

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA24LA163

WRECKAGE EXAMINATION REPORT

June 4, 2024

A. ACCIDENT

Location: Seffner, Florida
Date: 04/04/2024
Time: 1537 EDT
1937 UTC
Airplane: Evektor Harmony LSA Registration: N469JA

B. WRECKAGE EXAMINATION REPORT

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C. SUMMARY

The fuel line at the fuel pump assembly outlet to the four-way fuel distributor was found disconnected at the four-way fuel distributor. The fuel line was reconnected after examination and the engine was test ran at various RPM settings. The disconnected fuel line was the only anomaly observed during the examination that would have precluded normal operation.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

Airframe Overview

All the major airplane components were observed at the salvage facility. The airframe sustained substantial damage to the rudder, elevator, fuselage, and to both wings.



Photograph 1: Airplane overview



Photograph 2: Airplane overview

Flight Controls

Flight control continuity was established for the elevator and rudder from the cockpit controls to the control surfaces. The aileron and flap control continuity was established through breaks that were consistent with recovery cuts. There were no anomalies observed with the flight control system that would have precluded normal operation.

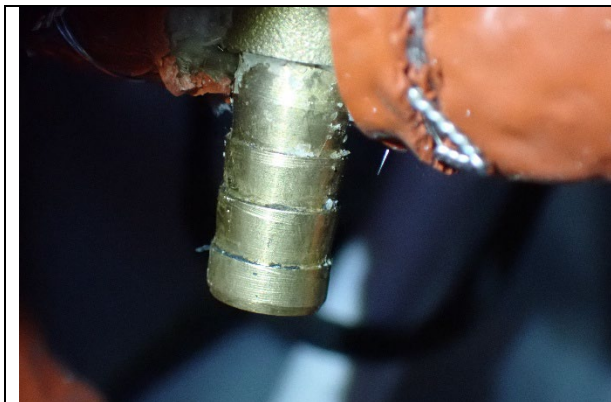
Doors Seats and Restraint Systems

The cabin canopy door remained attached to the airframe and was impact damaged. Most of the canopy plexiglass had broken free from the rest of the canopy.

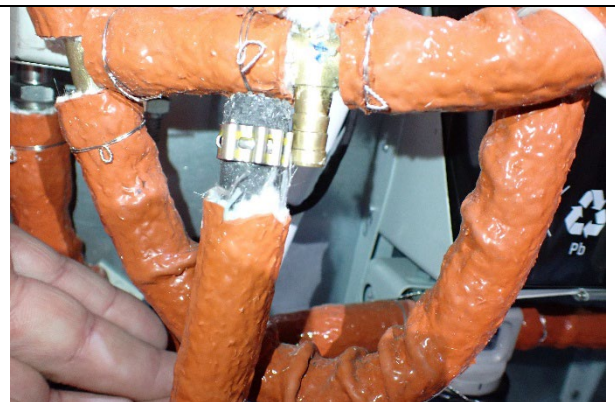
Both seats remained secured in the cabin and the seatbelts remained secured to their respective attach points. Both seat belt buckles operated normally. There were no anomalies found that would have precluded normal operation.

Airframe Fuel System

Low pressure air was blown into both wing fuel outlet and return lines going to the fuel tank. Both fuel outlet lines and fuel return lines were clear of any blockages. The top engine cowling was removed to facilitate examination of the engine and airframe fuel system. It was observed that the fuel line from the fuel pump assembly outlet going to the four-way fuel distributor was disconnected from the four-way fuel distributor. There were no signs of impact damage to the fuel pump assembly, four-way distributor valve or the fuel line. The fuel line and the four-way fuel distributor had been capped by first responders using putty. The putty was removed from the fuel line and the four-way fuel distributor. The four-way fuel distributor was consistent with the correct part when referencing the Evektor Harmony LSA illustrated parts catalog (IPC) that was current at the time of the examination. The fuel line was visually examined, and the cobra clamp was found to be secured to the fuel hose. The fuel hose was placed adjacent to the four-way fuel distributor end and the clamp appeared to be aligned to the last ridge of the fuel distributor end. The cobra clamp on the disconnected fuel line appeared to have more hose from the clamp to the end of the hose when compared with the other fuel lines that were connected to the four-way fuel distributor. The clamp was removed, and the indentation of the fuel hose was consistent with the clamp being compressed the correct amount. The fuel line was reinstalled and secured with a new clamp.



Photograph 3: Four-way fuel distribution valve



Photograph 4: Disconnected fuel line lined up with the four-way distribution valve

The fuel selector was placed in the “LEFT” position; a fuel tank was connected to the left side of the airframe fuel system and the fuel boost pumps were operated; fuel was observed to travel through the left side fuel system to the left side fuel return. The fuel tank was connected to the right-side fuel system and the fuel selector was switched to “RIGHT”, the fuel pumps

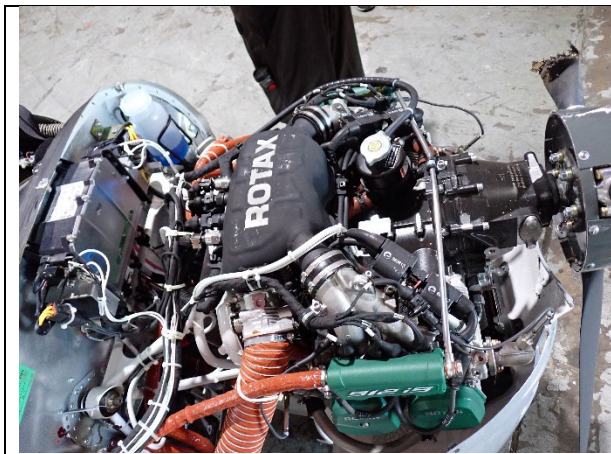
were turned on and fuel was observed to flow from the fuel tank to the return fuel system. No fuel leaks were observed during the fuel system test or the engine test run.

The only anomaly observed with the airframe fuel system was the disconnected fuel line.

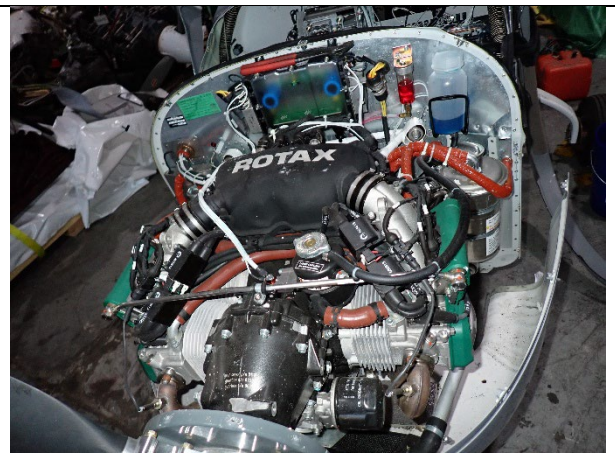
2.0 Engine Examination

Engine Overview:

The engine remained attached to the airframe and there were no signs of impact damage to the engine.



Photograph 5: Engine overview



Photograph 6: Engine overview



Photograph 7: Engine overview (left side)



Photograph 8: Engine overview (right side)

Ignition System:

The ignition system was in good physical condition and was function tested during the engine run. No anomalies were discovered with the ignition system during the inspection and engine test run that would preclude normal operation of the engine.

Fuel System:

The fuel system was inspected for condition, correct installation, and proper routing. The airframe fuel line that connects the outlet of the electric fuel pumps to the four-way distributor valve was found disconnected. The fuel pumps were function tested and found to be operational. The disconnected fuel line was reinstalled onto the fuel pump, and the entire fuel system was function tested during the test run.

Other than the disconnected fuel line, no anomalies were discovered with the fuel system that would preclude normal operation of the engine.

Lubrication system:

The lubrication system was inspected for condition, correct installation, and anomalies. No anomalies were discovered that would preclude normal operation. Oil pressure was observed during the engine test run, and the oil system was function-tested during this run.

Cylinders and cylinder heads:

The cylinders and cylinder heads were only externally inspected for condition and any anomalies. No anomalies were discovered during the inspection, and they were function-tested during the engine test run.

Cooling system:

The cooling system was inspected for condition, correct installation, and anomalies. No anomalies were discovered that would preclude normal operation.

Air Filter system:

The air filter was clean and in good physical condition. No anomalies were found with the air filter.

Exhaust system:

The exhaust system was in good physical condition, and no anomalies were discovered during the inspection and test run.

Gearbox:

The reduction gearbox was externally examined and found to be in good physical condition. The gearbox was function tested during the engine test run. No anomalies were discovered with the gearbox that would preclude normal operation.

Crankcase and crankshaft:

The crankcase was externally examined and found to be in good physical condition. The engine test run did not reveal any anomalies with the crankcase or the crankshaft that would preclude normal operation.

3.0 Engine Test Run

A fuel system was connected into the left side of the airframe fuel system, and the fuel selector valve was placed in the "LEFT" position. The engine was started using the normal procedures and started on the first attempt. The engine was operated at various RPMs and performed normally at all RPM settings above idle. At idle, the engine would stumble and start to lose power; however, this behavior was consistent with the fact that the engine was running with no load, as all the propeller blades were cut at the propeller hub.

4.0 Propeller Examination

The three bladed, fixed pitch propeller remained attached to the propeller shaft and all three propeller blades remained within the hub. One of the propeller blades displayed impact damage and was broken approximately 6 inches from the hub. The other two propeller blades were undamaged. To facilitate an engine run, all the blades were cut near the propeller hub. There were no anomalies that would have precluded normal operation of the propeller.

Submitted by:

Kurt Gibson
Aviation Accident Investigator