

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA23FA185

EXAM

4/8/2023

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A. ACCIDENT

Location: Sebastian, Florida (X26)
Date: April 7, 2023
Time: 1443
1843 (UTC)
Airplane: PA-32-260 Reg# N44488

B. EXAM

NTSB IIC	Aaron McCarter NTSB Washington DC
Piper	Robert Martellotti Piper Vero Beach, Florida
Lycoming	Ryan Enders Lycoming Engines Wichita, Kansas

C. SUMMARY

During landing attempt. Airplane appeared slow and touched down hard before bouncing and becoming airborne again. Engine power increased to full power based on witness statements and engine/propeller controls during the initial climb, but the airplane rolled left and impacted the terrain next to runway 10.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

Sebastian Municipal Airport (X26) Sebastian, Florida, USA adjacent to runway 10 approach end. Level terrain grass. Accident site was compact with a ground impact gouge about 40 feet from the main wreckage. Initial ground impact contained red position light glass indicating the right wing struck the ground first, before cartwheeling and coming to rest on its left low side of the fuselage. Elevation was 21.5 feet. Lat/log 27.815221° / -80.498269° (figure 1)



Figure 1 Accident site with location/ direction details

2.0 Airframe Examination

2.1 Fuselage

Fuselage buckled and crumpled in several areas but mostly intact from right side of the cockpit and aft to the empennage. Most severe damage was to the left (pilots) side of the forward cockpit. The engine compartment was significantly compromised by impact forces, displacing the engine and propeller slightly.

2.2 Empennage

All tail control surfaces were intact and installed in their respective locations and moved manually with corresponding cable movement. A hole was cut into the fuselage to observe all cables and turnbuckles. No anomalies or other irregularities were discovered. Rudder continuity was established from the rudder-to-rudder pedals. Stabilator continuity was established from the stabilator to the main cabin area. Stabilator trim jackscrew measured 1 inch (8 threads) consistent with a neutral to nose up trim position.



Figure 2 View of entire airplane wreckage looking aft.

2.3 Wings

The left wing was severed during impact and was laying next to the main wreckage. Elevator and flap remained attached to their respective locations and moved manually with corresponding cable movement being observed. The aileron control cables were impact separated and had features consistent with overload. The right wing was severed during impact but remained partially attached by wires and lines; the right landing gear kept the wing from dropping to the ground. The aileron cables Right aileron continuity was established from the control chain to the right aileron.

- Right aileron continuity was established from the control chain to the right aileron.
- Left aileron cables were separated (broom straw) at the wing separation area at the wing root.
- Rudder continuity was established from the rudder-to-rudder pedals.
- Stabilator continuity was established from the stabilator to the main cabin area.

2.4 Landing Gear

The fixed tricycle landing gear remained at each of their respective positions and remained attached. The nose landing gear, while still attached to its mound was significantly deformed by impact forces.

2.5 Cockpit

The fuel selector valve selected to the right main fuel tank. When manually operated, the selector moved freely, and resistance was felt at each of the detents. The electric fuel pump remained operative when switched in the on position. The flap handle was in the full flap configuration and matched the flap control surfaces. The stabilator trim jackscrew measured 1 inch (8 threads) consistent with a neutral to nose up trim position and matched the trim wheel in the cockpit. The tachometer was frozen in the 2500 RPM position and indicated 4,309.27 hours. The Hobbs meter indicated 1,250.9 hours. The throttle, mixture and propeller controls were located in the full forward position but note that the engine mounts had broken, and the engine was canted to the right and partially separated from the firewall.

- The airspeed indicator was intact and indicated 20 mph.
- The attitude indicator was operable and indicated about 15 degrees nose up.
- The heading indicator was functional and intact and indicated 264 degrees.
- The altimeter was intact and functional and indicated -100 ft and showed 30.10 hg in the window.
- The VSI was intact and indicated +400 fpm. The remaining gauges were intact and showed 0 fuel, 0 psi, 0 temps, and 0 AMPs across all systems.
- The master switch was on both.
- The fuel pump was off.
- The primer was in and locked. The carb heat was in the off position. Both left (pilot) and right control yokes were detached. The control chain failed during impact and engine displacement.



Figure 3 Cockpit instrument panel and controls.

2.6 Survivability

Main fuselage was remarkably intact, and the cabin contained survivable/occupiable space, but there was significant deformation of the lower left front side of the cockpit where the pilot sat and on the pilot side roof line which was crushed. Seatbelts and shoulder harness for the pilot were cleanly cut indicating that the pilot was wearing the harnesses; the fire rescue personnel cut the belts to extract the pilot. The belt buckle was field tested and operated as designed.

2.7 Fuel/Fuel System

About 15 gallons of fuel was drained/pumped out of the right and left fuel tanks for a total ~30 gallons. The fuel screens were removed and were free of any debris. There was no water or other debris in the aviation fuel.

2.8 Other Systems

3.0 Engine Examination

The powerplant is a six-cylinder, air cooled, direct drive, horizontally opposed, carbureted, naturally aspirated engine with a rating of 260HP @ 2700RPM. The Lycoming O-540-L4B5, Serial Number L-16650-40 was slightly impact damaged but was relatively free of serious damage that allowed for full functional testing and examination.

There was no evidence of a post-crash fire.

The carburetor was impact separated but remained with the engine via the control cables. The fuel line from the engine driven fuel pump to the carburetor was intact and undamaged. The line was removed, and no fuel was present. The engine drive fuel pump was fractured at the mounting flange and remained with the engine via the connecting fuel lines.

Both left and right magnetos were removed and manually operated; both magnetos produced a robust spark at each of the posts.

All the spark plugs displayed normal coloration and normal electrodes as compared to the Champion Aerospace AV-27 Check-A-Plug chart.

The oil filter was opened, and the pleats contained no foreign debris or ferrous material. The oil appeared dark brown in color and all lubricated components appeared to be well lubricated.

The engine crankcase was manually rotated 720° degrees of rotation several times to check for crankshaft continuity and compression and suction. Continuity was confirmed and all pistons, valves springs and pushrods operated as designed. There was adequate suction and compression on each of the six cylinders. Continuity of the crankshaft to the camshaft was confirmed throughout the engine.

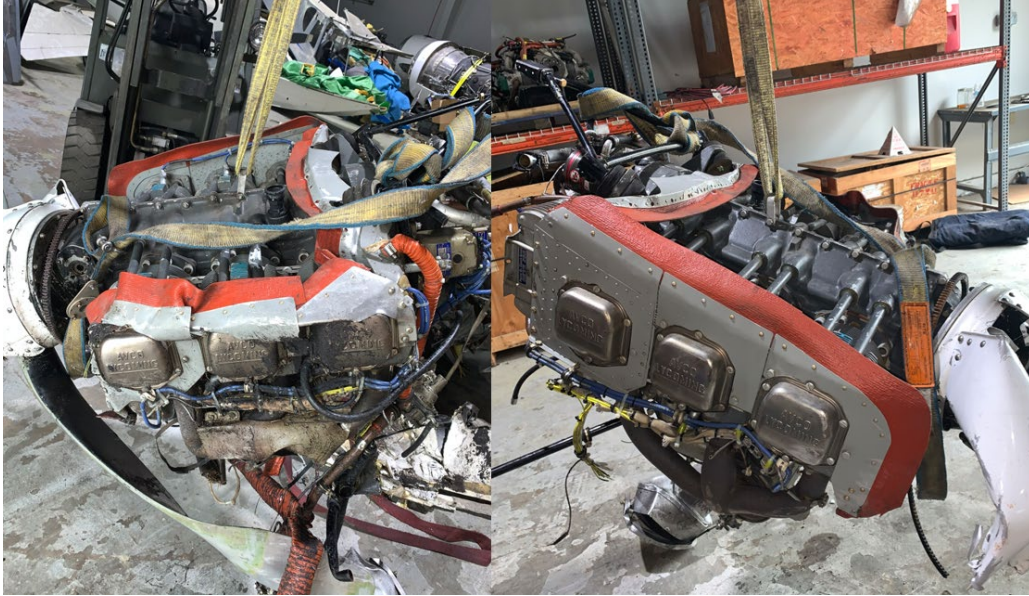


Figure 4 View of left and right side of engine prior to examination.

4.0 Propeller Examination

The propeller (Hartzell) hub remained attached to the flange and both blades were damaged. Both "A" and "B" propeller blades showed evidence of abrasive polishing on the outer 12 inches of blade tip. (The ground consisted of sandy soil) There were several clean propeller scalp marks in the ground near the wreckage. The A blade contained a compound bend and twist and bending in the opposite direction of rotation. There was also a buckling wave bend on the trailing edge. The propeller governor was impact separated from the front of the engine crankcase. (Figure 5)



Figure 5 Hartzell propeller exhibiting signs of bending and polishing.

5.0 Pilot Information

The pilot had a class 1 medical issued on March 8, 2023, a month before the accident. Based on his logbook that was discovered at the accident site, the pilot had recorded about 606.15 hours of total flight time and 104.9 hours in the accident airplane based on his notes. His last documented flight review was on February 12, 2020. The pilot averaged about 4 flights a month at 1.2 hours per flight average when looking back several months.

DATE	Make & Model	Identification Mark	From	To	BREAKDOWN OF			
					Enroute	Over	Day	Night
2/23	PA-32-260	N44550	X2G	X2G	1	1	0.7	1
2/24					1	1	1	1
2/25					1	1	1	1
2/26					1	1	1	1
2/27					1	1	1	1
2/28					1	1	1	1
2/29					1	1	1	1
2/30					1	1	1	1
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8.0 Documentation

No maintenance logbooks were recovered during the on scene portion of the investigation, however, a hard copy of the most recent logbook entry was discovered in the glovebox of the cockpit, and it showed the following.

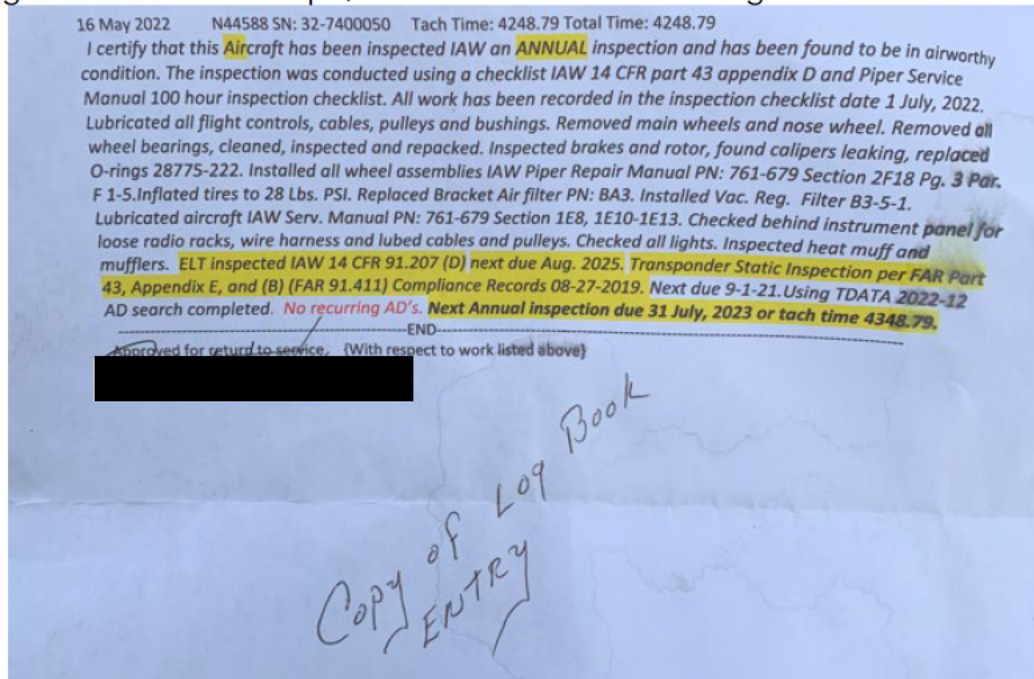


Figure 7 Maintenance documentation.

Submitted by:

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Aviation Accident Investigator IIC