



National Transportation Safety Board Aviation Accident Final Report

Location:	PAGOSA SPRINGS, CO	Accident Number:	FTW95FA002
Date & Time:	10/01/1994, 1420 MDT	Registration:	N1480X
Aircraft:	PIPER PA-28R-200	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	3 Serious

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

PRIVATE PILOTS, ENROLLED IN A PROFESSIONAL PILOT COURSE, WERE BUILDING CROSS COUNTRY FLIGHT TIME FOR THEIR COMMERCIAL CERTIFICATION. ON THE RETURN FLIGHT FROM CALIFORNIA TO TEXAS, ROUTING WAS PLANNED THROUGH COLORADO FOR THE INSTRUCTIONAL PORTION OF THE MOUNTAIN CURRICULUM. AIRMETS INCLUDED WEATHER ADVISORIES FOR TURBULENCE. THE FLIGHT INSTRUCTOR AMENDED THE FLIGHT ROUTE AND CONTINUED EVEN THOUGH FLIGHT WATCH ISSUED THE AIRMET FOR TURBULENCE AND THAT VFR WAS NOT RECOMMENDED. COMPANY PERSONNEL REPORTED THAT THE FLIGHT INSTRUCTOR HAD MADE NUMEROUS FLIGHTS ALONG THE REGULAR MOUNTAIN FLYING CURRICULUM ROUTE (HIGHEST ELEVATION 9,927 FEET); HOWEVER, 'THIS WAS THE INSTRUCTOR'S FIRST TRIP CROSSING THE CONTINENTAL DIVIDE THROUGH THE CANYON AT ELWOOD PASS' AN ELEVATION OF 11,875 FEET. DENSITY ALTITUDE WAS CALCULATED AT 14,000 FEET. THIS WAS THE FLIGHT INSTRUCTOR'S SECOND DEMONSTRATION THAT DAY FOR A 180 DEGREE TURN- AROUND PROCEDURE IN A BOX CANYON ENVIRONMENT. THE INSTRUCTOR STATED THAT 'NEAR THE COMPLETION OF THE TURN, WE EXPERIENCED A SEVERE UNEXPECTED DOWNDRAFT' WITH A RESULTING RATE OF DESCENT OF '6,000 FPM' AND THE AIRPLANE HIT THE TREES.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT'S CONTINUED FLIGHT INTO KNOWN ADVERSE WEATHER. FACTORS WERE THE PILOT'S LACK OF FAMILIARITY WITH THE GEOGRAPHIC AREA, THE TURBULENCE AND HIGH DENSITY ALTITUDE.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

Findings

1. TERRAIN CONDITION - BLIND/BOX CANYON
2. (F) LACK OF FAMILIARITY WITH GEOGRAPHIC AREA - PILOT IN COMMAND(CFI)
3. (C) FLIGHT INTO KNOWN ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND
4. (F) WEATHER CONDITION - TURBULENCE
5. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE

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

Factual Information

HISTORY OF FLIGHT:

On October 1, 1994, at 1420 mountain daylight time, a Piper PA-28R-200, N1480X, was destroyed while maneuvering to reverse flight direction near Pagosa Springs, Colorado. The airline transport rated pilot/flight instructor and the two private pilots received serious injuries. Visual meteorological conditions prevailed for the cross country mountain flying instructional flight.

During interviews and on the enclosed statements the operator and flight instructor reported the information in this paragraph. The flight originally departed the Le Tourneau University Flight School on September 29, 1994, at Longview, Texas, for a cross country flight to Palm Springs, California. The two private pilots were enrolled in Le Tourneau University Title 14 CFR Part 141 professional pilot course and were building cross country flight time toward their commercial certification. On the return flight, routing was planned through Colorado for the mountain portion of the course curriculum.

On October 1, 1994, the flight departed Page, Arizona, for Salida, Colorado. The private pilot and flight instructor evaluated the in flight weather and amended the flight plan for a more southerly route with a destination change to Alamosa, Colorado. The amended route was to follow the road from Pagosa Springs, Colorado, over Wolf Creek Pass, to Alamosa. As the flight continued, they realized a selection of the "wrong road" and the flight instructor made the decision for a turn-around at about 2,500 feet above ground level according to the enclosed statement. This was the flight instructor's second demonstration for the day on how to do a 180 degree turn around procedure in a box canyon environment. The flaps were fully extended prior to turning the airplane. The instructor turned the airplane to the "right side of the canyon (south) and then began the turn back towards the left in a bank of approximately 35 degrees." The flight instructor stated that "near the completion of the turn, we experienced a severe unexpected downdraft" with a resulting rate of descent of "6,000 FPM" and the airplane hit the trees.

PERSONNEL INFORMATION:

Flight Instructor records from the school and the Federal Aviation Administration (FAA) indicated that he was designated as the chief flight instructor on August 24, 1989. The designation included a standardization flight in the PA-28R-200. On February 13, 1994, the flight instructor satisfactorily completed an AOPA Air Safety Foundation flight instructor refresher clinic and an FAA surveillance on July 21, 1995.

During interviews, school personnel stated that the mountain flying curriculum route, with a departure from Longview, Texas, included Alexander Airport, Salida, Colorado; Buena Vista Airport, Buena Vista, Colorado; and Lake County Airport, Leadville, Colorado, with the highest elevation at 9,927 feet. The school curriculum does not specify a minimum altitude in mountainous terrain. They reported that the flight instructor had made numerous flights along this route; however, "this was the instructor's first trip crossing the continental divide through the canyon at Elwood Pass" an elevation of 11,875 feet.

METEOROLOGICAL INFORMATION:

A review of the enclosed weather data revealed the information in this paragraph. Winds aloft

throughout the area from 9,000 feet MSL through 18,000 MSL feet were from the southwest at 15 to 24 knots. Temperature aloft was 35 degrees Fahrenheit with a surface temperature at 70 degrees Fahrenheit. The calculated density altitude at the accident elevation of 11,400 feet was 14,000 feet. Airmets for the area included occasional mountain obscurement (clouds, precipitation, and fog) and moderate turbulence throughout Colorado. An airmet for occasional moderate mixed icing in clouds and precipitation between 12,000 feet MSL and FL200 was valid. VFR flight was not recommended.

COMMUNICATIONS:

A review of flight service station data (enclosed) revealed the following summary information. All times are converted to mountain daylight time unless otherwise indicated.

1033: The pilot obtained a standard weather briefing and filed a VFR flight plan via telephone with Prescott Flight Service Station (FSS), from Page (PGA), Arizona, to Salida (OV2), Colorado.

1208:34 The pilot contacted Denver Automated Flight Service Station (AFSS) facility via aircraft radio to activate the flight plan and was requested by facility specialists to refile the flight plan. From the location of 24 miles south of Dove Creek, Colorado, at 9,500 feet MSL direct to Salida, Colorado, the estimated time of arrival was 1310.

1211:17 Airmet sierra covered all of Colorado above 10,000 feet and VFR not recommended was issued to the pilot due to occasional moderate turbulence below FL200 and the possibility of occasional moderate mixed icing in the clouds and precipitation from 12,000 feet MSL to FL200.

1239:13 During cruise at 10,500 feet MSL at 9.6 miles north of Durango, Colorado, the pilot contacted Denver AFSS and reported a flight deviation to the south with a change of destination to Alamosa, Colorado.

1249:25 The pilot contacted Denver AFSS, reported a flight location 25 miles east of Durango, Colorado, and extended the arrival time to 1400. Denver issued flight precautions for mountain obscurement along the route, VFR not recommended, occasional moderate turbulence, and the altimeter setting of 30.02.

1450:47 The pilot reported a smooth ride at 10,500 feet and the base of the clouds at 12,000. There were no additional communications.

Search and rescue (enclosed reports) was initiated and the airplane and occupants were located at 0213 on October 2, 1994. The remoteness of the site, rough terrain conditions, and darkness hampered the rescue.

WRECKAGE AND IMPACT INFORMATION:

The airplane came to rest on a measured magnetic heading of 040 degrees at an elevation of 11,400 feet MSL on the north slope of the canyon with the highest peak along the continental divide at 12,654 feet. Trees, on a measured magnetic heading of 010 degrees, along the 35 degree upslope of the canyon had their upper trunk areas separated and lying on the ground. The cockpit and cabin area remained intact. The outboard section of the left wing separated from the airframe and the leading edge of both wings was crushed aft toward the main spar. Both fuel tanks were compromised and engine mounts separated. One propeller blade was twisted and bent aft. See the enclosed wreckage diagram for additional details.

Flight control continuity was confirmed. Physical evidence of fuel was present at the site, fuel was present on the engine driven output side of the fuel pump, and the fuel selector was "ON" the right fuel tank. Engine continuity was confirmed.

TEST AND RESEARCH:

The engine was examined by a NTSB investigator on October 12, 1994, at Greeley, Colorado. There were no pre-impact anomalies.

ADDITIONAL DATA:

The airplane was released to the owner.

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	42, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	10/05/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	7400 hours (Total, all aircraft), 400 hours (Total, this make and model), 7200 hours (Pilot In Command, all aircraft), 69 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N1480X
Model/Series:	PA-28R-200 PA-28R-200	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	28R-7535288
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	09/13/1994, 100 Hour	Certified Max Gross Wt.:	2650 lbs
Time Since Last Inspection:	70 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3977 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	IO-360-C1C
Registered Owner:	LE TOURNEAU UNIVERSITY	Rated Power:	200 hp
Operator:	LE TOURNEAU UNIVERSITY	Operating Certificate(s) Held:	
Operator Does Business As:		Operator Designator Code:	GM8S

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	ALS, 7535 ft msl	Distance from Accident Site:	40 Nautical Miles
Observation Time:	1356 MST	Direction from Accident Site:	90°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 12000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	15 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	210°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	19° C / -3° C
Precipitation and Obscuration:			
Departure Point:	PAGE, AZ (PGA)	Type of Flight Plan Filed:	VFR
Destination:	ALAMOSA, CO (ALS)	Type of Clearance:	Cruise; VFR
Departure Time:	1103 PST	Type of Airspace:	Class G

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC): JOYCE M SMITH, **Report Date:** 05/18/1995

Additional Participating Persons: RANDY HOLDER; DENVER, CO

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.nts.gov/pubdms/>.

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).