National Transportation Safety Board
Aviation Accident Final Report

Location:	Zephyrhills, Florida	**Accident Number:**	ERA10FA028
Date & Time:	October 23, 2009, 20:17 Local	**Registration:**	N98ZZ
Aircraft:	Piper PA 46-350P	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot fueled the airplane prior to departure and flew uneventfully for approximately 30 minutes. The airplane then descended to 2,000 feet on approach to the destination airport, during night visual meteorological conditions. About 30 seconds after being cleared for a visual approach, the pilot declared an emergency to air traffic control and requested assistance to the nearest airport. The controller provided a vector to divert and distance to the nearest suitable airport. The pilot subsequently reported "engine out, engine out" and the airplane impacted wooded terrain about 4 miles northeast of runway 22 at the alternate airport. A postcrash fire consumed a majority of the wreckage. Examination of the wreckage, including teardown examination of the engine, did not reveal any preimpact mechanical malfunctions; however, the fuel system and ignition system were consumed by postcrash fire and could not be tested.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A total loss of engine power during a night approach for undetermined reasons.

Findings

Aircraft	(general) - Failure
Not determined	(general) - Unknown/Not determined
Environmental issues	Low light - Contributed to outcome

Factual Information

HISTORY OF FLIGHT

On October 23, 2009, at 2017 eastern daylight time, a Piper PA 46-350P, N98ZZ, was substantially damaged when it collided with wooded terrain, during an emergency approach to Zephyrhills Municipal Airport (ZPH), Zephyrhills, Florida, following a reported loss of engine power. The certificated commercial pilot and two passengers were killed. The personal flight was conducted under the provisions of 14 Code of Federal Regulation Part 91. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed for the planned flight to Lakeland Linder Regional Airport (LAL), Lakeland, Florida. The flight departed Gainesville Regional Airport (GNV), Gainesville, Florida at 1943.

According data from the Federal Aviation Administration (FAA), at 2006, the pilot was in radar and radio contact with Tampa terminal radar approach control (TRACON). At that time, the airplane was in cruise flight at 5,000 feet mean sea level (msl). About 2 minutes later, the TRACON controller cleared the flight to descend to 3,000 feet, which the pilot acknowledged. At 2014, the controller cleared the flight to descend to 2,000 feet, and instructed the pilot to report LAL in sight. The pilot acknowledged the clearance and reported LAL in sight. The controller then cleared the flight for a visual approach to runway 27 at LAL, which the pilot acknowledged. About 30 seconds later, the pilot declared an emergency and requested assistance to the nearest airport. The controller provided a vector and distance to the nearest suitable airport, ZPH, and the pilot subsequently reported "engine out, engine out." The airplane impacted wooded terrain about 4 miles northeast of runway 22 at ZPH. A postcrash fire consumed a majority of the wreckage.

Fueling records revealed that the pilot fueled the airplane with 16.4 gallons of 100 low-lead aviation gasoline, prior to departure from GNV.

PERSONNEL INFORMATION

The pilot, age 44, held a commercial pilot certificate, with ratings for airplane single-engine land, airplane multiengine land, and instrument airplane. The pilot's most recent FAA second-class medical certificate was issued on September 26, 2007. The pilot's logbook was not recovered. According to an insurance application dated January 21, 2008, the pilot had a total flight experience of 2,750 hours; of which, 110 hours were in the same make and model as the accident airplane.

The pilot applied for an FAA second-class medical certificate on October 27, 2008; however, that application noted 3+ glucose in the urine and was deferred due to “possible diabetes.” On November 27, 2008, the FAA sent a written request to the pilot for a “…report from your treating physician to include a statement of any complications and a current glycosylated hemoglobin (i.e., hemoglobin A1c) test…” The FAA did not receive any further correspondence from the pilot or a treating physician and the application remained in a deferred state.

AIRCRAFT INFORMATION

The six-seat, low-wing, retractable-gear airplane, serial number 4636169, was manufactured in 1998. It was powered by a Lycoming TIO-540, 350-horsepower engine and equipped with a three-bladed, constant-speed Hartzell propeller.

Review of the airplane's maintenance logbooks revealed that its most recent annual inspection was completed on December 9, 2008. At that time, the accident engine was installed on the airplane. The accident engine had accumulated 493.1 hours since new. The airframe had accumulated 1,910.5 hours since new.

Further review of the engine logbook revealed that it had been removed from another airplane on February 17, 2006. The engine was stored and subsequently sold to the owner of the accident airplane.

METEOROLOGICAL INFORMATION

Tampa Executive Airport (VDF), Tampa, Florida, was located about 15 miles south of ZPH. The recorded weather at VDF, at 2020, was: wind calm, visibility 10 miles, sky clear, temperature 21 degrees Celsius, dew point 19 degrees Celsius, altimeter 29.90 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest inverted, oriented on a heading of 240 degrees magnetic. An approximate 100-foot debris path was observed, originating with tree strikes and terminating at the front of the main wreckage. The outboard left stabilizer was located near the beginning of the debris path, to the right of the path. The left wing was located next along the debris path, suspended about 10 feet in a tree along the right side of the path. The right wing was located on the left side of the main wreckage. The majority of right wing had separated near the root, and was embedded around a tree near the termination of the debris path. The right aileron and portion of right flap remained attached to the airframe.

The flaps and landing gear were retracted. The radar pod was located to the right of the main wreckage. The engine and two propeller blades were partially buried. None of the three propeller blades exhibited evidence of rotation. The cockpit and cabin area, including the fuel selector, were consumed by fire. The empennage remained partially intact and was charred. The vertical stabilizer, right horizontal stabilizer, and inboard left horizontal stabilizer remained attached and were partially consumed by fire.

Flight control continuity was confirmed from the forward cockpit area, to the elevator horn, elevator trim jackscrew, and rudder horn, respectively. Continuity was also confirmed from the left and right ailerons, to cable separations near the left and right wing roots, respectively. Measurement of the elevator trim jackscrew revealed eight exposed threads, which equated to an approximate neutral trim setting.

The wreckage was recovered to a hangar on October 24, 2009. The ignition system and fuel system were consumed by fire. A cursory examination of the engine, which included a borescope inspection of the cylinders, did not reveal any preimpact mechanical malfunction.

The three-bladed propeller remained attached to the engine and two of the blades were partially consumed by fire. The remaining blade exhibited minor damage. The engine was retained for further teardown examination.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot by the State of Florida District Six Medical Examiner's Office, Largo, Florida, on October 25, 2009. The autopsy report noted the cause of death as "thermal injuries."

Toxicological testing was performed on the pilot by the FAA Bioaeronautical Science Research Laboratory, Oklahoma City, Oklahoma. Review of the toxicology report revealed:

" 845 (mg/dl) GLUCOSE detected in Urine
6.3 (%) HEMOGLOBIN A1C detected in Blood"

TESTS AND RESEARCH

A teardown examination of the engine was performed at the manufacturer's facility, under the supervision of an NTSB investigator, on January 12 and 13, 2010. The examination did not reveal any evidence of catastrophic failure; however, the fuel system and ignition system could not be tested due to the postcrash fire damage. During the teardown examination, three teeth were observed separated from the propeller governor drive gear. The gear and teeth were subsequently forwarded to the NTSB Materials Laboratory, Washington, DC.

Further examination of the propeller governor drive gear and teeth revealed that the three teeth separated consistent with overstress. No additional damage or malfunction was noted with the gear, which was consistent with the separation occurring during impact or recovery of the wreckage.

History of Flight

Enroute-descent	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Commercial	**Age:**	44,Male
Airplane Rating(s):	Single-engine land; Multi-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 2	**Last FAA Medical Exam:**	September 26, 2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 2750 hours (Total, all aircraft), 110 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N98ZZ
Model/Series:	PA 46-350P	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	4636169
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 9, 2008 Annual	**Certified Max Gross Wt.:**	4300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1893 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	TIO-540
Registered Owner:		**Rated Power:**	350 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	VDF,22 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	20:20 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.89 inches Hg	**Temperature/Dew Point:**	21°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Gainesville, FL (GNV)	**Type of Flight Plan Filed:**	IFR
Destination:	Lakeland, FL (LAL)	**Type of Clearance:**	IFR
Departure Time:	19:43 Local	**Type of Airspace:**	

Airport Information

Airport:	Zephyrhills Municipal Airport ZPH	**Runway Surface Type:**	Asphalt
Airport Elevation:	90 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	Visual
Runway Length/Width:	4999 ft / 100 ft	**VFR Approach/Landing:**	Forced landing;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	28.273056,-82.103889

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Larry Penland; FAA/FSDO; Orlando, FL Ed Rogalski; Lycoming Engines; Williamsport, PA Ron Maynard; Piper Aircraft; Vero Beach, FL
Original Publish Date:	July 22, 2010
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74949