

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ANC23LA078

ENGINE EXAMINATION

October 9, 2023

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A. ACCIDENT

Location: Nenana, AK
Date: September 16, 2023
Time: 1600 Local
Airplane: N907W Murphy Moose SR3500

B. ENGINE EXAMINATION

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NTSB
Anchorage, AK

Owner/Builder Steven Rhodes
Owner/Builder
Anchorage, AK

C. SUMMARY

On September 16, 2023, about 1600 Alaska Daylight time, a 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 enroute in a float equipped airplane, he noticed a slight rise in engine gas temperature (EGT) with a slight decrease in fuel consumption. The engine was operating normally but at a slight reduction in power output. Engine power then began to surge with a rapid decrease in power. The pilot made a left turn into the wind and towards a large lake to make an emergency landing. About 200 ft above ground level (AGL) the engine loss total power. There was not sufficient altitude to make a landing to the lake and the pilot made a forced landing to the tundra. About 75 ft after the airplane touched down, it nosed over and sustained substantial damage to the fuselage and wings.



Figure 1 Accident airplane after recovery.

D. DETAILS OF THE EXAMINATION

1.1 Fuel/Fuel System

Before the engine lost total power, the pilot reported seeing the fuel flow slowly decrease from 20 gallons an hour to 13 gallons an hour.

The airplane was equipped with a Steve's Gascolator. The gascolator was full of blue colored fuel (*figure 2*). Fuel was found in all fuel lines from the gascolator to the fuel control attached to the engine. The fuel was collected, and no signs of water or foreign debris was observed.



Figure 2. Fuel recovered from the airplane's fuel lines.

The gascolator screen was removed and inspected (*figure 3*). The screen had been cleaned about 20 flight hours prior. The screen contained some reddish nonmetallic contaminants.



Figure 3. Gascolator screen from accident airplane.

Fuel was added to the fuel tanks via liquid containment bags that lays flat when empty. The owner referred to the bags as Swiss fuel bags (*figure 4*). The fuel bags used an attachable hose and filter to transfer fuel into the airplane's fuel tanks (*figure*

5). The filter 533248/091611K2 contained a metal 149-micron filter. The filter was examined with no observed contaminants (*figure 6*).

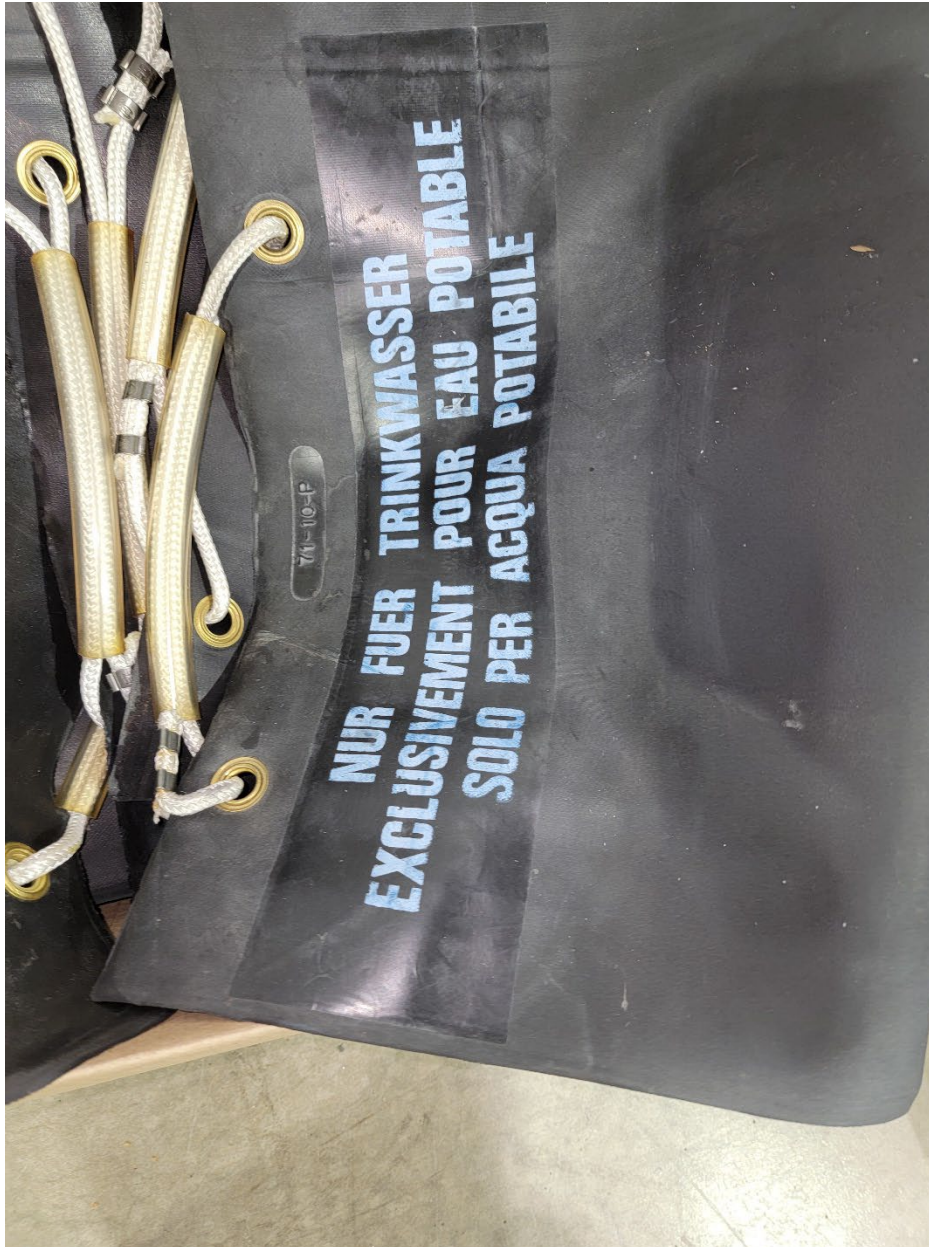


Figure 4. Swiss fuel bags used to transfer fuel into the airplane.



Figure 5. Hose and filter assembly used to transfer fuel from the Swiss fuel bags.



Figure 6. Metal filter screen used when transferring fuel from the Swiss fuel bags into the airplane's fuel tanks.



Figure 7. Airplane wing fuel tank screen.

The engine Fuel Control was removed from the engine (*figure 8*). Air was blown into the fuel control, and it was very difficult to move air through the fuel inlet. We removed the inlet fuel screen from the engine Fuel Control. Light from a flashlight was shined along the filter and no light could be observed inside the filter (*figure 9*). Fine nonmetallic fibers could be seen in the filter. The inlet fuel filter is a 74-micron filter. The owner 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.



Figure 8. Engine fuel control.

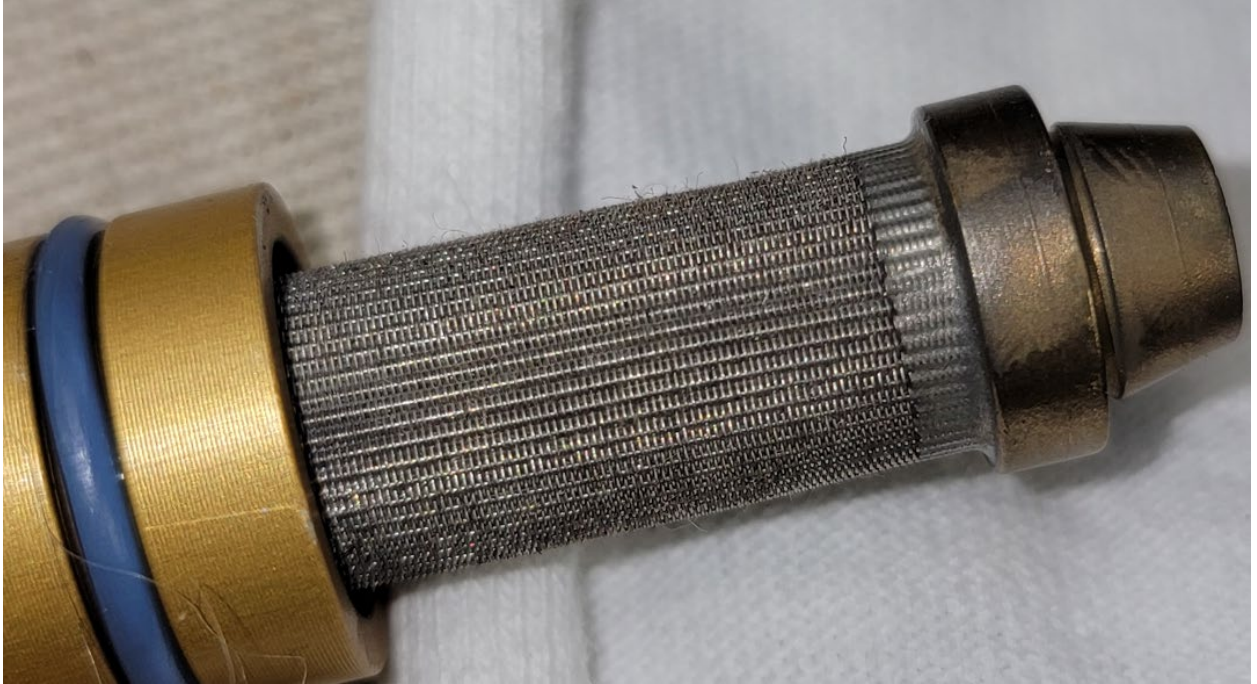


Figure 9. Inlet fuel screen from the engine fuel control.

2.0 Engine Examination

The engine rotated easily by hand with the sparkplugs removed. No unusual noise or feel were observed when rotating the engine. Strong thumb compressions were observed in all cylinders. All sparkplugs were undamaged with normal electrodes (*figure 11*).



Figure 10. Engine case number.



Figure 11. Sparkplugs removed from the engine.

An examination of the engine revealed the fuel inlet screen into the fuel control unit was plugged and prevented fuel from entering the engine.

Submitted by:

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AS_ANC