

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22LA427

WRECKAGE EXAMINATION SUMMARY

April 23, 2024

TABLE OF CONTENTS

A. ACCIDENT	3
B. WRECKAGE EXAMINATION PARTICIPANTS.....	3
C. SUMMARY.....	3
D. DETAILS OF THE INVESTIGATION	4
1.0 WEIGHT-SHIFT CONTROL AIRCRAFT INFORMATION	4
1.1 Entries or Changes to Aircraft Since Manufacture.....	5
1.2 Wing Information.....	7
2.0 INVESTIGATION	7
2.1 RECOVERD INSTRUMENTS	7
2.2 GPS RECEIVER.....	7
2.3 PERSONAL ELECTRONIC DEVICES.....	8
2.4 WRECKAGE EXAMINATION.....	8
2.5 Propeller Examination.....	9
2.6 Landing Gear	11
2.7 Fuel/Fuel System.....	11
3.0 RETAINED ITEMS.....	12

A. ACCIDENT

Location: Southern Shores, North Carolina
Date: September 21, 2022
Time: 1000 EDT
1400 coordinated universal time (UTC)
Airplane: N3283N, Northwing Design Apache Sport Weight-Shift Control (WSC) Aircraft

B. WRECKAGE EXAMINATION SUMMARY

IIC Timothy W. Monville
NTSB-OAS/ERA
Washington, DC

Party Coordinator Jerry L. Toms
FAA Flight Standards District Office
Greensboro, North Carolina

C. SUMMARY

On September 21, 2022, about 1000 eastern daylight time, a Northwing Design aircraft, N3283N, was substantially damaged when it was involved in an accident near Southern Shores, North Carolina. The private pilot was fatally injured and the passenger sustained minor injuries. The weight-shift control (WSC) aircraft was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The passenger stated that his step-father performed a thorough preflight inspection which he also performed, then the flight departed and flew north along the coast. After twice orbiting a house they were staying at his step-father turned and proceeded south just offshore to return to the departure airport. While en-route his father mentioned that the flight might encounter turbulence then about 5 minutes later while flying about 400 yards offshore at 3,500 ft mean sea level between 55 and 60 miles-per-hour, with scattered clouds below them, the passenger reported, it felt like "something punched the plane" consistent with turbulence. He felt an upwards jar which he described as "very hard", then he recalled the aircraft spiralling out of control to the right. While descending towards the ocean at an unknown altitude he felt a force consistent with activation of the airframe ballistic parachute. After water impact he struggled but managed to release his restraint and remained in the water about 30 minutes before being rescued.

He further stated that when he felt the jar he looked to the right wing and noted "bracing material" sticking out of the wing fabric and the right side of the wing was no longer stretched and was much smaller than the left side of the wing. He added that the engine, "never missed a beat."¹

The lower root tube with attached engine assembly, attached propeller with fractured blades, and fuel tank washed ashore south of where the accident occurred and was first spotted on October 5, 2022 (Figure 1). No structural components of the wing were recovered. The wreckage was recovered for further examination by an airworthiness inspector of the Federal Aviation Administration.



Figure 1: View of the Wreckage.

D. DETAILS OF THE INVESTIGATION

1.0 Weight-Shift Control Aircraft Information

The two-seat, tricycle gear, Apache Sport weight-shift control (WSC) aircraft was manufactured in 2005 and designated serial number 6199. It was originally powered by a Rotax 503 engine, and equipped with a Powerfin F propeller and a NorthWing M-Pulse 15m wing.

¹ For more information refer to NTSB Record of Conversation contained in the NTSB public docket for the investigation.

1.1 Entries or Changes to Aircraft Since Manufacture

Entries in the Aircraft Logbook in 2006 and 2009 specified that special airworthiness certificates were issued. On July 1, 2016, a Rotax 582 "BlueHead" engine, serial number 5306665 was installed (Figure 2).

DATE 20/16	TIME IN SERVICE	RECORD OF MAJOR REPAIRS, ALTERATIONS, ADDITIONS AND REMOVALS OR EXCHANGES. LIST MAKES, MODELS, SERIAL NUMBERS.
7/1	319.4	Replaced Original Rotax 503 engine with Rotax 582 BlueHead purchased from Clyde Poser. Engine Serial Number 5306665. Retained original 3.47/1 E-Gearbox and Powerfin Prop. New engine has 380.6 hours, and 113.7 hours TSMO. Also installed dual aluminum radiator kit purchased from Northwing.
		New engine came with dedicated log book so from now on all engine repairs, inspections etc will be documented in the engine log book.
		Repairman Certificate # [REDACTED]

Figure 2: Rotax 582 Engine Installation Entry in Aircraft Logbook.

On November 21, 2016, a "new" Northwing GT5 13.5m wing was installed (Figure 3). Since installation, other than wing removal for other maintenance, there was no record of any repair to the wing in the maintenance records. While on July 21, 2020, a "new" 71 inches 3-bladed Aerolux propeller was installed (Figure 4).

DATE 20 <u>17/16</u> § 17	TIME IN SERVICE	RECORD OF MAJOR REPAIRS, ALTERATIONS, ADDITIONS AND REMOVALS OR EXCHANGES. LIST MAKES, MODELS, SERIAL NUMBERS.
11/21/16	334.4	Replaced single surface MPulse II 15m wing with new Northwing GT.5 13.5m wing.
11/20/16	334.4	Completed annual condition inspection - Details are contained on annual condition inspection checklist dated 11/20/2016 for Northwing Apache sport N3283N.
		██████████ Certificate # ██████████
11/19/17	382.0	Completed annual condition inspection - Details are contained on annual condition inspection checklist dated 11/19/17 for Northwing Apache sport N3283N.
		██████████ Certificate # ██████████

Figure 3: Logbook Entry Showing Wing Replacement.

DATE 20 <u>19/20</u>	TIME IN SERVICE	RECORD OF MAJOR REPAIRS, ALTERATIONS, ADDITIONS AND REMOVALS OR EXCHANGES. LIST MAKES, MODELS, SERIAL NUMBERS.
11/20/19	425.8	Completed annual condition inspection. Details are contained on aircraft annual condition inspection checklist dated 11/20/19 for Northwing Apache Sport N3283N.
		██████████ Certificate # ██████████
7/21/20	435.0	Installed new 70" 3 blade Aerolux propeller (replaced the Powertwin prop originally on trike)
7/20/21	456.1	Completed annual condition inspection. Details are contained on aircraft annual condition inspection checklist dated 7/20/21 for Northwing Apache Sport N3283N.
		██████████ Certificate # ██████████

Figure 4: Logbook Entry Showing Propeller Replacement.

1.2 Wing Information

The NorthWing GT5 13.5m wing (Figure 5) was a strutted wing capable of a 45 mph range of speed from stall to top speed. The trim airspeed was reported to be 60-70 mph.

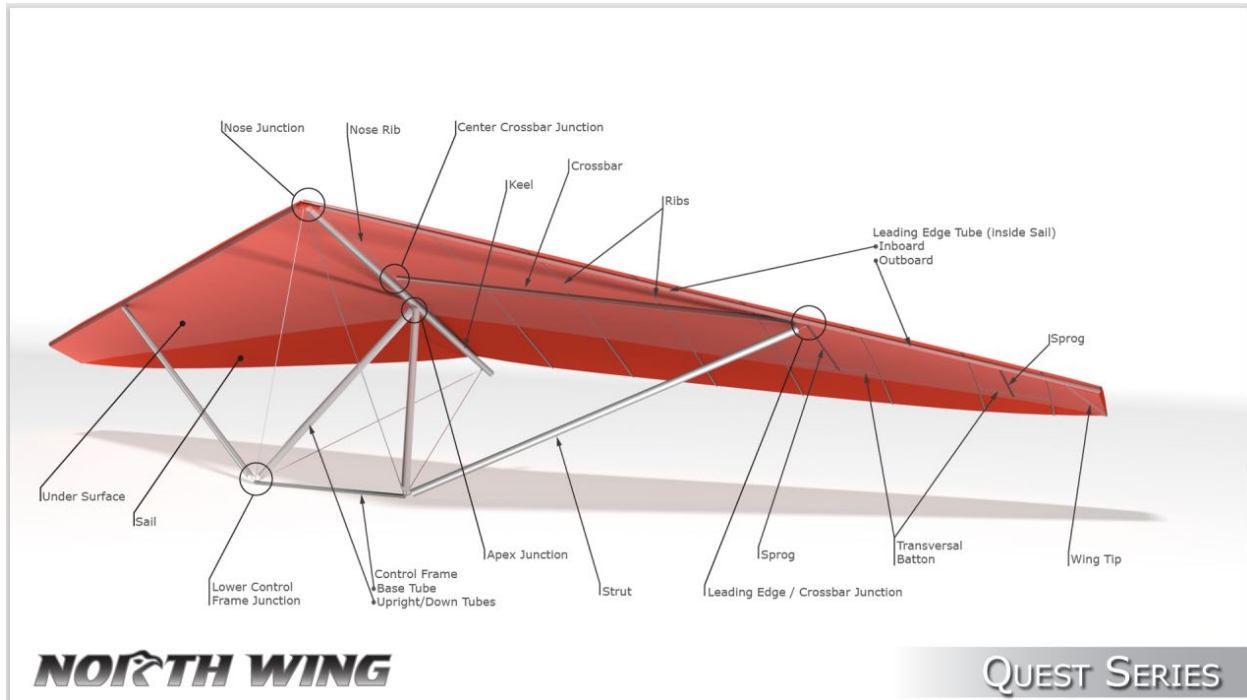


Figure 5: View of Components of Quest Series Wing.

2.0 Investigation Information

2.1 Recovered Instruments

As part of the investigation, law enforcement retained an electrically operated fuel gauge, and vertical speed indicator. The instruments were shipped to the NTSB Vehicle Recorder Laboratory for examination. Refer to NTSB's Flight Instruments Specialist's Factual Report contained in the public docket for information about the instruments.

2.2 GPS Receiver

As part of the investigation, law enforcement retained a Garmin GPS receiver. It was shipped to the NTSB Vehicle Recorder Laboratory for read-out. Refer to NTSB's Flight Instruments Specialist's Factual Report contained in the public docket for information about the GPS receiver.

2.3 Personal Electronic Devices

As part of the investigation, law enforcement retained a recovered cellular phone and an Apple iPad. The devices were shipped separately to the NTSB Vehicle Recorder Laboratory for examination and read-out. Refer to NTSB's Personal Electronic Devices Flight Instruments Specialist's Factual Report contained in the public docket for information about the cellular phone and iPad.

2.4 Wreckage Examination

Examination of the wreckage following recovery was performed by an airworthiness inspector. The examination took place on October 6, 2022. As first viewed the wreckage was resting on its left side (Figure 6). The wreckage consisted of the lower root tube, both main landing gears with attached wheels and tires, the attached engine assembly with attached propeller assembly, fuel tank, and an empty canister of the airframe ballistic parachute (Figure 7). Also recovered was a section of wing sail wrapped around the front portion of the lower root tube, and both seat rails. No structural components of the wing assembly were located.



Figure 6: View of the Wreckage as First Viewed.



Figure 7: View of the Airframe Ballistic Parachute Components.

2.5 Propeller Examination

Examination of the propeller revealed all blades were fractured at varying lengths (Figure 8). A section of airframe parachute webbing was between the propeller assembly and the engine (Figure 9).



Figure 8: View of the Propeller Assembly.



Photo 9: View Showing the Airframe Ballistic Parachute Webbing Between Propeller and Engine.

2.6 Landing Gear

Both main landing gear remained structurally attached (Figure 10).



Figure 10: View Showing Both Main Landing Gear.

2.7 Fuel/Fuel System

Examination of the wreckage revealed the fuel tank remained secured by one strap (Figure 11).



Figure 11: View Showing the Fuel Tank Secured by One Strap.

3.0 Retained Items

No items were retained. The recovered wreckage was released to Brian Budd on December 16, 2022².

Submitted by:

Timothy W. Monville
Sr. Air Safety Investigator

² Refer to NTSB Release of Wreckage Form in the NTSB public docket for the investigation.