

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, DC 20594

June 20, 2018

Onboard Image Recorder

Group Chairman's Factual Report
By Sean Payne

1. EVENT

Location:	Henderson, Nevada
Date:	April 30, 2017
Aircraft:	Extra 300, N330MT
Operator:	Vegas Extreme Adventures LLC
NTSB Number:	WPR16FA097

2. GROUP

A group was convened on December 14th, 2017 at the NTSB's Vehicle Recorder Laboratory in Washington, D.C.

Chairman:	Sean Payne Mechanical Engineer National Transportation Safety Board (NTSB)
Member:	Albert Nixon Investigator-In-Charge NTSB
Member:	John Waugh Air Safety Inspector Federal Aviation Administrator (FAA)

3. SUMMARY

On April 30, 2016, about 1630 Pacific daylight time, an Extra Flugzeugproduktions UND, EA-300/L, N330MT, sustained substantial damage when it impacted mountainous terrain about 12 miles south of Henderson Executive Airport (HND), Las Vegas, Nevada. The airplane was registered to and operated by Vegas Extreme Adventures LLC under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 91. The airline transport pilot and passenger were fatally injured. Visual (VMC) meteorological conditions prevailed,

and no flight plan had been filed. The local business flight departed HND about 1600.

4. DETAILS OF INVESTIGATION

On May 11th, 2016, the National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following cameras:

Recorder Manufacturer/Model: **GoPro Hero**
Recorder Serial Number: **c3111025176510**

Recorder Manufacturer/Model: **Garmin VIRB**
Recorder Serial Number: **3QN009212**

4.1. Recorder Description

GoPro HERO

The GoPro HERO is a compact, lightweight, POV¹ digital camera enclosed in a ruggedized housing that allows the camera to be mounted in a variety of positions using an array of supported accessories. The camera supports 1080 HD² as well as other lower quality recording resolutions at higher frame rates. The camera can be set to record still images simultaneously or independently of a video stream at a resolution of up to 12 megapixels.³ The camera includes a wide angle aspherical f/2.8 glass lens that provides a maximum of 170 degrees viewing angle. The camera supports recording to micro SD⁴ cards up to 64 GB in size. A built in Wi-Fi⁵ module allows users to connect to the camera either via an accessory remote control or via a smart phone app that permits camera control and image transfer.

Garmin VIRB

The Garmin VIRB is a compact, lightweight, ruggedized, waterproof, POV digital camera that can be mounted in a variety of positions using an array of supported accessories. The camera supports 1080 HD as well as other lower quality recording resolutions at higher frame rates. The camera can be set to record still images either simultaneously or independently of a video stream at a resolution of up to 16 megapixels. The camera includes a wide angle aspherical glass lens. The camera supports recording to micro SD cards up to 64 GB in size. The device is compatible with Garmin Ant+ devices that allows users to connect to the camera wirelessly and control the camera or perform image transfer functions.

¹ POV – point of view – a camera angle representing the user's point of view.

² HD – high definition

³ Megapixel – one million pixels

⁴ Secure Digital – SD – a standardized format for removable memory devices.

⁵ WiFi – a standard for wireless means of TeleComputing or networking.

The device is also GPS capable and can record the unit's GPS position during operation. GPX files can be exported from the device and used to overlay derived location parameters using Garmin video editing software.

4.2. Recorder Damage

Both devices arrived to the laboratory intact but covered in debris. The GoPro HERO is shown in figure 1. The micro SD card associated with the GoPro HERO was found seated in the card slot and intact. The micro SD card was connected to a PC via a forensic write blocker and its file system was accessed. The micro SD card contained a number of .MP4 video files, one of which contained the aircraft's impact with terrain.

Figure 1. The GoPro HERO recovered from the wreckage site.



The Garmin VIRB is shown in figure 2. The micro SD card associated with the GoPro HERO was found seated in the card slot and intact. The micro SD card was connected to a PC via a forensic write blocker and its file system was accessed. The file system revealed a number of .MP4 files, however, the aircraft's impact with terrain was not captured. A disk image was made of the entire contents of the micro SD card and a video file was recovered showing the aircraft's impact with terrain after using a software method developed by the NTSB laboratory.

Figure 2. The Garmin VIRB recovered from the wreckage site with the battery cover and battery removed.



4.3. Video Files

The GoPro HERO contained two .mp4 files that captured the accident flight in its entirety. Each of those files was 17 minutes and 35 seconds long and recorded at a resolution of 1920 x 1080 and 29 frames per second (fps). The GoPro HERO's video files contained a 48 kHz audio track that was captured from the HERO's internal microphone that was enclosed inside a water tight case.

The Garmin VIRB produced one .MP4 file that was 23 minutes and 56 seconds long and was recorded at a resolution of 1920 by 1080 and 29 fps. The VIRB's video file included one 44KHz monoaural audio track that was a recording of an input of the accident aircraft's intercom system. Subsequently, it recorded intra-cockpit audio as well as VHF radio communications from both the accident aircraft and other aircraft who were on the same communications radio frequency.

Upon forensic software recovery, the Garmin VIRB produced a recovered .MP4 video file capturing the aircraft's impact with terrain. That file was recorded at the same parameters as listed previously and was approximately 14 minutes long.⁶

The forensic recovery of the Garmin VIRB produced a number of other .MP4 files consistent with deleted files taken during other flights.

4.4. Timing and Correlation

Timing of the transcript is expressed as Video Elapsed Time, which is time from the beginning of the recording made by the Garmin VIRB. The time was not correlated to local accident time because no distinctive time reference of the aircraft's impact with terrain existed from other sources.

⁶ Errors in the recovery of the file could cause time drift in the produced .MP4 file, which can cause elapsed timing of the video to be inaccurate.

4.5. Summary of Recording Contents

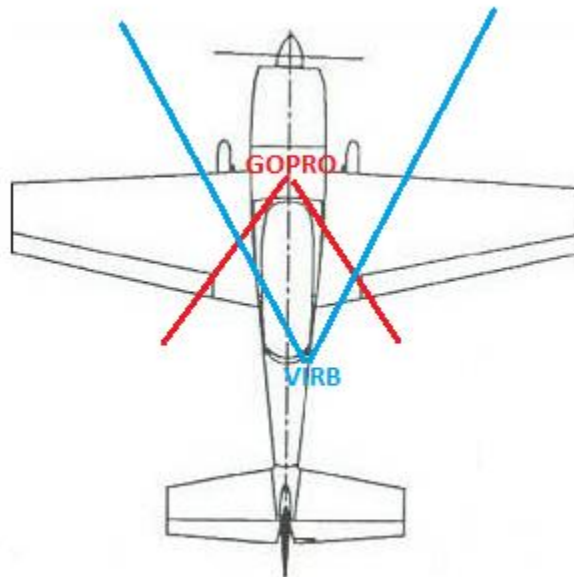
In agreement with the Investigator-In-Charge, a video group convened and developed this summary report.

The GoPro was mounted in the accident aircraft on the front seat instrument panel. The camera was on the centerline of the aircraft and facing backward. As such, it provided a view mostly of the front seat passenger's upper body and face.

The Garmin VIRB was mounted on the right side of the rear seat instrument panel. It was forward facing. It provided a view over the right shoulder of the front seat passenger. It also provided a view forward through the right side of the canopy of the aircraft.

Figure 3 is a diagram that shows the approximate mounting locations of the GoPro camera and the Garmin VIRB in the accident aircraft.

Figure 3. A diagram of the camera mounting locations in the accident aircraft.



The following summary was made using content from both video recordings and no specific distinction is made related to which camera recorded which cockpit or aircraft action.

The recording began as the aircraft was on a ramp area with the canopy open. The sky condition was scattered with a layer of high overcast. There were water droplets visible on the canopy. The pilot was assisting the front seat passenger

with his parachute and seat belts. The pilot was giving a preflight briefing which covered the aircraft's intercom usage, flight controls, faux-weapons controls,⁷ hand hold areas, airsickness procedures and how to control the aircraft's fresh air vents. The captured portion of the preflight briefing did not include safety or egress information. The pilot completed the briefing, put on his own parachute, entered the rear seat of the aircraft and strapped himself in using a ratchet style harness.

The pilot and passenger discussed recent weather conditions as rain drops collected on the aircraft's surfaces. The passenger did not express any reservations during the conversation. The pilot closed and latched the canopy around 02:30. A sound similar to the aircraft's fuel pump was audible and the engine was started around 03:30 after the pilot yelled "clear." The front seat altimeter read 2,500 feet MSL while the aircraft sat in the ramp area. The three aircraft briefly checked radio communications between the aircraft. A radio transmission was audible at 04:45, "Information Mike, runway three-five, twenty five hundred set, chocks and * up, let's go."⁸ The aircraft then began taxiing behind another red and white Extra (N466MD/"Ace Four").

At 05:10, Ace Four called the ground and informed them he was a flight of three aircraft with information "Mike" and would like a southeast departure. The pilot of the accident aircraft laughed and said over the aircraft's internal intercom, "or maybe east?" The sky condition in the southeast direction was grey and consistent with convective activity. The ground controller responded, "have you looked out to the southeast?" Ace Four responded to HND ground, "uhh yeah we do, well actually uhh we'll uhh just depart eastbound uhh on this one, uhh request intersection Charlie departure, Ace Four." The control responded back with taxi instructions for Ace Four. At 05:40, Ace One called for taxi instructions, followed shortly by Ace Two.

At 06:13 Ace Four, called HND ground and asked "Ground, actually how is it looking out to the southwest now for Ace Four?" Henderson ground responded, "Ace Four, southwest looks pretty good right now too. That weather that's southeast is moving toward the airport." Ace Four then asked for a southwest departure for the entire flight of Extras and it is approved by HND ground. Light rain still appeared to be accumulating on the aircraft's canopy.

During taxi, at 07:06, HND ground called Ace Four and stated, "And Ace Four, that weather looks like it's moving more to the west than toward the airport." Ace Four responded, "copy that, we'll be on a short flight uh we'll assess the weather when we get out there and we'll let you know what's going on." HND ground acknowledged the reply.

⁷ The aircraft was configured to simulate air combat.

⁸ A (*) represents an unintelligible word.

By 07:45, all three aircraft were holding short of runways 17R-35L. Engine noise consistent with a runup check was heard. The sound of one mag drop was heard, and by 07:50, the run up appeared to be complete. During the run-up RPM fluctuations were audible that suggested the pilot cycled the propeller controls. The duration of the aircraft's run up was less than 10 seconds. There was no evidence of a control check or checklist usage. The aircraft in the flight of three then called the tower in succession and were cleared for takeoff, one aircraft from another parallel runway.

By 08:48, the accident aircraft was rolling down runway 35L and had become airborne by 08:55. The aircraft entered a hard, beyond 60 degree left bank to turn out from runway 35L at approximately 200 feet off the ground as indicated on the front seat altimeter. At the time of the steep banked turn, the aircraft was still inside class D airspace. By 09:50, the aircraft was headed toward a clearer, but still overcast area of sky at 3,500 feet. The engine noise became reduced as the aircraft entered a cruise profile.

At no time during the recording, did the pilot introduce the passenger to G force awareness. As noted later on in the transcript, the pilot would begin maneuvering the aircraft aggressively without providing the student a warm up to high G force activity.

At 10:44, the three aircraft in the flight conducted a communications check. At 11:08, another aircraft in the flight confirmed that the flight of three was on a discrete frequency and that the passengers could "talk all the #⁹ that they want." The front seat passenger placed his hand on the control stick and started actively manipulating the flight controls. It was unclear if a positive exchange of flight controls was accomplished.

At 11:40, Ace one reported he was "saddled." The other aircraft reported their positions and set up for a "gun check." The rear seat pilot lead the passenger through a shallow banked turning procedure where they simulated a kill on another aircraft in the flight. The front seat altimeter read around 3,900 feet. The aircraft performed a roll at this time. The aircraft was not inside the designated aerobatic box set up near Jean Airport (0L7), Jean, Nevada. The best estimate of the aircraft's position was about 4.5 nautical miles north of the aerobatic box adjacent to 0L7.

Through the next few minutes, the aircraft maneuvered to simulate dogfighting another aircraft as a simulation to the future air combat scenarios that would take place during the flight.

By 15:00, the aircraft continued to head south, the front seat altimeter read about 4,750 feet. The accident aircraft was then instructed by another aircraft in the flight to spectate the first dogfight between the two other aircraft. Another aircraft

⁹ A (#) represents a redacted expletive.

in the flight came up on frequency and informed the other two aircraft that the fight would begin at 7,000 feet and the floor would be at 5,000 feet. All aircraft in the flight confirmed the transmission and the existence of the 5,000 foot floor.

The accident aircraft continued to maneuver in shallow bank turns while the other aircraft maneuvered to begin a simulated dogfight. The accident pilot and passenger made small talk.

Around 17:00, the accident aircraft pilot, stated, "I'm calling fouls on anyone that goes into the cloud for cover." Another aircraft called back, "copy that, Ace One, you're gonna be the referee." The accident pilot radioed back, "you guys can all start # it now."

By 17:30, the other aircraft transmitted over VHF that their dogfight was "on". At this time, the accident pilot flew through a small portion of a wispy cloud. As the pilot was flying through the cloud, he stated, "what it looks like to go through a cloud in an airplane like this." The altimeter read 7,900 feet at the base of the first scattered cloud layer.

The accident aircraft continued to maneuver in shallow bank turns while the other aircraft simulated a dogfight. By 18:30, the first dogfight between the other aircraft had terminated. The accident aircraft was then instructed to set up for the next simulated dogfight.

At 18:57, the accident pilot asked the front seat passenger how he was doing. The front seat passenger replied, "I am really hung over." The accident pilot replied, "That's how I interviewed here, it was a disaster. I drank like thirty vodka tonics the night before – and I had to fly. It was awful." The accident pilot's statement to the passenger obscured a radio call from another aircraft in the flight, the radio call was possibly for the accident aircraft.

By 19:38, the accident aircraft began to maneuver for their first simulated dogfight. At 19:48, another aircraft made a radio call to "turn in" and "fights on, fights on." The accident aircraft pilot confirmed, "fights on, left to left."¹⁰

By 19:54, the accident aircraft pilot told the front seat passenger to place his hands on the flight controls, though the front seat passenger already had his hands on the flight controls.¹¹ The aircraft crossed each other head on at 6,300 feet indicated. The front seat passenger appeared to be manipulating the controls and entered a hard left 90 degree bank to the left. G-force was apparent on the individual, the accident pilot instructed the front seat passenger to pull back on the stick. The aircraft lost about 800 feet in the turn, it was unclear who was actually flying the aircraft. The accident aircraft crossed behind the other

¹⁰ "left to left" – a reference that the aircraft would continue into simultaneous left turns after crossing each other head on.

¹¹ Throughout the flight, a clear, positive exchange of flight controls never occurred.

simulated bandit.¹² The accident aircraft simulated a triggering of the faux-weapon and by 20:13, the other aircraft was seen tumbling. At 20:20, the simulated dogfight was terminated over the radio and the accident pilot announced, "I have the controls." The front seat passenger did not respond back with a positive exchange of flight controls.

By 21:30, the accident aircraft had positioned for a second simulated dogfight, the two aircraft announced "fights on" and crossed each other head on at approximately 6,300 feet. The accident aircraft entered a sharp left bank, at times beyond 90 degrees, in an attempt to get behind the other aircraft. The accident aircraft continued to maneuver in a series of high G, ascending and descending turns at various states of bank. During the maneuvers, the accident pilot demonstrated an awareness of the simulated floor with a verbal comment. Around 22:34, the accident aircraft was attempting to maneuver behind the other aircraft and experienced the onset of an accelerated stall.¹³ The two aircraft were in a maneuver similar to a vertical scissors.¹⁴ The other aircraft began to lose altitude and at 22:40, the accident aircraft was directly behind the other aircraft and simulated weapons activation resulting in a simulated kill. The simulated dogfight was over and the accident aircraft returned to a cruise profile.

At 23:15, the accident pilot asked the passenger how he was feeling and the passenger responded that he was "doing pretty rough." The accident pilot informed to let him know if he started to feel airsick. The front seat passenger confirmed that he was ready for one more simulated engagement.

At 23:20, the accident pilot radioed, "alright man, watch the Bravo." Another aircraft responded, "uhh yeah, you got the lead remember?" At 23:35, the aircraft had crossed each other head on at 6,000 feet indicated and "fight's on" was declared over the radio. The aircraft continued in a third simulated dogfight. The pilot at one moment verbally expressed awareness of the simulated floor. At 24:31, the aircraft came within 100 feet of the simulated floor. At 24:38 and 5,200 feet indicated, the accident aircraft achieved a simulated kill. The accident pilot indicated that he was going to stop simulating dogfighting with the other aircraft and continue to spectate the other aircraft. The pilots amongst the flight of three agreed that Ace Four would have the lead.

The aircraft climbed to 7,000 feet. The front seat passenger expressed that he was not feeling well, the accident pilot stated that he would not be doing "any crazy turning or anything like that" and for the passenger to open the air vents, keep his eyes outside, and relax.

¹² An enemy aircraft, in this case it is for the purposes of simulation.

¹³ Accelerated stall – a stall that occurs at a higher airspeed due to high wing loading in combination with a high angle of attack.

¹⁴ Vertical scissors – Sometimes called rolling scissors; a combination of a vertical climb and barrel roll as two aircraft attempt to "outclimb" one another.

Moments later, around 25:35, Ace Four radioed that he was calling off the next simulated dogfight, and that the flight of three would return to Henderson. Ace Four was still lead, Ace Four informed return to base would be “fighting wing”¹⁵ with Ace One in trail as the third and last aircraft in the formation. The pilot of another aircraft indicated on the radio that they would finish it up with “a little low level bombing run flying.” Moments later, the same aircraft stated again, they would “finish it up with a little low level flying.” The accident pilot stated to the passenger, “I’ll keep it smooth for you dude.” And then over the radio, “alright, we’re gonna keep it pretty P-G back here.” The other pilot radioed back, “sounds good, you guys tame it down to however you like it. Let’s start descending down guys, just follow me along, fighting wing.”

The aircraft passed OL7 around 4,000 feet. The pilot stated over the radio, “One’s two point five, we’ll be (eye/high) in the sky.” Two point five was potentially a reference to the company’s term “code 3,” a method of telling the other pilots that he was flying with an airsick passenger. Another aircraft responded, “copy that.”

The three aircraft then took a course to the northeast from OL7 toward HND. Figure 4 is a Google Earth diagram that shows a generalized flight path of the three aircraft. The wreckage location is noted with a yellow pin.

As the aircraft gradually descended toward the desert floor, the front seat passenger readied an air sickness bag. The accident pilot restated that he was going to keep the aircraft “nice and smooth” as the passenger seemed to be becoming airsick and instructed the front seat passenger to take care of himself. The accident pilot continued that he was “not here to # you up at all dude, just take it easy. I’m going to keep you on a course here where you can see and that’s it alright.” The front seat passenger began to vomit in the airsickness bag while the accident pilot made commentary and jokes to try and lighten the mood. The accident pilot then broadcast over the radio, “One’s code three.” The aircraft was still gradually descending toward the desert floor.

By 28:51, the aircraft was only feet above the floor of the desert, the front seat altimeter read 2,750 feet and the airspeed was 185 knots. The front seat passenger was vomiting into the air sickness bag repeatedly while the aircraft was flying at an extremely low level. By 28:56, the passenger had ceased vomiting and began to tie off the airsickness bag. During the low level flight, rain was seen beading up on the aircraft’s windscreen. The sky condition was overcast with a high ceiling, similar as observed during the simulated dogfighting.

By 29:26, the aircraft began climbing in a shallow pitch angle as the aircraft approached an oncoming ridgeline. Despite rain accumulating on the windscreen, forward visibility appeared unobstructed. The cloud layer was seen as high overcast, the ridgeline was not obscured by cloud cover.

¹⁵ Fighting wing formation – A loose echelon formation in which aircraft trail each other’s wing at a moderate distance.

At 29:37, as the aircraft was in a shallow climb, the accident pilot broadcast over the radio, "you guys are leaving these pretty sweet vapor trails." The aircraft continued in a shallow bank climb and the approaching mountain ridge grew larger. Another aircraft responded, "good to know."

Around 29:46, the shallow pitch climb increased slightly, rain continued to bead on the aircraft's canopy. The rain did not obstruct the forward view, the ridgeline was still clearly visible. The airspeed read about 175 knots, the altitude on the front seat altimeter indicated 3,150 feet. The pilot performed a slight check turn to check visibility ahead of the aircraft as it approached the ridge. The pilot then stated, "I'm coming up nice and easy here @[Passenger's name redacted]" as the ridge continued to grow larger. The aircraft continued to approach the ridgeline in a shallow climb at an indicated airspeed of greater than 170 knots. The forward facing recovered video recording ended¹⁶ as the aircraft was just approaching the ridgeline at the base of the dry lakebed. This was not in the vicinity of the wreckage location. The airspeed was still indicated around 175 knots and the altitude read as 3,260 feet.

From this point until the time of impact, only the GoPro camera that was facing the front seat passenger (backwards) continued to record. The aircraft crossed the first ridgeline and leveled out briefly. As the aircraft passed over the ridge it began a shallow, wings level descent. There was some rain beading on the canopy, however, the visibility around the aircraft was not degraded and conditions were still VFR. The aircraft rolled into a slight right turn as it continued to descend toward the valley floor. Seconds later, the front seat passenger was visible yelling. The front seat passenger's boom mic was not near his mouth, however, almost at the same instant, the aircraft impacted the small hill that rose from the valley floor near where the wreckage was found. On-scene field notes, denote the terrain as a 50-75 foot hill made primarily of lava rock that rose from the valley floor.

From the time the forward facing recording terminated as the aircraft crossed the first ridgeline, about 15 seconds elapsed on the passenger facing GoPro until the aircraft impacted the small hill rising from the valley floor.

At the time of impact the GoPro facing the passenger continued recording and flung through the air until it came to rest. The other, recovered forward facing video began recording again¹⁷ and showed only a view of dirt while the camera

¹⁶ Digital video cameras exposed to high impacts while recording are subject to an unqualified loss of data as a result of the video file prematurely ending.

¹⁷ The recovered file showed the recording had resumed while the camera was laying amongst dirt and debris.

was at rest. The impact was not captured by the forward facing camera. Both cameras continued to record until battery exhaustion¹⁸.

Up until the time the aircraft crossed the first ridgeline and the forward facing video ended, which included the end of the cockpit audio recording, no anomalies were report by the pilot or observed by the transcription group that would have precluded normal operations. In the 15 seconds from the time the forwarding facing video ended, until the time of impact, cockpit audio was not available, however, no anomalies were observed by the transcription group that would have precluded the aircraft from normal operations. The aircraft was in stable flight when impact occurred.

A still image was enhanced from the final frame while the aircraft was in flight, just prior to impact. The reflection of the front passenger's sunglasses was enhanced in an attempt to see the terrain in front of the aircraft. Terrain in front of the aircraft was not conclusively noted.

Witness Aircraft Video

Video from another aircraft in the flight was provided to the NTSB and was reviewed by the transcription group. This camera was mounted in a non-accident aircraft in the flight of three. It was mounted on the instrument panel in front of the front seat passenger. The camera was facing backward. A view to the left and right as well as behind the aircraft was captured.

A review of this video began as the aircraft was flying low on the desert floor in the area of the Jean Dry Lakebed, returning toward HND. The position of the witness aircraft appeared to be number two behind the flight lead, with only the accident aircraft behind which was trailing in position three. The witness aircraft was slightly to the east of the accident aircraft and in trail. The accident aircraft was to the west of the witness aircraft.

The witness aircraft was maneuvering very low to the ground as it approached the accident location. The maneuvers did not seem to exceed 30 degrees in bank. The pitch of the aircraft was fairly level as the witness aircraft skimmed the desert floor in the vicinity of Jean Dry Lakebed.

Rain began impacting the witness aircraft's windscreen as it maneuvered around a ridge adjacent to the dry lakebed. The rain did not appear to significantly degrade visibility and the witness aircraft remained in VFR conditions. Compared to the accident aircraft video, the witness aircraft encountered heavier rain. Additionally, more clouds and rain were observed east of the aircraft's flight path, with lesser conditions observed to the west of the witness aircraft's flight path (near where the accident aircraft was flying).

¹⁸ Though impact corrupted the file of the Garmin VIRB and the accident sequence was lost, the recovered file still indicated that the camera had continued recording.

The witness aircraft crossed the ridgeline. The witness aircraft performed slightly clearing turns as it descended back toward the valley floor after crossing the ridgeline. Once the witness aircraft had reached level flight just above the valley floor, the accident aircraft came into view behind and to the left of the witness aircraft (figure 5). The accident aircraft crossed above the first ridgeline and was seen descending toward the valley floor. Moments later, the accident aircraft was no longer observed as it descended in front of the ridgeline it had just crossed. The accident aircraft was no longer silhouetted against the overcast skies and was difficult to observe in front of the ridge it had just crossed. The small hill comprised of lava rocks came into view behind the witness aircraft and to the left, in the area in which the accident aircraft was flying (figure 6). Moments later, a white plume was observed on top of the small hill (figure 7). The white plume was consistent with an object impacting the hill. The witness aircraft continued flying normally. The pilot and passenger's actions of the witness aircraft did not suggest they were aware of the accident aircraft's impact with terrain, nor would they have been as the impact occurred outside of their field of view.

The witness aircraft continued back to HND and conducted a normal landing. The video ended while the aircraft was taxiing.

The portion of witness aircraft video with the passenger's face redacted is included in this report as Attachment 1 and is available in the public docket for this accident.

4.6. Summary of Recorded Garmin VIRB GPS Data

Data recovered from the Garmin VIRB's GPS recording component was of .GPX file type. The .GPX file did not produce usable data from the accident flight.

Figure 4. Google Earth diagram showing a generalized flight path of the three aircraft. The wreckage location is noted with a yellow pin.



Figure 5. The accident aircraft seen above the first ridgeline. The impact location is also denoted.



Figure 6. The accident aircraft is no longer visible in front of the first ridge. The small hill which was the accident location is denoted.

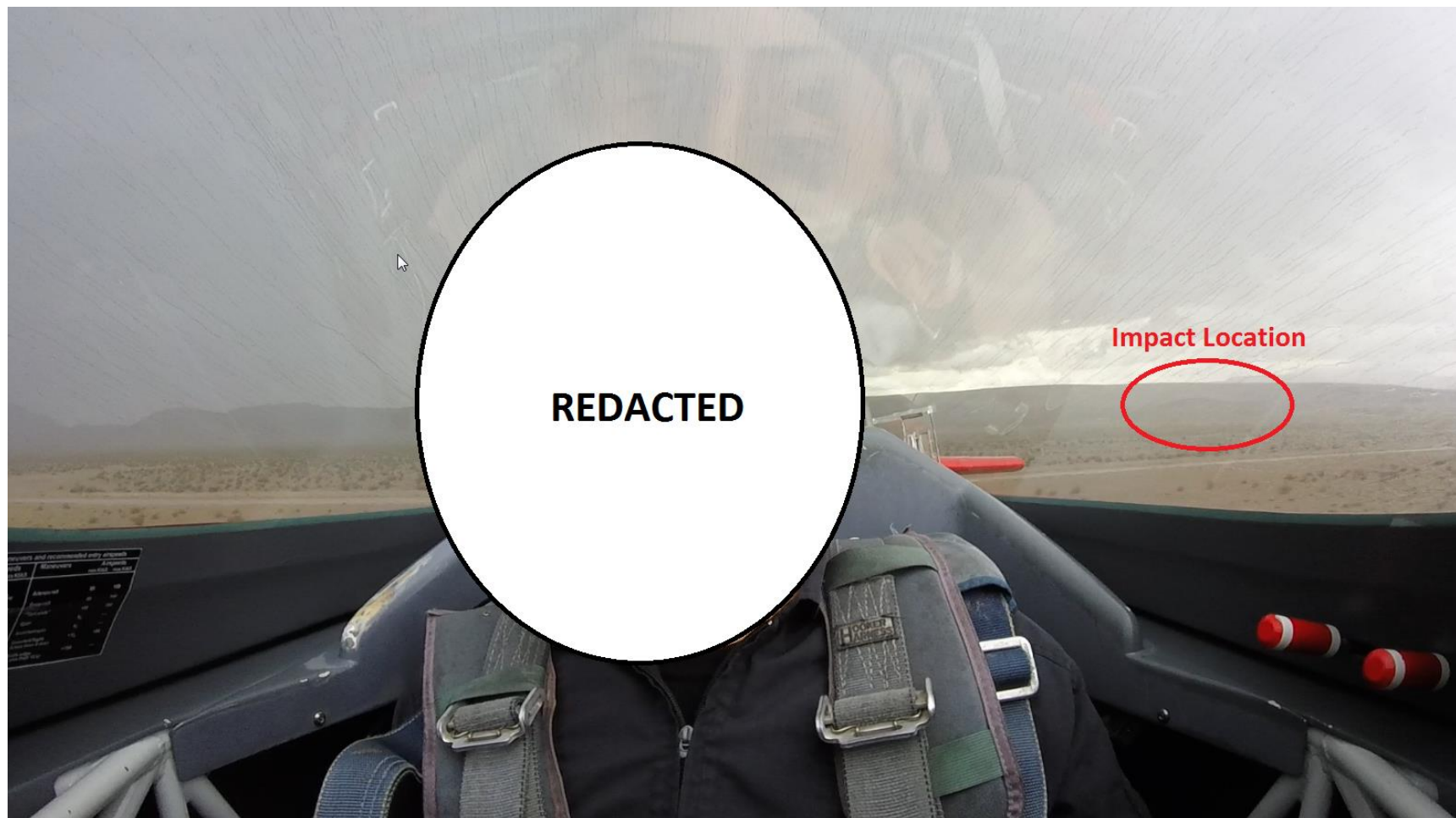


Figure 7. A white plume in the vicinity of the accident location.

