



## **Examination Summary**

NTSB ACCIDENT NUMBER: ERA24FA301

ACCIDENT LOCATION: Aguadilla, Puerto Rico

DATE: July 11, 2024

AIRCRAFT REGISTRATION: N4167G

AIRCRAFT MAKE: Cessna 402B

OWNER/ OPERATOR: W J MEDICAL CONSULTING

### **Investigative Team:**

NTSB IIC: Adam Gerhardt, Senior Aviation Accident Investigator, Eastern Region

### **Party Members:**

Raymond M. Gonzalez Otero, San Juan FSDO, FAA

Peter Basile, Textron Aviation, Senior Air Safety Investigator

PJ Beavers, Textron Aviation, Air Safety Investigator

## **BRIEF NARRATIVE**

On July 11, 2024, about 0923 Atlantic standard time, a Cessna 402B airplane, N4167G, was destroyed when it impacted terrain near the Rafael Hernandez Airport (BQN), Aguadilla, Puerto Rico. The private 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.

## **PILOT INFORMATION**

According to FAA airman records, the pilot held a private pilot certificate with ratings for airplane single and multi-engine land. He was issued a 3<sup>rd</sup> class medical certificate on April 5, 2023. He reported 1200 flight hours at the time of this medical examination, and 60 hours logged within the last six months of the examination. The pilot's logbook was located in the wreckage and was severely burned. The majority of its contents were not legible.

## **MAINTENANCE RECORDS**

The maintenance records were provided to the investigation at the accident site by the Federal Aviation Administration. Inspectors located the logbooks at the BQN airport the day of the accident.

The maintenance records revealed the airplane had not been signed off for an annual or 100-hr inspection. From November 2020 to April 2024 the records found the airplane had flown 1.4 hours. Review of publicly available flight track data revealed that the accident airplane had flown one flight since April 2024 on June 12, 2024. The flight lasted one hour and 15 minutes and remained in the BQN area.

### Most Recent Records

An annual inspection maintenance endorsement was dated, April 24, 2024. The airframe, engine, and propeller endorsements denoted that the aircraft was "UNAIRWORTHY." Attached to the endorsement was a "Squawk List" discrepancy sheet that had 3 pages of items to be corrected, including low compression issues on the right engine. According to the mechanic that wrote the squawk list, the majority of the items had not been corrected, including the right engine low compression.

The April 2024 endorsements denoted an Airframe Total Time of 12,175.5, and a hobbs of 1225.2. The left engine endorsement denoted a total time since overhaul of 448.7, and the right engine since overhaul denoted 1448.7 hours.

The left engine logbook found an entry for left engine tail piper replacement dated November 27, 2020. The hobbs time was 1223.8 hours.

### Last Annual, 100-Hr, Engine Overhaul

The most recent annual/ 100-hr inspection endorsement located was dated June 6, 2019. The Airframe Total Time was 12,126.8, hobbs 1,176.5. The left engine 100-hr endorsement denoted a total time since overhaul was 353 hours. The right engine 100-hr endorsement denoted a total time since overhaul was 1,400.0.

The most recent left engine overhaul endorsement was dated December 14, 2011. The most recent right engine overhaul endorsement was dated October 24, 2008.

## **METEOROLOGICAL INFORMATION**

Review of the weather conditions at the airport revealed the following available METARs:

TJBQ 111250Z 10010G16KT 10SM SCT020 29/23 A3000  
TJBQ 111350Z 07013KT 10SM SCT028 31/24 A3001

## **DETAILS OF THE INVESTIGATION**

The NTSB investigator-in-charge traveled to the accident site and examined the wreckage on July 12<sup>th</sup>, 2024. He was assisted by a Textron Aviation party members and FAA inspectors. The wreckage was recovered to the BQN airport and secured for future potential examination. The engines were separated from the wreckage and secured in a hangar at the airport for shipment to Continental Motors, Mobile, Alabama.

## **HISTORY OF FLIGHT**

According to a mechanic who assisted the pilot with his preflight, the pilot planned to complete a flight from his home airport BQN to San Juan, Puerto Rico to address several maintenance discrepancies. The mechanic reported that during preflight that the four fuel tanks were found near empty or about one third full. The pilot obtained 14 gallons of 100-low lead fuel from the fixed base operator, which the pilot had pumped into fuel jugs and driven to the airplane, also by the pilot. Subsequently the fuel from the jugs were added to the tanks by the pilot.

The mechanic reported that following the fuel addition, he estimated the below fuel load.

Left Main: 15 gallons  
Left Auxiliary: 20 gallons  
Right Main: 6-8 gallons  
Right Auxiliary: 15 gallons

He reported that he did not observe the pilot sump the fuel tanks during the preflight and the correct fuel measuring dip stick was not present with the airplane. He added that the pilot stated to him, he planned to use the main tanks for the takeoff, and then would use the auxiliary tanks while enroute to San Juan.

The mechanic observed the pilot start the engines and complete a run-up, which he described as normal. He did not witness the takeoff.

According to Federal Aviation Administration (FAA) ADS-B data, the airplane departed runway 8 and climbed to about 1,200 ft above ground level about 2 miles east of the end of runway 8. The airplane then circled to the left and began a descent in a left downwind. When the airplane reached about one mile northeast of the field, the track turned directly towards

the approach end of runway 26. In the final 30 seconds of data, the altitude and airspeed continued to decrease rapidly. The final recorded position showed the airplane about .30 miles northeast of the runway 26 threshold at 200 ft mean sea level, 73 knots ground speed. Figure 1 shows the ADS-B flight track, the airport environment, and the accident site.

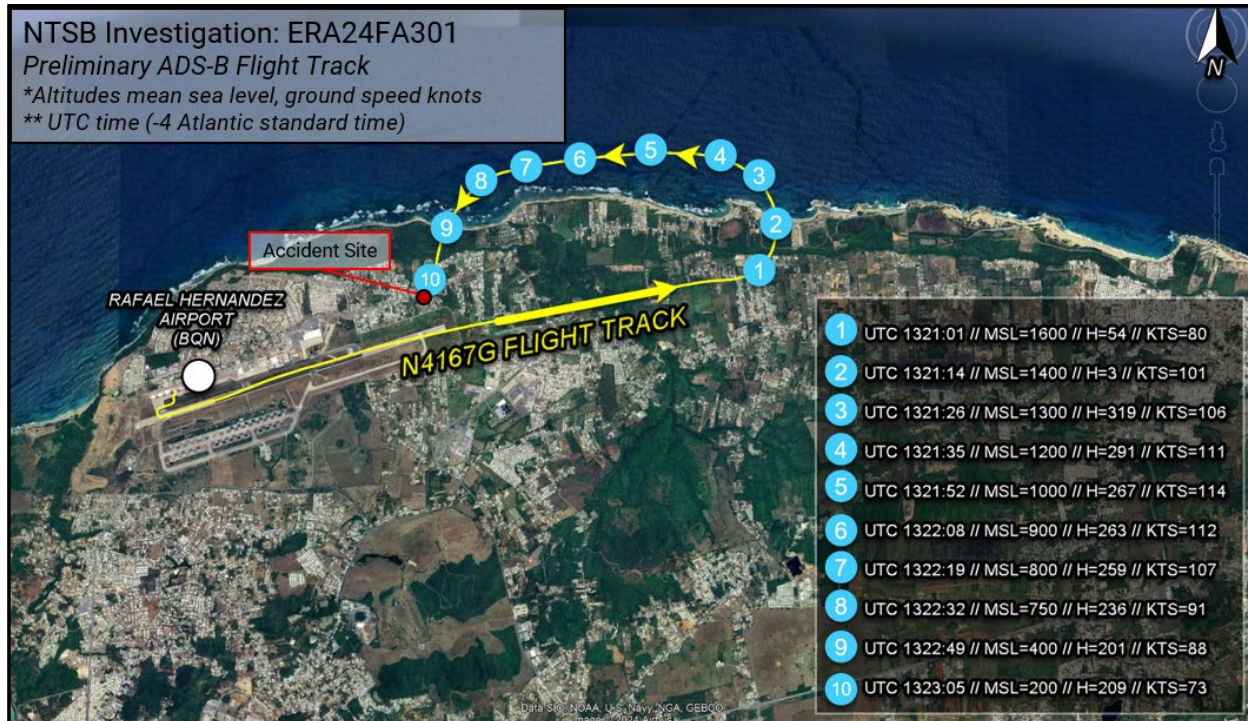
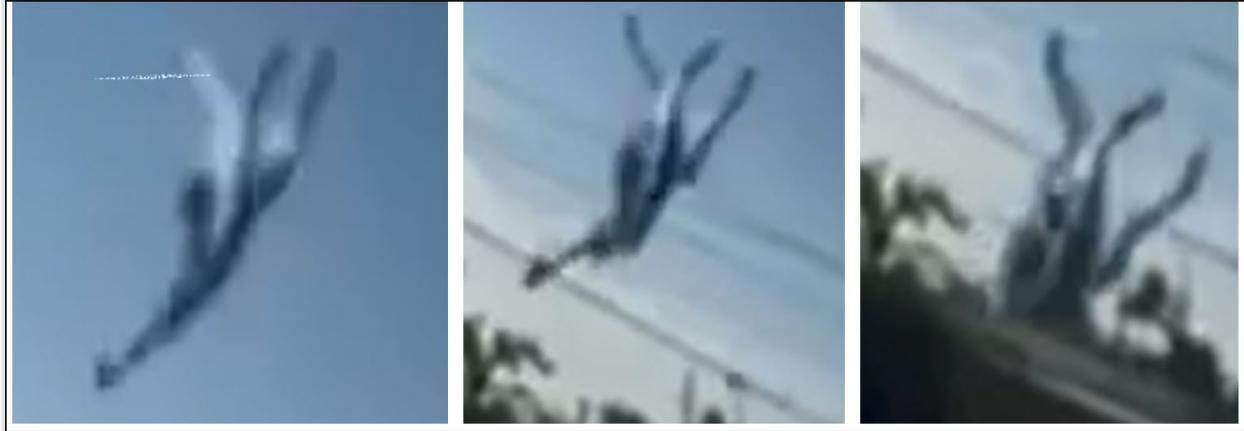


Figure 1: ADS-B Flight Track.

According to FAA air traffic control audio, shortly after the pilot departed runway 8 on upwind he asked to return to the airport due to a rough running No. 2 engine. The pilot was cleared to enter the left downwind for runway 8. Subsequently, while in the downwind, the pilot declared Mayday and was cleared to land. There were no further communications from the pilot after the mayday call.

A video posted to social media shortly after the accident captured the final few seconds of flight. The video showed the airplane in a steep vertical descent and right roll. Upon impact an explosion and post-crash fire was observed. The landing gear appeared to be retracted.



*Figure 2: Social media video showing the final seconds of flight.*

## **WRECKAGE AND IMPACT INFORMATION**

The airplane impacted a residential area front yard into trees, terrain, powerlines, and propane tanks. The wreckage remained in a compact area and was oriented on a heading of 330. All major portions of the airframe were located, and a post-crash consumed a majority of the cockpit, fuselage, and portions of both wings. The empennage was largely free of fire damage.

## **ENGINE EXAMINATION**

The airplane was equipped with two Continental TSIO-520 piston engines.

Left Engine Serial No: 510525

Right Engine Serial No: 183933.R

Both engines had separated from their engine mounts and airframe. The engine exhibited impact damage and post-impact fire damage. The engines casings were free of any large cracks or holes. The spark plugs with each engine remained installed, in addition to the magnetos.

Both propellers, which were equipped with a three-blade propeller configuration, separated from the engines and were found a few feet forward of the engines and main wreckage.

The left engine propeller blades remained attached to the propeller hub and rotated freely from the hub. Two blades exhibited little to no torsional twisting or bending. One blade exhibited aft bending near its tip, and also had chordwise scratches near the blades root.

The right engine propeller blades remained attached to the propeller hub and rotated freely from the hub. Each blade exhibited varying degrees of chordwise scratching and blade polishing. One blade displayed aft bending, and one blade exhibited forward bending near its tip. One blade exhibited little forward or aft bending.

## **AIRFRAME EXAMINATION**

## Airframe Summary

The airframe sustained significant post-crash thermal damage forward of the empennage. Flight control cable continuity was established from the elevator, rudder, and elevator and rudder trim tabs to the fire damaged cockpit. The elevator trim was found about 1.5-2.5 degrees down. The rudder trim tab had been bent during the impact sequence and was not reliable.

The landing gear were found retracted, which was also consistent with surveillance video. The flap actuator was measured and corresponded to approximately 10°. The majority of the fuel tanks were thermally damaged. The fuel selector panel was thermally destroyed, and its valves were thermal and impact damaged and their position did not correspond to a reliable indication. The cockpit, switches, levers, and flight instruments were all severely damaged by fire.

## Technical Details

All hinge points for the elevator and Rudder were attached. The upper rudder attach point was torn loose at impact. The right horizontal stabilizer and elevator were slightly bent upward at about mid span. Full flight control continuity was established for the rudder and elevator main cables as well as their respective trim cables. The rudder trim actuator rod end was bent and measurement only approximate.

The aileron control cables from the cockpit to the center sector were continuous. The right aileron was attached to the remaining wing section and cable continuity established to the center sector. The left aileron was completely thermally destroyed and unobserved. The left aileron main cables were found attached to the wing sector and continuous to the center sector. The left aileron trim cable continuity was established from the actuator to the control wheel. The chain at both ends was disconnected from their respective sprocket.

The flap panels were thermally destroyed and not observed. The measurement of the chain on the actuator indicates the flaps were approximately at 10°. The flap cables were continuous to the drive bellcranks and outboard pushrods were observed.

All controls in the cockpit were thermally damaged and displaced by the impact of a small retaining wall.

The majority of the aircraft fuel system was thermally destroyed. The main fuel tanks both impact separated from the wings and were found in several pieces with some thermal damage. Both auxiliary tanks were thermally damaged. The right wing main and auxiliary caps were found installed. The left wing fuel caps were not observed.

The fuel selector panel was thermally destroyed and not observed. The left wing fuel selector valve was found damaged and out of all detents. The right wing fuel selector valve was found thermally damaged and valve position could not be determined. Fuel strainers were not observed.

The landing gear was found fully retracted. The control switch was not observed.

De-ice boots on the wings were completely thermally destroyed. The de-ice boots on the tail stabilizers were intact but thermally damaged. Propeller de-ice boots were thermally damaged.

The ELT was found in the wreckage was thermally damaged.

All seats were thermally damaged. Both cockpit seats were found loose in the cockpit wreckage. The cockpit rails were not observed. All six forward cabin facing seats were completely intact with their material coverings completely thermally destroyed.

#### Additional Aircraft Configuration Details

The following information was found during a review of the log books.

|         |                                                                                                                                                                                                                                                                   |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 04-2024 | Aircraft stated as unairworthy on the most recent maintenance documents.                                                                                                                                                                                          |
| 04-2018 | STC SA02019SE-D and SA01714WI - Remove: King KMA 24, KR 87, KI 227, KX-155, RT-485A, TR-359A, KN-64. Install: Garmin GMA 345, GTN 750, GA 35, GTX 345, GI 106A, GNC 255A.                                                                                         |
| 01-2018 | Verified installation of the previously installed (09-2006) Aerodesign Aircraft Engineering Inc. cargo net system.<br><br>STC SA71GL - Verified installation of previously installed Brackett Air Filters.                                                        |
| 12-2010 | STC SE09846SC - Installed Aircraft Specialties Services starter adapter spring and modify shaft gear and brass gear.                                                                                                                                              |
| 05-2009 | AD2009-04-04 - Replaced cracked right aft aux spar PN 5221027-202.                                                                                                                                                                                                |
| 11-2005 | Replace left and right wings PN0822037-51, and -52. Install wing spar cap kit SK402-46A. Flap, electrical, fuel system and de-ice boots on used wings configured to match 402B1214 specifications. Wings came from 4020392. Ref 337 dated 05-10-04 for approvals. |
| 05-2004 | STC SA802NE - Install Aviation Management Services Inc. heated windshield panel and controller, kit PN SK 310-114-0.                                                                                                                                              |
| 03-2003 | Repair of wing skin to forward spar loose and oversized rivets on both wings.                                                                                                                                                                                     |
| 11-2002 | STC SA00040LB - Installation of Kinsley exhaust pipe on right engine.                                                                                                                                                                                             |
| 05-2002 | STC SA00040LB - Installation of Kinsley exhaust pipe on left engine.                                                                                                                                                                                              |
| 08-2000 | STC SE73WE - Installed BG-341 spark plugs on engine SN 208046-9-J.                                                                                                                                                                                                |
| 02-2000 | STC SA01117AT - Replace both spinners with TCB Composite spinners.                                                                                                                                                                                                |
| 08-1999 | Repairs to left engine mount rail assembly,                                                                                                                                                                                                                       |
| 12-1993 | Replaced rudder left and right lower skins. Install D&M ELT-6. Removed cabin side panels, rear bulkhead and headliner and replaced with Kydex thermoplastic sheeting.                                                                                             |

Wings were replaced with wings from 4020148.

07-1986      Repairs to forward fuselage nose section and windshield area by replacing skins, bulkheads and windshield.

## **SUMMARY**

There was no evidence of preimpact mechanical malfunction with the airframe. The engines will be sent to Continental Motors for teardown. There were no non-volatile memory devices located at the accident site.

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