NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, DC 20594

October 2, 2017

Onboard Image Recorder

Specialist's Factual Report
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1. EVENT

Location:	Oshkosh, Wisconsin
Date:	July 24, 2016
Aircraft:	BRM Aero S R O, Bristell E-LSA, N167BL
Operator:	Private
NTSB Number:	CEN16LA283

2. GROUP

A group was not convened.

3. SUMMARY

On July 24, 2016, at 1805 central daylight time, a BRM Aero S R O, Bristell E-LSA, collided with the terrain following a loss of control while landing at the Wittman Regional Airport (OSH), Oshkosh, Wisconsin. The pilot received serious injuries. The airplane was substantially damaged. The aircraft was registered to Sport Flying USA, Inc. and was operated by a private individual under the provisions of 14 *Code of Federal Regulations* Part 91 as a business flight. Visual meteorological conditions prevailed for the flight, which not operated on a flight plan. The last leg of the cross country flight originated from the Watertown Municipal Airport (RYV), Watertown, Wisconsin.

4. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received a SD card and a 128 GB Micro SD Card. The SD card was determined to be from the Garmin avionics in the aircraft; however, it was cracked through the memory die and was not recoverable, as shown in figure 1. The remainder of this report discusses the 128 GB Micro SD Card.

Figure 1. Unrecoverable SD Card from Garmin avionics.

4.1. File Recovery

The 128GB Micro SD card was undamaged and it was determined to have come from a GoPro point-of-view camera; metadata on the filesystem indicated the camera was a model Hero4 Silver. The file system was intact and the accident flight, as well as previous flights, were recorded. In agreement with the Investigator-in-Charge, only the accident flight was determined to be pertinent to this report.

4.2. Video File

The original video file was recorded at 60 frames per second (fps) at a resolution of 1920x1080 pixels with sound, recorded external to the aircraft as described later in this report. The video was downsampled to 30 fps, 1280x720 pixels, and truncated such that the video ends at time of impact with the ground.[1] The lens was a wide-angle lens, which introduced barrel distortion in the image, which was not corrected for this report.

The trimmed, downsampled video is provided as attachment 1 to this report.

4.3. Timing and Correlation

The times used in this report are expressed as video elapsed time in MM:SS.t; where MM is minutes, SS is seconds, and t is tenths of seconds.

4.4. Summary of Recording Contents

Weather conditions for entire video were: scattered clouds well above the subject airplane, visibility greater than 10 miles, no precipitation. Based on the camera field of view, the camera was mounted externally, outbound of a clear surface in the left wing; the exact mounting configuration and location of the camera (i.e., on the leading edge, above the wing, etc.) were not determined in this report. Engine and

[1] After the airplane impacted the ground, the video and audio continued to record; for privacy reasons, the video was truncated. Downsampling created a more manageable video size.

relative wind noise were recorded on the audio channel and did not change substantially until impact with the ground; as such, audio is not further discussed.

At 00:00.0, the subject airplane was flying in trail to another, similar airplane ("Lead Airplane") at an altitude estimated greater than 1,000 feet above the ground.

From 00:00.0 to 00:56.0, the accident airplane became closer to the Lead Airplane. By this time, the accident airplane was travelling in a path that was parallel to a road beneath it.

By 01:27.9, the accident airplane was no longer paralleling the road beneath it.

At 02:55.3, the accident airplane crossed intersecting highways; the Lead Airplane was still ahead of the subject airplane at about the same altitude. Both airplanes had descended from the prior time periods.

By 03:31.5, the Lead Airplane began a left turn and the accident airplane also began a left turn. At least two other aircraft were visible ahead of the Lead Airplane.

At 03:36.1, the Oshkosh runway the Lead Airplane and the accident airplane would fly their approach to was first visible to the left of the video frame. The Lead Airplane was at or below the altitude of the subject airplane.

At 03:54.8, the accident airplane had leveled its wings and was on final approach to an Oshkosh runway. The Lead Airplane was ahead and below the altitude of the accident airplane.

At 04:01.7, the accident airplane passed over the shoreline of a green lake. The Lead Airplane was ahead and below the altitude of the accident airplane, and approximately over a road perpendicular to the path of both airplanes. No other aircraft were visible flying ahead of and on the same runway's final approach as the accident airplane.

At 04:21.4, the Lead Airplane was at or below the altitude of the accident airplane on final approach to the Oshkosh runway. The distance between the Lead Airplane and the accident airplane began to reduce.

By 04:34.5, the distance between the Lead Airplane and the accident airplane had reduced further. The Lead Airplane was at or below the altitude of the accident airplane. No other flying aircraft were visible on approach to the subject airplane's runway or the parallel runway to the right.

At 04:36.6, the accident airplane’s left wing began to drop. At this time, the Lead Airplane was at or below the altitude of the accident airplane.

At 04:37.1, the accident airplane was banked left about 20 degrees; the Lead Airplane was at about the same altitude as the accident airplane.

By 04:37.8, the left bank of the accident airplane had increased and it was descending. A paved surface, similar to a perimeter road with yellow stripes, was ahead and perpendicular to the accident airplane.

Between 04:37.8 and 04:39.8, the accident airplane continued to roll left.

At 04:38.9, the Lead Airplane was no longer in the field of view of the camera, due to the accident airplane's increased bank angle and the change in direction away from the runway (to the left).

At 04:39.8, the accident airplane was at a bank angle of about 90 degrees left, descending, with the top surface of the wing pointing at the aforementioned perimeter road.

At 04:40.7, the accident airplane's left bank continued to increase such that the airplane was nearly inverted and it had descended to within 50 feet of the ground.

At 04:40.9, the subject aircraft struck the ground.