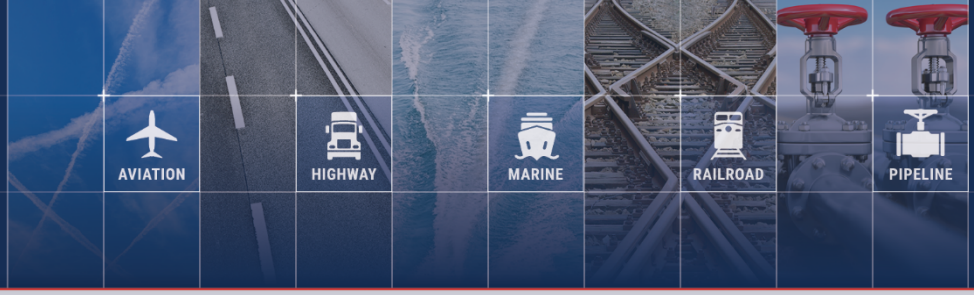

Aviation Investigation Final Report

Location:	AKRON, Ohio	**Accident Number:**	BFO93FA189
Date & Time:	September 29, 1993, 16:30 Local	**Registration:**	N6489P
Aircraft:	PIPER PA-24-250	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

DURING A VFR CROSS-COUNTRY, AN IN-FLIGHT BREAKUP OF THE AIRPLANE OCCURRED. WRECKAGE WAS SCATTERED OVER ABOUT A 1.5 MILE AREA. THERE WAS EVIDENCE THE RIGHT WING FAILED IN POSITIVE OVERLOAD ABOUT 9' INBOARD FROM THE WING TIP & STRUCK THE RIGHT HORIZONTAL STABILIZER, WHICH SEPARATED. NO PRE-EXISTING DEFECT WAS NOTED. THE PILOT WAS IN CONTACT WITH CLEVELAND AIR ROUTE TRAFFIC CONTROL CENTER WHEN HE REPORTED AN ALTITUDE OF 16,500' MSL & 'IN THE SOUP.' RADAR DATA FROM CENTER SHOWED THE AIRPLANE MADE SEVERAL ALTITUDE & HEADING EXCURSIONS DURING A 30 MINUTE PERIOD BEFORE THE ACCIDENT. JUST BEFORE DISAPPEARING FROM RADAR, THE FLIGHT TRACK DEVIATED TO THE RIGHT. A WITNESS SAW THE PLANE DESCENDING MINUS A LARGE SECTION OF ONE WING AFTER HEARING A LOUD 'POP.' ACCORDING TO FEDERAL AVIATION REGULATIONS, NO PERSON MAY OPERATE A CIVIL AIRCRAFT AT CABIN PRESSURE ALTITUDES ABOVE 14,000' MSL UNLESS THE REQUIRED MINIMUM FLIGHT CREW IS PROVIDED WITH & USES SUPPLEMENTAL OXYGEN. AN EXAM OF THE WRECKAGE INDICATED THERE WAS NO SUPPLEMENTAL OXYGEN ABOARD THE PLANE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: CONTINUED FLIGHT BY THE PILOT TO AN ALTITUDE THAT WAS NOT APPROPRIATE WITHOUT SUPPLEMENTAL OXYGEN, WHICH RESULTED IN A LOSS OF AIRCRAFT CONTROL DUE TO HYPOXIA AND SUBSEQUENTLY EXCEEDING THE DESIGN STRESS LIMITS OF THE AIRCRAFT. FACTORS RELATED TO THE ACCIDENT WERE: THE ADVERSE WEATHER CONDITIONS, AND CONTINUED FLIGHT BY THE PILOT INTO KNOWN ADVERSE WEATHER CONDITIONS.

Findings

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

Findings
1. (F) WEATHER CONDITION - CLOUDS
2. (F) WEATHER CONDITION - RAIN
3. (F) FLIGHT INTO KNOWN ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND
4. OXYGEN SYSTEM - NOT INSTALLED
5. (C) PROPER ALTITUDE - EXCEEDED - PILOT IN COMMAND
6. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
7. (C) INCAPACITATION(ANOXIA/HYPOXIA) - PILOT IN COMMAND

Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT - UNCONTROLLED

Findings
8. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED
9. WING,SPAR - OVERLOAD
10. WING - SEPARATION
11. STABILIZER - OVERLOAD
12. STABILIZER - SEPARATION

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On Wednesday, September 29, 1993, at 1630 eastern daylight time, N6489P, a Piper PA-24-250, owned by Aire Austin Inc. of Austin, Minnesota, and piloted by John Pluto of Austin, Minnesota, collided with terrain following an uncontrolled descent at Akron, Ohio. Visual meteorological conditions prevailed at Akron, and a flight plan was not filed. The certificated commercial pilot and his two passengers were fatally injured. The airplane was destroyed. The personal flight was conducted under 14 CFR 91, and had originated in Austin, Minnesota. The destination was Harrisburg, Pennsylvania.

The pilot and passengers were on a VFR (visual flight rules) flight to attend a car show in Hershey, Pennsylvania. He had obtained a weather briefing at Fostoria, Ohio, where he stopped to refuel. According to the briefer, he provided a briefing which indicated rain showers and marginal VFR weather on the pilot's route of flight. He stated that the pilot told him that the tops of the clouds on his flight from Minnesota were 13,000 feet. Radar data obtained from the Cleveland Air Route Traffic Control Center showed the airplane at 17,500 feet and making several turns. The pilot's last transmission to the air traffic controller at Cleveland Center was, "I am at 16,500 feet and in the soup."

Radar data recorded at the Federal Aviation Administration's Cleveland Air Route Traffic Control Center (ARTCC) were obtained for the accident aircraft. The radar data provide the latitude, longitude, and altitude of the airplane for approximately 13 minutes in an area west of the Akron Fulton International Airport. The radar data indicate the airplane's altitude varied from 17,500 feet MSL to 3,800 feet MSL and then began a descending right turn. The last recorded radar return shows the airplane descending through 3,800 feet MSL at a ground speed of over 150 knots. Details of the study are attached to this report.

According to Federal Aviation Regulation FAR 91.211, no person may operate a civil aircraft of U.S. registry at cabin pressure altitudes above 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes.

A witness reported seeing the airplane "coming through the cloud layer...I heard a pop sound then I saw the plane spinning without one wing."

The accident occurred during the hours of daylight, at 41 degrees 3 minutes North and 81 degrees 30 minutes West.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with single and multiengine land ratings. According to FAA records, the pilot's total flight time listed by him on his last FAA medical certificate was "over 1100 hours."

AIRCRAFT INFORMATION

The 1960 year model Piper PA-24-250 airplane, serial no. 24-1608 was equipped with a Lycoming O-540-A1B5 engine, serial no. L- 2744-40. According to the engine log book, the airplane had accumulated over 2816 hours of total flight time. This time was recorded on the last annual inspection that was completed on January 4, 1993. Examination of the airplane indicated that supplemental oxygen was not installed.

METEOROLOGICAL INFORMATION

The 1950 hours surface weather observation for Akron Canton Regional Airport, about 8 miles south of the accident site was as follows:

"Sky condition, 2600 feet scattered; Ceiling, 3500 feet broken; visibility, 7 miles in light rain; temperature, 49 degrees (F); dew point, 42 degrees (F); wind condition, 220 degrees at 6 knots; and altimeter, 30.16 inches."

WRECKAGE AND IMPACT INFORMATION

The aircraft impacted the ground in a near-vertical attitude and much of the forward section of the aircraft had penetrated the ground. The vertical attitude was confirmed by forward-to-aft compression buckling of the left wing. Some soil had been displaced by the impact and a crater approximately 4 feet deep was created by the aircraft. The wreckage was oriented on a 270 degree magnetic bearing and most of the wreckage was in the crater.

Examination of the wreckage did not determine flight control continuity because of damage. The wreckage was scattered over about a 1.5 mile area. The right wing main spar was bent upward in positive overload approximately 9 feet inboard from the wing tip. Paint transfer from the separated wing onto the right side of the elevator indicated that the separated wing struck a 3 foot section of the right elevator separating it. Both separated wing and elevator sections were located about 1.5 miles from the main wreckage. Sections of the right wing panel, aileron and right flap were found along the wreckage path. Examination of the airframe did not reveal any pre-existing deficiencies.

Examination of the engine revealed that all the cylinders remained attached to the crankcase. The propeller separated and was located in the crater along with the engine. Due to the damage of the engine an examination was not done.

MEDICAL AND PATHOLOGICAL INFORMATION

A Medical Examination was done by Dr. William A Cox Medical Examiner for the State of Ohio, on September 30, 1993. According to the Medical Examiner's report, the pilot died as a result of the injuries received in the accident. Toxicological test results were negative for all screened drugs and volatiles.

ADDITIONAL INFORMATION

According to the FAA Flight Training Handbook, the characteristics of hypoxia are:

Hypoxia is a condition that results from having insufficient amount of oxygen in the body. There is a tendency to associate hypoxia only with flights at high altitude. Alcohol, many drugs used for medication, and heavy smoking can diminish the blood's ability to absorb oxygen or reduce the body's tolerance to hypoxia. In exposure to altitudes below 10,000 feet, the effects of hypoxia on the pilot are mild and considered acceptable. From 12,000 to 15,000 feet, though, impairment of judgment, memory alertness, and coordination are affected; and headache, drowsiness and either a sense of well-being or of irritability may occur. At cabin-pressure altitudes above 15,000 feet, peripheral vision deteriorates to a point where only central vision remains and cyanosis (blueness) of the finger nails and lips develops.

The wreckage was released to Harold Mesaris of Airco, the adjuster for the insurance carrier, on October 6, 1993.

Pilot Information

Certificate:	Commercial	**Age:**	54,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):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 19, 1993
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1102 hours (Total, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N6489P
Model/Series:	PA-24-250 PA-24-250	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-1608
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 4, 1993 Annual	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	LYCOMING
ELT:	Installed	**Engine Model/Series:**	O-540-A1B5
Registered Owner:	AIRE AUSTIN INC.	**Rated Power:**	250 Horsepower
Operator:	AIRE AUSTIN INC.	**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:**	Day
Observation Facility, Elevation:	CAK ,1228 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	19:50 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Scattered / 2600 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	Broken / 3500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	9°C / 6°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	FOSTORIA (FZI)	**Type of Flight Plan Filed:**	None
Destination:	HARRISBURG (CXY)	**Type of Clearance:**	None
Departure Time:	19:30 Local	**Type of Airspace:**	Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**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:	2 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	40.97956,-81.530151(est)

Administrative Information

Investigator In Charge (IIC):	Johnson, Beverley
Additional Participating Persons:	LEIGH WHITE; CLEVELAND , OH JIM DAVIDSON; CLEVELAND , OH
Original Publish Date:	December 2, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=8764