Aviation Investigation Final Report

Location:	Ocala, Florida	**Accident Number:**	ERA24LA011
Date & Time:	October 17, 2023, 10:50 Local	**Registration:**	N118T
Aircraft:	Tecnam P2010	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilots reported the engine suddenly lost power during the initial takeoff climb at an altitude of 300 to 400 ft above ground level (agl) during the instructional flight. The loss of engine power was not preceded by any abnormal signs or engine indications. The instructor took over control of the airplane and attempted a forced landing in the grass near the runway. During the forced landing, the left wing dropped, and the airplane impacted the grass in a left-wing-low, nose-down position.

Postaccident examination of the airframe and engine did not reveal any mechanical irregularities or failures that would have precluded normal engine operation. Corrosion that was discovered on both magnetos was attributed to the airplane being stored outside in a hot humid environment after the accident in the months leading up to the full examination. No other mechanical irregularities were discovered, and a maintenance logbook review did not reveal recent maintenance that may have been related to the sudden loss of engine power.

Based on witness statements and signatures of the wreckage, the instructor likely did not maintain adequate airspeed during the forced landing attempt, which resulted in an aerodynamic stall and extremely hard landing.

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 for reasons that could not be determined. Contributing to the accident was the flight instructor's failure to maintain adequate airspeed and exceedance of the airplane's critical angle of attack during the forced landing, which resulted in a hard landing.

Findings

Not determined	(general) - Unknown/Not determined
Personnel issues	Aircraft control - Instructor/check pilot
Aircraft	Airspeed - Not attained/maintained

Factual Information

History of Flight

Takeoff	Unknown or undetermined (Defining event)
Landing	Aerodynamic stall/spin
Landing	Collision with terr/obj (non-CFIT)

On October 17, 2023, at 1050 eastern daylight time, a Tecnam P2010, N118T, was substantially damaged when it was involved in an accident at Ocala International Airport-Jim Taylor Field (OCF), Ocala, Florida. The flight instructor and the private pilot were seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

Shortly after arrival in OCF following an uneventful cross-country flight, the pilots fueled the airplane with about 27 gallons of fuel before preparing for their return flight to Lakeland Linder International Airport (LAL) Lakeland, Florida. According to the private pilot who was undergoing instrument instruction, they taxied to runway 36 (which was 7,467 ft-long), held short of the runway, and performed an engine run-up on the taxiway. All indications were normal as the engine operated for about 10 minutes while they awaited their takeoff clearance. The controller cleared the pilot for a full-length departure with a right downwind departure to the south.

During the initial takeoff climb, as the airplane reached 300 to 400 ft agl, the engine suddenly "quit." The loss of engine power was not preceded by any abnormal engine indications. The flight instructor reported that she immediately took control of the airplane and attempted a forced landing straight ahead in the grass northeast of runway 36. The airplane was descending quickly and when the instructor attempted to flare for landing, the airplane did not respond. Neither pilot recalled hearing the stall warning horn.

Witnesses observed the airplane during the climb and reported that after the loss of power the airplane appeared to be going slow and not climbing, with one witness stating that the pilot did "not lower the nose." During the attempted landing, the witnesses further stated they did not hear the engine operating, and the airplane appeared to bank left immediately before impact. Security camera footage showed the airplane descending in a wings-level attitude and, immediately before impact, the left wing dropped. The airplane impacted the terrain in a left-wing-low, nose-down attitude and skidded to a stop. The instructor stated she did not apply a left control input during short final and did not remember the airplane turning left before impact. The airplane's stall speed with flaps in the stowed and takeoff position was 59 kts and 53 kts respectively.

Postaccident examination of the wreckage by an FAA inspector revealed substantial damage to the airframe; both wings were deformed downwards at the wing root, and the forward fuselage was crushed. Damage to the engine compartment prevented a detailed examination of the engine at the accident scene. About 55 gallons of aviation fuel was recovered from the airplane. The cockpit flap toggle switch mount was damaged but appeared to be in the UP (retracted) position. The flaps and actuators were substantially damaged during impact.

A subsequent examination was conducted at the aircraft salvage facility four months later. Crankshaft and valvetrain continuity were confirmed throughout the engine and through the rear accessory case by rotating the propeller. The fuel selector was clear and functioned normally, and the fuel filter was clean. The fuel filter housing was full of aviation fuel. The spark plugs displayed normal coloration and normal electrodes as compared to the Champion Aerospace AV-27 Check-A-Plug chart.

The magnetos were removed, and an electric drill was used to spin the input driveshafts. No spark was generated on either magneto. After about two minutes of spinning the left magneto at high rpm, the magneto started to intermittently spark and then sparked normally on all leads after that. The right magneto never sparked. Both magnetos were opened for examination and both exhibited corrosion features on the coils and frame.

A review of airframe and engine maintenance records revealed that the left and right magnetos were removed on June 24, 2023, about four months before the accident, and temporarily replaced with overhauled units. The removed magnetos were sent out and underwent a 500-hour inspection, cleaning, repair and successful bench test on July 10, 2023. On October 6, 2023, 11 days before the accident, the temporary magnetos were removed, and the original magnetos were returned to service and placed back on the original airplane.

The maintenance records also revealed that on December 6, 2022, at 1,084.8 hours total time engine the No. 2 cylinder failed a compression check. A subsequent examination and engine run on January 4, 2023, confirmed adequate compression and the engine was signed off as airworthy. Subsequent 400-, 100-, 50- and 25-hr inspections were accomplished from February 16, 2023, at 1,084.8 hours total time through the 500-hour magneto inspection/rocker arm gasket replacements on October 9, 2023, at 1,685.8 hours total engine time.

On October 16, 2023, the day before the accident, a pilot “squawk” was documented stating that the engine gas temperature “runs a bit high.” The issue was verified but the airplane was noted as safe to fly.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	22,Female
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	October 4, 2023
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	578 hours (Total, all aircraft), 25 hours (Total, this make and model), 511 hours (Pilot In Command, all aircraft), 147 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	40,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	February 9, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 98 hours (Total, all aircraft), 5 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Tecnam	**Registration:**	N118T
Model/Series:	P2010	**Aircraft Category:**	Airplane
Year of Manufacture:	2021	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	144/US
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	December 6, 2022 Annual	**Certified Max Gross Wt.:**	1565 lbs
Time Since Last Inspection:	32 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1703 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C126 installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-390-C3B6
Registered Owner:	TECNAM US INC	**Rated Power:**	215 Horsepower
Operator:	TECNAM US INC	**Operating Certificate(s) Held:**	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	OCF,87 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	10:51 Local	**Direction from Accident Site:**	238°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	17°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ocala, FL	**Type of Flight Plan Filed:**	None
Destination:	Ocala, FL	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class D

Airport Information

Airport:	OCALA INTL-JIM TAYLOR FLD OCF	**Runway Surface Type:**	Asphalt
Airport Elevation:	89 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	36	**IFR Approach:**	None
Runway Length/Width:	7467 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	29.171877,-82.224115(est)

Administrative Information

Investigator In Charge (IIC):	Mccarter, Lawrence
Additional Participating Persons:	Jeremy Puckett ; FAA/FSDO; Orlando, FL
Original Publish Date:	March 19, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193253