



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Edenton, North Carolina	Accident Number:	ERA23LA338
Date & Time:	August 13, 2023, 12:10 Local	Registration:	N169SM
Aircraft:	STEPHEN J MOORMAN JUST AIRCRAFT HIGHLA	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that he departed with 4 gallons of fuel onboard and the purpose of the accident flight was to fly to an airport that sold fuel. During approach to the destination airport, the pilot thought that the control tower had not opened yet, but it had. He was having difficulty hearing the controller over the radio and was not prepared to enter controlled airspace, so he diverted to another airport. While en route to the diversion airport, the engine lost all power and the pilot ditched the airplane in a sound.

Postaccident examination of the wreckage following initial recovery from the sound and again at a recovery facility did not reveal any preimpact mechanical malfunctions that would have precluded normal operation. The airplane had flown for about 40 minutes with 4 gallons of fuel. Based on engine fuel consumption data, the engine likely exhausted its fuel supply during the diversion to an alternate airport.

Probable Cause and Findings

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

The pilot's inadequate fuel planning, which led to a total loss of engine power due to fuel exhaustion.

Findings

Personnel issues	Fuel planning - Pilot
Aircraft	Fuel - Fluid level

Factual Information

History of Flight

Enroute	Fuel exhaustion (Defining event)
Emergency descent	Ditching

On August 13, 2023, about 1210 eastern daylight time, an experimental amateur-built Just Aircraft Highlander, N169SM, was substantially damaged when it was involved in an accident near Edenton, North Carolina. The private pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that there were 4 gallons of fuel onboard the airplane when he departed from First Flight Airport (FFA), Kill Devil Hills, North Carolina at 1130. The purpose of the flight was to fly to Dare County Regional Airport (MQI), Manteo, North Carolina, to purchase fuel. The pilot radioed his intentions to land on the common traffic advisory frequency and received a reply to radio the control tower, as MQI was a tower-controlled airport; however, a notice to airmen was in effect that the tower was not open until 1230.

The pilot radioed the tower but could not hear the controller clearly and was not prepared to enter a towered airport airspace, so he diverted to Northeast Regional Airport (EDE), Edenton, North Carolina, for fuel. While en route to EDE, at 1,200 ft mean sea level over Albermarle Sound, the engine lost all power and the pilot ditched the airplane in the sound.

The wreckage was recovered from the sound 3 days later. A Federal Aviation Administration inspector examined the wreckage at the shore and noted that the right elevator had separated from the airplane and was not recovered from the sound. Both wing fuel tanks were full of water. The tanks appeared intact, but water could have entered through the fuel tank vents. The carburetor and fuel bowls had about a “50/50” mixture of fuel and water remaining in them. The inspector was able to rotate the propeller and confirm continuity to the rear accessory section of the engine; however, there was some hydraulic lock due to water in the cylinders. The air filter appeared free of obstructions.

The engine was examined again at a recovery facility. The top spark plugs were removed from the engine. Their electrodes were intact and light gray in color. The propeller was rotated by hand 360° to confirm crankshaft, camshaft, and valvetrain continuity to the rear accessory section of the engine. Thumb compression was verified on all four cylinders. The oil filter was opened and its screen was absent of metallic contamination.

Review of fuel consumption data from the engine operator's manual revealed that the engine consumed 7.1 gal/hr at takeoff performance, 6.6 gal/hr at maximum continuous performance, and 4.9 gal/hr at 75% continuous performance.

Pilot Information

Certificate:	Private	Age:	58,Male
Airplane Rating(s):	Single-engine land	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:	BasicMed	Last FAA Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	August 2, 2023
Flight Time:	535 hours (Total, all aircraft), 378 hours (Total, this make and model), 464 hours (Pilot In Command, all aircraft), 13 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	STEPHEN J MOORMAN	Registration:	N169SM
Model/Series:	JUST AIRCRAFT HIGHLA	Aircraft Category:	Airplane
Year of Manufacture:	2012	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	JAESC0049
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	July 19, 2023 Condition	Certified Max Gross Wt.:	1320 lbs
Time Since Last Inspection:	6 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	600 Hrs at time of accident	Engine Manufacturer:	Rotax
ELT:	C91A installed, not activated	Engine Model/Series:	912 ULS
Registered Owner:	On file	Rated Power:	100 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:	EDE,20 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	12:30 Local	Direction from Accident Site:	275°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	240°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.97 inches Hg	Temperature/Dew Point:	34°C / 28°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kitty Hawk, NC (FFA)	Type of Flight Plan Filed:	None
Destination:	Manteo, NC (MQI)	Type of Clearance:	None
Departure Time:	11:30 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	36.02181,-76.46954

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Alexandra Grady; FAA/FSDO; Greensboro, NC
Original Publish Date:	July 10, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=192886

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).