

# CALLBACK

From NASA's Aviation Safety Reporting System



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## Runway Excursions



A Runway Excursion (RE) is a veer off or overrun from the runway surface (ICAO).<sup>1</sup> In layman's terms, an RE occurs when an aircraft departs the runway in use via the runway end or edge, and it may be intentional or unintentional. RE events typically occur during landings or rejected takeoffs when aircraft are unable to stop by the runway's end, or when aircraft landing or taking off inappropriately depart a side of the intended runway.

Contributing factors stem from many sources, including weather, airport conditions, flawed techniques, disregard for procedures, mechanical failure, human factors, and more. Consequences range from none to damaged aircraft, other vehicles, or property up through personal injury or death.

In this issue of *CALLBACK*, we share reported incidents of runway excursions that were potentially catastrophic. Contributing factors may appear familiar, but sage wisdom can be gained as valuable lessons are revealed or revisited.

### Part 91 – Foot Stomper

This Twin Comanche student was caught in a situation that had potential for injury and disaster. Fortunately, damage was minor, and the student learned some important lessons.

■ *During the ground-roll braking after a successful southeast landing, the student pilot's foot and shoe became lodged in the right rudder/brake pedal assembly. While attempting to dislodge his right shoe from the rudder/brake pedal via negative back-pressure, the left pedal was either inadvertently pressed or forced forward due to negative back-pressure on the right pedal. This left pedal drive forced the airplane to veer off the left side of the runway...onto the taxiway.... The veer increased and caused the airplane to spin 180 degrees off the south side of the taxiway into the gravel. Upon crossing the taxiway into the gravel, the right propeller struck a taxiway/runway light, destroying the light and minorly damaging the propeller. Lessons learned: Identify stuck controls as early as possible. Ensure both sets of rudder pedals have braking capability. Ensure all pilots are familiar with potential control interferences or catches. Never force braking. If a pilot notices something is stuck, maintain runway alignment and roll out as far as needed.*

### Part 91 – Communication, Command, and Control

An unsuspecting Cherokee pilot experienced a dangerous control issue during the landing rollout. A classic, but preventable human factor contributed to the circumstances.

■ *I was the pilot flying (sole manipulator of the controls) in the left seat. In the right seat was the acting Pilot in Command (PIC), as I was not current for passengers. I kept a slightly higher airspeed on short final due to wind conditions. Upon landing in winds that, at the surface, were reported as 12 knots, gusting to 17 with a 10-degree right crosswind, I found the aircraft to be difficult to control. It swerved a bit left and right. As I attempted to gain control, I found it nearly impossible to add left rudder when needed. Then, suddenly, the left rudder freed itself, and the plane swerved severely left, entering the grass momentarily before I turned back onto the runway. No damage was done. The acting PIC asked me, "What do you suppose happened there?" I answered that I believed we were both on the rudder pedals. He replied that he did, in fact, have right rudder applied. I suspect when he released right rudder pressure, the left rudder became free, and since I was applying significant pressure on it, this caused the [excursion]. I had [briefed] with the PIC before the flight, indicating if he said, "My controls," that I would relinquish them immediately. However, he had not indicated to me that he was planning to use the rudder during our landing, nor did he inform me he was on the rudder. I have learned that if I have an acting PIC with me and I am the pilot flying, I must be more specific about communication and use of the controls.*

### Part 135 – Reliable Braking Action

An Aero Commander air taxi Captain anticipated good traction after receiving the braking action report, but the report provided inaccurate data for a portion of the runway.

■ *I ran into heavy freezing rain and icing on approach to Runway XX. The aircraft deicing system (TKS [fluid]) handled airframe icing normally, and windshield deicing became minimal. There was a strong north crosswind on landing. Slowing to a taxi speed with the crosswind on a*

glazed, iced runway, the steering became nil at slow speed, and the aircraft slowly drifted off the edge of the runway's landing surface. Braking effectiveness became nil. The aircraft slid slowly sideways after rudder control at a low taxi speed became ineffective. TKS [de-icing fluid] was required continuously...from Moline and was at 3 gallons remaining on approach. It was safer to land in these conditions than attempt a flight on with minimal deicing TKS fluid remaining while in moderate to heavy icing. The windshield became 80% iced over, precluding adequate visibility to circle to Runway XY. Tower reported braking action 5 good. No aircraft damage occurred, and nothing was struck. I just simply had a drifting excursion off the side of the runway's main tarmac. I did not get into soft soil and was on reinforced tarmac edge. After inspection while parked, then with the assistance of airport personnel, I was able to restart and slowly exit the runway and taxi onto the ramp.

## Part 135 – Unstable or Unable

This Citation Captain experienced circumstances that resulted in a high-energy approach. The approach was continued, but the landing imposed two serious surprises.

■ On approach to Runway XX into the ZZZ airport, we were kept high and left of center due to an approaching aircraft into ZZZ1. We were prevented from making a proper pattern due to the approaching traffic and had less than the expected time to descend. We approached faster than normal and were able to lower landing flaps at approximately 500 feet [AGL] and retract speedbrakes around 50 to 75 feet. Our fast approach speed caused a longer than normal float above the runway, and we were not able to touch down until the 4,000 [feet] remaining sign. We applied full brakes, but the higher-than-normal touchdown speed and high altitude of the airport caused a slower than normal deceleration. We were unable to stop the aircraft and exited the end of the runway into a gravel overrun pad. On the gravel pad, the First Officer (FO) exited the plane and inspected the landing gear, noting no damage. In an attempt to taxi back onto the runway, the nose gear caught on the edge of the runway, and the nose gear collapsed.

## Part 135 – Along for the Ride

A BD700 First Officer describes excursion details and this crew's actions during the landing rollout when surprise, confusion, and the elements prevailed for a moment.

■ A Bombardier Global Express...experienced a runway excursion following landing on Runway XX. Runway XY

was in use. Runway XX was requested and approved, due to winds favoring Runway XX. Meteorological conditions [were] winds 340 at 11 knots, visibility 10 statute miles, and no ceiling or cloud cover. The aircraft touched down and decelerated normally. Approaching Taxiway XX, the aircraft suddenly yawed to port as if the left main wheel brake had locked. The pilot flying [Captain] attempted to arrest the left yaw with the nose wheel steering and differential braking using opposite rudder input without success and then announced, "I have no nose wheel steering." [I], the pilot not flying, applied right rudder and brake pressure to assist the [Captain] in an attempt to turn the aircraft to starboard. The aircraft rolled off Runway XX...just prior to Taxiway XX and onto the hard surface at slow speed, approximately 35 feet from the edge of the runway, the farthest main gear position.... The Captain cycled the Nose Wheel Steering Switch, resulting in control authority being restored. The aircraft returned to the runway under its own power and was cleared to taxi to the ramp without further incident. Total aircraft roll, from point of touchdown to the point the aircraft returned to runway centerline, is estimated to be 2,500 feet.

Post-flight inspection revealed no damage to the aircraft. Airport personnel reported no damage...to airport lighting or property. Maintenance personnel are scheduled to inspect the aircraft.... The aircraft had recently completed a 240-month inspection with Maintenance. The Operator's Maintenance Crew Chief assigned to this specific aircraft... advised the crew post-mishap that the nose wheel steering had failed during an engine run when the aircraft was with Maintenance. The date and time of that event, the nose wheel steering failure in Maintenance, are unknown.

Following the adverse yaw, [I] assumed the [Captain] had control of the aircraft due to the slow speed. As a result, [I] did not intervene with regard to control of the aircraft as the aircraft deviated from runway centerline to the port... edge of the runway.... [I] did, however, intervene to assist the [Captain] once the announcement 'I have no nose wheel steering' was made. This delay...may have contributed to the runway excursion. [I] was not aware of the level of brake application by the [Captain] during the sequence of events, but [I] did apply differential braking as the aircraft approached the runway edge. Following the event, the [Captain] stated he had exercised 'full brake application.'

1. [https://www.faa.gov/airports/runway\\_safety/excursion](https://www.faa.gov/airports/runway_safety/excursion)

### Learn More About ASRS UAS Safety Reporting

ASRS Alerts Issued in September 2023	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	2
Airport Facility or Procedure	12
ATC Equipment or Procedure	3
Maintenance Procedure	2
Other	2
<b>TOTAL</b>	<b>21</b>

526  
A Monthly Safety  
Newsletter from  
**The NASA**  
Aviation Safety  
Reporting System  
P.O. Box 189  
Moffett Field, CA  
94035-0189  
<https://asrs.arc.nasa.gov>

September 2023 Report Intake	
Air Carrier/Air Taxi Pilots	4,501
General Aviation Pilots	1,474
Flight Attendants	725
Controllers	410
Military/Other	279
Dispatchers	205
Mechanics	180
<b>TOTAL</b>	<b>7,774</b>