



AIRFRAME AND ENGINE EXAMINATION REPORT

NTSB ACCIDENT NUMBER: ERA20FA088

AIRCRAFT REGISTRATION: N214K

OPERATOR: Individual

ACCIDENT LOCATION: Grafton, West Virginia

Investigative Team:

NTSB Investigator-in-Charge (IIC): Adam Gerhardt, Air Safety Investigator

FAA Coordinator: Jerry Morgan, Aviation Safety Inspector (Charleston, WV FSDO)

Rotech Flight Safety Inc. (Rotax Engines): Jordan Paskevich (Chief Accident Investigator) **Not on-site*

BRIEF NARRATIVE

On January 27, 2020, about 1255 eastern standard time, an Aeropro CZ A220, N214K, was destroyed when it was involved in an accident near Grafton, West Virginia. The private pilot was fatally injured. The airplane was operated by the pilot as a Title 14 *Code of Federal Regulations (CFR)* Part 91 personal flight.

MAINTENANCE RECORDS

The accident airplane had recently been imported from the Czech Republic into the United States to Rollison Light Sport Aircraft, Inc., Bloomfield, Indiana. Rollison provided maintenance entries which described the final assembly of the new airplane and engine test run, as viewed in Photo 1 and 2. There were no other maintenance entries located.

Aeropro CZ - A220 - s/n 57819

Installed wings, elevator & horizontal stabilizer, IAW Aeropro Maintenance Manual

Installed IAW equipment manufacturers' installation instructions:
ATR833-OLED radio s/n 90247219 TRT800H-OLED transponder s/n 31082619
PM1000II intercom s/n K17794 uAvionix EchoUAT s/n 100008123
Grand Rapids Tech mini-GA EFIS iPad panel holder
BRS recovery system s/n 24004 w/rocket 32827-2
changed main tires to Aeroclassic and installed Matco 8" tailwheel

Performed pitot leak-down test to confirm no leaks in pitot system. Test-ran engine and confirmed all equipment functional and ready for final airworthiness inspection.

James Leone [REDACTED] [REDACTED]

date: 12/26/2019 total time in service: 2 hr 40 min

ACR ELECTRONICS, Inc.
Artex Products - CAGE Code 19980
Fort Lauderdale, FL 33312
LOG BOOK ENTRY 12/26/2019
E.L.T. BATTERY
REPLACEMENT DATE 12/26/2019

Photo 1: Maintenance entry for final assembly of the airplane.

Maintenance record:


Date:	Engine hours:		Work performed:
	TSN:	TSO:	
31. OKT. 2019	<i>8</i>	<i>New</i>	Filled engine oil Shell Advance VSX 4 10W-40
31. OKT. 2019	<i>8</i>	<i>New</i>	Filled coolant FRIDEX G48 ANTIFREI C,G11 + WATER, mixture ratio 50:50
31. OKT. 2019	<i>8</i>	<i>New</i>	Certifies that the Puriging of Lubrical System has been accomplished in
4. NOV. 2019	2:30	2:30	Inspection after flight Test
Aeropro CZ - A220 - s/n 57819			
Test ran engine to check for static rpm and leaks. Engine ready for t for airworthiness certificate.			
James Leone 			
date: 12/26/2019 total time in service: 2 hr 40 min			

Photo 2: Maintenance entry for engine run.

AIRFRAME AND ENGINE EXAMINATION

The initial impact point coincided with about a 100 ft tall tree, about 110 ft from where the main wreckage was located. Debris was found along a path of about 175° true heading. The descent angle was about 55°. Flight control continuity could not be established as the wreckage was highly fragmented and a postcrash consumed a majority of the fuselage. However, fragments of all flight control surfaces, forward and rear wing spars, and wingtips were located at the main wreckage.

The cockpit, instrument panel, and fuselage were largely consumed by the postcrash fire. A fragmented airspeed indicator was found indicating about 40 mph (35 kts). Several instrument housings were located, but each sustained significant fire damage. One fuel selector on/ off valve was located in the debris, found selected to an ON position. The selector was found loose in the debris near the main wreckage. A search was unable to discover any identifiable remnants of the BRS parachute system, performed at the accident site and again at the recovery facility.

The engine was located under the main wreckage, partially submerged in the terrain. It sustained heavy impact and fire damage; the No. 2 cylinder had partially fragmented and was located submerged in terrain about 5 ft from the remainder of the engine. The propeller hub had fragmented into several pieces. All three propeller blades had

separated from the engine; however, each were located around the main wreckage. The carburetor sustained impact damage but remained partially connected to the engine. The butterfly valve was observed closed and could not be moved, as it also sustained impact damage.

The engine was further examined at the recovery facility by a Rotech Flight Safety investigator (representing Rotax Engines). The examination was conducted under the supervision by a Nashville FAA Flight Standards District Office aviation safety inspector.

The Rotax Engine Model Number was Rotax 912ULS-2, serial number 9573281. The engine was still attached to engine mount. The intake manifolds were displaced from cylinder heads due to impact damage. The coolant lines were consumed by the post impact fire. The oil radiator was damaged and crushed against engine. The oil lines were consumed by the post impact fire. No fuel pump was located in the debris. The oil pump was impact damaged and no oil filter was attached. The oil tank was crushed in the impact. The ignition system was consumed by the post impact fire.

All spark plugs were located. Each sustained impact and fire damage. They each exhibited normal combustion signatures. Both carburetors were displaced from their respective intake manifolds and were heavily fragmented.

The Nos. 1, 3-, and 4-cylinder heads and cylinders remained attached to the crankcase and were removed and inspected. No anomalies were observed with the rocker arms, valve springs, or valves. The No. 2 cylinder head remained attached to its cylinder, but the cylinder had separated from the engine. The cylinder head was removed and inspected, and no anomalies observed with its rocker arms, valve springs, or valves.

ANNOTATED PHOTOGRAPHS OF WRECKAGE

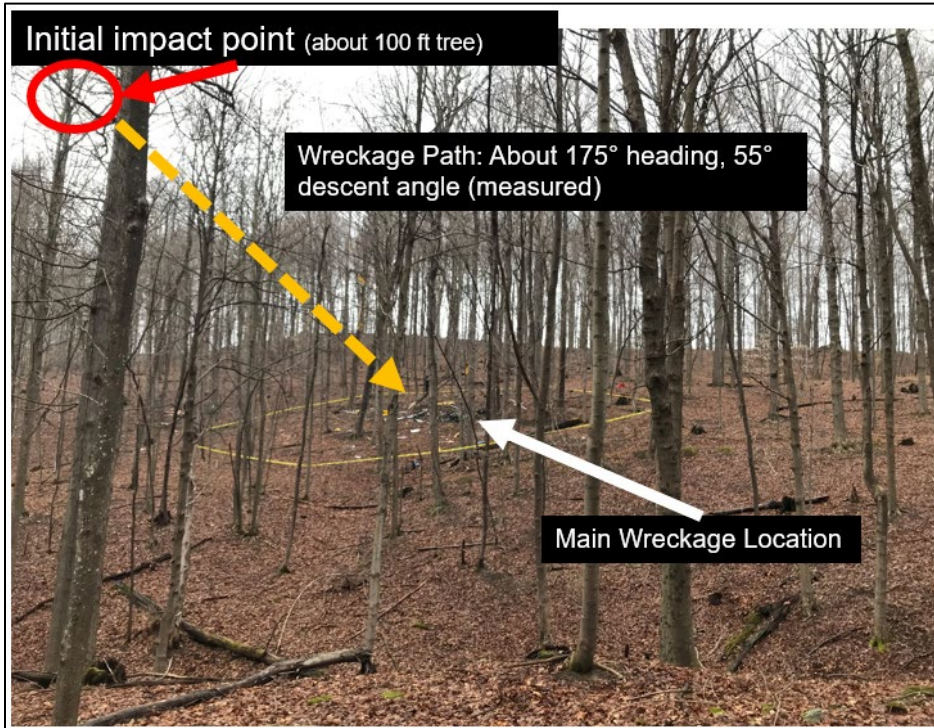


Figure 1: Overview of the main wreckage site looking eastward (NTSB Photo)



Figure 2: View of an aileron fragment lodged in a tree near the main wreckage (NTSB Photo)



Figure 3: Closer view of the main wreckage (NTSB Photo)



Figure 4: View of the left and right wingtips laid out at the accident site (NTSB Photo)



Figure 5: View of the fuel selector valve (NTSB Photo)

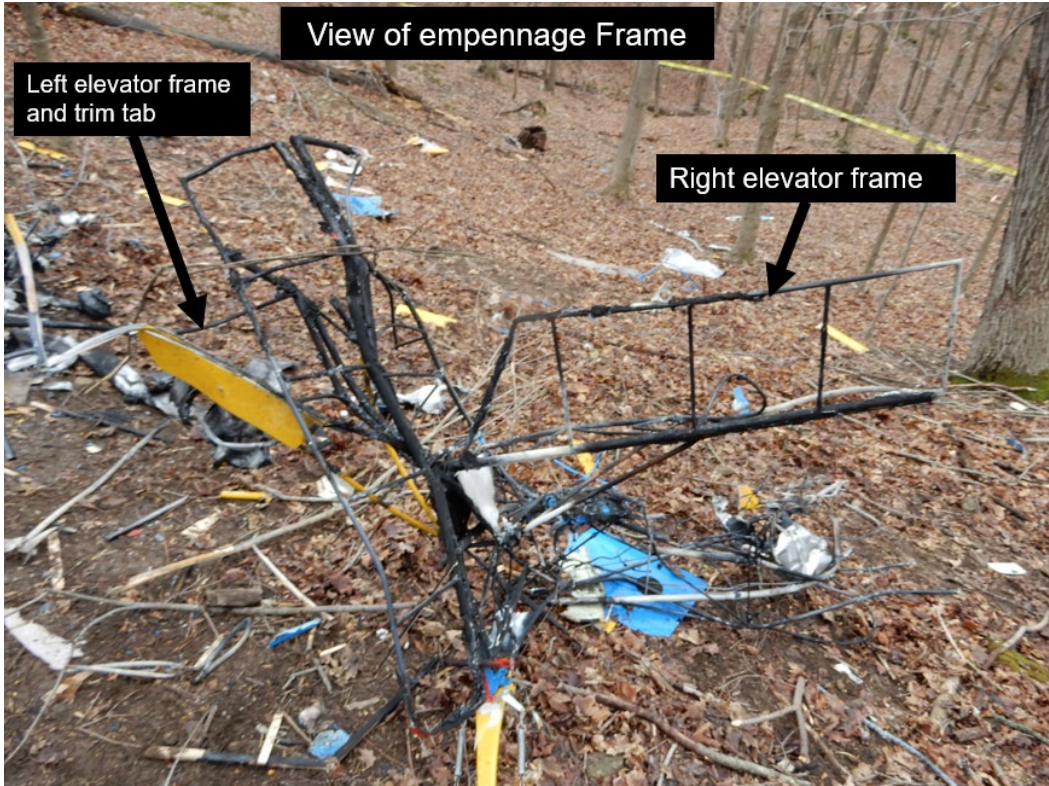


Figure 6: View of the empennage frame at the accident site (NTSB Photo)

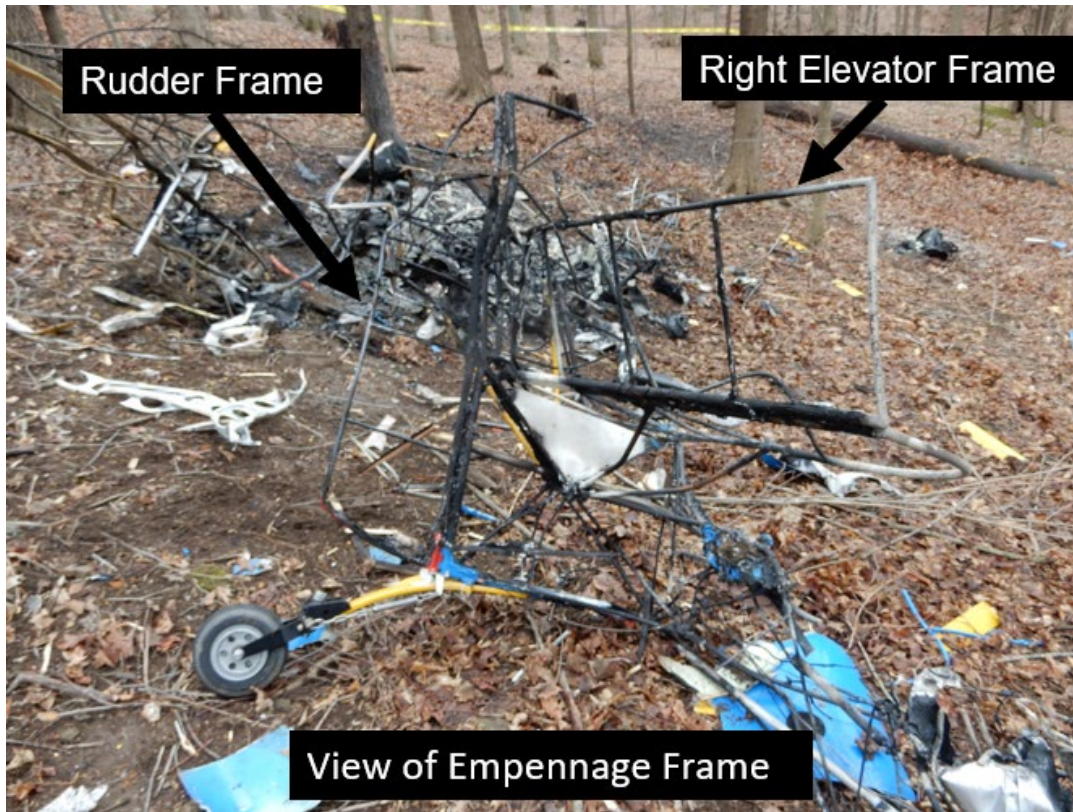


Figure 7: An additional view of the empennage framing (NTSB Photo)

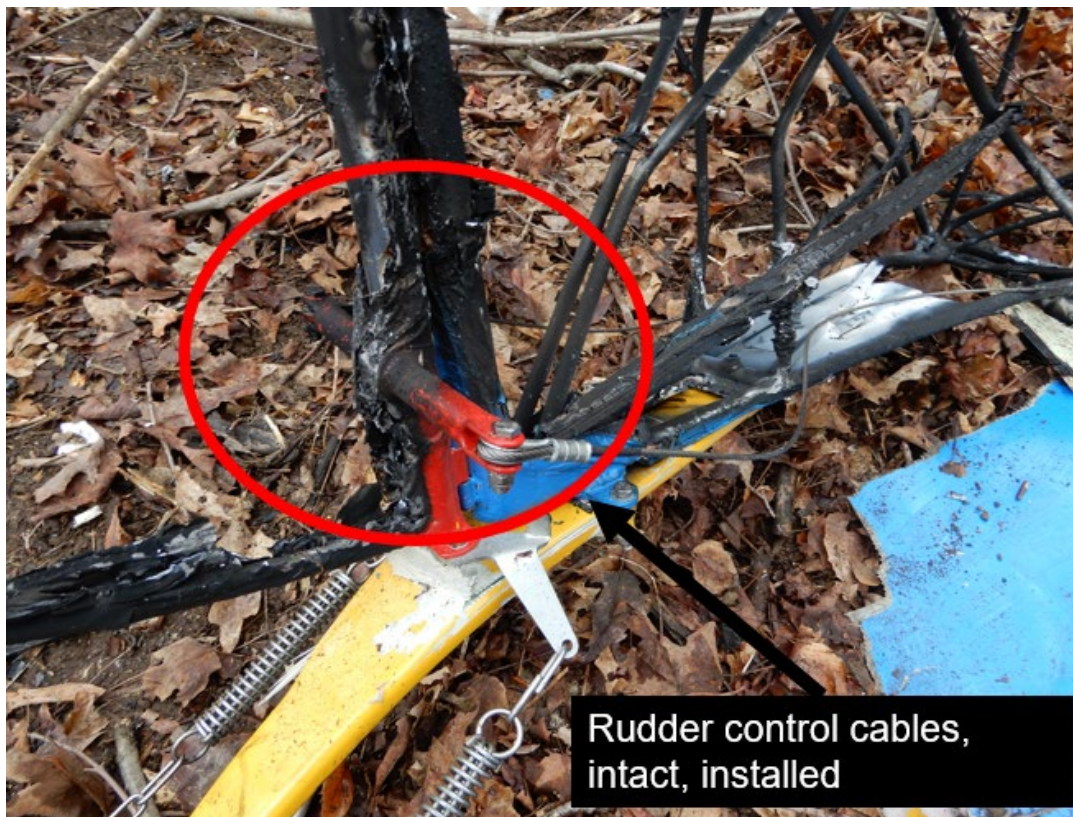


Figure 8: View of the rudder control cables (NTSB Photo)

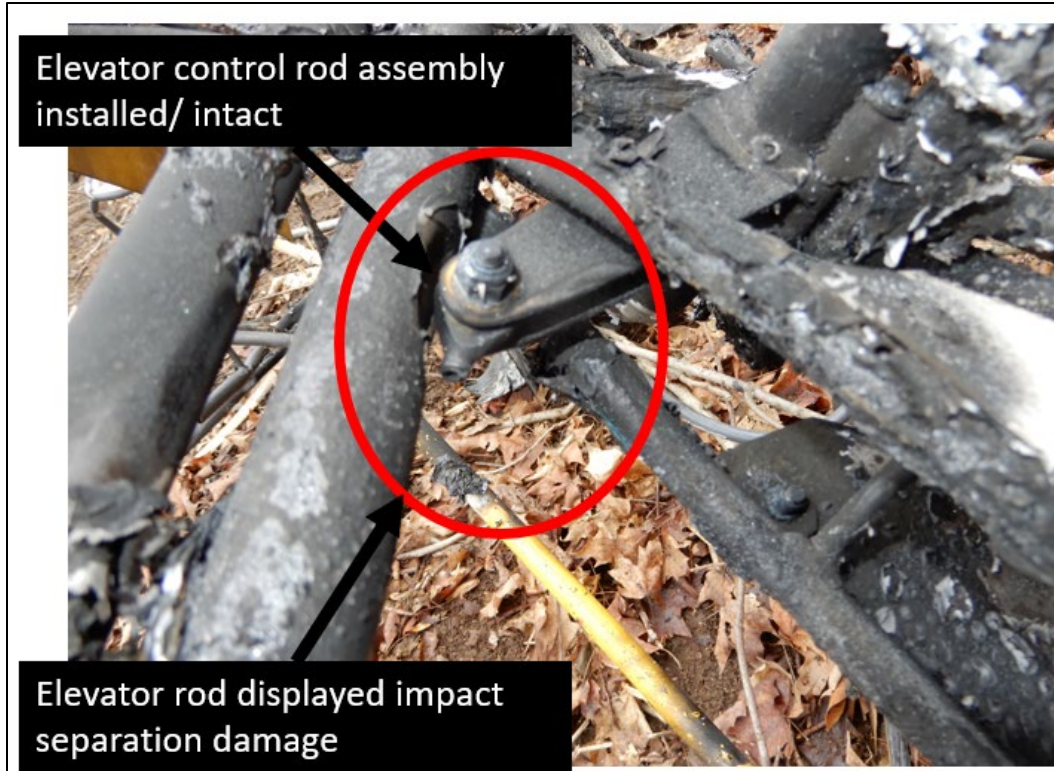


Figure 9: View of the elevator control assembly (NTSB Photo)



Figure 10: The left-wing components laid out at the accident site (NTSB Photo)



Figure 11: The right-wing aileron fragments laid out at the accident site (NTSB Photo)



Figure 12: View of all three propeller blades laid out at the accident site (NTSB Photo)

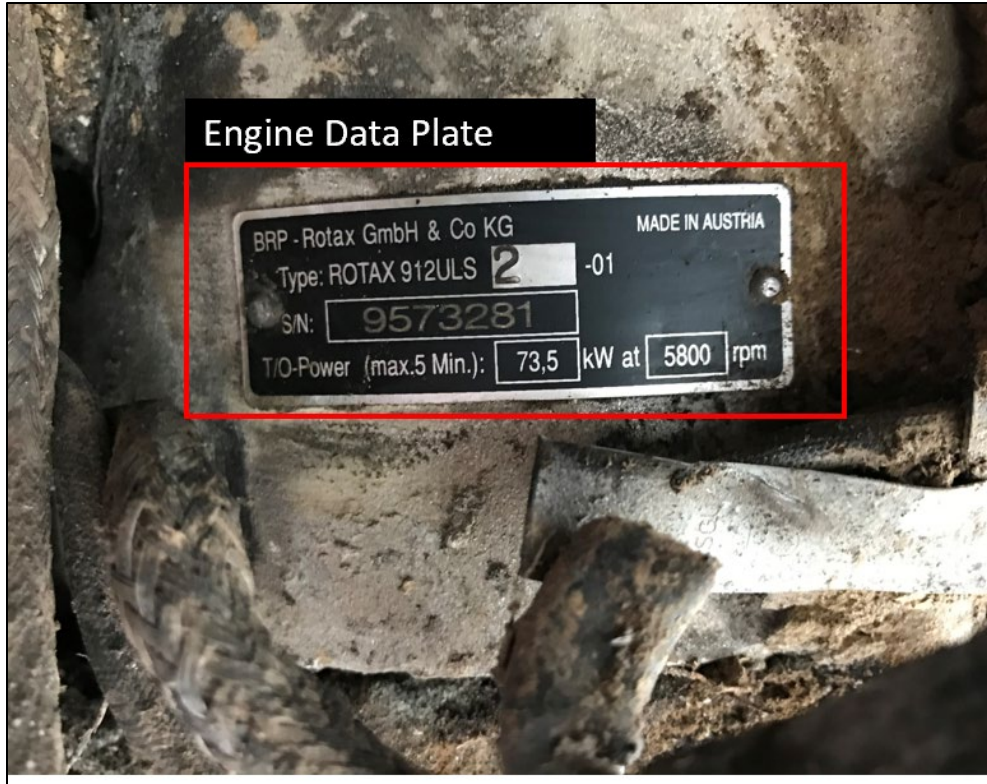


Figure 13: View of the engine data plate (NTSB Photo)



Figure 14: View of the right side of the engine at the accident site (NTSB Photo)



No. 2 Engine Cylinder, Separated from Engine

Figure 15: View of the No. 2 cylinder, found separated from the engine (NTSB Photo)

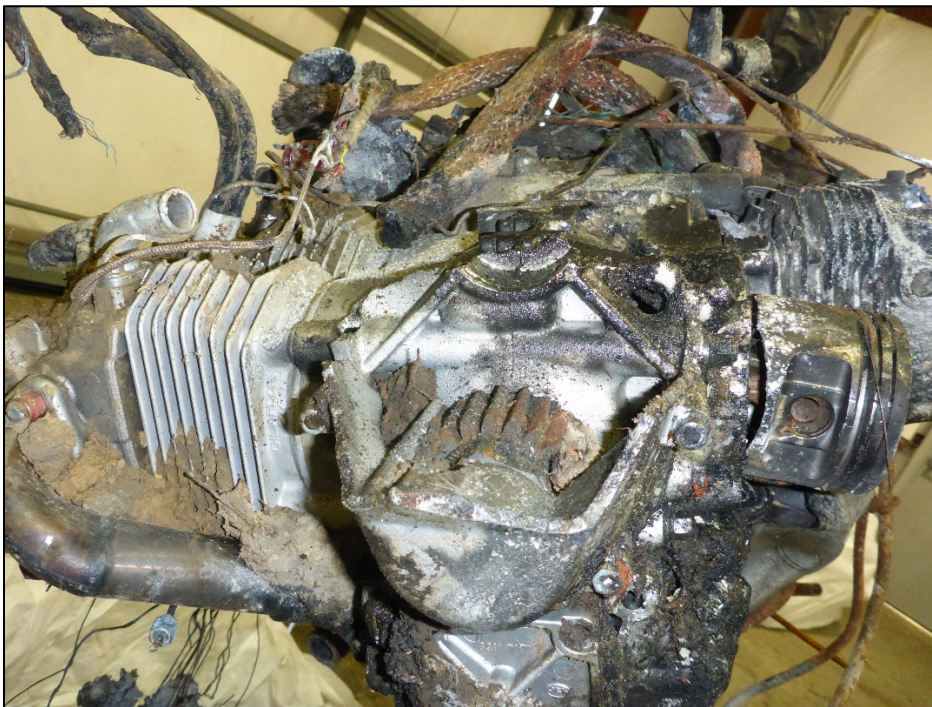


Figure 16: View of the accessory section of the engine.

Report submitted by Adam Gerhardt