



# Aviation Investigation Final Report

<b>Location:</b>	Burlington, Wisconsin	<b>Accident Number:</b>	CEN22LA221
<b>Date &amp; Time:</b>	June 1, 2022, 20:15 Local	<b>Registration:</b>	N65009
<b>Aircraft:</b>	CAMERON BALLOONS Z-90	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision during takeoff/land	<b>Injuries:</b>	3 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Other work use		

## Analysis

The pilot was making an approach from the southeast to land the hot air balloon on a road that paralleled railroad tracks. A freight train was traveling northbound on the tracks at the same time. The balloon initially touched down in a grassy area east of the road, between the road and the railroad tracks. The balloon skipped normally and stopped near the railroad tracks. The balloon envelope dipped as a result of being slightly deflated for the landing and caught on one of the uprights of an empty lumber car as it passed, which lifted the balloon off the ground and dragged it.

As the balloon was dragged, the uprights, envelope, burners, and fuel lines separated from the basket and the pilot and passengers were ejected. The engineer in the engine cab immediately stopped the train. The basket came to rest inverted along the east side of the railroad tracks. The envelope climbed to 200 ft. and drifted north until it cooled and came to rest on the road, about 80 ft from the basket.

The pilot misjudged the landing, which placed him too close to the railroad tracks and resulted in the balloon's envelope being caught and the balloon being dragged by the freight train as it went by.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's selection of an inappropriate landing location and his failure to avoid an oncoming freight train, which resulted in the train colliding with and dragging the balloon.

## Findings

<b>Personnel issues</b>	Decision making/judgment - Pilot
<b>Environmental issues</b>	Ground vehicle - Decision related to condition

# Factual Information

## History of Flight

Landing	Collision during takeoff/land (Defining event)
---------	--

On June 1, 2022, about 2015 central daylight time, a Cameron Z-90 balloon, N65009, was substantially damaged when it was involved in an accident near Burlington, Wisconsin. The pilot and 2 passengers were seriously injured. The balloon was operated as a Title 14 Code of Federal Regulations Part 91 other work use flight.

The pilot reported he had taken off with two passengers near the Burlington Municipal Airport (BUU) and drifted southeast. About an hour into the flight, the lake effect wind moved in and the pilot looked for a place to land. The pilot selected a road east of some railroad tracks and gave the passengers a landing briefing. The pilot noted their speed was 4 mph. The pilot also noticed a slow-moving train to his left but did not think it was a factor. The pilot remembered seeing the park east of the road and contacting the train. The pilot reported being knocked unconscious and that he did not recall anything else.

The engineer on the Canadian National freight train reported that he saw the balloon descending and began to slow the train as he did not know where the balloon was going. He said that he saw the balloon approach the train in his side mirror, at which time he applied the emergency brakes. The balloon then landed in the grassy area between the railroad tracks and a street. As the balloon began to lose air and become limp it started to blow toward the rail cars. The balloon envelope caught on one of the cars, 15 cars back from the engine, and the balloon was pulled off the ground. The envelope then ripped away from the basket and ascended about 200 ft into the air. None of the occupants of the train were injured.

Onboard forward- and rear-facing video recordings from the freight train engine showed that the balloon descended toward a road that ran parallel to railroad tracks just east of the train. In both videos, the balloon envelope was fully inflated as it slowly descended toward the road near an electrical substation. In the rear-facing video, the pilot engaged the burners just before the balloon disappeared behind the first freight car.

A witness who was at the nearby dog park reported that the balloon came over the tree line south of the dog park about 50 ft above the trees. The balloon descended as if it were going to land in the park but continued over the adjacent street toward the railroad tracks, which at the time had a train traveling northbound. The balloon landed in the grassy area between the railroad tracks and the street, and the balloon envelope became limp. The balloon then caught

on one of the train cars which pulled the balloon off the ground. The envelope tore away from the basket and the three individuals in the basket fell out.

A Federal Aviation Administration inspector who responded to the scene reported that witness marks showed the balloon initially touched down in the grassy area between the road and the railroad tracks, and again a second time closer to the railroad tracks. The balloon envelope caught on one of the uprights of an empty lumber car as it passed, which lifted the balloon off the ground and dragged it.

The balloon basket was intact and found inverted near the railroad tracks. Both propane tanks were intact and remained secured in the basket. One fuel line was separated from one tank. The fuel line to the second tank was separated near the burner attachment end. The envelope came to rest on a road, about 80 ft north of the basket.

The aluminum uprights fractured at the basket attach points. The cross tubes and burners were broken out at their attach points at the top of the uprights. The envelope sustained substantial damage to the A-blocks, carabiner attachments, and flying lines. Additionally, several panels to the envelope were ripped. Control continuity to the envelope spring top and turning vents was confirmed. Postaccident examination of the balloon showed no mechanical malfunctions or failures that would have precluded normal operation.

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	63, Male
<b>Airplane Rating(s):</b>	Single-engine sea	<b>Seat Occupied:</b>	None
<b>Other Aircraft Rating(s):</b>	Balloon	<b>Restraint Used:</b>	None
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	March 12, 2021
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	August 1, 2021
<b>Flight Time:</b>	983 hours (Total, all aircraft), 18 hours (Total, this make and model), 832 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CAMERON BALLOONS	<b>Registration:</b>	N65009
<b>Model/Series:</b>	Z-90	<b>Aircraft Category:</b>	Balloon
<b>Year of Manufacture:</b>	2017	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Balloon	<b>Serial Number:</b>	6612
<b>Landing Gear Type:</b>		<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>		<b>Certified Max Gross Wt.:</b>	1800 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	0
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	
<b>Registered Owner:</b>		<b>Rated Power:</b>	
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KBUU, 780 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	19:55 Local	<b>Direction from Accident Site:</b>	315°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.92 inches Hg	<b>Temperature/Dew Point:</b>	19°C / 13°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Burlington, WI	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Burlington, WI	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	2 Serious	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 Serious	<b>Latitude, Longitude:</b>	42.671222,-88.268074

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Bowling, David		
<b>Additional Participating Persons:</b>	Michael Piezynski; Federal Aviation Administration; Milwaukee, WI		
<b>Original Publish Date:</b>	July 6, 2023	<b>Investigation Class:</b>	3
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=105172">https://data.nts.gov/Docket?ProjectID=105172</a>		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).