

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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WRECKAGE EXAMINATION

September 30, 2024

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A. ACCIDENT

Location: Kill Devil Hills, North Carolina
Date: September 28, 2024
Time: 17:18 Local
21:18 Z
Airplane: N1281F, Cirrus SR22, S/N 9379

B. WRECKAGE EXAMINATION

IIC Ryan Enders
National Transportation Safety Board
Washington, DC

ASI Aaron McCarter
National Transportation Safety Board
Washington, DC

Party Coordinator Barry Blumquist
Federal Aviation Administration
Greensboro, NC

Party Coordinator Mark Haroldson
Cirrus Aircraft
Duluth, MN

Party Coordinator Julie Crowell
Continental Aerospace Technologies
Mobile, AL

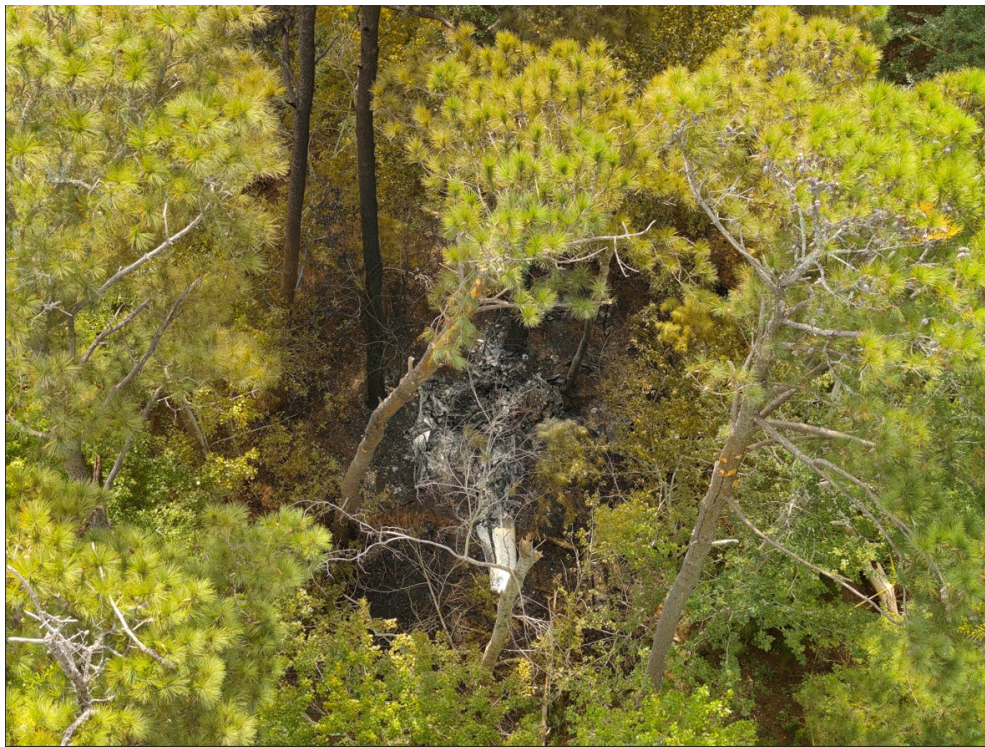
C. SUMMARY

On September 28, 2024, at 1718 eastern daylight time, a Cirrus Design Corp, SR22 airplane, N1281F was destroyed when it was involved in an accident near Kitty Hawk, North Carolina. The private pilot, student pilot and three passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

D. DETAILS OF THE INVESTIGATION

1.0 Accident Site

The main wreckage was located within heavily wooded terrain adjacent to Runway 21. The left wing of the airplane initially contacted tall trees on the edge of the wooded terrain on the left side of Runway 21 before the airplane contacted the ground approximately 135 ft from that initial contact point in the wooded terrain. The airplane came to rest on an approximate 222° heading. The left wing tip remained in a tree at the edge of the runway at the initial contact point. The left aileron was located on the ground approximately 95 ft from the initial contact point between the wing tip and the main wreckage. Several trees around the main wreckage were burned as a result of the postaccident fire.



Aerial View of the Main Wreckage (Courtesy of National Park Service)



Airplane Path of Travel Through Trees

2.0 Airframe Examination

A representative from Cirrus Aircraft was present for the on-scene examination of the airplane. The airplane was mostly consumed by post impact thermal forces. The fuselage, engine, empennage, right wing, and majority of the left wing were located confined to the main wreckage location within the wooded terrain.



Main Wreckage Overview

2.1 Fuselage

The fuselage was mostly consumed by post impact thermal forces. The left and right crew seat structures remained in place.



Cockpit and Front Seats as Viewed from Forward to Aft



Aft Cabin

2.2 Empennage

The empennage remained partially attached to the fuselage and was mostly consumed by post accident thermal forces. The empennage structure was twisted

180°. Rudder and elevator control cable continuity was established to the cockpit. The Cirrus RDM-300 was located within the empennage and removed. The RDM was sent to the recorders laboratory for further examination and data recovery.



Cirrus RDM-300 as Removed from Empennage

2.3 Wings

The right wing remained with the fuselage structure. The inboard portion of the wing was mostly consumed by thermal forces. The outboard portion and wing tip were intact and displayed thermal damage.

The left wing tip was separated from the main wreckage and was found in a tall tree at the initial contact point. The navigation lighting wiring remained with the wing tip and was wrapped around the tree, holding the wing tip in place. The left aileron and other miscellaneous portions of the left wing were found approximately half way from the initial contact point and the main wreckage. The remainder of the left wing remained with the fuselage and was consumed by thermal forces. The flaps were consumed by thermal forces. The flap actuator was found within the fuselage debris and indicated that the flaps were at the 100% position.



Right Wing as Viewed from the Front



Right Wing as Viewed from the Back (Courtesy of Cirrus)



Left Aileron as Found



Remaining Left Wing (Courtesy of Cirrus)

2.4 Landing Gear

The airplane was equipped with tricycle style, fixed, landing gear. The main landing gear were found in place but were extensively damaged by the post impact fire. The nose landing gear was separated and damage by impact and thermal forces.



Left Main Landing Gear (Courtesy of Cirrus)

2.5 Cockpit

The cockpit was consumed by post impact fire. The Garmin G1000 displays were destroyed. The SD cards for the G1000 system were found in their respective card slots but were melted in place. The engine control levers were destroyed. The fuel selector position could not be determined due to thermal damage.



Cockpit View

2.6 Survivability

The accident was not survivable. Seatbelt confirmation is pending from the medical examiner's report. The emergency locating transmitter (ELT) activated. The pilot and co-pilot seats were equipped with seatbelt airbags.

2.7 Fuel/Fuel System

The airplane was consumed by postaccident thermal forces. The pilot had received 44 gallons of fuel prior to departure from Dare County Regional Airport. The fuel selector position could not be determined. The fuel pump switch was not located. Fuel blighting was evident on the leaves of trees between the initial impact point and the main wreckage.

2.8 Other Systems

The airplane was equipped with a Cirrus Airframe Parachute System, also known as CAPS. A portion of the rocket motor was found adjacent to the empennage structure and likely exploded during the postcrash fire after becoming heat soaked. A rocket motor fuel grain was found approximately 110 feet away in the wooded terrain which had ignited a small auxiliary brush fire. The harness, suspension lines, and canopy were all contained within the Deployment Bag or D-Bag, and remained restrained within the empennage in a packed state.



Damaged Portion of the CAPS System (Courtesy of Cirrus)

3.0 Engine Examination

The engine remained attached to the airplane firewall. The powerplant is a Continental IO-550-N. The engine and its accessories were exposed to the post-crash fire. Two representatives from Continental Aerospace Technologies arrived on scene to assist with engine examination. A preliminary inspection was conducted near the accident site. While the engine was suspended from the recovery equipment, the engine truss mount, nose gear assembly, exhaust and firewall were removed. The fuel pump was removed for inspection and drive coupling condition. The drive coupling shaft was found intact. At this time, the top spark plugs were removed. The removed spark plugs were checked with the Champion Check-A-Plug Chart and were found to be within a normal operational condition. The engine was rotated in the direction of normal operational condition and thumb compression was found on all six cylinders. The crankshaft and camshaft continuity were confirmed throughout. The magnetos could not be tested at this time due to thermal damage. The engine was shipped to the manufacturer for disassembly inspection.



Engine As Viewed from the Left Side

4.0 Propeller Examination

The airplane was equipped with a 3-bladed Hartzell propeller. Propeller strike marks were observed on a large diameter tree directly in front of the engine with slashes measuring approximately 8 to 12" apart down the tree trunk. A large 12" section of the tree trunk was dislodged from the propeller strikes. The three,

composite material propeller blades were liberated from the propeller hub assembly. One blade was found approximately 10 feet, forward, right of center from the hub assembly in one piece. A second blade was found below the hub assembly in the soil but was fractured in half from impact forces. The third propeller blade was recovered on January 29, 2025, near the main wreckage location. The third blade was recovered by the National Park Service and was sent to the wreckage storage facility.



Propeller Strike Signatures in Tree



Propeller Blade Damage

Submitted by:

Ryan Enders and Aaron McCarter
Aviation Accident Investigator