

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22FA083

AIRWORTHINESS FACTUAL REPORT

January 10, 2023

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. AIRWORTHINESS FACTUAL REPORT.....	3
C. SUMMARY	3
D. DETAILS OF THE INVESTIGATION	3
E. WRECKAGE AND IMPACT INFORMATION.....	3
F. AIRFRAME EXAMINATION.....	4
G. ENGINE EXAMINATION	6
H. MAINTENANCE RECORDS	7
I. SUMMARY	7
J. PHOTOGRAPHS	8

A. ACCIDENT

Location: Statesboro, Georgia
Date: December 7, 2021
Time: 2124 Local EST
0224 UTC
Airplane: Cessna 182, N5776B

B. AIRWORTHINESS FACTUAL REPORT

IIC Adam Gerhardt
National Transportation Safety Board
Washington, DC

Party Member Rodney Hood
Federal Aviation Administration
Atlanta, Georgia

Party Member Andrew Hall
Textron Aviation
Wichita, Kansas

C. SUMMARY

On December 7, 2021, at 2124 eastern standard time, a Cessna 182 airplane, N5776B, was destroyed when it impacted terrain near Statesboro, Georgia. The commercial pilot was fatally injured. The airplane was operated by the pilot as a personal flight conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91.

D. DETAILS OF THE INVESTIGATION

The NTSB investigator-in-charge traveled to the accident site on December 8, 2021, and was assisted by Textron Aviation and an FAA Inspector. The accident site and wreckage were documented on December 8th and 9th and concluded with the recovery and transport of wreckage to Atlanta Air Recovery in Griffin, Georgia. This document contains the factual findings related to the examination.

E. WRECKAGE AND IMPACT INFORMATION

The wreckage was highly fragmented and was oriented on a debris path of about 110° magnetic heading. The initial impact ground scar was located about 220 ft from the main wreckage.

All major components of the airframe and engine were located in the debris path. Debris located in the initial impact scar and a subsequent large engine impact crater indicated that the airplane impacted terrain in a descending left bank. This was evident due to the co-location of the left-wing tip, a left-wing fragment, and the ADS-B antennae observed at the initial impact crater. The propeller separated from the engine and was located near the engine impact crater. Evidence of a post-crash was observed at the main wreckage. Figure 1 provides an overview of the wreckage debris path.

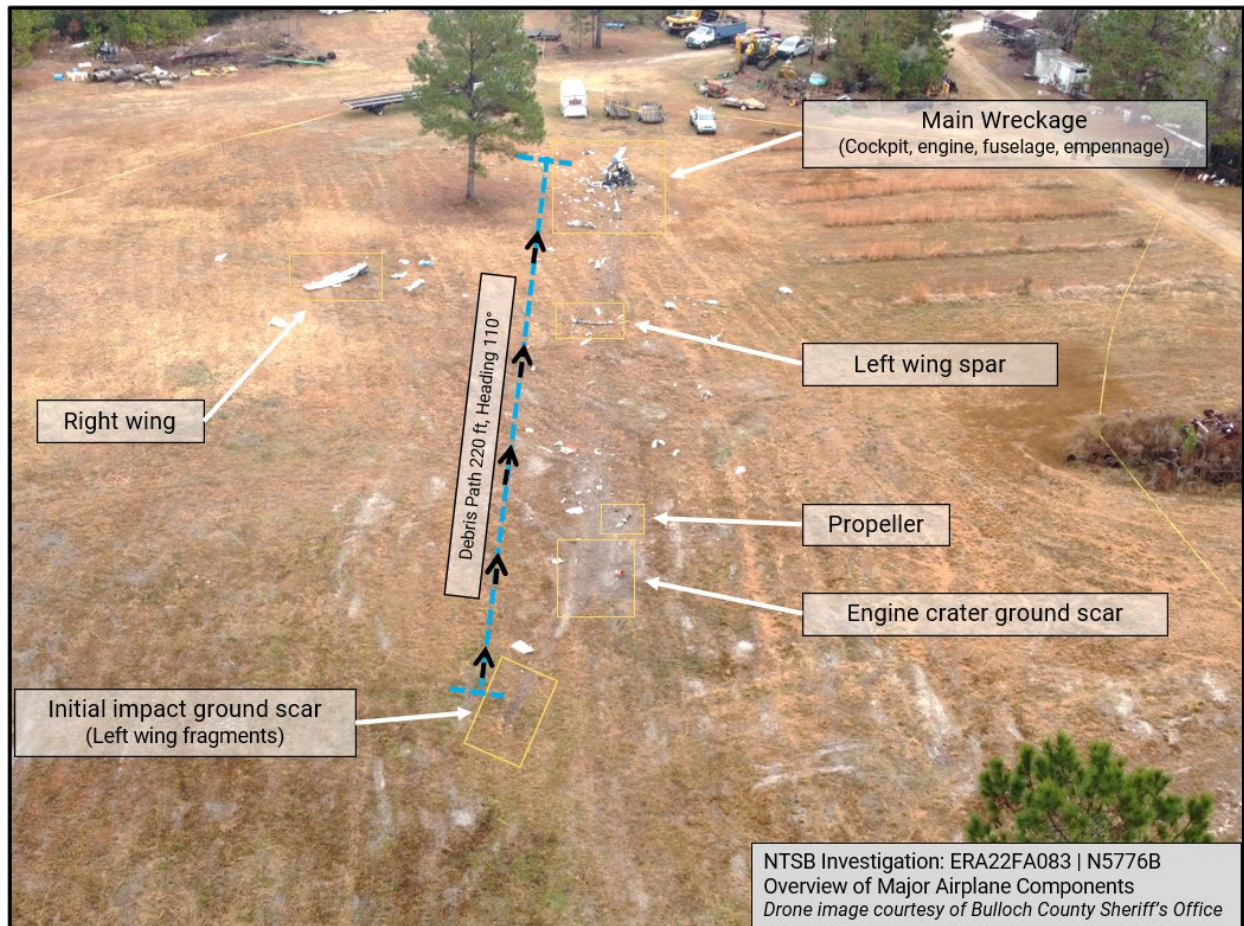


Figure 1: Overview of the wreckage debris path

F. AIRFRAME EXAMINATION

The right wing was observed relatively intact. The aileron remained attached. When the tension overload separated cables were manipulated from the inboard section of the wing the aileron moved in both directions. The right wing lift strut was observed separated from the wing and had fractured about its mid-span. The right wing flap had fragmented, and its majority was located near the right wing.

The left fuel tank was observed near the right wing. Both fuel caps were observed attached and secured. Both fuel caps were vented.

The left wing was heavily fragmented, and its main spar was observed separated in the debris path. The left wing strut was found near the main wreckage intact but separated from its attach points.

The left aileron cables were observed attached to the control column and continuous into the center fuselage. The left aileron balance cable was observed separated in tension overload. The left aileron cables were attached to the left aileron bell crank. The left direct aileron cable was continuous to the control column from the control surface.

The elevator cable was connected at the elevator surface. The elevator push pull tube in the cockpit was separated at the bottom of the control column. The elevator cables were continuous from the control surface to the forward elevator bell crank.

The elevator trim cables were continuous from the cockpit to the elevator trim tab actuators. The jackscrew for the elevator trim actuator measured about 7.25 inches which was near the takeoff position¹.

The rudder pedals were with the main wreckage and its cables were continuous from the pedals to the rudder control surface.

The left flap cables were observed continuous from the left flap bell crank to the flap control mechanism. The right flap cables are attached to the right flap bell crank and departed in tension overload near the wing root. The position of the flaps could not be determined due impact damage and due to the flap system having a Johnson Bar design.

The fuel selector valve had separated from its attach point. When air was blown through the valve, air was felt from exiting the BOTH valve. The fuel strainer and screen had separated from its attachment area. The fuel strainer was a gascolator brand and displayed significant impact damage and separated from the bowl. The screen was observed in the debris path and was clear of debris.

Both left and right cabin entry doors had separated from the airframe and were observed on the right side of the debris path.

The instrument panel was destroyed, and several instruments were located in the debris field, with none remaining in their respective attach points. A turn coordinator

¹ According to Textron Aviation engineering documentation, the takeoff position for the jackscrew is 7.17 inches.

was found displaying a left turn, beyond standard rate. The heading indicator displayed 090°. The altimeter was found to display 480 ft with an altimeter setting of 30.07².

The attitude indicator was found in the debris path and displayed a 50° left bank and a 30° pitch up attitude. The attitude indicator was later disassembled at the recovery facility. The rotational gyro and its casing displayed minimal evidence of rotational scoring.

An oil pressure gauge was found indicating 30psi, which was in the green range. The oil temperature gauge indicated 150° F. The tachometer was located heavily fragmented. Some numbers were readable, however, thermal and impact damage precluded normal interpretation of the meter. The face to the manifold pressure gauge was located in the debris field. There appeared to be a witness impact mark from its indicating needle at 33 In Hg MP. The gyro suction gauge was not readable due to impact damage. A JPI engine monitor was found in debris field and was heavily fragmented.

One control wheel was located, and it had fragmented into multiple pieces.

The pilot was found near the main wreckage wearing a parachute. A 4-point seat belt was found buckled and burnt. Only one seat was located in the debris path, and it had separated and was heavily fragmented.

G. ENGINE EXAMINATION

The engine was a Continental O-470 engine, serial number 2482. The propeller was a McCauley, serial number 71035, model- 2A34C66-NP. It also had a Sensenich sticker on its propeller hub.

The engine sustained heavy impact damage. Its underside displayed significant damage that allowed the core of the engine, to include the camshaft, to be visible. The camshaft was continuous from the forward and rear section of the engine without any fracture observed. Each cylinder displayed varying degrees of impact damage, but each remained attached to the crankcase.

The top spark plugs were removed, examined, and displayed various combustion signatures ranging from normal to worn-out normal when compared to the Champion Aerospace Aviation Check-A-Plug chart.

² The most recent barometric pressure noted at the departure airport was 30.08.

Each cylinder was examined with a borescope. Each valve displayed varying degrees of carbon deposit build-up, however, no cylinder or piston head displayed mechanical damage and each cylinder was free from any large debris.

The engine was attempted to be rotated by hand. It could not be rotated through a full engine cycle due to impact damage, however, a small degree of rotation resulted in the movement of valves on both sides of the engine.

The vacuum pump remained attached to the accessory section of the engine with safety wire and screws firmly secured to its casing. When removed it rotated normally when its drive gear was rotated by hand.

A fragment of an exhaust pipe was located in a grassy area separated from the engine. The grass below its resting location displayed burning and discoloration. The fuel manifold remained intact and the respective fuel lines were continuous to the cylinders.

The left magneto remained attached to the engine and displayed impact and thermal damage. The right magneto was found several feet forward of the main wreckage and displayed impact damage, however, it did not display thermal damage.

An oil filter was discovered in the debris path, separated from the engine and displayed significant impact damage. It displayed a date of October 15, 2021.

The propeller exhibited varying degrees of blade polishing, leading edge gouging, chordwise scratches, and torsional twisting.

H. MAINTENANCE RECORDS

The airplane's maintenance records revealed that an annual inspection was performed on October 15, 2021. The total airframe time at that inspection was 9226.4 hours, and the tachometer time was 403 hours. The engine was overhauled on August 11, 2020. The endorsement record noted that the engine was modified per P. Ponk Supplemental Type Certificate STC SE4988NM from a Continental IO-520-F to an O-470-50, serial number 2482.

I. SUMMARY

There was no evidence of preimpact mechanical malfunction with the airframe or engine.

J. PHOTOGRAPHS



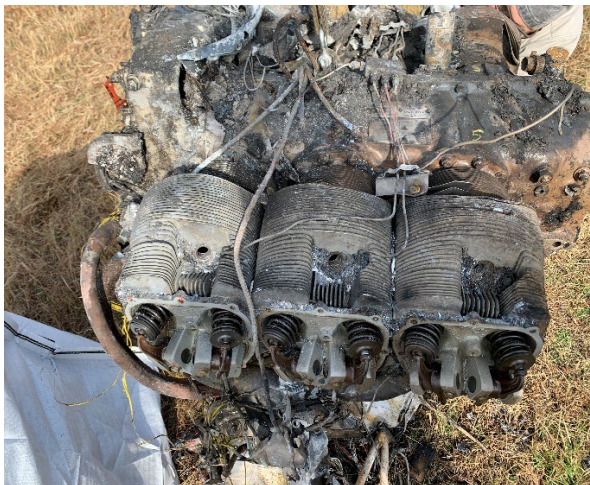
Photo 1: Overview of the debris path and main wreckage



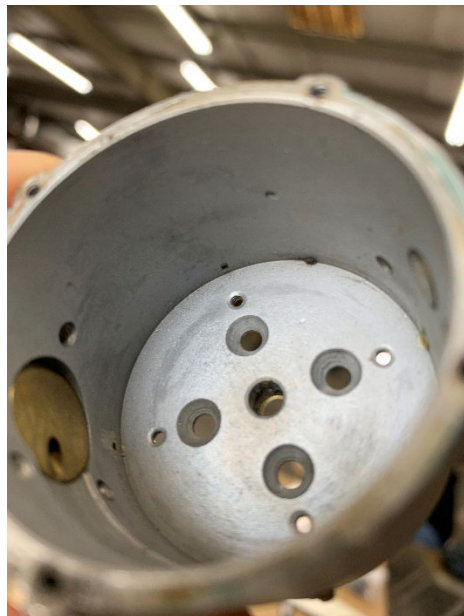
Photo 2: View of the empennage and fuselage



Photo 3: View of the right wing separated from the fuselage



Photos 4-9: View of the propeller, engine exhaust and grass burn, and engine



Photos 10-13: View of the attitude indicator gyro and its casing disassembled postaccident

Submitted by:

Adam Gerhardt
Senior Air Safety Investigator