

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

January 2, 2018

Image Recorder Parametric Data

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Front Royal, Virginia
Date: October 7, 2017
Aircraft: Piper PA-25-235
Registration: N90866
Operator: Skyline Soaring Club
NTSB Number: ERA18FA006

On October 7, 2017, about 1345 eastern daylight time, a Piper PA-25-235, N90866, was destroyed when it impacted terrain during initial climb from Front Royal-Warren County Airport (FRR), Front Royal, Virginia. The airline transport pilot was fatally injured. The airplane was operated by the Skyline Soaring Club as a glider-tow flight conducted under the provisions of 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received two video files taken from the glider under tow at the time of the accident.

3.1. Device Description

The GoPro Hero 5 video camera records high quality video and audio. Additionally, the Hero 5 introduced the use of a GoPro Metadata Format (also called General Purpose Metadata Format) (GPMF); whereby, parametric data is recorded with each video frame and embedded in the movie file's metadata. Parametric data includes Global Positioning System (GPS) and accelerometer data.¹

¹ See Newman, D. (n.d.). *GoPro Open Sources of Video Data*. Retrieved December 4, 2017, from <https://gopro.com/news/gopro-video-metadata-open-source-explained>.

3.2. Data Recovery

Parametric data was extracted from the video files. The video files are described in the *Onboard Video Recorder Specialist's Factual Report* available in the public docket for this accident.

3.3. Data Description

The data extracted included nearly nine minutes of parametric data recorded approximately 30 times per second. The sampling rate of the recorded data was not determined. Two video files, GOPR0172 and GOPR0173, contained all the pertinent data. Only about 1 minute and 30 seconds of pertinent data is shown in this report.

3.4. Parameters Provided

Table 1 describes parameters provided in this report.

Table 1: Parametric data.

Parameter Name	Parameter Description
Elapsed Time	Milliseconds
Latitude	Recorded Latitude (degrees)
Longitude	Recorded Longitude (degrees)
GPS Alt	Recorded GPS Altitude (feet)
Groundspeed	Recorded groundspeed (knots)

3.5. OVERLAYS AND TABULAR DATA

Figure 1 is a graphical overlay generated using Google Earth for the accident flight. The weather and lighting conditions in Google Earth are not necessarily the weather and lighting conditions present at the time of the recording.

GOPR0172's data starts on the east end of the airport and continues for 1 minute and 1 second, until approximately the west end of the runway.

There is a gap in the data of unknown duration, after GOPR0172 stopped recording until GOPR0173 began recording. The distance between the recordings is about 538 feet.

GOPR0173's data started west of the runway. After about 5 seconds of GOPR0173's recording, the glider began to track right. After about 17 seconds of GOPR0173's recording, the glider began to turn left and descend, back towards the Front Royal airport.

GOPR0173's recording continued beyond 26 seconds to the Front Royal airport; however, this data is not shown as it was not pertinent to this report.

Tabular data used to generate figure 1 are included as attachment 1. This attachment is provided in electronic comma-delimited (.CSV) format.

Figure 1. Google Earth overlay of recorded GPS data.

