



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

DATE June 28, 2021

AIRFRAME AND ENGINE EXAMINATION

WPR21FA243

This document contains 21 embedded photos.

A. ACCIDENT

Location: Logan, Utah

Date: June 26, 2021

Aircraft: N62EF / Progressive Aerodyne, SeaRey LSX, S/N: 1MK480C

NTSB IIC: Maja Smith

B. EXAMINATION PARTICIPANTS:

Name: Fabian Salazar

Duty Position: VIIC

National Transportation Safety Board

Federal Way, WA 98003

Name: Jon Hanson

Duty Position: Air Safety Investigator

Federal Aviation Administration

Salt Lake City, UT

Name: Jordan Paskevich

Duty Position: Air Safety Investigator

Rotax

C. SUMMARY

Examination of the airframe and engine was conducted at the accident site in Logan, UT on June 27, 2021. Examination of the airframe revealed no evidence of preimpact mechanical malfunction that would have precluded normal operation. An examination of the engine on July 21, 2021 revealed anomalies that are noted in this report.

D. DETAILS OF THE INVESTIGATION

Airframe Examination

Cockpit Documentation. The instrument panel was partially separated from the fuselage and remained attached by some composite material. The only analog instruments installed were an airspeed indicator and directional gyro.

Airspeed indicator: zero (0) knots.

Directional gyro: 045°

Cockpit switches were manipulated by first responders during recovery. The switch positions were found in the documented position and are not indicative of the "in flight" positions.

Ignition: OFF

Master Switches: OFF/OFF

Gear: UP
Hobbs: 623.6
Heater: ON
Bilge: ON
Bilge MID-1: Auto: OFF, Manual: OFF
Bilge Mid-2: Auto: OFF, Auto: ON
TRIM: Latch Down
Fuel: OFF
Nav: OFF
Strobe: OFF
Land: OFF
Cockpit: OFF

A multifunctional display (MFD) remained attached to the instrument panel. The MFD was removed and retained. A thumb drive device was found installed in the back of the MFD. The thumb drive was removed and retained. A Garmin 696 GPS was attached to the instrument GPS will be shipped to the NTSB Recorders lab, Washington DC for further examination.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in the attic section of a private residence, located in Logan, Utah, on a heading of 175° magnetic, and at an elevation of about 5,320 feet above mean sea level. The airplane was recovered to the back yard of the residence where the examination of the airframe and engine were conducted.

FLIGHT CONTROL CONTINUITY

Flight control continuity was established from all control surfaces (ailerons, elevators, rudder) to the major fracture at the bulkhead aft of the pilot's seats, and from the break in the bulkhead to the control yoke and the pedals. The left control stick was separated from the control quadrant with cutters, possibly for recovery purposes.

Throttle control was established from the throttle quadrant to the left carburetor. The right carburetor would not articulate but the throttle control cable remained attached to the carburetor.

AIRFRAME

Fuselage. The boat hull fuselage was constructed of composite material and fractured at a point near the bulkhead just aft of the pilot's seats. The forward portion, including the cockpit area was underneath the aft portion of the fuselage and required removal of the right wing to reposition the forward section of the fuselage for examination. There were multiple dents, tears, scratches and deformations near the forward section of the fuselage. The battery remained attached in the forward section of the fuselage and was removed. The aft section of the fuselage, from the break at the bulkhead, to aft, displayed multiple dents and gouges.

Right Wing. The right wing and all components of the wing remained attached to the fuselage. The upper and lower fabric had tears and small rips. Both wing struts remained attached at the fuselage and wings and had upward bending to them. The right float separated from the wing. The wing displayed wrinkles in the fabric along most of the upper and lower surfaces. The wing bent upwards about 36 inches from the root outboard, and along the leading edge. The right aileron displayed downward bending and would not articulate. One control tube inside the wing had bent, about 36 inches from the wing root, and restricting movement. The right flap remained attached to the wing at the hinges and appeared to be about 45° flap extended. The flap had slight bending and surface skin wrinkling.

Left Wing. The left wing and all components of the wing remained attached to the fuselage. The upper and lower fabric had wrinkles, tears and small rips throughout. The leading edge displayed multiple dents and deformations. Both wing struts remained attached at the wing but had separated from the fuselage. The left-wing float remained attached to the wing. The left aileron remained attached to the wing and displayed minor damage. The aileron would not articulate up or down. The left flap remained attached to the wing at the hinges and appeared to be about 45° flap extended. The flap had slight bending and surface skin wrinkling.

The left main landing gear remained attached to the fuselage at the mounting point. The left main landing gear displayed upward bending and contacted one wing strut. The brake assembly remained attached to the wheel. The wheel remained attached to the strut.

The right main landing gear assembly remained attached to the fuselage at the mounting point, and appeared to be in the full retracted position. The brake assembly remained attached to the wheel and the wheel remained attached to the strut. The tail wheel remained attached to the fuselage and was in the retracted position. All control cables remained attached to the assembly.

The seats remained attached to the tube assembly. The shoulder harness and seatbelts were attached on the left side, consistent with being used.

The acrylic canopy was fragmented and partially separated from the fuselage.

The ELT was secured in its mount. The antennae remained attached. The ELT had been switched off.

Empennage.

The right horizontal stabilizer remained attached to the empennage. There were minor tears in the fabric. The four cables remained attached to the horizontal stabilizer and the fuselage.

The left horizontal stabilizer remained attached to the empennage. There were minor tears in the fabric. There was an upward bend along the leading edge. The four cables remained attached to the horizontal stabilizer and the fuselage.

The vertical stabilizer displayed minor damage.

The left and right elevators remained attached to the fuselage and displayed minor damage.

The rudder remained attached to the vertical stabilizer and articulated left and right. There was minor damage to the rudder.

The left and right elevators remained attached to the empennage and displayed a bend at the right tip. Both elevators were held in about a 15° up position.

Engine (914UL2, Serial number: 6773111)

The engine remained attached to the fuselage at the engine mount. A visual examination revealed all components of the engine remained attached and appeared normal with no mechanical anomalies noted. Compression of all four cylinders was established. Oil remained in the oil reservoir.

Propeller gearbox. The propeller gearbox remained attached to the engine, and appeared normal in appearance.

Propeller. The propeller remained attached to the propeller hub and displayed minor contact damage at the tips of the three blades. There was no other blade damage noted.

On July 21, 2021, the IIC, FAA and Rotax engine convened at a secured facility to conduct an examination of the engine.

Carburetor for 1 and 3 cylinders. The 1, 3 carburetor was excessively fuel stained on the exterior. The rubber flange assembly, located between the carburetor and the aluminum intake, was torn. The main jet was clear. The two floats were secure and within the allowable weight range. The bottom of the bowl contained a black substance that stuck to the bottom of the bowl. The needle arms were parallel with the bowl edge, as recommended.

Carburetor for the 2 and 4 cylinders. The 2, 4 carburetor was excessively fuel stained on the exterior. The rubber flange assembly, located between the carburetor and the aluminum intake, was torn. The main jet was clear. The two floats were secure and within the allowable weight range. The needle arms were parallel with the bowl edge, as recommended. The throttle cable had separated from the carburetor consistent with the accident impact.

The spark plugs were not correct for the engine application and they were not gapped in accordance with Rotax specifications. The electrodes appeared worn.

The engine displayed good thumb compression when rotated by hand. The engine turned smoothly and without unusual noise coming from the case.

The oil filter, turbo, and internal components of the engine were not examined.

PHOTO EXHIBIT



Figure 1. N62EF, at rest in the attic section of the private residence.



Figure 2. Cabin section.



Figure 3. Left-side view of N62EF.



Figure 4. Right-rear view of N62EF



Figure 5. Left-side view, under the wing



Figure 6. Right-wing top view



Figure 7. Empennage view



Figure 8. Underside-view of the boat hull.



Figure 9. Right-side view of the engine.



Figure 10.Rear view of the engine.



Figure 11. Propeller hub.



Figure 12. Propeller A.



Figure 13, Propeller B.



Figure 14. Propeller C.

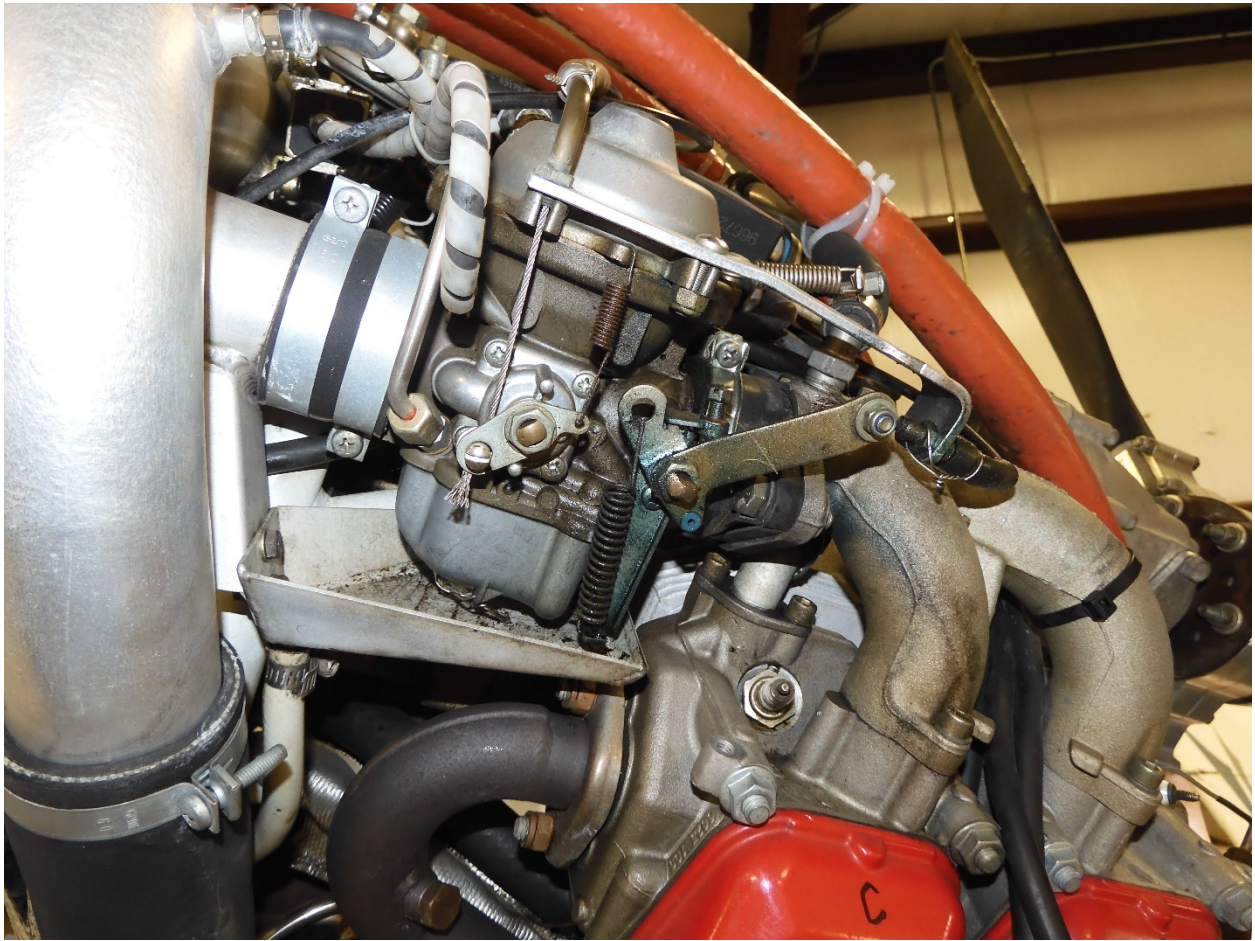


Figure 15. 1, 3 Carburetor showing external fuel staining.



Figure 16. Torn rubber flange assembly for the 1, 3 carburetor.

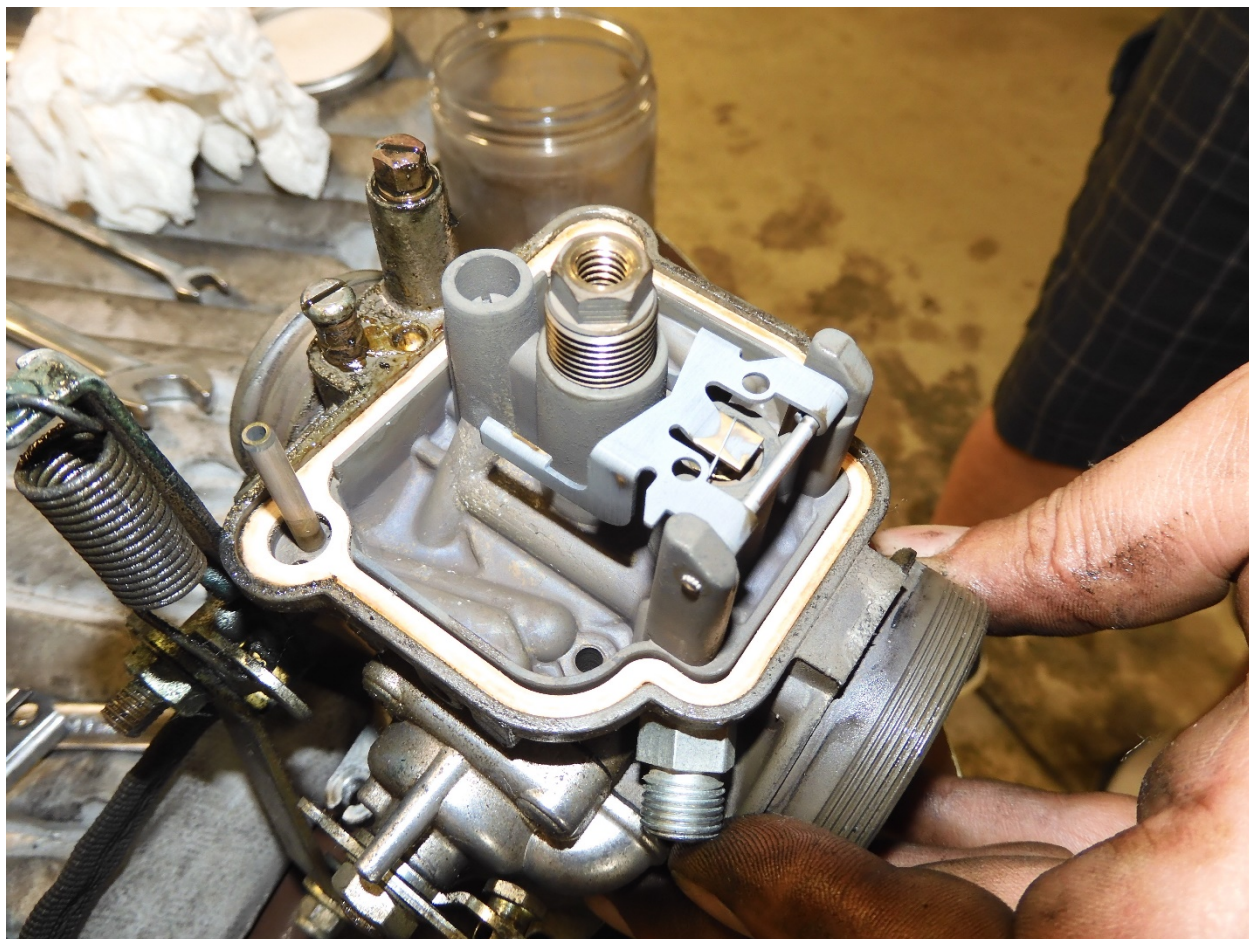


Figure 17. 1, 3 Carburetor showing internal components.



Figure 18. 2, 4 Carburetor, showing external fuel staining.



Figure 19. 2, 4 Carburetor showing the torn rubber flange assembly.



Figure 20. Spark plugs removed from the accident engine.



Figure 21. Example of one spark plug electrode, showing gap and wear.