Aviation Investigation Final Report

Location:	New Holland, Pennsylvania	**Accident Number:**	NYC07LA114
Date & Time:	May 5, 2007, 19:00 Local	**Registration:**	N5312X
Aircraft:	Cameron Balloons A-250	**Aircraft Damage:**	Minor
Defining Event:		**Injuries:**	2 Serious, 2 Minor, 8 None
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

During takeoff, the Cameron Balloons A-250 came into contact with a support vehicle. As the balloon ascended with its 12 occupants, the pilot observed a balloon, which previously departed, heading south. The pilot noticed that instead of going south, he was drifting northeast. He varied altitude but his direction did not change. Thirty minutes into the flight, ground speed was 16 mph, and he attempted to land several times. As the balloon approached a hilly area, the wind increased to 18 mph, and the pilot attempted to land in a field. The balloon struck a tree, which turned the rectangular basket forward. The basket struck the ground and a passenger was ejected; he struck other passengers, and ended up beneath the basket. Passengers were not given a safety briefing prior to the flight. Prior to landing, passengers were told to put their backs against the basket, but there was not enough room for all passengers to do so. The pilot stated that he received a weather briefing prior to the flight via television, radio, and Internet, but not from flight service.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Unfavorable winds and terrain during a precautionary landing.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: APPROACH

Findings
1. (C) WEATHER CONDITION - UNFAVORABLE WIND
2. (C) TERRAIN CONDITION - NONE SUITABLE
3. OBJECT - TREE(S)

Occurrence #2: MISCELLANEOUS/OTHER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

HISTORY OF FLIGHT

On May 5, 2007, at 1900 eastern daylight time, a Cameron Balloons A-250, N5312X, operated by The United States Hot Air Balloon Team, received minor damage when it contacted a tree near New Holland, Pennsylvania. The certificated commercial pilot and seven passengers were not injured, two passengers received minor injuries, and two passengers received serious injuries. Visual meteorological conditions prevailed, and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91 sightseeing flight.

According to the pilot, another balloon had departed just prior to his balloon, and was headed south at approximately 3,000 feet mean sea level (msl). The pilot then initiated an ascent with his 11 passengers and climbed to 3,000 feet msl. He noticed that instead of his balloon going in the same direction, it started to drift to the northeast. His balloon then climbed about 500 feet higher than the other balloon; however; the direction of travel did not change and his balloon began to descend and eventually leveled at 1,200 feet msl. He then passed over a town and made a low pass over an open field, approximately 30 minutes into his flight. His ground speed showed 12 mph. Using field glasses, the pilot then started looking for a landing area. The balloon then slowed "considerably" and he considered an attempt to land; however, his balloon was over "farm buildings and powerlines." As the balloon approached a hilly wooded area, the winds increased to 18 mph. He then noticed a grass field and made an approach for an attempted landing. The balloon struck a tree, which turned the rectangular basket forward. The basket then struck the ground, long end first, and a passenger was ejected from the basket, striking other passengers in the process, before he finally ended up beneath the basket.

According to the passenger interviews, there was no safety briefing prior to the flight. During the liftoff, there was a problem with the wind, and the basket came in to contact with a vehicle. While in-flight, the pilot attempted to land several times. The passengers felt that the passenger compartment of the basket was "over-crowded." Prior to landing they were told to put their backs against the basket; however, there was not enough room for the 11 passengers to do so. When the basket finally impacted the ground, the burners "came on" and the basket flipped over.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with a rating for lighter-than-air free balloon. According to records provided by the pilot, he reported a total flight experience of 1,970 hours, with 1,700 hours in balloons, and 100 hours in the Cameron Balloons A-250.

AIRCRAFT INFORMATION

The balloon was manufactured in 1998. The balloon's most recent annual inspection was completed on April 20, 2007, and at the time of the inspection, it had accumulated 484 total hours of operation.

METEOROLOGICAL INFORMATION

A weather observation taken 7 minutes prior to the accident, at Lancaster Airport (LNS), Lancaster Pennsylvania, located approximately 11 nautical miles southwest of the accident site, included winds from 260 degrees at 6 knots, visibility 10 miles, sky clear, temperature 19 degrees Celsius, dew point 7 degrees Celsius, and an altimeter setting of 30.02 inches of mercury.

A weather observation taken 53 minutes after the accident at LNS, included winds from 260 degrees at 11 knots, visibility 10 miles, sky clear, temperature 18 degrees Celsius, dew point 7 degrees Celsius, and an altimeter setting of 30.03 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Examination of the balloon by a Federal Aviation Administration (FAA) inspector revealed that six panels of the envelope had been torn and the upper rail of the gondola was bent. No preimpact malfunctions were observed.

TESTS AND RESEARCH

According to the pilot the wind was "still fairly calm" during the liftoff. He advised the National Transportation Safety Board that he had received a full weather briefing prior to the accident flight. In his Pilot/Operator Accident Report, he reported that he had received his weather information from television, radio, the Internet, and the operator.

Review of video and photographs taken during the flight revealed clouds in the distance and approximately 30 minutes into the flight, the pilot advised the passengers that they "were moving along pretty good, 16 mile an hour."

Weight and Balance Information

During interviews with the passengers it was determined that three of the passengers weights had been listed incorrectly on the weight and balance form which resulted in an error on the passenger list of 165 pounds less than the actual weight.

Flight Manual

According to the balloon manufacturer’s flight manual, the passengers should have been

informed "well before meeting for the flight," that they should wear sturdy shoes (such as climbing boots or strong walking shoes), long pants, long sleeved shirts, or jackets and that "passengers should be issued protective headgear and leather gloves."

The flight manual also stated that, the passengers should be briefed on what to expect during the takeoff, landing, in flight, the safe places to hold on to during landing, as well as the differences in how to brace for both normal and high wind landings.
Additionally, the flight manual stated that the balloon should not be flown free in surface winds greater than 15 knots (17.262 mph). Flights into meteorological conditions are prohibited, which could be associated with erratic winds and gusts of 10 knots (11.508 mph) above the mean wind speed. Additionally, the balloon must not be flown if there is extensive thermal activity or any cumulonimbus activity.

Balloon Flying Handbook

According to the Balloon Flying Handbook (FAA-H-8083-11), prior to inflation is the most appropriate time to give passengers their first briefing for behavior during the flight and landing. The pilot should inform them that during the landing they should stand in the basket where he indicates (based on wind conditions), facing the direction of flight, with feet and knees together, knees slightly bent, holding tightly to the sides of the basket and that they are not to exit the basket until instructed to do so.

It also advises that after inviting the passengers into the basket, to again brief them on behavior in the basket; advise them not to touch any control lines, to take care of their possessions, to stay well within the confines of the basket, not to sit on the side of the basket, and, above all, to obey the pilot in command.

Additionally, it advised that just prior to landing that the pilot in command should explain correct posture and procedure to the passengers, and to prepare the passengers for the possibility of a hard impact and to have them, stand in the appropriate area of the basket, face the direction of travel, place their feet and knees together with knees bent, hold on tight in two places, and to stay in the basket.

Pilot Information

Certificate:	Commercial; Private	**Age:**	64,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**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	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	February 22, 2006
Flight Time:	1970 hours (Total, all aircraft), 100 hours (Total, this make and model), 1970 hours (Pilot In Command, all aircraft), 4 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cameron Balloons	**Registration:**	N5312X
Model/Series:	A-250	**Aircraft Category:**	Balloon
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	6186
Landing Gear Type:	None	**Seats:**	
Date/Type of Last Inspection:	April 1, 2007 Annual	**Certified Max Gross Wt.:**	5000 lbs
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:	488 Hrs as of last inspection	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	Sosumeaso International Inc	**Rated Power:**	
Operator:	United States Hot Air Balloon Team	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	LNS,387 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	240°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	19°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Strasburg, PA	**Type of Flight Plan Filed:**	None
Destination:	Strasburg, PA	**Type of Clearance:**	None
Departure Time:	18:00 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Minor
Passenger Injuries:	2 Serious, 2 Minor, 7 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious, 2 Minor, 8 None	**Latitude, Longitude:**	40.166667,-76.083335(est)

Administrative Information

Investigator In Charge (IIC):	Gunther, Todd
Additional Participating Persons:	Frank Gurish; FAA/FSDO; Harrisburg, PA
Original Publish Date:	December 24, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65750