



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Salida, Colorado	Accident Number:	DEN06FA111
Date & Time:	August 7, 2006, 10:20 Local	Registration:	N6506C
Aircraft:	Piper PA-28R-201	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot and his passenger were returning to California after attending the Experimental Aircraft Association Convention (AirVenture 2006) in Wisconsin. The airplane arrived the evening before and was refueled. The next morning, the pilot obtained a Computer Science Corporation (CSC) Direct User Access Terminal System (DUATS) weather briefing and filed a VFR flight plan. The pilot asked which route he should take to go to Utah. He said he wanted to fly west across Monarch Pass (elevation 11,312 feet msl). It was suggested that he fly south through Poncha Pass before turning west. The airplane took off at 0945, and turned right towards Monarch Pass. Witnesses reported seeing a low-wing single-engine airplane flying north up a canyon. One witness 2 miles from the accident site said he saw a low-flying airplane pass overhead and fly into a valley. When it failed to emerge, the witness went to investigate and found the wreckage. The accident site was at an elevation of 12,020 feet msl and was surrounded by 13,000 and 14,000-foot mountain peaks. The airplane's right wing struck trees and the airplane came to rest inverted 250 feet away. The landing gear was down and the flaps were up.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's inadequate preflight planning/preparation. Contributing factors in this accident were the pilot's lack of familiarity with the geographical area, his becoming lost/disoriented, his improper decision, the high density altitude, and the reduction in the airplane's climb performance.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: MANEUVERING

Findings

1. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
 2. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
 3. WEATHER CONDITION - HIGH DENSITY ALTITUDE
 4. OBJECT - TREE(S)
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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On August 7, 2006, at 1020 mountain daylight time, a Piper PA-28R-201, N6506C, piloted by an airline transport pilot, was destroyed when it collided with mountainous terrain while maneuvering 16 miles northwest of Salida, Colorado, near the community of Maysville, Colorado. Visual meteorological conditions prevailed at the time of the accident. The business cross-country flight was being conducted under the provisions of Title 14 Code of Federal Regulations Part 91. A visual flight rules (VFR) was filed but was not activated. The pilot was fatally injured and his passenger was seriously injured. The flight originated at Salida (0V2) at 0945, and was en route to Milford, Utah (MLF).

Papers found in the wreckage indicate the pilot was returning to Reid-Hillview Airport (RHV), San Jose, California, after attending the EAA (Experimental Aircraft Association) Convention (AirVenture 2006) in Oshkosh, Wisconsin (OSH). According to data from the on-board GPSmap 396 (Global Positioning System), the airplane arrived at Salida at 1951 on the evening before the accident. It was refueled with 36.436 gallons of 100-LL aviation-grade gasoline. The time stamped on the fuel pump records was 1952.

According to the 0V2 airport manager, the pilot and his passenger arrived at the airport the next morning approximately 0900. The pilot was seen using his laptop computer. According to Computer Science Corporation (CSC) Direct User Access Terminal System (DUATS), the pilot obtained a weather briefing and filed a VFR flight plan. The pilot asked the airport manager which route he should take to go to MLF. He said he wanted to fly west across Monarch Pass (elevation 11,312 feet msl). The airport manager suggested that he fly south through Poncha Pass before turning west towards Gunnison.

GPS data indicates the airplane took off from runway 06 at 1000:06, and turned left towards Monarch Pass. Witnesses camped alongside the North Fork of the South Arkansas River drainage told Chaffee County sheriff deputies that they saw a low-wing single-engine airplane flying north up the canyon along County Road 240. Another witness, located about 2 miles from the accident site, said he saw a low-flying airplane that passed overhead and flew into the valley. When it failed to emerge, he went to investigate and found the wreckage. The lone survivor was sitting on a rock next to the airplane. He reported the accident to 9-1-1 via satellite telephone at 1037. Emergency crews were dispatched at 1043, and arrived on-scene at 1140. The accident site was secured at 1508.

The 19-year-old passenger declined to be interviewed. According to a spokesperson, the passenger could not recall any of the events leading to the accident.

The accident occurred during the hours of daylight at a GPS (Global Positioning System) location of 38 degrees, 37.850' north latitude, and 106 degrees, 19.58' west longitude, at an elevation of 12,020 feet msl (above mean sea level).

PERSONNEL (CREW) INFORMATION

The pilot, age 52, held an airline transport pilot certificate, dated October 16, 1998, with airplane single/multiengine land ratings, and commercial privileges in gliders. He held a flight instructor certificate, dated January 31, 2005, with airplane single/multiengine, instrument, and glider ratings. His third class airman medical certificate, dated May 10, 2006, contained no restrictions or limitations. Papers recovered at the accident site indicated the pilot had received a biennial flight review (BFR) on May 30, 2005, as required by FAR 61.56(a). The BFR was accomplished in 2 hours in N6506C. On that same date, the pilot was given an instrument proficiency check (IPC) as required by FAR 61.57(d). The check included 1.2 hours of simulated instrument time and included ILS, VOR, and RNAV (GPS) approaches at SNS.

The pilot's logbook was not found in the wreckage. According to FAA's airman medical certification office, when he applied for his most recent medical certification, he estimated his total flight time to be 4,450 hours, 20 hours of which were accrued within the previous 6 months.

AIRCRAFT INFORMATION

N6506C (s/n 28R-7837170), a model PA-28R-201, was manufactured by the Piper Aircraft Corporation in 1978. It was powered by a Lycoming IO-360-C1C6 engine (s/n L-6973-51A), driving a McCauley 2-blade, all-metal, constant speed propeller (s/n 748273).

Copies of the airplane maintenance records were furnished by family members. The last annual inspection of the airframe, engine, and propeller was on July 10, 2006, at a tachometer time of 511.83 hours. At that time, the airframe had accrued 4,969.90 hours. The engine was overhauled by Textron Lycoming on November 24, 1998. At that time, the engine had accrued 5,519.86 hours. At the time of the annual inspection, the engine had accrued 6,031.69 hours, and 511.83 hours since major overhaul. Static system, altimeter, transponder, and encoder checks were made on May 24, 2005.

METEOROLOGICAL INFORMATION

The 02V airport manager reported that when N6506C departed, the weather was "nice," with some ground fog and clouds obscuring the mountain tops. He estimated the wind to be from 120 degrees at 10 knots, and the density altitude to be around 9,400 feet msl (above mean sea level).

The Monarch Pass (MYP) Automated Weather Observation System (AWOS), located on top of Monarch Pass at 11,995 feet msl (above mean sea level) and 20 miles south of the accident site, recorded the following weather at 0950 (the airplane's approximate departure time from Salida) and 1030 (the approximate time of the accident):

0950: Wind, 210 degrees at 14 knots; visibility, less than ¼ statute mile, light snow; ceiling, 100 feet overcast; temperature, 7 degrees C.; dew point, 6 degrees C.; altimeter, 30.82 in. Hg.

1030: Wind, 230 degrees at 11 knots; visibility, 10 statute miles; ceiling, 500 feet broken, 900 feet broken; temperature, 8 degrees C.; dew point 7 degrees C.; altimeter, 30.83 in. Hg.

WRECKAGE AND IMPACT INFORMATION

The on-scene investigation commenced on August 7 at 1740, and terminated on August 8 at 1430.

The accident site was situated near Billings Lake, in a bowl, at an elevation of 12,020 feet msl (above mean sea level). The site was surrounded by 13,000 and 14,000-foot mountain peaks.

There was a stand of pine trees with severed branches lying on the ground. The bark of one tree was torn off. Next to the branches was the severed right wing tip. The outboard 10 feet of the right wing was severed. The angle of the tree strikes was consistent with a right wing-low attitude. Three ground slashes, consistent with propeller strikes, were found 110 feet from the stand of trees. The distance from the first and second and second and third strike marks measured 15 and 9 inches, respectively.

Following the strike marks was a ground disruption in the rocky terrain: 14 feet long, 6 feet wide, and 6 inches deep. To the left of the disruption were green lens fragments. There was a gully 60 feet beyond the disruption. The inverted airplane lay 60 feet beyond the gully. The magnetic heading from the tree strike to the wreckage was 327 degrees.

The airplane nose was on a magnetic heading of 188 degrees. The left wing was bent aft and nearly torn off. The right wing and tail were aligned on magnetic headings of 091 and 008 degrees, respectively. The landing gear was down. The flaps were retracted.

Cockpit examination revealed the following instrument readings:

Airspeed	0 mph
Altimeter	12,250 ft.
Kollsman window	30.42 in. Hg.
Vertical speed	130 fpm up
Directional Gyro	195 degrees

Bearing 090 degrees
Bug 190 degrees
Turn and Slip Wings level
Artificial Horizon Inverted

Master Switch On
Magnetos Both
Landing light Off
Rotating Beacon Off
Pitot Heat Off
Alternate Air Closed

#1 OBS 185 degrees
#2 OBS 260 degrees
Clock 9:20 (stopped)

Fuel Selector left tank
Fuel flow 0
Fuel Pump Off
Manifold press 19.5 in. Hg.
EGT 850 degrees

Throttle Full forward
Propeller Full forward
Mixture Full forward
Landing Gear Down
Flaps Up

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the El Paso County Coroner's Office. According to their report (06A-368), death was attributed to "craniocerebral injuries (basilar skull fractures and underlying brain injuries)." The manner of death was "accident."

FAA's Civil Aeromedical Institute (CAMI) performed a toxicological screen. According to CAMI's report, no carbon monoxide or cyanide was detected in the blood, and no ethanol was detected in the urine. However, bupropion and bupropion metabolite were detected in the blood and urine, and dextromethorphan was detected in the urine but not in the blood. According to Dr. Stanley R. Mohler's "Medication and Flying: A Pilot's Guide," dextromethorphan is a commonly used cough suppressant. Bupropion (Wellbutrin) is used to treat a variety of conditions, including depression and other mental/mood disorders.

TESTS AND RESEARCH

The 02V airport manager estimated the density altitude to be about 9,400 feet msl when N6506C departed. The density altitude at MYP was calculated to be 12,800 feet msl. The density altitude at the accident site was estimated to be about the same. According to the Piper PA-28R-201 "Pilot's Operating Manual," the airplane has a service ceiling of 15,000 feet and an absolute ceiling of 17,000 feet.

According to the Piper PA-28R-201 Information Manual, full power at the accident site elevation (12,020 feet msl) would be 2,400 rpm and 17.8 in. Hg. manifold pressure. The distance between the first and second propeller slash marks was 15 inches. Using the following formula:

Groundspeed (knots) = Distance (inches) x Number of blades x RPM/Engine:Propeller ratio x 1216.8 (constant)

Substituting:

$$V = 15 \times 2 \times 2,400 / 1:1 \times 1216.8$$

$$V = 72,000 / 1216.8$$

$$V = 59.2 \text{ knots}$$

Attached to this report is a chart that gives a graphical depiction.

A hand-held Garmin GPSmap 396 was retrieved from the wreckage and sent to the manufacturer. Although extensively damaged, data was downloaded and presented on flat, topographical, 3-dimensional, and panoramic maps (see Maps and Charts of Accident Area). Maps 1 and 2 (flat) depict the airplane's flight from San Jose, California, to Oshkosh, Wisconsin, via Ogden, Utah, and Ainsworth, Nebraska, and its return journey via Chicago, Illinois; Emporia, Kansas, Santa Fe, New Mexico, Stillwater, Oklahoma, and Salida, Colorado. Maps 3 and 4 (topographical) depict the airplanes departure from Salida Airport's runway 06 and its maneuvering over U.S. Highway 50 near Maysville, Colorado, before it turned north towards the South Arkansas River drainage. Maps 5, 6, and 7 (3-dimensional) are close-up views of the accident area. Maps 8 and 9 (panoramic) give a pilot's view of the flight path.

Examination of this data revealed that at 1014:28, when the airplane had turned towards the North Fork of the South Arkansas River drainage, its altitude was 11,047 feet msl, and its airspeed was 95 knots. At 1016:57, its altitude was 11,569 feet msl and its airspeed was 94 knots. At 1019:18, its altitude 11,788 feet msl and the airspeed had dropped to 89 knots. At 1019:54, its altitude was 11,951 feet msl and the airspeed had dropped to 85 knots. The computed rate of climb was roughly 200 fpm. According to the Piper PA-28R-201 "Pilot's Operating Manual," the airplane will have a rate of climb of about 220 fpm at a density altitude of 12,800 feet msl.

ADDITIONAL INFORMATION

In addition to the Federal Aviation Administration, parties to the investigation included the New Piper Aircraft Corporation and Textron-Lycoming.

The wreckage was released to the insurance company on October 17, 2006.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	51, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Glider	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	Toxicology Performed:	Yes
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	May 1, 2006
Occupational Pilot:	No	Last Flight Review or Equivalent:	May 1, 2005
Flight Time:	4450 hours (Total, all aircraft), 20 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N6506C
Model/Series:	PA-28R-201	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	28R-7837170
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:		Certified Max Gross Wt.:	2750 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-360
Registered Owner:	Geoffrey G. Peck	Rated Power:	200 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:	MYP,11995 ft msl	Distance from Accident Site:	11 Nautical Miles
Observation Time:	10:30 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Broken / 500 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	11 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.82 inches Hg	Temperature/Dew Point:	8°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salida, CO (0V2)	Type of Flight Plan Filed:	VFR
Destination:	Milford, UT (MLF)	Type of Clearance:	None
Departure Time:	09:45 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Serious	Latitude, Longitude:	38.616664,-106.300003

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Gregory A Jones; FAA Flight Standards District Office; Denver, CO Stephanie Wells; FAA Flight Standards District Office; Denver, CO Robert Martellotti; The New Piper Aircraft Corporation; Vero Beach, FL Troy Helgeson; Textron Lycoming; Williamsport, PA
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Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=64286

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