



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	NENANA, Alaska	<b>Accident Number:</b>	ANC23LA078
<b>Date &amp; Time:</b>	September 16, 2023, 16:00 Local	<b>Registration:</b>	N907W
<b>Aircraft:</b>	RHODES STEVEN D SR3500	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel starvation	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot reported that while enroute he noticed a slight rise in engine gas temperature (EGT) with a slight decrease in fuel consumption. Then engine power surged followed by a rapid decrease in power. The pilot performed a forced landing to the tundra and the airplane nosed over, resulting in substantial damage.

Postaccident examination of the airplane revealed the fuel inlet screen into the fuel control unit was clogged, which prevented fuel from entering the engine. The pilot, who was the owner/builder, was unaware of the requirements to inspect and clean the fuel control inlet filter. The filter had been in operation for about 12 to 13 years before the accident. The installation service manual recommends that the owner/mechanic inspect and clean the fuel control inlet filter after break-in and at condition inspections or during annual inspections. The lack of maintenance of the fuel control inlet screen filter resulted in the screen becoming clogged and the subsequent fuel starvation.

## 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 fuel starvation. Contributing was the owner/builder's inadequate maintenance.

## Findings

<b>Personnel issues</b>	Scheduled/routine maintenance - Owner/builder
<b>Personnel issues</b>	Knowledge of equipment - Owner/builder
<b>Aircraft</b>	Fuel filter-strainer - Not serviced/maintained

# Factual Information

## History of Flight

Enroute	Fuel starvation (Defining event)
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On September 16, 2023, about 1600 Alaska daylight time, an experimental amateur-built Murphy Moose SR 3500 airplane, N907W, sustained substantial damage when it was involved in an accident near Nenana, Alaska. The pilot was not injured. The airplane was operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Pilot reported that, while en route in a float-equipped airplane, he noticed a slight rise in EGT with a slight decrease in fuel consumption. The engine was operating normally, but the pilot noted at a slight reduction in power output. Then the engine power began to surge followed by a rapid decrease in power. The pilot made a left turn into the wind and towards a large lake to perform an emergency landing. About 200 ft above ground level the engine lost total power. The pilot stated he did not have sufficient altitude to land on the lake; he elected to perform a forced landing to the tundra. After touchdown, the airplane slid for about 75 ft and then nosed over, sustaining substantial damage to the fuselage and wings.

Postaccident examination of the airplane revealed all the fuel lines from the gascolator to the engine fuel control unit contained fuel. The fuel inlet screen into the fuel control unit was clogged with fine nonmetallic debris which prevented fuel from entering the engine. The filter was installed about 12 to 13 years before the accident.

According to the service manual, the filter should be cleaned after a break-in period, and then after every 50 hours of operation. The manual also recommends removing and cleaning the fuel filters during condition and annual inspections. The pilot, who was also the owner/builder, was unaware of the requirements to inspect and clean the fuel control inlet filter.

## Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight engineer; Flight instructor	<b>Age:</b>	60,Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	5-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	September 12, 2023
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	February 1, 2023
<b>Flight Time:</b>	30712 hours (Total, all aircraft), 720 hours (Total, this make and model), 28200 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	RHODES STEVEN D	<b>Registration:</b>	N907W
<b>Model/Series:</b>	SR3500	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2005	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	173SR
<b>Landing Gear Type:</b>	Float	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	October 3, 2022 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	3675 lbs
<b>Time Since Last Inspection:</b>	15 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	720.7 Hrs at time of accident	<b>Engine Manufacturer:</b>	Barret Precision
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	M-14P
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	400 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Unknown / 5000 ft AGL	<b>Visibility</b>	30 miles
<b>Lowest Ceiling:</b>	Broken / 5000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	320°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	10°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Nowitna River, AK (PVT)	<b>Type of Flight Plan Filed:</b>	VFR
<b>Destination:</b>	Nenana, AK (PANN)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	15:00 Local	<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	64.650753,-149.83691

## Administrative Information

**Investigator In Charge (IIC):** Ward, Mark

**Additional Participating Persons:** Jason Major; FAA

**Original Publish Date:** July 24, 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=193088>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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