Aviation Investigation Final Report

Location:	Wautoma, Wisconsin	**Accident Number:**	CHI05FA016
Date & Time:	October 26, 2004, 11:25 Local	**Registration:**	N5485W
Aircraft:	Cessna P210N	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was destroyed during an in-flight break-up and subsequent impact with terrain. The pilot advised the controller that the airplane was losing its gyros and that he needed to descend. The pilot then reported that the gyros appeared to be working. The controller advised the pilot that the airplane was on a southwest heading and that the pilot could fly whatever altitude he was able to maintain. The controller was looking for an airport with visual meteorological conditions present and asked the pilot if the airplane was in the clouds. The pilot reported affirmative. The pilot's last transmission was that it was going into a spin. Radar contact was lost about that time. In a Sheriff's report, two witnesses indicated that they heard thunder or jets flying. The report showed that they heard a "high winding noise from [the] plane engine." The noise was directly above their position and they heard a loud bang. They reported seeing a plane at about 1,500 to 2,000 feet above ground level. The airplane was observed spinning straight down without its wings. The witnesses indicated that they observed something hanging from its tail section. A Meteorological Factual Report was compiled and the flight's plotted radar track showed that the airplane was in layered clouds and that there was visual flight rules weather conditions below the clouds. Recorded groundspeed varied between 130 to 160 knots. Winds aloft were headwind and quartering winds. The airplane's information manual's limitations section stated, in part, "Maneuvering Speed:4000 pounds-130 Knots Indicated Air Speed (KIAS), 3350 pounds-119 KIAS, 2700 pounds-106 KIAS Remarks: Do not make full or abrupt control movements above this speed." A flapper valve in the vacuum manifold exhibited deterioration and a crack. General observation of the manifold revealed that it had been disassembled and reassembled with non-manufacturer specified rivets. No further airframe of engine preimpact anomalies were detected with the recovered wreckage. Examination of instrument gyro rotors revealed rotational scoring.

Post-accident toxicology evaluation of specimens from the pilot was consistent with the intermittent use of fluoxetine (a prescription antidepressant often known by the trade name

Prozac). The pilot did not indicate any mental conditions or the use of any psychiatric medications on applications for airman medical certificate.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot not maintaining airplane control during cruise flight in instrument meteorological conditions after reporting a loss of gyros leading to his exceeding the design load limits of the wings. Factors were the clouds, the deteriorated vacuum manifold flapper valve, and the non-factory modification of that manifold by an unknown party.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE

Findings
1. (F) WEATHER CONDITION - CLOUDS

Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE

Findings
2. (F) VACUUM SYSTEM - DETERIORATED
3. (F) MAINTENANCE,MODIFICATION - PERFORMED - UNKNOWN

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE

Findings
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. USE OF INAPPROPRIATE MEDICATION/DRUG - PILOT IN COMMAND
6. INADEQUATE SUBSTANTIATION PROCESS,INSUFF REVIEW - FAA(ORGANIZATION)

Occurrence #4: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. (C) WING - OVERLOAD
8. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND

Occurrence #5: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
9. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On October 26, 2004, about 1125 central daylight time, a Cessna P210N, N5485W, piloted by a private pilot, was destroyed during an in-flight break-up and subsequent impact with terrain near Wautoma, Wisconsin. The personal flight was operating under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed at the time of the accident. An instrument flight rules flight plan was on file and activated. The pilot and passenger were fatally injured. The flight originated from the Palwaukee Municipal Airport, near Wheeling, Illinois, at time unknown and was destined for the Pine River Regional Airport (PWC), near Pine River, Minnesota.

Federal Aviation Administration (FAA) data showed that the flight was in contact with air traffic control. During the flight, the pilot requested a heading deviation for weather and that deviation was approved. A controller asked the pilot for a ride report for his altitude and the pilot reported that the flight was "bounced" around and characterized the ride as "moderate" turbulence. The pilot reported that the ride smoothed out "considerably" after the deviation for weather. The pilot was given a frequency change and was asked to report to the next controller when he could turn back on course to his destination. The pilot was given a new transponder squawk code when he checked on with the next controller about 1113. The pilot reported that he was turning back "direct PWC" about 1117. The pilot advised the controller that the airplane was losing its gyros and that he needed to descend about 1119. The pilot then reported that the gyros appeared to be working and that he was in a "fix there a second ago" about 1120. The controller advised the pilot that the airplane was on a southwest heading and that the pilot could fly whatever altitude he was able to maintain. The controller was looking for an airport with visual meteorological conditions present and asked the pilot if the airplane was in the clouds about 1122. The pilot reported affirmative. The pilot's last transmission was that the airplane was going into a spin about 1123. Radar contact was lost about that time.

Two witnesses reported to the Waushara County Sheriff's office that they observed the flight while they were planting trees on their property. In the sheriff's report of their statements, the witnesses indicated that they heard thunder or jets flying. The report showed that they heard a "high winding noise from [the] plane engine." The noise was directly above their position and they heard a loud bang. They reported seeing a plane at about 1,500 to 2,000 feet above ground level (AGL). The airplane was observed spinning straight down without its wings. The witnesses indicated that they observed something hanging from its tail section.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with single engine land, single engine sea, and instrument airplane ratings. Review of the pilot's logbook showed that the pilot had completed a flight review on June 6, 2004. The pilot had accumulated about 2,544 hours of total flight time, 607 hours of actual instrument time, 60 hours of simulated instrument time, and 12 hours in the previous 30 days.

He held a FAA third-class medical certificate issued on October 5, 2003, with a limitation to wear corrective lenses. At the time of that medical, he reported 2,500 hours total flight time and 100 hours in the six months prior to that examination. That medical application asked, "Do you currently use any medication (Prescription or Nonprescription)?" The pilot indicated, "Yes, Vioxx, Pravachol, and antacid." That application further asked, "Have you ever in your life been diagnosed with, had, or do you presently have any of the following? ... Mental disorders of any sort, depression, anxiety, etc." The pilot indicated "No"

AIRCRAFT INFORMATION

N5485W, a Cessna P210N, Centurion, serial number P21000695, was a six-place, single engine, full cantilever high-wing, all-metal airplane of semimonocoque construction. The wings were constructed with integral fuel tanks. The airplane was powered by a six-cylinder, horizontally opposed, turbocharged, air cooled, fuel injected, Teledyne Continental TSIO-520-P engine, serial number 513734. The engine was rated at 310 horsepower for five minutes and 285 horsepower continuously. Maintenance records showed that the airplane's propeller was a three-bladed McCauley D3A34C402/90DFA-10 model, hub serial number 811432. The propeller blade serial numbers were B129481, B132981, and B138862. The propeller was last overhauled on November 24, 1993. The airplane was issued a standard airworthiness certificate and was certified for normal category operations.

Maintenance records show that the airplane was equipped with an electric powered auxiliary vacuum pump, which was installed under Supplemental Type Certificate SA668GL on April 27, 1987. The airplane had accumulated 682 hours of total time at the time of the auxiliary pump installation.

Billing records show that the last annual inspection was performed on January 15, 2004, and that the airplane had accumulated 2,606 hours at the time of that inspection.

Billing records show that the engine driven vacuum pump was replaced on February 5, 2004. The airplane had accumulated 2,661.1 hours at the time of that installation. The installed engine driven vacuum pump was an Aero Accessories AA 216 CW model.

METEOROLOGICAL INFORMATION

A Senior Meteorologist for the National Transportation Safety Board (NTSB) compiled a Meteorological Factual Report for the investigation. Heights listed in the Surface Weather Observations are AGL. Excerpts from that report follow:

> Surface Weather Observations
> Surface weather observations for airports surrounding the accident location, in part, follow:
>
> Alexander Field South Wood County Airport (KISW), Wisconsin Rapids, Wisconsin
> field elevation 1,021 feet [mean sea level] msl, located approximately 304 degrees at 34 nautical miles from the accident location, unaugmented Automated Surface Observing System (ASOS)
>
> Time.1054; type.METAR; wind.060 degrees at 13 knots; visibility. 10 miles; present weather.light rain; sky condition.overcast 5,500 feet; temperature.08 degrees Celsius; dew point.06 degrees Celsius; altimeter setting.30.19 inches hg; remarks.rain began 1054
>
> Time.1121; type.SPECI; wind.030 degrees at 8 knots; visibility.10 miles; present weather.none; sky condition.broken 1,300 feet overcast 5,500 feet; temperature.08 degrees Celsius; dew point.06 degrees Celsius; altimeter setting.30.21 inches hg; remarks.lightning distant south rain ended 1117
>
> Time.1154; type.METAR; wind.060 degrees at 13 knots gusting 20 knots; visibility.10 miles; present weather.light rain; sky condition. overcast 1,300 feet; temperature.08 degrees Celsius; dew point.06 degrees Celsius; altimeter setting.30.19 inches hg; remarks.lightning distant southeast rain ended 1117 began 1144
>
> Stevens Point Municipal Airport (KSTE), Stevens Point, Wisconsin
> field elevation 1,110 feet msl, located approximately 333 degrees at 34 nautical miles from the accident location, unaugmented ASOS
>
> Time.1055; type.METAR; wind.060 degrees at 8 knots; visibility.10 miles; present weather.light rain; sky condition.overcast 5,500 feet; temperature.06 degrees Celsius; dew point.04 degrees Celsius; altimeter setting.30.20 inches hg; remarks.none
>
> Time.1155; type.METAR; wind.040 degrees at 8 knots; visibility.10 miles; present weather.light rain; sky condition.broken 1,100 feet overcast 5,500 feet; temperature.07 degrees Celsius; dew point.05 degrees Celsius; altimeter setting.30.20 inches hg; remarks.none

Outagamie County Regional Airport (KATW), Appleton, Wisconsin
field elevation 918 feet msl, located approximately 065 degrees at 31 nautical miles from the accident location, unaugmented Automated Weather Observing System-3 (AWOS-3)

Time.1045; type.METAR; wind.080 degrees at 12 knots gusting 17 knots; visibility.10 miles; present weather.not available; sky condition. broken 2,000 feet overcast 6,000 feet; temperature.09 degrees Celsius; dew point.07 degrees Celsius; altimeter setting.30.19 inches hg; remarks.none

Time.1145; type.METAR; wind.070 degrees at 8 knots; visibility.10 miles; present weather.not available; sky condition.broken 1,500 feet overcast 2,500 feet; temperature.09 degrees Celsius; dew point.07 degrees Celsius; altimeter setting.30.20 inches hg; remarks.none

Wittman Regional Airport (KOSH), Oshkosh, Wisconsin
field elevation 808 feet msl, located approximately 100 degrees at 26 nautical miles from the accident location, augmented ASOS

Time.1053; type.METAR; wind.080 degrees at 11 knots; visibility. 10 miles; present weather.none; sky condition.broken 5,500 feet broken 7,500 feet; temperature.09 degrees Celsius; dew point.06 degrees Celsius; altimeter setting.30.18 inches hg; remarks.none

Time.1153; type.METAR; wind.070 degrees at 13 knots gusting 20 knots; visibility.10 miles; present weather.none; sky condition. broken 6,000 feet; temperature.10 degrees Celsius; dew point.05 degrees Celsius; altimeter setting.30.17 inches hg; remarks.none

Fond Du Lac County Airport (KFLD), Fond Du Lac, Wisconsin
field elevation 808 feet msl, located approximately 119 degrees at 34 nautical miles from the accident location, unaugmented ASOS

Time.1053; type.METAR; wind.090 degrees at 9 knots gusting 16 knots; visibility.10 miles; present weather.none; sky condition. overcast 5,500 feet; temperature.10 degrees Celsius; dew point.04 degrees Celsius; altimeter setting.30.18 inches hg; remarks.none

Time.1153; type.METAR; wind.080 degrees at 10 knots; visibility. 10 miles; present weather.light rain; sky condition.broken 6,000 feet overcast 8,500 feet; temperature.10 degrees Celsius; dew point.04 degrees Celsius; altimeter setting.30.17 inches hg; remarks.rain

began 1153

The FAA supplied recorded National Track Analysis Program (NTAP) radar data for the flight. That NTAP data was plotted on Doppler weather radar base reflectivity depictions and on Geostationary Operational Environmental Satellite-12 visible and infrared digital depictions. The surface weather observations and depictions showed that the pilot was in layered clouds and that there was visual flight rules weather conditions below the clouds. Winds aloft data were interpolated from balloon soundings accomplished in the Green Bay, Wisconsin, area at 0700. That data indicated that winds aloft were 260 degrees true at 43 knots at 20,000 feet MSL and 260 degrees true at 42 knots at 19,500 feet MSL. The Meteorological Factual Report is appended to the docket material associated with this case.

WRECKAGE AND IMPACT INFORMATION

Sections of the wreckage came to rest in the southeast corner of section 10, Township of Marion. The fuselage and engine were found impacted in terrain near the bank of a pond at latitude 44 degrees 02.603 minutes N and longitude 89 degrees 10.335 minutes W. The recovered wreckage was found along a path approximately on a 180-degree magnetic heading from the furthest wreckage section to the fuselage. The distance of that path was about 2.4 nautical miles.

An on-scene investigation was performed. The wreckage was recovered and was laid out at a Waushara County facility. All flight controls were recovered except for the left elevator. Inboard sections of both wings remained attached to the fuselage and both wing sections were deformed upward. Examination of the right side of the vertical stabilizer revealed an indentation consistent with the shape of the wing tip and a paint transfer mark consistent with the paint color scheme on the wing tip. Examination of the right wing tip revealed an abrasion in the area of that paint. Flight control cables were traced and all breaks found were consistent with overload. Flight control cable continuity was established between the control surfaces and the fuselage. Damage precluded the verification of the cable's continuity within the fuselage. The flaps were found in the fully retracted position. The landing gear handle was found selecting the gear up position. The auxiliary vacuum pump switch was found in the "off" position.

The engine was rotated by hand with a lever applying a rotational force on its propeller flange. All cylinders produced a thumb compression. The number four cylinder's exhaust valve push rod was found bent. The electrodes on the removed sparkplugs were tan to beige in color. Rotation of the right magneto produced spark at all terminals. The left magneto sustained impact damage and was disassembled. Rotation of the left magneto produced spark at its center electrode. The propeller was found separated from its engine propeller flange. The propeller blades exhibited S-shaped bending and chordwise abrasion. The engine-driven vacuum pump was separated from the engine's rear case. That vacuum pump housing was found impacted in terrain about a foot below the engine. The engine tachometer indicated

2,686.7 hours.

The attitude indicator, horizontal situation indicator, and turn coordinator were disassembled. Examination of their gyros and housings revealed rotational scoring.

The engine driven vacuum pump, auxiliary dry air vacuum pump, and their manifold were retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

The Waushara County Coroner arranged for an autopsy, which was performed on the pilot by the Milwaukee County Medical Examiner on October 27, 2004.

The FAA Civil Aeromedical Institute (CAMI) prepared a Final Forensic Toxicology Accident Report. CAMI's report, in part, stated:

> 0.031 (ug/mL, ug/g) FLUOXETINE detected in Blood
> 37.479 (ug/mL, ug/g) FLUOXETINE detected in Liver
> NORFLUOXETINE NOT detected in Blood
> 42.895 (ug/mL, ug/g) NORFLUOXETINE detected in Liver

Fluoxetine is a prescription antidepressant also indicated for the use of obsessive-compulsive disorder and bulimia nervosa (an eating disorder) and often known by the trade name Prozac.

Norfluoxetine is a metabolite of fluoxetine.

The NTSB's Medical Officer, from the pilot's medical records maintained by the FAA Aerospace Medical Certification Division, extracted the following information:

> Records of the pilot's applications for 3rd class Airman Medical Certificate dated 2/15/78 through 11/15/94 all indicate "no" for "Do you currently use any medication" and for all items under "Medical History," including specifically "Mental disorders of any sort: depression, anxiety, etc."
>
> 10/24/96 - The pilot's application for 3rd class Airman Medical Certificate indicates "no" for item "Do you currently use any medication." The application indicates "yes" for 18.u. "Admission to hospital," and "no" for all other items under "18. Medical History," including specifically item 18.m. "Mental disorders of any sort: depression, anxiety, etc."
>
> 12/31/97 - The pilot's application for 3rd class Airman Medical

Certificate indicates "no" for "Do you currently use any medication." The application indicates "yes" for 18.u. "Admission to hospital" and 18.x. "Other illness, disability, or surgery," and "no" for all other items under "18. Medical History," including specifically item 18.m. "Mental disorders of any sort: depression, anxiety, etc." Under "Comments on History and Findings" is noted "18u) knee surgery; 18x) knee surgery ... arthroscopy right knee."

12/20/99 - The pilot's application for 3rd class Airman Medical Certificate indicates "no" for item 17.a. "Do you currently use any medication." The application indicates "yes" for 18.u. "Admission to hospital," and "no" for all other items under "18. Medical History, " including specifically item 18.m. "Mental disorders of any sort: depression, anxiety, etc." Under "Explanations" is noted "broken ribs - fall from roof."

10/5/01 - The pilot's application for 3rd class Airman Medical Certificate indicates "yes" for item 17.a. "Do you currently use any medication" and noted only "Vioxx [rofecoxib] 25 mg daily." The application indicates "yes" for 18.u. "Admission to hospital," and "no" for all other items under "18. Medical History," including specifically item 18.m. "Mental disorders of any sort: depression, anxiety, etc."

10/15/01 - A letter from the pilot's Aviation Medical Examiner notes: " ... I am enclosing some additional information for your files on [the pilot] ... who I saw on October 5, 2001 for an FAA examination to renew his Class III ticket. Issues that he and I discussed included asymptomatic coronary calcification with a negative treadmill exercise test, mild dyslipidemia, remote history of depression, and deep venous thrombosis. ... Remote history of depression (1980s). No vegetative symptoms now. The patient is not and never has been suicidal. No vegetative symptoms. No substance abuse issues. The patient was on Prozac [fluoxetine]. There is some confusion regarding whether he uses Prozac in an ongoing fashion. To me, during his FAA exam, he denies it. ..."

4/30/02 - A letter from the Manager of the FAA Aerospace Medical Certification Division notes: "Our review of your medical records has established that you are eligible for a third-class medical certificate. The certificate you now hold is valid until the normal date of expiration. You are cautioned to abide by Title 14 of the Code of Federal Regulations (CFR's), Section 61.53, relating to physical deficiency, medication, or treatment. Operation of aircraft is prohibited at any time

new symptoms or adverse changes occur. ..."

10/5/03 - The pilot's most recent application for 3rd class Airman Medical Certificate indicates "yes" for item 17.a. "Do you currently use any medication" and noted only "Vioxx [rofecoxib]; Pravachol [pravastatin]; antacid." The application indicates "yes" for 18.u. "Admission to hospital," and "no" for all other items under "18. Medical History," including specifically item 18.m. "Mental disorders of any sort: depression, anxiety, etc."

TESTS AND RESEARCH

The electric auxiliary dry air vacuum pump and the manifold were examined at the manufacturer, Parker Hannifin, under the supervision of the NTSB Investigator In Charge (IIC). Examination of the electric vacuum pump revealed no evidence of rotation. The electric motor's field magnet sustained damage consistent with impact. Examination of the manifold revealed deterioration and a crack in the flapper valve on the side that connects to the electric auxiliary pump. A vacuum was applied to each side of the check valve manifold and leakage was observed. General observation of the manifold revealed that it had been disassembled and reassembled with non-manufacturer specified rivets. Air pressure was applied to the manifold while submerged under water and leakage appeared at the end disassembled and reassembled with non-manufacturer specified rivets.

The engine-driven vacuum pump was examined at the manufacturer, Aero Accessories, under the supervision of the NTSB IIC. Examination of the engine-driven vacuum pump revealed that all observed damage present was consistent with impact damage.

Review of NTAP data revealed that the airplane's final recorded track indicated the airplane was cruising at an altitude about 19,900 feet MSL and entered a descent. That data showed that the airplane's groundspeed varied between 130 knots and 160 knots.

ADDITIONAL INFORMATION

Parker Hannifin published Service Letter Number 39A. That letter, in part, stated:

Date: May 31, 2002 (Supersedes Product Reference Memo Number 39 dated January 31, 1996) (Reprinted April, 2004)

Subject: Mandatory Inspection Intervals and Replacement Times for Airborne Check Valve Manifolds, Check Valves and Regulator Check Valve Manifolds.

Applicability:
All Airborne Check Valve Manifolds, Check Valves and Regulator Check Valve Manifolds. These valves which are listed below are typically installed on single-engine and multi-engine piston aircraft equipped with dual pneumatic power sources to power the gyro flight instruments and de-ice systems.

1 H5 Series (all dash numbers) - Check Valve Manifolds (Vacuum System)
1 H24 Series (all dash numbers) and 2H24-8 - Check Valve Manifolds (Pressure System)
1H37 Series (all dash numbers) - Check Valves (Vacuum/Pressure System)
2H3-39 and 2H3-47 - Regulator Check Valve Manifolds (Vacuum System)
...

Background:
The above referenced components supplied by Airborne for use in aircraft pneumatic systems have parts manufactured from an elastomeric material that can deteriorate with age due to environmental conditions such as heat. As these components age, it is increasingly important to perform mandatory inspections at specified intervals to ensure their proper operation, thus avoiding pneumatic system failure.

WARNING: Failure of the pneumatic system will result in the loss of the pneumatic powered gyro flight instruments and de-ice system.
...

Mandatory Replacement Times*
These pneumatic system check valve manifolds, check valves and regulator check valve manifolds must be replaced ten (10) years from date of manufacture.

Any authorized technician can inspect, test and/or replace these check valve manifolds, check valves and regulator check valve manifolds in accordance with the instructions provided in this document. Upon completion of the mandatory inspection, testing or replacement, ensure an entry has been added in the aircraft's logbook identifying compliance with this Service Letter Number 39A.

*NOTE: The above components must not be operated beyond the Airframe Manufacturer's specification for mandatory inspection intervals or mandatory replacement times or Airborne's mandatory inspection intervals or mandatory replacement times, whichever comes first.

FAA regulations, in part, stated:

> 61.53 Prohibition on operations during medical deficiency.
> (a) Operations that require a medical certificate. Except as provided for in paragraph (b) of this section, a person who holds a current medical certificate issued under part 67 of this chapter shall not act as pilot in command, or in any other capacity as a required pilot flight crewmember, while that person:
> (1) Knows or has reason to know of any medical condition that would make the person unable to meet the requirements for the medical certificate necessary for the pilot operation; or
> (2) Is taking medication or receiving other treatment for a medical condition that results in the person being unable to meet the requirements for the medical certificate necessary for the pilot operation.
>
> 91.17 Alcohol or drugs.
> (a) No person may act or attempt to act as a crewmember of a civil aircraft -
> ...
>
> (3) While using any drug that affects the person's faculties in any way contrary to safety; or

The airplane's information manual's limitations section, in part, stated:

> Maneuvering Speed:
> 4000 pounds-130 Knots Indicated Air Speed (KIAS)
> 3350 pounds-119 KIAS
> 2700 pounds-106 KIAS
>
> Remarks: Do not make full or abrupt control movements above this speed.

The airplane and all retained items were released to a representative of the insurance company.

Pilot Information

Certificate:	Private	**Age:**	57,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:**	October 5, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 6, 2004
Flight Time:	2544 hours (Total, all aircraft), 12 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5485W
Model/Series:	P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000695
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	January 15, 2004 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	80.7 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2686.7 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-P
Registered Owner:	Blue Sky Horizons Inc.	**Rated Power:**	285 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	VOK,912 ft msl	**Distance from Accident Site:**	41 Nautical Miles
Observation Time:	11:55 Local	**Direction from Accident Site:**	260°
Lowest Cloud Condition:	Scattered / 1500 ft AGL	**Visibility**	4 miles
Lowest Ceiling:	Broken / 4000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	8°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	CHICAGO/PROSPEC, IL (PWK)	**Type of Flight Plan Filed:**	IFR
Destination:	PINE RIVER, MN (PWC)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	Class A

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	44.043334,-89.172225

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Jeffery Anderson; Federal Aviation Administration; Milwaukee, WI Tom Moody; Cessna Aircraft Company; Wichita, KS R. S Boyle; Teledyne Continental Motors; Arvada, CO Daniel E Scholz; Parker Hannifin Corporation; Elyria, OH Tim Henderson; Aero Accessories Inc.; Gibsonville, NC
Original Publish Date:	July 7, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60441