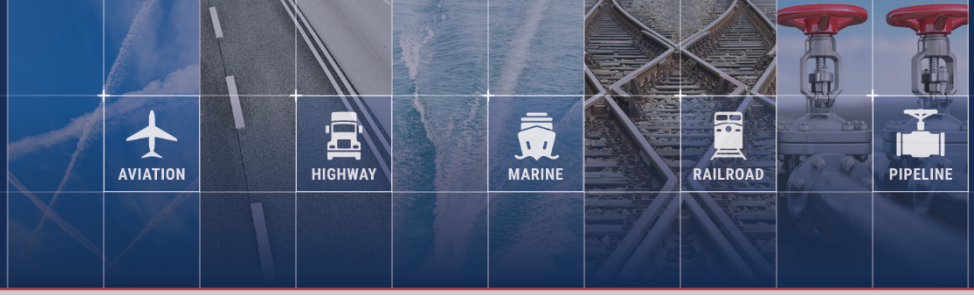

Aviation Investigation Final Report

Location:	DAVIS, California	**Accident Number:**	LAX95LA237
Date & Time:	July 3, 1995, 08:45 Local	**Registration:**	N6317U
Aircraft:	Aerostar S-77A	**Aircraft Damage:**	Minor
Defining Event:		**Injuries:**	1 Fatal, 2 Minor, 7 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

THE PILOT WAS LANDING THE BALLOON WHEN IT BEGAN TO DESCEND RAPIDLY. THE BASKET CONTACTED THE GROUND, TIPPED FORWARD, AND THREE PASSENGERS WERE EJECTED. AFTER CONTACTING THE GROUND WITH THE BASKET, THE BALLOON CONTINUED BACK INTO THE AIR. WINDS WERE REPORTED BETWEEN 10 AND 15 MPH AT THE TIME. THE PILOT REPORTED THAT SHE HAD OBTAINED A WEATHER BRIEFING AND BRIEFED THE PASSENGERS ON WINDY LANDINGS. THE BALLOON MANUFACTURER STATED THAT THERE ARE NO ESTABLISHED WIND LIMITS (LAUNCH OR LANDING) FOR OPERATION OF THE BALLOON, AND THAT OPERATIONAL WIND LIMITATIONS ARE AT THE DISCRETION OF THE PILOT, BASED ON EXPERIENCE AND ABILITY.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's misjudgement of the balloon's excessive rate-of-descent in a high wind landing and her inadequate remedial action to correct the condition.

Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

1. WEATHER CONDITION - UNFAVORABLE WIND
2. TERRAIN CONDITION - ROUGH/UNEVEN
3. (C) DESCENT - EXCESSIVE - PILOT IN COMMAND
4. (C) FLARE - MISJUDGED - PILOT IN COMMAND
5. (C) REMEDIAL ACTION - INADEQUATE - PILOT IN COMMAND

Factual Information

On July 3, 1995, at 0845 Pacific daylight time, an Aerostar Raven S-77A, N6317U, landed hard near Davis, California. One passenger sustained fatal injuries and two others incurred minor injuries; the commercial pilot and the remaining six passengers were not injured. The balloon sustained minor damage. The balloon was owned and operated by Balloons Above the Valley and was on a commercial sightseeing flight under 14 CFR Part 91 when the accident occurred. The flight originated from the Yolo County airport, Yolo, California, at 0715 on the day of the accident. Visual meteorological conditions prevailed and no flight plan had been filed.

The pilot told responding fire department officials that she was making a planned landing approach when "the balloon came in a little fast and hit the ground. When it did, some of the passengers bounced out." Rescue personnel reported weather at the accident scene was fine and the winds were blowing between 10 and 15 mph at the time.

According to a review of Federal Aviation Administration records, there was no record of the pilot obtaining a preflight weather briefing. The pilot reported that "the weather briefing was obtained." The operator produced a weather briefing form that showed the weather briefing was obtained under registration N2559V. The weather briefing form is appended to this report.

The pilot stated that she took off after briefing the passengers on safety procedures for landing, particularly under "windy" conditions. The briefing included instructions to hold on with both hands, not to get out of the basket until instructed to do so by the pilot, and prepare for landing by slightly flexing their knees. At least one passenger denied receiving a preflight briefing, but did acknowledge an in-flight briefing.

There were no helmets available on the balloon. The flight manual includes helmets on the required minimum equipment list (MEL). The flight manual emergency procedures also requires that helmets be worn in the event of a high wind landing.

After 30 minutes aloft, the pilot again briefed the passengers on safety procedures for landing, and descended to check the winds. After selecting a large flat plowed field as a landing site, the pilot again briefed the passengers. The pilot described her descent as gradual at the rate of 150 fpm.

When the balloon had descended to 5 feet agl, the pilot made a final burn to slow the descent rate at touchdown. At between 3 and 5 feet she turned off her burner in preparation for touchdown. After the basket made contact with the ground, it tipped over in the direction of travel. It was at this point that the companion of the passenger who received fatal injuries reported that she "slid out of the basket" without any visible effort to restrain herself. The pilot

said that the plowed field was rougher than it had appeared at altitude, and she felt this contributed to the basket tipping over early in the landing sequence.

After having touched down, the balloon ascended back into the air for a period of 5 seconds, traveling an additional 100 to 150 yards. The pilot concluded that balloon ascended because it had encountered a thermal on landing. She repeated her instructions for everyone to stay in the basket until she advised that it was all right for them to get out.

After the basket contacted the ground a second time and the balloon had landed, the pilot determined that three passengers were not in the basket. The occupants who were ejected were located approximately 10 yards from the point of the balloon's initial touchdown.

A postaccident examination conducted by FAA airworthiness inspecors revealed minor damage to the basket and instruments. According to the inspector's oral report, an inspection of the aircraft forms and records did not disclose any discrepancies that would have rendered the balloon unsafe.

Although the balloon demonstrated landings in surface winds of 5 mph in certification tests, the balloon manufacturer states that there are no established wind limits (launch or landing) for operation of the balloon, and operational wind limitations are at the discretion of the pilot, based on experience and ability. Normal and emergency procedures and performance data are appended to this report.

The basket is constructed so that all occupants maintain a standing position. The occupiable space of the basket is partitioned into five sections. The passenger sections are fore and aft (oriented with the direction of travel), and left and right. The occupants who were ejected were in the forward right section and the aft left section. The pilot occupies an undivided center section. There are no occupant restraint systems required, or available. A basket engineering schematic is appended to this report.

Pilot Information

Certificate:	Commercial	**Age:**	29,Female
Airplane Rating(s):	None	**Seat Occupied:**	Unknown
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 Unknown	**Last FAA Medical Exam:**	
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	564 hours (Total, all aircraft), 183 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerostar	**Registration:**	N6317U
Model/Series:	S-77A S-77A	**Aircraft Category:**	Balloon
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	S77A-3013
Landing Gear Type:		**Seats:**	0
Date/Type of Last Inspection:	February 7, 1995 Annual	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:	51 Hrs	**Engines:**	Unknown
Airframe Total Time:	795 Hrs	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	BALLOONS ABOVE THE VALLEY	**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SMF ,24 ft msl	**Distance from Accident Site:**	21 Nautical Miles
Observation Time:	08:47 Local	**Direction from Accident Site:**	30°
Lowest Cloud Condition:	Scattered / 1000 ft AGL	**Visibility**	15 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	20°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DAVIS WOODLAND , CA (2Q3)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	07:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Minor
Passenger Injuries:	1 Fatal, 2 Minor, 6 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 2 Minor, 7 None	**Latitude, Longitude:**	38.54993,-121.799346(est)

Administrative Information

Investigator In Charge (IIC):	Crispin, Robert
Additional Participating Persons:	PETER WILHELMSON; SACRAMENTO , CA
Original Publish Date:	January 29, 1996
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=29138