

National Transportation Safety Board

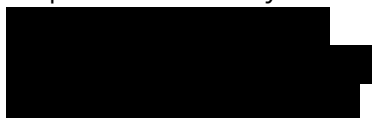
Washington, DC 20594



Response to Petition for Reconsideration

December 11, 2024

Captain Kevin Wayman



In accordance with Title 49 *Code of Federal Regulations (CFR)* 845.32, the National Transportation Safety Board (NTSB) has reviewed the petition for reconsideration and modification of probable cause of the accident involving a Cessna 208B airplane in Whitmore, Arizona, on September 7, 2020 (WPR20CA298).¹ The petitioner has met the requirements for the NTSB's review of his petition; specifically, as the pilot of the accident airplane, he has a direct interest in the investigation and has claimed that the NTSB's findings were erroneous. On the basis of its review of the petition, dated December 8, 2022, the NTSB grants this petition in its entirety.

Background

According to the NTSB's final aviation accident report, the pilot reported that the airplane, which was operated by Grand Canyon Airlines, started to veer left during the landing roll.² The pilot made a right rudder input, but the airplane continued to "drag" left. As the pilot repositioned his feet to apply the brakes, the airplane "turned harder to the left," exited the runway, and impacted terrain, which caused substantial damage to the right wing. The Federal Aviation Administration's (FAA) postaccident examination of the left wheel and tire assembly revealed no anomalies, and the operator's director of maintenance reported that the airplane had no preimpact mechanical malfunctions or failures that would have precluded normal operation of the airplane. The NTSB determined that the probable cause of the accident was "the

¹ The NTSB did not travel to the scene of this accident. The final report for this investigation documents the factual circumstances of the accident as described to the NTSB.

² The airplane landed on a privately owned runway, Grand Canyon Bar Ten Airstrip (1Z1), that was 4,000 ft long and 33 ft wide. The runway was constructed of chip seal. According to the [Center for Dirt and Gravel Road Studies at Pennsylvania State University](#) (accessed October 28, 2024), chip seal is a surface treatment comprised of asphalt and aggregate (gravel).

pilot's loss of directional control during landing, which resulted in a runway excursion and impact with terrain."

Petitioner's Claims and NTSB's Response

The petitioner stated that, even though he reported (as part of the initial investigation of this accident) that the airplane's left main tire became flat during the landing, this information was not mentioned in the final report.³ The petitioner also stated that the flat tire was a mechanical failure that led to the loss of directional control while the airplane was landing on the runway.⁴

The petitioner provided a video recording of the accident landing that was taken by the passenger in the airplane's first-row right seat. The petitioner asserted that the video "clearly shows the events of the landing/accident...you can distinctly hear the main wheels and nose wheel touchdown perfectly normal. You then hear the left main tire go flat with the thudding noise of a flat tire." The petitioner also asserted that the video showed the airplane moving to the left and off the runway after the flat tire.

The NTSB reviewed the video, which began with a view of the right wing.⁵ Normal, constant engine and propeller sounds could be heard on the recording. By elapsed time 00:06, the video showed the view from the front windscreen with the airstrip visible. During the approach, the airplane appeared to be stable in the pitch and roll axes. At elapsed time 00:44, the windsock became visible; the wind appeared calm. At elapsed time 00:48, the airplane was flying over a dirt area just before the threshold of the paved portion of the runway. The approach appeared to be stabilized with the airplane operating at a normal airspeed for that phase of flight.

At elapsed time 00:50, the airspeed decreased as the airplane crossed the runway threshold. A sound consistent with a tire touching down on the runway was recorded at elapsed time 00:52. The stall warning horn annunciated about this time, indicating no excessive speed during touchdown. The video showed that the airplane did not bounce or experience a hard landing upon touchdown, indicating a proper

³ During the review of this petition, we found that the pilot had provided the following written statement to the NTSB on September 14, 2020: "I believe that there was a left main tire malfunction on or before landing."

⁴ At the time of the NTSB's initial investigation, the FAA stated that a postaccident inspection of the left main wheel and tire assembly found a few cuts in the left main tire tread, but the tread depth on the tire was serviceable because the cuts in the tread had not penetrated into the inner tube of the tire. The FAA also stated that the tire was changed on September 4, 2020, which was 3 days before the accident.

⁵ The passenger recorded the video with a handheld portable electronic device in a vertical format. The video captured the view from the first-row right seat.

flare and no aerodynamic stall during flight. The airplane was tracking near the runway centerline at this time.

By elapsed time 00:54, another sound consistent with a tire touching down on the runway was recorded. A change in tire sounds was immediately heard: the low, consistent rumbling sound (due to the rough surface of the runway) changed to a rhythmic "flopping" sound. By elapsed time 00:56, the airplane's pitch attitude was consistent with nosewheel touchdown. Within the next 6 seconds, the airplane's trajectory was to the left of the runway. The right-side control yoke was mostly in the aft position, which would have reduced the weight on the nosewheel by transferring it onto the main wheels.

By elapsed time 01:03, sounds similar to one or more wheels departing the paved surface were heard. By elapsed time 01:04, the view out the front of the airplane indicated that the nosewheel had departed the paved runway surface. At elapsed time 01:07, the airplane passed another windsock indicating calm wind. About 1 second later, small- to medium-sized rocks were visible ahead of the airplane's nose. The control yoke input appeared to be mostly in the aft direction.

The airplane came to a stop off the runway by elapsed time 01:15. Afterward, the sound of the engine could be heard decreasing. The engine sound ceased by elapsed time 01:45, and the video recording ended 37 seconds later.

To further support his position, the petitioner submitted photographs taken during the on-scene investigation. The petitioner explained one photograph (see figure 1) showed the "double track characteristic of a flat tire" on the runway, which he stated was evidence that the airplane did not depart the runway until after the left main tire was flat. The petitioner claimed that the photograph demonstrated that the tire "went flat without adverse [pilot] action."



Figure 1. Tire markings on the runway with the airplane in the foreground (Source: Grand Canyon Air).

Another photograph that the petitioner submitted (see figure 2) showed that the valve stem of the left main tire's rubber inner tube had sheared off, which the petitioner claimed might have been due to "slippage of the main tire."⁶

⁶ The valve stem to the inner tube allows a tire to be inflated and deflated.



Figure 2. Sheared valve stem of the left main tire inner tube (Source: Grand Canyon Air).

As noted above, video evidence indicated a change in tire sounds (from a low rumble to flopping) immediately after what was most likely the left main landing gear tire touching down on the runway.⁷ This evidence is consistent with the left main tire becoming flat, as the petitioner reported during the initial investigation. In addition, the double track shown in figure 1 was likely caused by the rubber in the left and right sidewalls of the left main tire contacting the runway after the center of the tire deflated. Other main landing gear system components sustained no damage.

The flat left main landing gear tire would have increased the drag between the tire and the runway surface, resulting in a left-turning tendency, which was the direction of the runway departure. Thus, the flat left main landing gear tire was the reason for the airplane's loss of directional control.

The left main landing gear tire was installed on the airplane 3 days before the accident. The tire could have become flat if it had been improperly installed or had a material defect. The tire could also have become flat if it hit something immediately after touchdown that was not captured by the video. In addition, the valve (within the inner tube valve stem) could have failed.⁸ However, the tire failure mode could not be

⁷ The left main landing gear tire most likely touched down at video recording time 00:54 given the subsequent events shown in the video and the available evidence for this investigation. Thus, the right main landing gear tire most likely touched down at time 00:52.

⁸ The valve stem could have sheared if the inner tube of the tire shifted (slipped) during touchdown. Also, the valve stem could have started to shear during previous flights before fully separating during the accident landing. The condition of the valve within the valve stem is unknown.

determined based on the available evidence. It is important to note that the tire damage sustained during the landing rollout (from the tire flopping) could have precluded, during the initial investigation, detection of any evidence that might have been present before the failure.

In summary, it was reasonable for the initial investigation to focus on operational issues given the petitioner's statement that a left main tire "malfunction" occurred and the results of the FAA's postaccident examination of the left wheel and tire assembly, which revealed no anomalies. However, after reviewing the new evidence that the petitioner submitted, it was obvious that a main landing gear tire became flat during the landing rollout and that the flat tire led to the loss of directional control. As a result, we have revised the final report accordingly.

Disposition

After review of the evidence, the petition for reconsideration of the NTSB's probable cause in connection with the aircraft accident involving a Cessna 208B airplane in Whitmore, Arizona, on September 7, 2020, is granted in its entirety. The analysis section, the findings, and the probable cause of the final report have been revised to indicate that a flat main landing gear tire caused the airplane's loss of directional control.

Chair HOMENDY and Members GRAHAM, CHAPMAN, BROWN, and INMAN concurred in the disposition of this petition for reconsideration

Enclosure

Revised Final Report