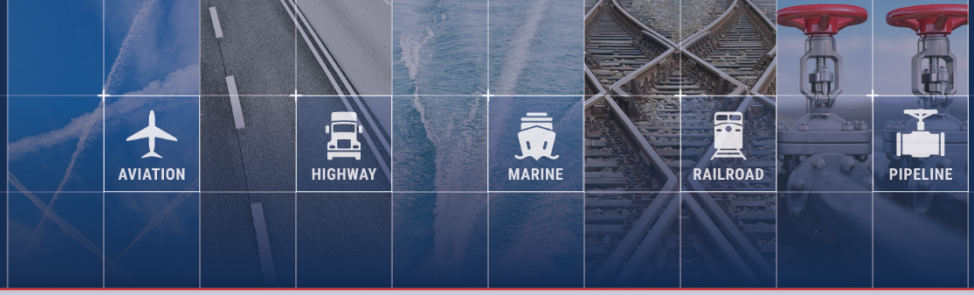

Aviation Investigation Final Report

Location:	Perry, Florida	**Accident Number:**	ERA24LA043
Date & Time:	November 17, 2023, 17:08 Local	**Registration:**	N37MB
Aircraft:	Lancair IV	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported a loss of engine power after descending from 11,500 ft mean sea level (msl) and leveling off under a cloud layer at 2,000 ft msl. The pilot switched fuel tanks and enrichened the mixture; however, he was unable to restore engine power and elected to execute a forced landing during which he impacted trees.

Postaccident examination of the airframe and fuel-injected engine revealed no anomalies that would have precluded normal operation. The engine subsequently started without hesitation during a test cell run at the manufacturer's facility. After running at idle for 5 minutes, the engine was run for 5 minutes at various rpm settings. The engine test run revealed that the fuel system was mal-adjusted and set too lean, and the manifold pressure was about 2 inches of mercury lower than that required to produce rated power. This could have been due to an observed leak of the turbocharger exhaust or the sonic venturis which were open to the atmosphere for the engine test.

Following these static engine runs, the engine was brought to idle and then the throttle was rapidly advanced. When the throttle was advanced quickly, the engine ran very rich with black exhaust smoke, and then would falter. If the throttle was not immediately retarded, the engine lost power completely. If the engine was immediately brought back to idle after it faltered upon rapid throttle advancement, the engine regained power. This was consistent with the engine flooding with rapid throttle advancement after a period of idling.

Given that no anomalies were noted in the examination and that the engine repeatedly stopped producing power after rapid throttle advancement after a period of idling in the test cell, it is possible that the speed with which the pilot advanced the throttle after leveling from the

descent was too quick. The engine likely then would have flooded with fuel and stopped producing power, similar to the behavior observed during the postaccident test run.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A rapid throttle advancement after a period of idling, which resulted in a flooded engine and total loss of engine power.

Findings

Aircraft	(general) - Not specified

Factual Information

History of Flight

Enroute-descent	Loss of engine power (total) (Defining event)
Enroute-descent	Off-field or emergency landing

On November 17, 2023, about 1708 eastern standard time, an experimental amateur-built Lancair IV-P, N37MB, was substantially damaged when it was involved in an accident near Perry, Florida. The pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, he was in cruise flight at 11,500 ft msl with about 40 minutes of daylight remaining when he noted that a ceiling had developed below him. Accordingly, he decided to descend through a hole in the cloud layer and divert to Perry-Foley Airport (FPY), Perry, Florida. When the airplane levelled off under the cloud layer at 2,000 ft msl, he pushed in the throttle but "nothing happened." The propeller was windmilling, and he thought the fuel-injected engine was at idle power. After several seconds, he pulled the throttle fully out expecting the engine to slow, but the engine power remained unchanged at the low-power setting. Realizing he had lost engine power, the pilot switched fuel tanks and enrichened the mixture; however, he was unable to restore power to the engine. He chose to execute a forced landing and considered landing on a road but believed that he could not slow the airplane enough to make a safe landing, so he landed straight ahead into sapling pine trees. The airplane nosed over and sustained substantial damage to the wings and fuselage; the pilot exited the airplane unassisted.

Postaccident examination of the airframe and engine revealed that the fuel strainer contained fuel with a color and odor consistent with 100LL Avgas. There were no signs of debris or water contamination in the retrieved fuel sample. The fuel strainer bowl was removed, and the fuel strainer screen was clear of any contamination. The throttle, mixture, and propeller controls were secured in the cockpit and at their respective control arms at the engine. The crankshaft was rotated by hand and continuity was established between the crankshaft, camshaft, connecting rods, and associated components. All six cylinders displayed good thumb compression and suction. Examination of the engine and airframe fuel system revealed no anomalies; therefore, a determination was made to ship the engine to the manufacturer for an engine test run.

At the manufacturer's facility, the engine was prepared to run in the test cell. The oil sump was impact damaged and was replaced for testing. A fracture was observed on the No. 2 turbocharger exhaust where it had been previously welded. No determination could be made

as to whether this was impact-related damage. The magneto-to-engine timing was confirmed to be within specification. A replacement propeller was installed on the engine. The engine started without hesitation in the test cell and ran at idle for 5 minutes, followed by subsequent 5-minute runs at each of the following rpm settings: 1200,1600, 2100, 2450, and then again at idle. Although the engine ran normally at all rpm settings, the engine test run revealed that the fuel system was set too lean, and the manifold pressure was about 2 inches of mercury lower than that required to produce rated power.

Following these static engine runs, the engine was brought to idle and then the throttle was rapidly advanced. This sequence was repeated several times, and when the throttle was advanced quickly, the engine ran very rich with black exhaust smoke, and then would falter. If the throttle was not immediately retarded, the engine lost power completely. If the engine was immediately brought back to idle after it faltered upon rapid throttle advancement, the engine regained power.

Pilot Information

Certificate:	Private	**Age:**	45,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	August 3, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	311 hours (Total, all aircraft), 64 hours (Total, this make and model), 210 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Lancair	**Registration:**	N37MB
Model/Series:	IV P	**Aircraft Category:**	Airplane
Year of Manufacture:	1999	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	LIV-362
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	October 1, 2023 Annual	**Certified Max Gross Wt.:**	3200 lbs
Time Since Last Inspection:	25.1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1016.4 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-550-E1B
Registered Owner:	On file	**Rated Power:**	350 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FPY,44 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	17:35 Local	**Direction from Accident Site:**	341°
Lowest Cloud Condition:		**Visibility**	
Lowest Ceiling:	Overcast / 2300 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	Unknown / Unknown
Wind Direction:	359°	**Turbulence Severity Forecast/Actual:**	N/A / Unknown
Altimeter Setting:	29.83 inches Hg	**Temperature/Dew Point:**	23°C / 18°C
Precipitation and Obscuration:			
Departure Point:	Bryan, TX (CFD)	**Type of Flight Plan Filed:**	None
Destination:	Tampa, FL (X39)	**Type of Clearance:**	None
Departure Time:	13:58 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	29.933908,-83.531331(est)

Administrative Information

Investigator In Charge (IIC):	Spencer, Lynn
Additional Participating Persons:	Christopher Oaks; FAA/FSDO; Tampa, FL Phillip Grice; Continental Aerospace Technologies; Mobile, AL
Original Publish Date:	September 5, 2024
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=193406