

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

July 27, 2021

Non-Volatile Memory Devices

Specialist's Factual Report By Ben Hsu

1. EVENT

Location: Kernville, California
Date: April 20, 2017
Aircraft/ID: Piper PA-22-150 / N9975D
Operator: Private
NTSB Number: WPR17LA088

2. DETAILS OF DEVICE INVESTIGATION

The National Transportation Safety Board's (NTSB) Vehicle Recorder Division received the following devices:

Device: GoPro Hero 4 with microSD card
Device Serial Number: 6252634 (last digit illegible)

Device: Go Pro Karma Grip Gimbal Controller
Device Serial Number: Unknown

Device: SanDisk SD card
Device Serial Number: Unknown

The GoPro Hero 4 and Go Pro Karma Grip arrived in the laboratory together exhibiting minor damage. Figure 1 shows the devices as they arrived. Figure 2 shows the GoPro Hero 4. Figure 3 shows the GoPro Hero 4 with its microSD memory card installed. The microSD card was examined using laboratory hardware and software.

The SanDisk SD card arrived in good condition. Figure 4 shows the SD card as it arrived. The SD card contained images captured from a digital camera. At instruction of the investigator-in-charge (IIC), no further work was performed.

2.1. GoPro Hero 4

The GoPro Hero 4 is a small "action camera" capable of recording video to an installed microSD card. The microSD card from the device recovered from this accident contained multiple video recordings. The file "GOPR8862.MP4" recorded the accident flight from take-off to impact.

The video was recorded at a resolution of 1920x1080 pixels at a frame rate of 59.94 frames-per-second. The total duration of the video was 18 minutes, 16 seconds. The video begins with the aircraft taking off and the impact is captured at an elapsed time approximately 5 minutes, 1 second. The engine can be heard operating until the time of impact. At instruction of the investigator-in-charge (IIC), no further work was performed.



Figure 1. GoPro Hero 4 with Karma Grip Gimbal



Figure 2. GoPro Hero 4 camera



Figure 3. microSD card installed in camera



Figure 4. SanDisk SD memory card