

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR24FA072

VIDEO FILES

Group Chair's Factual Report

September 30, 2024

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A. ACCIDENT

Location: Eloy, Arizona
Date: January 14, 2024
Time: 0747 mountain standard time (MST)
1447 coordinated universal time (UTC)
Balloon: Kubicek BB85Z, Droplyne LLC, N4961D

B. VIDEO FILES GROUP

Group Chair: Michael Portman
Senior Aerospace Engineer – Recorder Specialist
National Transportation Safety Board (NTSB)

IIC: Andrew Swick
Aviation Accident Investigator
NTSB

Group Member: Albert Nixon
Senior Aviation Accident Investigator
NTSB

Group Member: Andrew Baird
Accident and Safety Analyst
Balloon Federation of America

Group Member: Petr Kubicek
Head of Design
Kubicek Balloons

Group Member: Radim Oravec
Chief Engineer
Kubicek Balloons

C. DETAILS OF THE INVESTIGATION

In agreement with the Investigator-In-Charge, a Video Files group was convened on April 24, 2024, and a summary was prepared. The NTSB Vehicle Recorder Division received the following onboard recorder:

Device Manufacturer/Model:	Insta360 X3
Part Number:	CINSAAQ/B
Device Serial Number:	Unknown

1.0 Insta360 X3 Description

The Insta360 X3 is a 360-degree field of view action camera. The camera facilitates various modes of still photo capture, including panoramic images. When in dual lens video mode, the camera can capture UHD spherical video with audio. The camera uses internal gyroscope data and other sensors to facilitate reconstruction and playback of the spherical video. The camera leverages both proprietary desktop and mobile based software to allow the user to edit and modify the files.

2.0 Device Condition

The device was in good condition and the data were downloaded using the manufacturer's procedure.

3.0 Image/Video Files Information

The Insta360 contained a microSD card with two videos of the accident flight, both 29 minutes in duration. The videos were captured as a complete sphere and had an equivalent resolution of 5760x2880 pixels of color video and had a frame rate of 29.97 frames per second. The videos additionally contained an associated internal audio track. The camera was mounted to a pole and was generally secured to the outside of the balloon such that the entire basket and envelope was visible. No additional flights were recorded on the Insta360's microSD card.

4.0 Timing and Correlation

Timing of the summary of each video is expressed as Video Elapsed Time, which is time from the beginning of each recording.

5.0 Summary of Recording Contents

Section D is a detailed summary of both videos in the recorded time sequence. Section E provides two screenshots from the second video, as referenced in the detailed summary. In summary, the videos began during preflight with the envelope being inflated. The passengers boarded and the balloon began climbing away at 07:49 in the first video. The skydivers began jumping from the balloon at 5:13 in the second video, and the last skydivers left the balloon at 07:28 in the second video. The pilot took actions to induce descent shortly thereafter. The balloon impacted the ground at 12:09 in the second video.

Additionally, the following notes were made by the group of the videos in general:

- Neither a pre-takeoff check nor a passenger safety briefing were observed during the video.

- Only two of the four scoops' outer attachments were secured.
- Throughout the video, the pilot was noted coughing persistently.

D. SUMMARY OF EVENTS

Table 1. Summary of events from the first video.

Time (mm:ss)	Observation
00:00	The video began with the balloon on the ground near the start of hot inflation, tied to a truck via a two-point V-style quick release system. The outer cover of the quick-release rope showed wear. Movement of the envelope indicated surface winds were not calm. The lighting conditions were pre-dawn twilight and continued to brighten throughout the video.
02:35	The pilot called the passengers to the basket.
03:01	The pilot gave the passengers instructions on where to board. Several passengers were noted walking underneath the tie-off rope and began boarding the balloon shortly thereafter.
03:30	The remaining passengers boarded.
06:18	A ground crew member approached the balloon with a non-padded fuel tank. The crew member swapped the tank with a padded tank onboard the balloon. The pilot placed the new fuel tank in the pilot compartment of the basket and returned to operating the burner without strapping the tank in.
06:35	The pilot removed the safety pin from the quick release system.
07:49	The pilot released the quick release, and the balloon began climbing.
08:46	The pilot pulled the Red line approximately 5 times, then pulled the Red-White line approximately 7 times. The smart vent was observed opening and closing.
10:40	The pilot deployed night lights (a string of white lights hanging below the basket, one solid, one blinking).
13:37	The pilot retrieved a pair of pliers and manipulated fuel line fittings. The pilot subsequently secured the pliers.

Time (mm:ss)	Observation
15:18	The pilot detangled the turning vent lines.
15:52	The pilot manipulated a radio.
16:20	The pilot and passengers discussed the planned jump sequence.
17:17	The pilot moved a bag, secured the previously unsecured fuel tank, and replaced the bag atop the fuel tank.
21:50	The pilot mentioned moving at 40 miles per hour. The pilot then discussed the jumping and landing strategy for the jumpers.
24:38	The pilot noted sunrise and stowed the night lights.
29:00	The recording ended.

Table 2. Summary of events from the second video.

Time (mm:ss)	Observation
00:00	The video began a brief, but indeterminate, time after the end of the first video. A jumper began climbing out of the basket onto the basket rim. Two additional jumpers followed shortly thereafter. During the proceeding several minutes, the pilot performed several long duration burns, causing the jumpers on the rim to duck to avoid the heat.
00:50	The pilot untied a swinging rope from the burner frame and handed it to one of the jumpers.
01:36	The pilot unsecured the camera and moved it to the other side of the basket.
01:54	As the camera moved through the basket, the deflation system vent was visible fully closed. (Figure 1)
05:00	The pilot commented, "we're a tad bit lower but otherwise we're gonna miss it."

Time (mm:ss)	Observation
05:13	The first group of three jumpers launched from the balloon. After the swinging jumper departed, the swing line was noted impacting the fabric of the upper portion of the envelope.
05:25	The next group of jumpers climbed onto the rim. The pilot handed two of the jumpers swing ropes. The pilot described a specific procedure for jumping with the swing rope.
06:20	The second set of two jumpers launched from the balloon, one using a swing rope. After the swinging jumper departed, the swing line was noted impacting the fabric of the upper portion of the envelope.
06:56	A solo jumper launched from the balloon, using a swing rope. After jumper departed, the swing line was noted impacting the fabric of the upper portion of the envelope.
07:07	The next group of jumpers climbed onto the rim.
07:28	The third set of two jumpers launched from the balloon.
07:35	The pilot began pulling the Red line, and pulled it a total of 12 times, looking up at the end of the sequence. While pulling, a knot and missing sheathing were noted on the Red line.
07:42	Shortly after pulling the Red line, the pilot pulled the Red-White line approximately two times, while looking up. The envelope began to deflate noticeably.
07:52	The pilot looked up and pulled the camera through the basket to the other side. The rapid deflation system vent was observed open (Figure 2). The pilot then began securing the camera pole, while conversing with passengers. The envelope was observed rapidly changing shape as it continued deflating.
08:11	The Red line was noted dropping into the basket.
08:20	As the balloon deflated, the scoop, now loose, moved towards the basket. The Red-White line dropped and became pinched between the envelope cables.
08:22	The pilot finished securing the camera.

Time (mm:ss)	Observation
08:27	The pilot grabbed the Red line momentarily, looked up, pulled the Red-White line, and began burning.
08:30	The pilot attempted to untangle the Red-White line from the envelope cables.
08:35	The pilot climbed onto the basket rim and continued untangling the Red-White line.
08:40	The pilot pulled all the slack from the Red-White line, while burning. The mouth of the envelope was visibly distorted. Over the next approximately minute and a half, the pilot continued intermittently pulling slack from the Red-White line and burning. Burn damage occurred in the lower panels of the envelope.
10:04	The envelope had fully deflated by this point. Smoke was noted emanating from the top of the envelope.
10:07	The pilot lights blew out.
10:15	The pilot attempted to re-ignite the burners.
10:25	The burners re-ignited.
10:31	The burners blew out.
10:37	The pilot re-ignited the burners.
10:48	The burners blew out.
11:00	The pilot re-ignited the burners.
11:31	The camera came loose from its mount and dangled against the side of the basket for the remainder of the flight.
12:09	The balloon impacted the ground.

Time (mm:ss)	Observation
13:43	An individual was heard arriving at the scene. They were noted calling emergency services, including mentioning that two individuals were in the basket. Sounds of first response and first aid were noted throughout the remainder of the recording.
29:00	The recording ended.

E. SCREENSHOTS



Figure 1. View at 01:54 in the second video, as the camera passed through the basket, showing the deflation system vent fully closed.

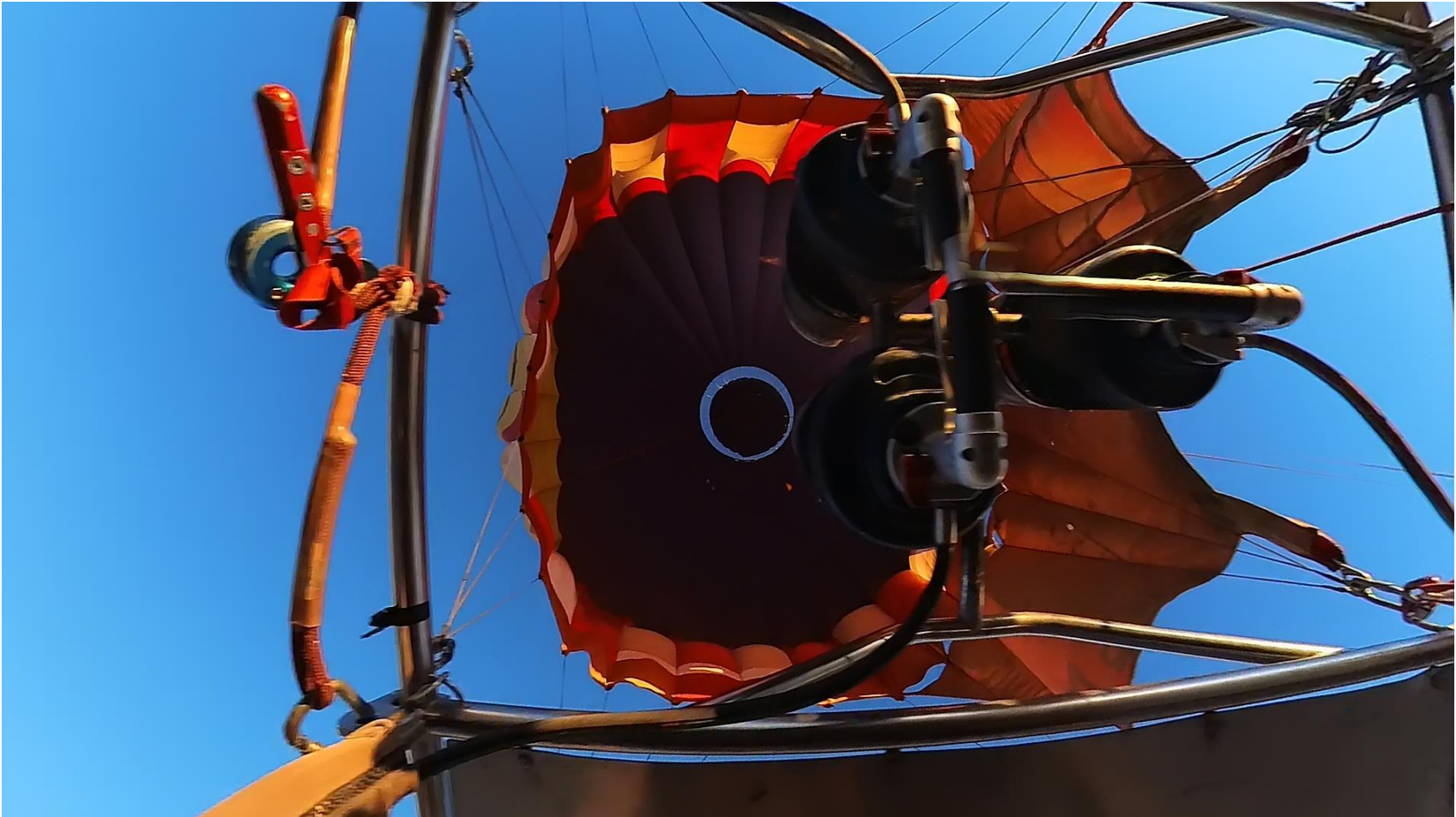


Figure 2. View at 07:52 in the second video, as the camera passed through the basket, showing the deflation system vent open.

Submitted by:

Michael Portman
Sr. Aerospace Engineer - Recorder Specialist