Aviation Investigation Final Report

Location:	Knoxville, Tennessee	**Accident Number:**	ERA24LA018
Date & Time:	October 22, 2023, 09:35 Local	**Registration:**	N246ML
Aircraft:	ROTH FRANK RONALD AVID AIRCRAFT	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he had completed a preflight inspection and engine run-up with no anomalies noted. Shortly after takeoff, during the initial climb when the airplane was about 400 ft above the ground level (agl), the engine suddenly lost all power. The pilot elected to land straight ahead on a riverbank. During the landing, the airplane struck trees and a metal fence before coming to rest in the river, resulting in substantial damage to the wings and the fuselage. A postaccident examination of the airplane's two-stroke engine was conducted by the pilot. The pilot reported that the piston in the power take-off cylinder (PTO) had seized.

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 due to a seized piston in the power take-off cylinder.

Findings

Aircraft	Recip eng cyl section - Failure

Factual Information

History of Flight

Initial climb	Loss of engine power (total) (Defining event)
Landing	Collision with terr/obj (non-CFIT)

On October 22, 2023, at 0935 eastern daylight time, an experimental, amateur-built Avid Aircraft, N246ML, was substantially damaged when it was involved in an accident near Knoxville, Tennessee. The private pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that after an uneventful preflight inspection and engine run-up, he departed runway 01 with the engine power set to 6,300 rpm. At 100 ft above the runway, he adjusted the engine rpm to 6,000. After about 1 minute of flying at an altitude of 400 ft agl, the engine decreased from 6,000 rpm to totally stopped within seconds. The pilot elected to land on a riverbank; however, the airplane contacted trees and a metal fence before coming to rest in the river.

The pilot conducted a postaccident examination of the airplane's two-stroke engine and found that the piston in the power take-off cylinder had seized during the accident flight. The pilot subsequently started the engine and it engine operated without any anomalies.

The airplane's most recent maintenance records were not located. The pilot reported the engine had accumulated about 177 hours of operation before the accident. He also stated the airplane had not been flown for about 10 years and was in poor condition when he purchased it. He reported that he did not perform any internal maintenance on the engine but did extensive work on the external components.

Pilot Information

Certificate:	Private	**Age:**	66,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**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:**	June 9, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 8, 2022
Flight Time:	232 hours (Total, all aircraft), 23 hours (Total, this make and model), 232 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROTH FRANK RONALD	**Registration:**	N246ML
Model/Series:	AVID AIRCRAFT	**Aircraft Category:**	Airplane
Year of Manufacture:	1996	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	1186-D
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	February 27, 2023 Condition	**Certified Max Gross Wt.:**	1150 lbs
Time Since Last Inspection:	53 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	177 Hrs at time of accident	**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	582
Registered Owner:	On file	**Rated Power:**	64 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:	TYS,986 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	10:53 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots / None	**Turbulence Type Forecast/Actual:**	Unknown / Unknown
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	N/A / Unknown
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	17°C / 6°C
Precipitation and Obscuration:			
Departure Point:	Knoxville, TN (TN98)	**Type of Flight Plan Filed:**	None
Destination:	Knoxville, TN (TN98)	**Type of Clearance:**	None
Departure Time:	09:35 Local	**Type of Airspace:**	Class E;Class G

Airport Information

Airport:	Sky Ranch Airport TN98	**Runway Surface Type:**	
Airport Elevation:	830 ft msl	**Runway Surface Condition:**	Water-calm
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	35.900691,-83.962709

Administrative Information

Investigator In Charge (IIC):	Enders, Ryan
Additional Participating Persons:	David Lewis; FAA/FSDO; Nashville, TN
Original Publish Date:	December 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=193290