



National Transportation Safety Board Aviation Accident Final Report

Location:	Piru, CA	Accident Number:	LAX08LA211
Date & Time:	07/02/2008, 1310 PDT	Registration:	N25490
Aircraft:	CESSNA 152	Aircraft Damage:	Destroyed
Defining Event:	Aerodynamic stall/spin	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Aerial Observation		

Analysis

The pilot was performing a pipeline patrol flight and was maneuvering the airplane at low altitude along an expansive dry riverbed that was in a canyon that was on average about 1-mile wide. The pipeline was buried on the south bank of the river, just below a hillside that defined the southern boundary of the canyon. While following the pipeline the pilot came across an area of recent construction digging that had exposed the pipeline. A witness observed the airplane at a slow airspeed and low altitude near the site of the digging when the left wing suddenly dropped and the airplane dove straight down into a small ravine below. The airplane came to rest about 460 feet from the base of a mountain range that comprised the south wall of a 7,500-foot-wide canyon. No evidence of mechanical malfunction or failure was found during a postaccident examination of the airplane and engine.

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 adequate airspeed while maneuvering at low altitude, which resulted in an aerodynamic stall.

Findings

Aircraft	Airspeed - Not attained/maintained (Cause)
Personnel issues	Aircraft control - Pilot (Cause)

Factual Information

HISTORY OF FLIGHT

On July 02, 2008, about 1310 Pacific daylight time, a Cessna 152, N25490, was destroyed by impact forces and a post-crash fire following a collision with terrain in Piru, California. Raw Power Aviation, the pilot's company, was operating the airplane under the provisions of 14 CFR Part 91. The commercial pilot, the sole occupant, was killed. The local flight originated from Whiteman Airport, Los Angeles, California, about 1235, for a pipeline surveillance operation. Visual meteorological conditions prevailed, and a flight plan had not been filed.

Several witnesses in the area reported that the airplane was flying low along a road toward an expansive riverbed. The airplane disappeared behind the tree line, and subsequently witnesses observed black smoke emitting from the accident site.

An inspector from the Federal Aviation Administration (FAA) interviewed a witness who lived in a residence south of the accident site. He stated that he was located on his front porch that faces to the north. He observed an airplane flying low from the east and moving to the west at a slow speed. The airplane's left wing suddenly dropped and it dove behind a tree line, out of his sight.

PILOT INFORMATION

According to the FAA Airman and Medical records files, the 55-year-old pilot held a commercial pilot certificate with a rating for airplane single-engine land. He additionally held an airframe and powerplant mechanic certificate with inspection authorization authority. The pilot was issued a second-class medical certificate in September 2009, with no limitations.

No personal flight records were recovered for the pilot. The family stated that the pilot normally kept his logbooks in the airplane. On the pilot's last application for a medical certificate, he reported having amassed about 6,800 hours of total flight experience.

AIRCRAFT INFORMATION

The airplane was a Cessna 152, serial number 15280690, which was manufactured in 1978. According to the original application for a utility category airworthiness certificate completed by the Cessna factory, the Lycoming O-235-L2C engine was installed at the time of manufacture. Despite numerous attempts, the logbooks for the airplane were not made available for review.

Fuel

Examination of refueling records at the Whiteman Airport disclosed that the airplane was last fueled on the day of the accident, with the addition of 18 gallons of 100LL aviation gasoline. During the removal of the wreckage, aircraft recovery personnel noted the odor of gasoline at the accident site.

Performance

The performance data was calculated using information from the 1977 Cessna 152 Pilot's Operating Handbook (POH), which was applicable to the accident airplane. For the purpose of the calculations, investigators utilized an estimated gross weight at the time of the accident to be 1,326 pounds, which was derived by the assumption of 135 pounds of fuel on board (subtracted full fuel from an estimated .5 hours en route) and a pilot weight of 225 pounds

(includes 20 pounds of baggage); the airplane's empty weight was 1,081 pounds. A Safety Board investigator calculated turning performance using the measured distance between the accident site and adjacent mountains, referencing Aerodynamics for Naval Aviators (NAVWEPS 00-80T-80), Figure 2.29, General Turning Performance (Constant Altitude, Steady Turn). The approximate distance from the accident site to the adjacent hillside was about 460 feet when measured using a topological mapping program. With a turn radius of 230 feet and an airspeed of 80 knots (estimated as average patrolling speed), the airplane's bank angle equated to about 65 degrees. At 101 knots (maneuvering airspeed at the maximum gross weight of 1,670 pounds), the airplane's bank angle totals about 74 degrees.

According to stall speed versus angle of bank data in the Cessna POH, at the anticipated weight of the airplane, with flaps set to 0 degrees, the stall speed would be around 67 knots indicated airspeed at 60 degrees of bank.

METEOROLOGICAL INFORMATION

A routine aviation weather report (METAR) for the Whitman Airport was issued at 1247, 26 minutes prior to the accident. It stated: skies clear; wind from 100 degrees at 7 knots; temperature 87 degrees Fahrenheit; dew point 55 degrees Fahrenheit; and altimeter 29.83 inHg.

A personal weather station (PWS) located about 2 miles northeast of the accident site reported that 2 minutes after the accident, the temperature was 86 degrees Fahrenheit; dew point 50 degrees Fahrenheit; and there was a 12-knot wind from the west, gusting to 17 knots.

WRECKAGE AND IMPACT

The accident site was located on the west slope of a ravine about 22 nautical miles (nm) from Whiteman Airport, on a bearing of 285 degrees. The small north-south oriented ravine was on flat terrain that contained numerous crop fields and an east-west oriented dirt road. The airplane came to rest about 460 feet north from the base of a mountain range that comprised the south wall of a 7,500-foot-wide canyon. Several feet north of the wreckage the terrain plummeted 50 feet where an expansive dry river bed stretched along the middle of the valley floor. The mountain ranges that comprised the canyon walls were about 1,500 feet higher than the vicinity surrounding the accident site.

In character, the dirt road hugged the mountain base with the exception of the area adjacent to the accident site. The mountainous terrain receded in, where a small valley opened to the south. Construction was occurring in the immediate area where the ravine adjoined the dirt road. A massive pipeline was exposed next to the road, located about 400 feet from the wreckage. A complete section of maps and diagrams is contained in the public docket for this accident.

MEDICAL AND PATHOLOGICAL

A Ventura County Sheriff's Office coroner performed an autopsy on the pilot. The FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing on the pilot. The specimens tested negative for carbon monoxide, ethanol, and drugs.

TESTS AND RESEARCH

A Safety Board investigator examined the wreckage on August 04, 2008, at the facilities of Ray's Aviation, Santa Paula, California. The wreckage had been recovered and placed into a

secured storage area prior to the examination.

The crankshaft was rotated via the vacuum pump drive and was free and easy to rotate in both directions. Compression was observed in proper order on all four cylinders. The complete valve train appeared undamaged and was observed to operate in proper order. Normal lift action was observed at each rocker assembly. Clean, uncontaminated oil was observed at all four rockerbox areas. Mechanical continuity was established throughout the rotating group, valve train, and accessory section during hand rotation of the crankshaft.

The top spark plugs were removed, all of which exhibited a dark coloration, consistent with the thermal damage the engine was subjected to during the postcrash fire. The electrodes were oval and gaps were similar. The cylinders' combustion chambers were examined through the spark plug holes utilizing a lighted borescope. The combustion chambers remained mechanically undamaged, and there was no evidence of foreign object ingestion or detonation. The valves were intact and undamaged. There was no evidence of valve to piston face contact observed. The gas path and combustion signatures observed at the combustion chambers and exhaust system components displayed coloration that the Lycoming representative said was consistent with normal operation.

Inspection of the airframe noted that the front section of the airplane was crushed aft. The cabin area and wings were thermally damaged. All flight control surfaces were accounted for and flight control continuity was established.

Investigators found no evidence of preimpact mechanical malfunctions or failures with either the engine or airframe during the examination. The complete examination report with accompanying pictures is contained in the public docket for this accident.

ADDITIONAL INFORMATION

Despite numerous attempts to contact the pilot's employer, the Safety Board failed to determine when the last time the pilot flew that pipeline and whether he had observed the construction prior to the accident.

History of Flight

Maneuvering-low-alt flying	Aerodynamic stall/spin (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Commercial	Age:	55, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Without Waivers/Limitations	Last Medical Exam:	09/01/2007
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	6800 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N25490
Model/Series:	152	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	15280690
Landing Gear Type:		Seats:	2
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	1670 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-235-L2C
Registered Owner:	Charles Hansen	Rated Power:	110 hp
Operator:	Raw Power Aviation	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	WHP, 1003 ft msl	Observation Time:	1247 PST
Distance from Accident Site:	25 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	105°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	32°C / 13°C
Lowest Ceiling:	None	Visibility	20 Miles
Wind Speed/Gusts, Direction:	7 knots, 100°	Visibility (RVR):	
Altimeter Setting:	29.83 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Los Angeles, CA (WHP)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1235 PDT	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal		

Administrative Information

Investigator In Charge (IIC):	Zoe Keliher	Adopted Date:	05/06/2009
Additional Participating Persons:	Frank Motter; Federal Aviation Administration; Van Nuys, CA		
Publish Date:	05/06/2009		
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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