National Transportation Safety Board
Aviation Accident Final Report

Location:	BAKER, NV	**Accident Number:**	LAX98FA260
Date & Time:	08/08/1998, 1149 PDT	**Registration:**	N6JM
Aircraft:	Piper PA-31-T1	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot had filed an instrument flight rules (IFR) flight plan for 25,000 feet mean sea level (MSL), and he amended it to 27,000 feet MSL en route. About 36 minutes after the altitude change to 27,000 feet, the pilot advised air traffic control (ATC) that he had lost cabin pressurization and needed an immediate descent. About 20 seconds later he was cleared to 25,000 feet, then 15 seconds later to 15,000 feet. Shortly after the pilot acknowledged the lower altitudes, the radio communications deteriorated to microphone clicks with no carrier. The aircraft started a shallow descent with slight heading changes, then was observed to make a rapid descent into desert terrain. About 10 months prior to the accident the aircraft had been inspected in accordance with the Piper Cheyenne Progressive Inspection 100-hour Cycle, event No. 1. According to the servicing agency, the aircraft inspection was completed and the aircraft was returned to service with a 12,500 feet MSL altitude restriction due to unresolved oxygen system issues. The last oxygen bottle hydrostatic check noted on the bottle was October 1989. The oxygen system was in need of required maintenance and the masks were in a rotted condition. The pilot failed to report his severe coronary artery disease condition, medications, and other conditions to his FAA medical examiner for the required flight physical.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to comply with a 12,500-foot altitude restriction placed on the aircraft by an FAA approved maintenance facility due to unresolved oxygen system issues. Contributing to the accident was the pilot's failure to divulge his true physical condition and need for medication during his application for an Airman Medical Certificate.

Findings

Occurrence #1: DECOMPRESSION
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) OXYGEN SYSTEM - INOPERATIVE
2. (C) EMERGENCY PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
4. (F) PROPER DESCENT RATE - NOT FOLLOWED - PILOT IN COMMAND
5. (F) MAINTENANCE - IMPROPER - PILOT IN COMMAND
6. (F) PHYSICAL IMPAIRMENT(ANOXIA/HYPOXIA) - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On August 8, 1998, about 1149 hours Pacific daylight time, a Piper PA-31-T1, N6JM, was destroyed near Baker, Nevada, after an uncontrolled descent into terrain. The pilot and two passengers received fatal injuries. Visual meteorological conditions prevailed and an IFR flight plan was filed. The aircraft was being operated as a personal flight under the provisions of 14 CFR Part 91 by Gray Leasing, Inc., Searcy, Arkansas. The flight originated at Santa Rosa, California, about 1045, and was destined for Searcy with an en route stop at Wichita, Kansas.

The pilot filed for an IFR flight plan for 25,000 feet msl, and at 1055, while en route, he amended it to 27,000 feet. About 36 minutes after the altitude change to 27,000 feet, the pilot advised Salt Lake Air Traffic Control Center (SLC) that he had lost cabin pressure and needed an immediate descent. At the controller's request he restated his transmission.

About 20 seconds after the initial request for a lower altitude, the pilot was given a clearance to descend to 25,000 feet. About 15 seconds later he was cleared to descend to 15,000 feet, and he acknowledged. At this point radio communications started deteoriating; the pilot responded two more times "6JM." Additional calls from SLC were with microphone clicks only and no carrier.

According to radar data, the aircraft started a gradual descent with slight heading changes to 25,900 feet, and then a rapid descent with loss of radio and radar contact.

PILOT INFORMATION

No pilot logbook or flight records were recovered from the aircraft or from the pilot's representatives.

At the pilot's last recorded third-class flight physical dated August 21, 1996, he reported a total flight time of 2,950 hours with 150 hours in the past 6 months. The pilot failed to report a severe coronary artery disease condition, angioplasty, medications, and other conditions to his Federal Aviation Administration (FAA) medical examiner for the required flight physical.

Medical records were obtained from the Central Arkansas Hospital. According to the records, the pilot suffered from severe coronary artery disease that resulted in a heart attack in January 1996. Following the heart attack, the pilot had undergone balloon angioplasty and was on several medications. The records also revealed other medical conditions not reported during his application for an Airman Medical Certificate.

Piper Cheyenne recurrency flight training sources were contacted for pilot training information.

The pilot had contacted Simcon Training Centers of Florida for flight training. He stated to them that he would schedule flight training, but never did.

The pilot visited FlightSafety International February 11, 1994. Details of the visit were not obtained from Flightsafety nor family representatives.

Simuflite Training International (Dallas) does not offer Cheyenne flight training.

AIRCRAFT INFORMATION

No aircraft maintenance or service records were recovered from the airplane or the pilot's

representatives. Aircraft maintenance companies that had worked on the aircraft were contacted regarding this information.

Airpro Services of Batesville, Arkansas performed the Piper Event No. 1 inspection at 4,821.1 total hours in November 1997. They completed the inspection and restricted the aircraft to operations below 12,500 feet due to unresolved oxygen system issues. The oxygen system needed maintenance and the masks were reported to be in a rotted condition. According to Airpro, the restriction was noted in the maintenance records and placarded on the instrument panel.

In February 1998, West Tennessee Aviation (WTA) installed the McCauley Black Max 4 blade propeller modification. In May 1998, hot section inspections were performed on the engines by WTA at 4,859.0 total hours, 37.9 hours since event No 1. According to WTA, this is the only work performed on the aircraft in the last 3 years.

Cabin pressurization is obtained by use of high-pressure engine compressor bleed air. The Federal Aviation Administration (FAA) Service Difficulty Report (SDR) database was checked for causes of pressurization failures that had been reported to the system. They were:

1) Main cabin door (1). 2) Nose air distribution duct clamps (8). 3) Pressure regulator valve failure (3). 4) Left cockpit window failure (3).

Pilot Operator Handbook Information (POH)

According to the POH section 3, Emergency Procedures Part 3-31 Emergency Descent Procedures: "If it becomes necessary to descend rapidly to a lower altitude, retard the power levers to IDLE and advance the propeller controls fully forward for 2,200 rpm. When lowering the nose during initial pushover, roll the airplane 30 degrees until the nose is down to the desired pitch angle, then roll the wings level."

"When descending in smooth air, or if a high speed descent is desired, the gear and flaps should be left retracted. Maintain the airspeed at red line, and assume a wings level, nose down attitude. Trim as necessary."

"When descending in rough air, or if a low speed of descent is desired, slow to 171 KIAS and extend 15 degrees of flaps. At an airspeed below 154 KIAS, extend the landing gear. When the airspeed falls below 141 KIAS fully extend the flaps to 40 degrees. Continue descent without exceeding 148 KIAS. Maintain a wings level, nose down attitude, trimming as necessary."

The oxygen system approved for the PA-31-T1 provides emergency supplementary oxygen for the crew and passengers in the event of pressurization failure.

"If a pressurization failure has occurred, employ emergency oxygen at altitudes above 10,000 feet (see paragraph 3.27)."

"Vertical speed during descent will be approximately 5,000 feet per minute. Descend off the airway, and be aware of terrain elevation."

A factory installed oxygen system provides emergency supplementary oxygen for the crew and passengers in the event of pressurization failure. According to the POH section 3 Emergency Procedures: Emergency Oxygen System "Cockpit" you must put the oxygen knob to the on position, don the mask, check the flow indicators, and monitor the oxygen supply. It does not address the relocation of the microphone switch to transmit through the oxygen mask microphone.

METEOROLOGICAL INFORMATION

At 1153, the Ely, Nevada, METAR weather was reporting: wind 210 degrees at 14 knots with gusts to 18; visibility 10 miles; few clouds at 11,000 feet; temperature 84 degrees Fahrenheit; dew point 37 degrees Fahrenheit; and the altimeter was 30.22 inHg.

Visible satellite imagery detected widely scattered developing towering cumulus clouds across Nevada, but not at the accident site. Cumulus clouds were building north, south, and west approximately 6.5 miles.

WRECKAGE AND IMPACT INFORMATION

The accident site is located at latitude 38 degrees 47 minutes and .141 seconds north, longitude 114 degrees 08 minutes and .339 seconds west, and about 6,000 feet msl. The initial impact crater and wreckage path was measured about 300 degrees over a distance about 71 feet with some fragments as far as 140 feet.

All major components, or evidence of it, were accounted for in a fragmented and burned condition at the accident site. All systems were destroyed. No pressurization system components were recovered. An oxygen system bottle was recovered (DOT-3AA1800 serial No. 38882U) and hydrostatic test dates of June 1978, September 1987, and October 1989 were noted.

An after-market McCauley 4-blade propeller was installed on each engine. All eight propeller blades were found separated from the propeller hubs. The hubs were separated from the engine shaft flanges. Some blades displayed leading edge damage, chordwise striations, and trailing edge "S" bending.

MEDICAL AND PATHOLOGICAL INFORMATION

No autopsy or toxicological testing was performed due to the lack of samples.

ADDITIONAL INFORMATION

The Safety Board released the wreckage to the insurance company representative on June 30, 1999.

A voice tape from SLC was sent to the Safety Board for sound analysis of background noises. No useful information was obtained from the tape.

Pilot Information

Certificate:	Private	**Age:**	62, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	08/21/1996
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	2950 hours (Total, all aircraft), 75 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N6JM
Model/Series:	PA-31-T1 PA-31-T1	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	31T-7904011
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	11/01/1997, AAIP	**Certified Max Gross Wt.:**	8700 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo Prop
Airframe Total Time:	4821 Hours	**Engine Manufacturer:**	P&W
ELT:		**Engine Model/Series:**	PT6A-11
Registered Owner:	GRAY LEASING INC.	**Rated Power:**	500 hp
Operator:	GRAY LEASING INC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	ELY, 6255 ft msl	**Distance from Accident Site:**	45 Nautical Miles
Observation Time:	1153 PDT	**Direction from Accident Site:**	300°
Lowest Cloud Condition:	Scattered / 0 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	14 knots / 18 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	29°C / 3°C
Precipitation and Obscuration:			
Departure Point:	SANTA ROSA, CA (STS)	**Type of Flight Plan Filed:**	IFR
Destination:	WICHITA, KS (ICT)	**Type of Clearance:**	IFR
Departure Time:	1045 PDT	**Type of Airspace:**	Class A

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	GEORGE E PETTERSON	**Report Date:**	10/04/2000
Additional Participating Persons:	ROBERT WAGNER; RENO, NV KRIS WETHERELL; VERO BEACH, FL MICHAEL MCCLURE; VERO BEACH, FL		
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.ntsb.gov/pubdms/.		