Aviation Investigation Final Report

Location:	Hollywood, Florida	**Accident Number:**	MIA08LA134
Date & Time:	July 7, 2008, 17:55 Local	**Registration:**	N488SD
Aircraft:	Douglas A. Pohl Lancair IV-P	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Witnesses observed the experimental amateur-built airplane rotate about 2,100 feet (ft) down the 3,255-foot-long runway. When the airplane reached an altitude of 150 ft, at the departure end of the runway, there was an interruption of engine power. The airplane was observed to make a left turn and the bank angle increased. The airplane stalled when it reached about 80 degrees of bank, as it was going through a north heading. The airplane went straight down and impacted the ground nose first in a left spiral. A fire soon ensued, which consumed sections of the airplane. Examination of the wreckage did not disclose any evidence of a preimpact failure or malfunction with the airplane's flight controls that would have prevented normal operation. Examination of the engine did not provide any evidence for the loss of power. Federal Aviation Administration Advisory Circular 61-67C, makes reference to stalls. It states, when the airplane's load factor increase (i.e., by putting the airplane in a steep turn or spiral) the loads are greater than in normal cruise flight. In a constant rate turn, increased load factors will cause an airplane's stall speed to increase as the angle of bank increases. Excessively steep banks should be avoided because the airplane will stall at a much higher speed.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for undetermined reasons. Contributing to the accident was the pilot's failure to maintain aircraft control which resulted in an aerodynamic stall.

Findings

Aircraft	(general) - Not specified
Not determined	(general) - Unknown/Not determined
Aircraft	(general) - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Maneuvering	Loss of control in flight
Maneuvering	Aerodynamic stall/spin
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 07, 2008, at 1755 eastern daylight time, an experimental, amateur built, Douglas A. Pohl Lancair IV-P, N488SD, crashed after a loss of engine power at the North Perry Airport (HWO), Hollywood, Florida. The pilot was killed and the airplane incurred substantial damage. The flight was operated by the private pilot, under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91, as a personal flight. Visual meteorological conditions prevailed and no flight plan was filed.

Witnesses stated to the responding Federal Aviation Administration (FAA) inspector, they observed the airplane depart from runway 9R. The airplane rotated at an estimated 2,100 feet (ft) down the runway. The landing gear retracted when it was about 50 ft above ground level (agl). When the airplane was at an estimated altitude of 150 ft agl, and past the departure end of the runway, there was an interruption of engine power. One witness stated it sounded like an 18-wheeler down shifting, while another witness stated it lost power completely. Immediately following the power interruption, the airplane was observed to make a left turn. It continued the turn and increased in bank angle. The airplane stalled when it reached about 80 degrees of bank, as it was going through a north heading. The airplane went straight down and impacted the ground nose first in a left spiral, adjacent to a tennis court located on the perimeter of the airport. The airplane came to rest on a 20-foot-tall tennis court fence. A fire ensued moments later, which consumed sections of the airplane, before the fire department was able to extinguish it.

PERSONNEL INFORMATION

The pilot, age 57, held a private pilot certificate, with ratings for airplane single-engine land and instrument airplane. He was issued a third-class medical certificate in December 2006, with a limitation of must wear corrective lenses. The pilot documented a total of 875 flight hours in all aircraft at the time of the medical. He also held a repairman experimental aircraft builder certificate and an inspection certificate for an experimental airplane make Pohl Lancair model IV-P, serial number LIV-008, as of July 09, 2001. A review of the pilot's flight logbooks revealed that the pilot had a total of 1,255 hours total time.

AIRCRAFT INFORMATION

The airplane was an experimental, amateur-built airplane, serial number LIV-008, and issued an experimental airworthiness certificate, normal category, on July 09, 2001. The airplane was certified in accordance with Title 14 of CFR Part 23 airworthiness standards. A review of the airplane's maintenance records revealed that the airplane was under an annual condition / 100 hour aircraft inspection program. The last annual condition / 100 hour inspection was performed on August 15, 2007, at a total airframe time of 378 hours. The engine was a Silver Wing Aviation, Inc, AV8-470, liquid cooled, with an EPI Mark-9 PSRU gearbox driving the three-blade propeller assembly. The total time recorded on the engine at the last 100-hour inspection was 378 hours. Examination of the provided maintenance records revealed no unresolved maintenance discrepancies against the airplane prior to departure.

METEOROLOGICAL INFORMATION

The HWO weather observation at 1753, recorded in part: winds 100 degrees at 11 knots; visibility 10 statute miles; sky condition clear; temperature 31 degrees Celsius (C); dew point 23 degrees C; altimeter 30.07 inches of mercury.

COMMUNICATION

At 1752, the pilot contacted the HWO ground controller requesting taxi instructions for departure and was issued taxi instructions to runway 9 right. At 1754, the pilot contacted the HWO tower controller to advise he was ready for takeoff. The tower controller cleared him for takeoff on runway 9 right, which the pilot acknowledged. There was no additional communication.

AERODROME INFORMATION

The HWO airport has four operating runways, supporting north, south, west, and east operations. The airport is adjacent to residential homes and businesses. Runway 9 at the HWO is a published 3,255-foot-long by 100-foot-wide, asphalt, runway.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest on a 180-degree magnetic heading. The front section of the airplane impacted the ground surface, separating the engine nacelle section from the fuselage. The forward cockpit area was ripped open. The fuselage, and attached wings, came to rest adjacent and partially on the tennis court’s 20 foot tall fence. The empennage section separated and remained partially attached to the fuselage, resting on the fence. A postimpact fire consumed sections of the right wing, sections of the right side of the fuselage cabin area, and the cabin crown section.

An airframe and engine examination was conducted by an airframe and powerplant certificated mechanic, with FAA oversight. No evidence of preimpact failure or malfunction was observed with the airplane's flight controls that would have prevented normal operation. Examination of the engine, and its accessories, and remnants did not provide any evidence for the loss of power.

The inner quill shaft in the gearbox was observed fractured. The shaft assembly was sent to the NTSB Materials Laboratory for a metallurgical examination of the fractured surface. The examination revealed the fractured was from overload; a result from the impact sequence in the accident.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Florida State Medical Examiner, Fort Lauderdale, Florida, on July 8, 2008. The cause of death for the pilot was attributed to multiple blunt force injuries.

The FAA Civil Aeromedical Institute (CAMI) conducted toxicological testing on specimens from the pilot. The tests were negative for alcohol. Desmethylsertraline and Sertraline were detected in the blood and liver.

TEST AND RESEARCH

The FAA Advisory Circular 61-67C, Stall and Spin Awareness Training, makes reference to conditions where a stall will occur. It states, the possibility of inadvertently stalling the airplane by increasing the load factor (i.e., by putting the airplane in a steep turn or spiral) is much greater than in normal cruise flight. In a constant rate turn, increased load factors will cause an airplane's stall speed to increase as the angle of bank increases. Excessively steep banks should be avoided because the airplane will stall at a much higher speed. Recoveries from stalls and spins involve a tradeoff between loss of altitude and an increase in the load factor.

Pilot Information

Certificate:	Private	**Age:**	57,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	December 3, 2006
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 23, 2007
Flight Time:	(Estimated) 1244 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Douglas A. Pohl	**Registration:**	N488SD
Model/Series:	Lancair IV-P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	LIV-008
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 15, 2007 Condition	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	122 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	378 Hrs as of last inspection	**Engine Manufacturer:**	SWA
ELT:	C91 installed, not activated	**Engine Model/Series:**	375
Registered Owner:	Douglas A Pohl	**Rated Power:**	
Operator:	Douglas A Pohl	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HWO,8 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	28°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hollywood, FL (HWO)	**Type of Flight Plan Filed:**	None
Destination:	Jupiter, FL (FD15)	**Type of Clearance:**	None
Departure Time:	17:54 Local	**Type of Airspace:**	

Airport Information

Airport:	North Perry Airport HWO	**Runway Surface Type:**	Asphalt
Airport Elevation:	8 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	09R	**IFR Approach:**	None
Runway Length/Width:	3255 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	26.006666,-80.240554

Administrative Information

Investigator In Charge (IIC):	Obregon, Jose
Additional Participating Persons:	Steve Petrossian; FAA / FSDO; Maimi, FL
Original Publish Date:	April 22, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68387