

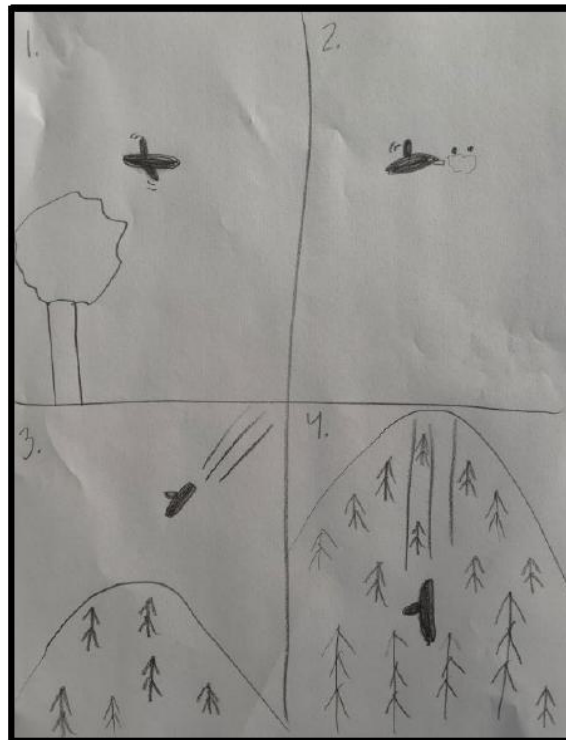
ZOE KELIHER
Sr. Air Safety Investigator
Office of Aviation Safety – Western Pacific Region

All persons listed were interviewed by NTSB personnel:

The following is a summary of conversation:

██████████ AND JESSIE ROBINSON (WITNESS)

██████████ a nine-year old in fourth grade, stated she was at recess when she witnessed the accident. She said that while in-line to go in from recess at about 10:40am she observed the airplane flying normally. The airplane started shaking from side-to-side and then she saw two black dots coming off. The airplane then started to pitch down. The airplane then continued straight down behind the trees. She noted that she didn't observe any fire or smoke; there were only normal sounds/noises.



BRANDON KARR (SUNQUEST AIR SPECIALTIES)

They weighed the airplane the day prior to the accident.

Left: 3,416

Right: 3,500

Nose: 1,021

VARIOUS (RAISBECK)

The operator stated that they had about 30 employees. Raisbeck initially became interested in pursuing STCs on Cessna Caravans because the fleet was large and consisted of operators who were interested in improved performance. They began their drag reduction STC work on the Cessna Caravan 208B and received certification on April 1, 2019. According to the operator, Nate Lachendro (who was involved in the accident flight) was primarily responsible for that test program as well as the current one.

They decided to pursue the same STC for the Caravan C208B EX model because it was currently in production. For the C208B STC, they worked with Aero Acoustics to produce the stress analysis and performance data. Maintenance was performed by “Jeff.” The test pilot, Ken Vanwinkle, was provided through Aero Acoustics. At the time of the interview, the operator estimated that they had sold 94 kits to Azul, Tropic Air, Rite Air (where mechanic John assisted in the kit installation), and Redding.

The Cessna C208B-EX airplane presented a challenge because it was in high demand during the summer season. They reached out to Lake and Penn (Lyle in sales) to arrange leasing the airplane. The lease initially specified using the airplane from mid-October for four months, later changed to six months. They planned to complete the testing by April 30, 2023.

After acquiring the lease, they decided to upgrade the airplane with the APEIII stall kit as their baseline configuration. Ken and Scott (the chief pilot at Penn Air) flew the airplane to Metal Innovations for installation of the kit prior to testing. They initially went through the FAA ACO, but due to time delays, they used an ODA for a faster process. Linda Flinds, Raisbeck’s program manager, outsourced work to Aero Design and Compliance, which uses the NY ACO for FAA approval and worked with Ken Farsi. Raisbeck opted to have an in-house stress engineer and hired Brett Weaver.

Dave Newton, the accident test pilot, was assigned to handle the substantiation documentation. Raisbeck chose Quicksilver for the instrumentation and data collection, as Nate had previously worked with Sky and believed they offered more data capabilities. Previously, they had only used a video recorder and derived data from that. They had task cards for each portion of testing, which included weight and balance details. The flight director, mechanic, and test pilot had to sign off on these cards before each flight.

They decided to use Ace for maintenance, primarily for instrumentation installation and hanging the airplane. In-house maintenance was performed by John Sawczyn, who was involved in customer support and held an A&P certificate at Raisbeck. Before this, Proflite in

Renton performed other maintenance tasks, including installing the VHF antenna. After installing the APE kit, they flew the airplane to Sunquest for a current weight and balance check, using full fuel for the most accurate calculations.

On the day before the accident, after the airplane landed, it was chocked and the chocks were stored in the cargo pod. Nate instructed personnel to add or remove ballast weight from the warehouse by adding or removing bags. For the accident flight, he added six bags, each weighing 25 lbs, placed forward of two other bags. All procedures for securing the bags and using the floorboard secure points followed the Textron/Cessna manuals. He recalled that the test pilot was in the left seat, another pilot was in the right seat, the bench seat behind them was empty, and both Nate and Nathan sat in the two far aft seats. Nathan stated that they did not need additional fuel, as they had 700 lbs per side, which would be sufficient. The plan for the accident flight was to conduct aft-CG power-on stalls. They considered the flight medium risk, and if a spin developed, a normal recovery was planned.

Zak

Zak was working closely with Nathan Lachendro. He helped him with the setup of the first couple of flights. He left for vacation two days prior to the accident. He helped Nathan do weight and balance on the first couple of flights, set up equipment (printer), etc.

Noah

On Tuesday he added ballast to the back, with Nathan Lachendro requesting an additional 150 lbs on the back step. On the accident flight he requested 300 lbs in the back in 150 lb duffels.

VARIOUS (ACE AVIATION)

Kurt (director of maintenance)

Raisbeck initially reached out to them requesting a 30 day storage of a Caravan in February 2022. That date later moved to June/July and then November with a planned date to leave in March/April. About a week prior to their arrival Raisbeck contacted them asking if they were able to provide support (maintenance). He discussed with Rulaund, the avionics manager, if they would be able to complete the avionics work they were requesting in such a short time-frame. After a detailed conversation and being sent the plans, it was determined all they needed were avionics pigtails and “y adapters.” They worked 12 hours over seven days due to the pilot’s schedules. Both Paul Homequest and John Swazyzn were friends and able to work well together. Rulound did a majority of the string gauges.

Alex Tabachuny

He installed the instrumentation of the string gauges and potentiometers. 409 channels and “y cables” using the same wires. This included the power for the inverter to the circuit breaker panel. They installed this by routing the cable under the pilot seat to the left panel (1/4-inch hole with a grommet). They made a panel to go under the pilot seat for the accelerometer. They installed a dual-band GPS antenna. The DAR was Matt Bauermeister

They wanted to weigh the airplane and had roll-on scales with 2,500 lbs limit. Paul Miller, with ACE, helped move the airplane in and out of the hangar before and after the flights. He stated he heard

the QuickSilver people saying that “the airplane was losing more altitude than he expected” and they were going to doublecheck to see if it was a pilot error.

After draining the useable fuel, they weighed the airplane using their scales (appropriately calibrated). They used the datum from the type certificate and main gear (center-to-center). Both John and Nathan took photos of the scales and filled out paperwork and seemed to be sanguine about the weighing. They carefully verified that the wheels were not touching the ground. He had no indication they were not satisfied with the weight.

They additionally added wing fences to the airplane as part of the APEIII kit, which required them to use about 6 pop-rivets to install an approximate 18” congregated piece of aluminum

KEN VANWINKLE (PRIOR RIGHT-SEATED PILOT)

From what I can determine it looks like they were on Item 5.80L when the event occurred. For some reason they start the card by repeating both 5.8L and 5.8R. Possibly not satisfied with parameters such as airspeed entering the events? By following the airplane from that point they have completed all events up to 5.80L. After the break on 5.80L the descent rate increases to -12,000+ but groundspeed is near 60 Kts. Would this indicate a spin or a dive? I determined the stalls by looking at a climb rate followed by a rapid descent with low groundspeed.

Dave Newton (the pilot) was putting up with a slight runny nose on Thursday during pre and post-briefs. Using a small pack of tissues. Nothing noted during the flights.

I have reviewed the documents and the audio/visual tapes. First of all the Engineer in the list of audio truly is the engineer(Nate Lachendro). My voice is not recorded in that exchange.

As far as the stall to the left is concerned-yes it was quite a roll off but the recovery was a nonevent and occurred immediately. In retrospect I believe we experienced the same scenario a day or two prior with a similar roll off to the left. I did mentally question the decision to call it 50 degrees but decided they had their reasons in this test environment.

My mindset in these test flights is to defer to the test pilot who has a much deeper knowledge of the program and the parameters experienced. At no time was I uncomfortable with the stall and especially with Dave’s handling of the aircraft in recovery. I contributed this fall off to the idiosyncrasies of the airplane.

It looks like Dave was more concerned with the percentage of yoke movement on the instrumentation rather than bank angle both in flight and in the debrief.

I see the fuel is relatively in balance possibly a little heavier in the right wing.

I reviewed the video again on the 5.6L and R. VNE exceedance was corrected immediately so should not pose a problem. (Note: In a Grand 208B test program for the DRS system we did

required high dives where we routinely saw airspeed in excess of 200 kts in a 1G pushover. I believe V_{dive} was around 215 or so.)

This was not discussed as a log book entry. In my mind we were operating in a test environment and with previous knowledge of airspeed excursions far above this it became a non-issue. This is not an uncommon occurrence on routine flights.

Do not understand why the amber caution came on at 140 and continued to 153 on 5.6L. The only possible question I have on the draft of the Garmin is a statement concerning full aft elevator at the stall break. It was my impression, although was not briefed on this, that all stalls had full back pressure applied at the break for a two count.

TOM CARR (GARMIN)

The Electronic Stability and Protection (ESP) system engages when the roll angle exceeds 45°, applying force to the appropriate control surface. Once engaged, the Roll Limit Indicator adjusts to 30°, showing the point at which the system disengages as the roll decreases. ESP applies force proportionally between 30° and 75°, with the force increasing as the bank angle grows, reaching maximum torque at 60°. The system disengages when the roll angle returns to 30° or exceeds 75°, and if the airplane remains in this condition for 10 cumulative seconds within a 20-second period, the autopilot will switch to LVL mode.

The only indication of ESP engagement is the additional control force perceived by the pilot, akin to a flight instructor nudging the controls toward normal flight. The force applied varies from 0 pounds at 30° bank to a typical maximum of 15 pounds at 60° bank. At 45°, ESP engages at 50% of the maximum force to ensure the pilot notices activation. Even if the pilot applies counteracting force, the system does not disengage, and the pilot retains control of the airplane within the ESP range.

When the roll angle exceeds 75°, ESP disengages instantaneously, re-engaging immediately if the roll angle returns to within its operating range. The system disables when ESP is turned off, with a corresponding message, "ESP OFF: Pitch and Roll ESP have been disabled," displayed on the G1000 system. There is no specific G-limit at which ESP ceases applying force. For pitch recovery, ESP applies a maximum force of 15 pounds and is limited to about 1.3G or 1.5G, depending on manufacturer specifications. The system disengages when engagement parameters, such as pitch attitude or airspeed, are no longer met but leaves the airplane's trim unchanged.

If the airplane becomes inverted, ESP and autopilot do not operate as long as the bank angle is outside the +/- 75° range. In such a scenario, significant pitch forces would already be applied to the control wheel. For roll exceedances, the aileron servos can activate without corresponding rudder input, as the system does not consider rudder input. However, airplanes equipped with yaw dampers, like the C208 with the G1000 NXi, have yaw dampers that counteract yaw independently of ESP or autopilot roll behavior, which focuses solely on achieving the selected lateral command.

Ashley Haugen [REDACTED]
[REDACTED]

About 4000 feet NW of impact



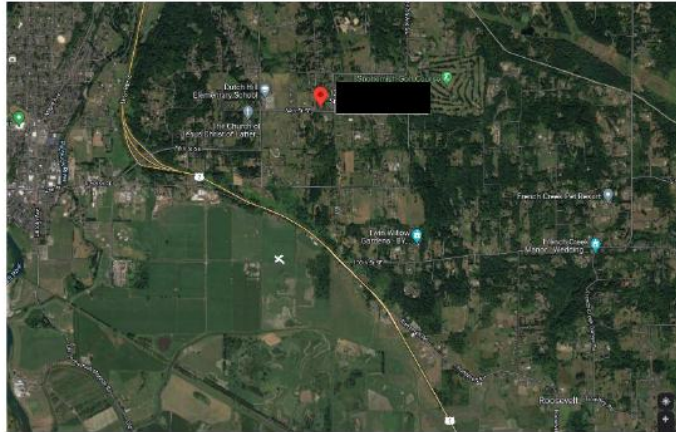
I was sitting on the deck of the house talking on the phone.

Heard a strange, weird sound then I heard nothing. I looked up the sky and saw the plane. There was a white smoke, like the jet stream white cloud type of smoke came out of the plane.

It was descending like a corkscrew shape. I didn't know that it was an exercise or accident. I kept looking, but it didn't pull back up. Soon after, there was a dark fume from the ground, but I did not see the airplane's impact because of the tree line. I called 911.

David Bush, [REDACTED]

About 5000 ft North



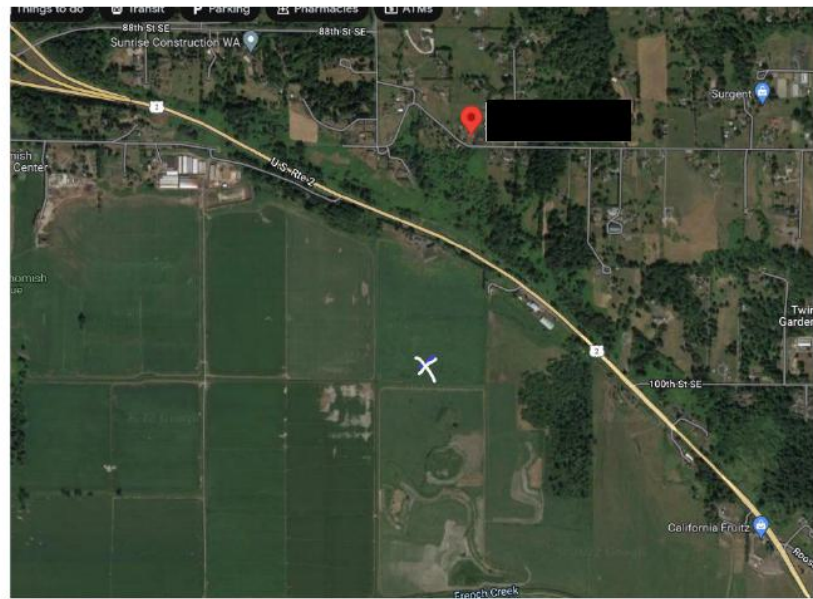
I was outside of the house. It was an unusual loud pop sound. When I saw the airplane, a white smoke was trailing behind the plane. After the sound, the plane started climb, then black smoke came out of the windshield and engine cowling. I saw the left wing separated from the airplane then spiral to the ground slowly. Main body was much faster than the separated wing. I didn't see the impact due to the tree.

It was white smoke first, then climbed more higher and then black smoke. It was 10:10 am and called 911 at 10:15.

Bruce



2000 ft North



I was outside of my house working. I heard sudden, very unusual sound. It was like a roaring of engine, accelerating that I never heard before. As I looked up the sky, the airplane was falling; one wing was separated already. First, I thought that the wing was going to land on us. It was that close. The airplane was literally falling from the sky. I did not see the impact due to the trees. But I saw one piece of the airplane, rectangular in shape, blue-colored, followed by the airplane.

Candace Bodaia



Intersection of HWY 2 & Westwick(?)

I was driving toward Everett. I didn't hear any sound since my radio volume was high. Before meeting the HWY 2, the car in front of me stopped and a lady from the car shouted loud "Plane crash! Plane crash!"

I just saw big explosion on the ground, and a debris was falling in circling counterclockwise. That looked like a white shingle. I called 911.



Kristyn Blocher
Air Safety Investigator
Western Pacific Region

Date: 11/22/2022

Subject: WPR23FA034

Contact: Dan Francis, witness, [REDACTED]


Mr. Francis reports that he was outside working at All About Auto Wrecking ([REDACTED] WA | [REDACTED]) when he heard "a humming noise." He stated that hearing air traffic is very common due to their proximity to Harvey Field, but that this sound was out of the ordinary and caused him to look up to find it. "It just didn't sound like a normal engine." He then heard a "pop" and saw an airplane spiraling downward. After seeing the airplane descending, he noticed a wing falling separately. Mr. Francis reports that a fuel mist then descended over the area he was in, and that he lost sight of the airplane behind a tree line, but before it impacted the ground. Shortly after, he saw black smoke coming from behind the tree line where the airplane had gone out of sight, and sirens could be heard heading toward it.



Kristyn Blocher
Air Safety Investigator
Western Pacific Region

Date: 11/21/2022

Subject: WPR23FA034

Contact: Jordan Vandelak, witness, 


Mr. Vandelak reports that he was at a jobsite 5 miles Northeast of the accident site when he heard an airplane that sounded like a stunt plane. He observed the accident airplane "stalling out" and "falling backward." He then saw the right wing come off and what looked to him like smoke coming from the airplane. He saw the airplane begin to fall, with the separated wing above the airplane, falling more slowly. Shortly before the airplane fell below the tree line and out of sight, Mr. Vandelak says he might have seen the left wing begin to come off as well, but he is not certain about that detail.



Starr Blum
Air Safety Investigator
Western Pacific Region

Date: 11/19/2022

Subject: WPR23FA034

Contact: Marshall Hetland, witness, 

There is a video recording of the interview. Following the interview, Mr. Hetland sent me via text message 1 video and 2 photos of the airplane on fire. He said there was a voice that asked for help twice. He did not see the individual, but believed it was towards the front of the aircraft and on the right side. Mr. Hetland said the individual stopped talking at 10:31 or 10:32 local PST.



Kristyn Blocher
Air Safety Investigator
Western Pacific Region

Date: 11/30/2022

Subject: WPR23FA034

Contact: Robert Garniss, witness, [REDACTED]

Mr. Garniss was working on his airplane at his East facing hangar ([REDACTED]) at Harvey Field (S43), 1.5 miles from the accident site when he heard "a metallic noise." He described it as a crash or bang. About the same time, he stated that he heard "a propeller winding up" as if increasing its RPM. This led him to look up and he saw a large puff of what appeared to be smoke, followed by an airplane spiraling downward. After noting two revolutions, he could see that one wing appeared "torn off." Mr. Garniss lost sight of the airplane behind a railroad berm, just before it impacted the ground. He then saw and heard an explosion that included white smoke first, then black smoke. He made a call to 911 and sirens could be heard heading toward the accident within 3-5 minutes.