



National Transportation Safety Board Aviation Accident Final Report

Location:	HAWTHORNE, FL	Accident Number:	MIA96FA089
Date & Time:	03/01/1996, 1945 EST	Registration:	N2456U
Aircraft:	Cessna 172D	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot requested and received a change in destination airport due to weather from ATC. The pilot was vectored on a right downwind to the new destination airport for an ILS approach. The pilot was cleared by ATC for the approach and instructed to maintain 2,000 feet until established on the approach. The pilot acknowledged the transmissions and there were no further transmissions received from the pilot. The airplane was last observed on radar 3 miles east of the locator outer marker. The airplane wreckage was located the following morning.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain the proper glidepath during an instrument approach.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH - IAF TO FAF/OUTER MARKER (IFR)

Findings

1. LIGHT CONDITION - DARK NIGHT
2. WEATHER CONDITION - LOW CEILING
3. WEATHER CONDITION - RAIN
4. WEATHER CONDITION - FOG
5. (C) PROPER GLIDEPATH - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On March 1, 1996, about 1945 eastern standard time, a Cessna 172D, N2456U, registered to a private owner, operating as a 14 CFR Part 91 personal flight, crashed after being cleared for an ILS approach at the Gainesville Regional Airport, Gainesville, Florida. Instrument meteorological conditions prevailed and an instrument flight plan was filed. The airplane was destroyed. The commercial pilot and one passenger were fatally injured. The flight originated from Auburn, Alabama, about 2 hours 21 minutes before the accident. The wreckage was located on March 2, 1996.

Review of transcripts between Jacksonville Center, Jacksonville Flight Watch, and N2456U, revealed N2456U established initial radio with Jacksonville Center at 1855:40. Jacksonville Center advised all aircraft on their frequency at 1903:32, of hazardous weather (convective sigmet) that were available on the inflight advisory frequency. N2456U contacted flight watch at 1913:09, and requested a weather update for Orlando Executive Airport. N2456U was provided with the current Orlando weather observation, and was asked if he was aware of heavy thunderstorm activity between his position and Orlando. N2456U replied roger, and asked how far north of Orlando was the weather system. Flight watch stated the weather was 25 to 30 miles northwest of Orlando and extended south of the Gainesville Airport. N2456U asked if there was any convective activity and was informed the tops were around 32,000 feet and that the weather did not appear to be circumnavigable. N2456U stated at 1915:35, "good copy five six uniform thanks for your help." At 1924:48, Jacksonville Center informed N2456U that flight watch wanted to speak with him, and instructed him to return to his frequency when he was through. N2456U acknowledge the transmission, but did not contact flight watch. N2456U contacted Jacksonville Center at 1928:56, and requested to divert to Gainesville. The pilot was cleared to Gainesville, via radar vectors, and was vectored on a right downwind for the ILS runway 28 approach. At 1936:28, N2456U was told to expect a hard right turn, about 180 degrees in about 3 minutes. N2456U was cleared for the approach at 1939:35, and was instructed to maintain 2,000 feet until established on the approach. The pilot acknowledged the transmission and there were no further recorded transmissions with N2456U. The airplane was last observed on radar at 1943:05, 3 miles east of Wynds locator outer marker.

PERSONNEL INFORMATION

For first pilot information see page 3 of this report.

AIRCRAFT INFORMATION

Review of the airframe maintenance records revealed the altimeter system, altitude reporting equipment, and transponder were inspected on December 8, 1995. For additional aircraft information see page 2 of this report.

METEOROLOGICAL INFORMATION

Instrument meteorological conditions prevailed at the time of the accident. For additional weather information see page 3 of this report, and NTSB Meteorology Group Chairman's Factual Report.

COMMUNICATIONS

Review of communications between N2456U and Jacksonville Center revealed Jacksonville Center did not provide the pilot with the Gainesville weather, nor did they assure that the pilot had received the Gainesville ATIS information. A single vector was issued to the pilot. Controllers stated they observed the airplane on radar intercept the final approach course; however replay of radar data did not support their observation. Additionally, the position of the airplane in relation to the locator outer marker was not issued to the pilot during the clearance for the approach. For additional information see the Air Traffic Control Group Chairman's Factual Report of Investigation.

WRECKAGE AND IMPACT INFORMATION

The wreckage of N2456U was located 7.9 nautical miles east of the Gainesville Regional Airport, Gainesville, Florida, in the vicinity of Hawthorne, Florida.

Examination of the crash site revealed the airplane collided with trees in a right descending turn on a heading of 286 degrees magnetic, separating the left and right wing tip, and the outboard section of the right aileron. The airplane continued forward and the right main landing gear touched down in an open field about 715 feet from the initial point of impact. The airplane collided with a 5-foot-tall, five strand barbed wire fence, and an 8-foot section of a telephone pole. The airplane rotated around the vertical axis to the right and slid 135 feet before colliding with trees aft of the right rear passenger seat. The engine assembly was lodged against a tree about 4 feet above the ground on a heading of about 285 magnetic. The propeller was attached to the propeller flange. Torsional twisting and "s" bending was present on both propeller blades, and both propeller blades were curled aft. The cabin roof was separated, and the cabin area was compressed aft to the rear passenger seat. The pilot and one passenger were ejected from the airplane. The nose gear, right main landing gear, left and right wing, and right stabilator were separated. The right fuel tank was ruptured, and fuel was present in the left fuel tank.

Examination of the airframe and flight control system revealed no evidence of a precrash failure or malfunction. Continuity of the flight control system was confirmed for pitch, roll, and yaw.

Examination of the engine assembly revealed no evidence of a precrash failure or malfunction. A hole was located in the top of the engine case between cylinders No. 1, 2, 3, and 4. The oil sump had separated, and the bottom rear section of the case had fractured between cylinders 1 and 2. Oil was found under the engine on the ground. All engine accessories and the accessory case were separated from the engine. All cylinders were attached to the engine case. All pistons were intact and attached to their connecting rods which were bolted to the crankshaft. The counterweight dampeners, camshaft, lifters, and pushrods were in place, except for the No. 2 cylinder which sustained severe impact damage. The camshaft gear and larger camshaft gear were in place. Several accessory gears were displaced by impact forces. Both magneto drive gears were recovered separately. One was attached to an intact magneto, the other magneto gear was attached to a portion of a magneto. The carburetor venturi was intact and the carburetor was equipped with composite floats. The carburetor sump was free of contaminants. The top spark plugs were removed from cylinder Nos. 1, 3, 4, 5, and 6. The bottom spark plugs were removed from cylinder Nos. 2 and 6. The spark plug electrodes, revealed the color, wear, and deposits were normal.

Examination of the Sigma tech vacuum pump revealed the drive was bent and would freely

turn by hand. The rotor and vanes were not damaged.

Examination of the electric turn coordinator, gyro horizon, and the directional gyro revealed no evidence of rotational scarring on the gyro, rotor, or gyro housing.

Examination of the vertical speed indicator revealed no evidence of a precrash failure or malfunction. The sector gear was disengaged from the pointer gear shaft, and the diaphragm was not damaged.

Examination of the pressure altimeter revealed no evidence of a precrash failure or malfunction. No factory seal was present. The sector pivots were broken. No tension was present on the hair spring to the sector and sector pointer, and the diaphragm was not damaged. Excessive end play was present on the top plate bridge; however no scarring was present on the top plate gears.

MEDICAL AND PATHOLOGICAL INFORMATION

Post-mortem examination of the pilot was conducted by Dr. William F. Hamilton, Medical Examiner's Office, District 8, Gainesville, Florida, on March 3, 1996. The cause of death was multiple blunt traumatic injuries. Post-mortem toxicology studies of specimens from the pilot were performed by Smith Kline Beechman Clinical Laboratories, Gainesville, Florida. These studies were negative for alcohol, neutral, acidic, and basic drugs.

TEST AND RESEARCH

A flight check of ILS runway 28 at Gainesville Regional Airport, Gainesville, Florida, was requested and conducted by the FAA Atlanta Flight Inspection Field Office on March 4, 1996, with no deficiencies noted.

Examination of the SILVA GPS XL1000 was conducted by SILVA PRODUCTIONS in Sweden on March 18, 1996. The GPS was not in the navigation mode at the time of the accident. The local time zone was set to UTC +6 hours instead of UTC -6 hours, therefore the internal UTC time was set 12 hours in advance. (For additional information see SILVA PRODUCTIONS AB TELEFAX analysis of SILVA GPS XL1000 Serial-No.003826.)

Examination of the Trimble TNL 1000 was conducted by Trimble Navigation in Austin, Texas, on March 26, 1996. The unit turned on and functioned properly. The last known GPS position, velocities, and stored way points were displayed and recorded. The installed data base expired May 27, 1993. (For additional information see Trimble Navigation Letter dated March 26, 1996.)

Examination of the KX155 NAV/COM was conducted by Allied Signal Inc., Olathe, Kansas, on March 21, 1996. The on/off switch was found in the on position. The non-volatile memory chip was removed and placed in a test radio. When electrical power was applied, the frequencies were displayed and recorded. (For additional information see Allied Signal Inc., examination of a KX155 NAV/COM w G/S removed from Cessna Model 172D, Registration no. N2456U, which was involved in an aviation accident on March 1, 1996 near Gainesville, Florida.)

ADDITIONAL INFORMATION

The airplane wreckage was released to Mr. Tyler Dedman, Sample International, Inc., on March 3, 1996. The aircraft logbooks were released to Sample International on March 11, 1996. Components retained for further testing were released to Mr. Don Huntington, Quality Aircraft

Salvage, Groveland, Florida, on March 29, 1996. The pilot's logbook and SILVA GPS XL1000 was released to Dr. Harold McRae on April 2, 1996.

Pilot Information

Certificate:	Commercial; Private	Age:	27, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	01/26/1996
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	409 hours (Total, all aircraft), 367 hours (Total, this make and model), 347 hours (Pilot In Command, all aircraft), 257 hours (Last 90 days, all aircraft), 83 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N2456U
Model/Series:	172D 172D	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	7250056
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	03/01/1996, Annual	Certified Max Gross Wt.:	2150 lbs
Time Since Last Inspection:	2 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3135 Hours	Engine Manufacturer:	Continental
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-300-D
Registered Owner:	DAVID B. TOOLE	Rated Power:	145 hp
Operator:	JAMES D. MCRAE	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	GNV, 152 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	1950 EST	Direction from Accident Site:	285°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	2 Miles
Lowest Ceiling:	Overcast / 500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	30°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	9° C / 8° C
Precipitation and Obscuration:			
Departure Point:	AUBURN, AL (AUO)	Type of Flight Plan Filed:	IFR
Destination:	GAINESVILLE, FL (GNV)	Type of Clearance:	IFR
Departure Time:	1624 CST	Type of Airspace:	Class D

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:	

Administrative Information

Investigator In Charge (IIC):	CARROL A SMITH	Report Date:	07/31/1996
Additional Participating Persons:	GEORGE E LITTLEFIELD; ORLANDO, FL GEORGE M HOLLINGSWORTH; RESTON, VA STEPHEN T WILSON; WICHITA, KS PHIL GOETTEL; OLATHE, KS		
Publish Date:			
Investigation Docket:	NTSB accident and incident docket 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](#).