Aviation Investigation Final Report

Location:	Sandown, New Hampshire	**Accident Number:**	MIA08CA193
Date & Time:	September 12, 2008, 07:30 Local	**Registration:**	N151TS
Aircraft:	Cameron Balloons Z-150	**Aircraft Damage:**	Minor
Defining Event:	Hard landing	**Injuries:**	2 Serious, 5 None
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

According to the balloon pilot, he had checked several weather sources and sent up several helium balloons to check local winds. The flight path and speed of the test balloons confirmed the weather forecasts obtained earlier, and he saw no significant winds either on the ground or aloft. Early in the flight, the pilot noticed that the winds aloft had increased significantly. He descended to assess how close to the ground the increased winds were, so that he could start to plan for a landing. As the balloon came close to treetop level, he experienced increased wind speeds, and decided to land as soon as possible. The pilot prepared the passengers for a fast, hard, drag landing. As he approached the landing site, he allowed the balloon basket to drag through the top of trees in an effort to reduce speed. The pilot estimated that they decreased their horizontal balloon speed by 50 percent. Once clear of the trees, and over the landing site, he vented the balloon to facilitate a fast descent into the field. He informed the passengers that they would have a very hard landing and warned them to get ready for impact. Two passengers had squatted in the balloon to avoid contact with the treetops, and never returned to the correct landing position, as previously instructed by the pilot. Those passengers sustained serious injuries during the hard landing. The reported wind at a nearby airport, about 30 minutes prior to the accident, was from 190 degrees at 5 knots. Examination of the balloon revealed minor damage to the basket and no preimpact structural or mechanical failures.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot’s encounter with high winds during approach. Contributing to the severity of injuries was the passengers' improper landing preparation.

Findings

Environmental issues	High wind - Effect on operation

Factual Information

History of Flight

Approach	Other weather encounter
Landing	Hard landing (Defining event)

According to the balloon pilot, he had checked several weather sources and sent up several helium balloons to check local winds. The flight path and speed of the test balloons confirmed the weather forecasts obtained earlier, and he saw no significant winds either on the ground or aloft. Early in the flight, the pilot noticed that the winds aloft had increased significantly. He descended to assess how close to the ground the increased winds were, so that he could start to plan for a landing. As the balloon came close to treetop level, he experienced increased wind speeds, and decided to land as soon as possible. The pilot prepared the passengers for a fast, hard, drag landing. As he approached the landing site, he allowed the balloon basket to drag through the top of trees in an effort to reduce speed. The pilot estimated that they decreased their horizontal balloon speed by 50 percent. Once clear of the trees, and over the landing site, he vented the balloon to facilitate a fast descent into the field. He informed the passengers that they would have a very hard landing and to get ready for impact. Two passengers had squatted in the balloon to avoid contact with the treetops, and never returned to the correct landing position, as previously instructed by the pilot. Those passengers sustained serious injuries during the hard landing. The reported wind at a nearby airport, about 30 minutes prior to the accident, was from 190 degrees at 5 knots. Examination of the balloon by the Federal Aviation Administration found minor damage to the balloon's basket, and no preimpact structural or mechanical failures.

Pilot Information

Certificate:	Commercial	**Age:**	53,Male
Airplane Rating(s):	None	**Seat Occupied:**	
Other Aircraft Rating(s):	Balloon	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	None None	**Last FAA Medical Exam:**	June 12, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 12, 2007
Flight Time:	902 hours (Total, all aircraft), 149 hours (Total, this make and model), 902 hours (Pilot In Command, all aircraft), 64 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cameron Balloons	**Registration:**	N151TS
Model/Series:	Z-150	**Aircraft Category:**	Balloon
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	6485
Landing Gear Type:	None	**Seats:**	
Date/Type of Last Inspection:	May 11, 2008 100 hour	**Certified Max Gross Wt.:**	3000 lbs
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:	148 Hrs at time of accident	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MHT,266 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	06:53 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 6500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	190°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.19 inches Hg	**Temperature/Dew Point:**	13°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salem, NH (None)	**Type of Flight Plan Filed:**	None
Destination:	Sandown, NH (None)	**Type of Clearance:**	None
Departure Time:	06:30 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Minor
Passenger Injuries:	2 Serious, 4 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious, 5 None	**Latitude, Longitude:**	42.928611,-71.186943(est)

Administrative Information

Investigator In Charge (IIC):	Wilson, Ralph
Additional Participating Persons:	Jim Newton; FAA/FSDO; Portland, ME
Original Publish Date:	January 22, 2009
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68937