the taxi speed seemed to be quite fast, much faster than a man could run."

As the airplane taxied by, the second witness noticed that the cockpit instrument lights were illuminated.

As the airplane made its second approach, the first witness stated, "I think he's below the trees," and the second witness responded that maybe the airplane was on "this" side of the trees, or maybe the trees were behind it. "That didn't work out to the case, however. As we watched intently, when the airplane was perhaps 1,500 feet out, [it] went into an almost vertical bank, a bank angle of 80-90 degrees, with the top of the high wing, the wing on [my] left, the right wing, being the one that was up, being no higher than the trees." The airplane then immediately impacted the ground, and 2-3 seconds later, burst into flames.

The second witness did not see the landing light flickering through the trees (but noted that there was only one landing light on, on the left wing) as did the first witness. He did, however, see that the trees were illuminated by the landing light.

A third witness was interviewed by an Ohio State Highway Patrolman. The witness had been sitting on his back deck with family members, just east of the airport, when he saw the accident airplane approach from the east at a low altitude. "The engine seemed to stall, re-start and sounded as if it backfired." The airplane then landed, took off, and the pilot attempted another landing from the east. The airplane was again low, about the level of the tree line, and the witness again heard the engine "stall with the same backfire sound." The witness did not see the airplane descend below the tree line, but did hear an explosion.

A fourth witness was also interviewed by an Ohio State Highway Patrolman. That witness had also been outside his house when the airplane made its first approach. The airplane was low, then "immediately went for a second pass. During the second pass, he was low and instantly he disappeared into the trees." When asked if he had heard any backfires, the witness responded, "No, it was just low." When asked if airplanes usually flew over his house, the witness responded, "Yes, all the time, that's why I knew he was too low."

A fifth witness, who was in her barn about 3 miles west-southwest of the airport, saw her horses looking up, so she went out to see what they were looking at. When she looked up, she saw an airplane coming toward her barn, at a very low altitude. It "just cleared" a white house on a nearby hill, then "just cleared" some trees. The engine sounded like a "car with a clogged gas filter." The airplane was so low, that the witness thought it was going to land on a nearby road. However, it headed back toward the airport. Several minutes later, the witness again saw the airplane, and again it was very low. The witness heard the "odd noise" again, but then the airplane's nose went up, and the noise stopped. The airplane repeated the sequence several times, in which the nose would go down, and the noise would come back, then the

nose would go up, and the noise would disappear. At no time did the airplane appear to climb.

A final witness, who was working on his farm about 3 miles to the northwest of the airport, saw the airplane flying "really low." The engine sounded "muffled," and "didn't sound right," but there were no backfires, and the sound remained constant. The witness only saw the airplane once, off to the east.

The accident occurred about 5 minutes before the end of civil twilight, when the eastern sky had darkened, in the vicinity of 40 degrees, 57.7 minutes north latitude, 80 degrees, 39.9 minutes west longitude.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with airplane-single engine land, and instrument-airplane ratings. On his application for his latest Federal Aviation Administration (FAA) third class medical certificate, dated December 12, 2003, he reported a total of 700 hours of flight time.

The pilot wore glasses. His latest eye examination was on October 3, 2003. In answering questions for his patient record, the pilot reported "Yes" to, "Does sunlight or bright lights bother you?" and to, "Do you have trouble with night vision?" The pilot's vision, without glasses, was R 20/200, L 20/200. With his old glasses, his vision was R 20/30, L 20/30, and with new glasses as a result of his latest examination, his vision was R 20/30, L 20/25. It was unknown whether or not the pilot was wearing his glasses at the time of the accident.

An "airplane usage log" found in the airplane after the accident indicated that the pilot had last flown it for 1.4 hours on February 28, 2004, and prior to that, for 1.2 hours on December 28, 2003.

The pilot had reportedly flown out of the airport for over 20 years, and his airplane was hangared there.

AIRCRAFT INFORMATION

A review of the airplane's maintenance logbooks revealed that its latest annual inspection was on September 5, 2003, and at that time, it had accumulated 4,345.7 total hours of operation. The engine, a Lycoming O-540-A1D5, had a total time of 3763.8 hours of operation at that time, and 1,854.8 hours of operation since major overhaul, which was completed on October 11, 1968. During the most recent inspection, cylinder compressions were 74/80, 76/80, 74/80, 68/80, 75/80, 74/80.

The Hobbs meter reading at that time was 163.6 hours, and the last Hobbs meter reading in the usage log, dated April 16, 2004, was 185.9 hours.

According to the pilot who had flown the airplane on April 16th, he flew it 6.0 hours that day, and had "no major discrepancies." When he returned home, he left a message on the accident pilot's answering machine that the airplane had flown "very well." The discrepancies noted were that the MX-20 multifunction map display was "displaying lines," and that the compass was "sticking."

AIRPORT INFORMATION

According to the Airport/Facility Directory, dated April 15, 2004, runway 28 was 4,012 feet in length and 50 feet wide. There was a two-light Precision Approach Path Indicator (PAPI) to the left of the runway, with a 3.75-degree glide slope.

Airport diagrams revealed that about 200 feet to the east of runway 28, there was a road that crossed at a 90-degree angle, and a 20-foot power line. The runway threshold was displaced 260 feet, and the runway sloped down at an angle of 1.4 degrees. Runway heading was 278 degrees magnetic, and the touchdown zone elevation was 1,060 feet.

The Airport/Facility Directory stated that the PAPI was out of service until further notice. According to the airport manager, there had been a problem with an instrument approach about 1 1/2 years previously, but the approach was rechecked, and the PAPI should have been declared operational at that time. When he flew into the airport 2 days earlier, the PAPI had worked "fine."

According to an FAA Air Safety Investigator, the GPS RWY 28 instrument approach was last flight-checked in January 2004. The PAPI was not flight checked, since it hadn't been previously commissioned; however, the flight check crew reported that the system appeared to function satisfactorily. In addition, one of the airline transport pilot witnesses stated that when he flew into the airport on the day of the accident, about 1800, the PAPI was functional and the approach glide slope appeared to be above 3 degrees. The other airline transport pilot stated that at the time of the accident, the runway lights were on and the PAPI, described as a "brilliant red," was operational. In addition, there were no reports from any other pilots regarding any PAPI discrepancies.

METEOROLOGICAL INFORMATION

Weather, reported at an airport about 20 nautical miles to the north, at 2051, included winds from 200 degrees true at 7 knots, 10 statute miles visibility, scattered clouds at 22,000 feet, temperature 73 degrees F, dew point 48 degrees F, and a barometric pressure of 30.12 inches of mercury.

One of the airline transport pilots stated that at the time of the accident, due to the dusk lighting conditions, he could not determine the land features to the east, but could still determine those to the west due to some brightness remaining in that direction. The same pilot also stated that winds at that time were "down to about 6-8 knots, from the south-

southwest direction."

The other airline transport pilot stated that the weather at the time of the accident was "picture perfect." At 1800, when he had landed, there had been a crosswind from the left, but when the sun started to set, the winds subsided to a slight breeze from the southwest.

According to U.S. Naval Observatory data, the sun set at 2006, and civil twilight ended at 2035. At the time of the accident, the sun was 5 degrees below the horizon, bearing 289 degrees true.

WRECKAGE AND IMPACT INFORMATION

The wreckage came to rest on a hill which gently sloped down toward the runway, and was covered with small and medium trees, and brush. There was no continuous wreckage path; damage would be to one tree, or partially to one tree, then skip other trees before being found on yet another one. The wreckage path curved slightly to the left; however, the general direction was about 280 degrees magnetic.

One tree, at the beginning of the path, had approximately 4 feet of its top trunk broken off, about 25 feet above the ground. Topographic charting revealed the damage to be at an elevation of about 1,160 feet.

Another, larger tree, about 50 feet beyond the first tree, had visible impact marks on branches and the main trunk on its east side; however, the west side had no damage. Tree impacts were approximately 20 feet above the ground, and topographic charting revealed the damage to be at an elevation of about 1,150 feet.

Near the base of the tree, was the outboard 4 1/2 feet of the left wing. In the vicinity of the wing separation, the wing skin was compressed aft, and had dark-stained material on it, consistent with a tree strike.

About 135 feet beyond the main tree strike, another tree exhibited strike damage. Impact marks were approximately 20 feet above the ground, and topographic charting revealed the damage to be at an elevation of about 1,150 feet. About another 100 feet beyond that tree, was the main wreckage. The elevation where the airplane came to rest was about 1,130 feet, about 2,500 feet from the displaced runway threshold.

An examination of the main wreckage revealed no evidence of mechanical malfunction. The nose was pointing 070 degrees magnetic, while the tail section was canted off the longitudinal axis about 35 degrees to the left. The right wing was angled aft, about 120 degrees from the nose, and the left wing was angled aft, about 100 degrees from the nose. The cockpit area was destroyed by a post-impact fire.

All flight controls were accounted for at the accident scene, and flight control continuity from

the cockpit area to all of the flight control surfaces was confirmed.

All flight instruments were destroyed by the fire; however, the altimeter setting was found to be at 30.12 inches. No flight recording devices were found at the accident scene.

The two-bladed propeller exhibited leading edge nicks and chordwise scratching on the outboard third of one blade, while the other blade exhibited fewer leading edge nicks on the outboard third of the blade, and was bent aft about 70 degrees, about mid-span.

The engine came to rest on its left side. Engine crankshaft continuity was confirmed, and the top spark plugs were removed and inspected. Spark plugs #1, 3 and 5 were dry, and gray in color, while spark plugs #2, 4, and 6 were oil-soaked. The throttle, examined at the throttle body, was at full power, and the mixture was rich. The propeller governor was at full rpm. Valve movement was confirmed on all cylinders, as was cylinder compression. The fuel filter was clean.

The airplane's right wing landing light filament was missing, and the interior top of the bulb exhibited a black residue, consistent with a bulb having been burnt out.

The main wreckage was located at the base of a tree. From a 20-foot vantage point up in the tree, it could be seen that the wreckage was in line with the left side of runway 28, and the PAPI lights were observed to be a bright, red next to red.

MEDICAL AND PATHOLOGICAL INFORMATION

On April 19, 2004, an autopsy was conducted on the pilot's remains at the Mahoning County Coroner's Office, Youngstown, Ohio. Toxicological testing was later performed at the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma.

ADDITIONAL INFORMATION

On April 20, 2004, the wreckage was released, and acknowledged by an employee of the local fixed base operator.

Pilot Information

Certificate:	Private	**Age:**	76,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 8, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	700 hours (Total, all aircraft), 1 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N5369P
Model/Series:	PA-24-250	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-418
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 5, 2003 Annual	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:	22 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4367 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-540
Registered Owner:	James V. Ventresco, Jr.	**Rated Power:**	250 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	YNG,1196 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	20:51 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:	Scattered / 22000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	23°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	North Lima, OH (4G4)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	20:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Youngstown Elser Metro 4G4	**Runway Surface Type:**	Asphalt
Airport Elevation:	1196 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	4012 ft / 50 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	40.961666,-80.665275

Administrative Information

Investigator In Charge (IIC):	Cox, Paul
Additional Participating Persons:	Kenneth Shauman; FAA/FSDO; Cleveland, OH George Hollingsworth; New Piper Aicraft Company ; Vero Beach, FL
Original Publish Date:	January 24, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59079