

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

February 1, 2022

Helicopter Data Recorder

Specialist's Factual Report
by Nick Swann

1. EVENT

Location: Los Angeles, CA
Date: November 6, 2020
Aircraft: Agusta A109S
Registration: N109EX
Operator: Helinet
NTSB Number: WPR21LA039

2. DETAILS OF INVESTIGATION

On November 12, 2020, the National Transportation Safety Board (NTSB) Vehicle Recorder Division received an SD card from the following helicopter video recording device:¹

Device 1: Appareo Vision 1000
Device 1 Serial Number: N/A

2.1. Appareo Vision 1000 Device Description

The Appareo Vision 1000 device is a small self-contained image, audio, and data recorder. The unit is typically mounted in the overhead of an aircraft's cockpit and records a cockpit image at a rate of four times per second. In addition to cockpit images, the device is also capable of recording two tracks of audio that are synchronized with the image data. The unit also contains a GPS receiver that receives GPS satellite-based aircraft time, position, altitude, and speed. In addition to the GPS position, the Appareo unit also has a self-contained real-time inertial measuring unit that provides 3-axis accelerations as well as aircraft pitch, roll, and yaw data.

The Appareo unit records the image, audio, and parametric data on a removable SD memory card that is inserted into the unit. Depending on card size, this removable memory retains approximately the last three hours of image and audio data and about the last 100 hours of parametric data. In addition to the removable memory the Vision 1000 is also equipped with a memory module that is mounted internal to the unit. This internal memory contains an exact duplicate of the data stored on the removable card.

¹ SD – Secure Digital – A type of non-volatile memory card used extensively in portable devices.

2.1.1. Vision 1000 Data Recovery

Only the SD card was sent to the NTSB's Vehicle Recorders Laboratory. The SD card arrived undamaged and was able to be read out on a laboratory computer. One partition of the SD card contained raw data files, and the second partition contained parsed flight files.

2.1.2. Vision 1000 Time Correlation

The time is recorded by the Vision 1000 system in Coordinated Universal Time (UTC). All times throughout this report will be presented in UTC.

2.1.3. Appareo Vision 1000 Data Description

The data extracted included 369 session files. The recording for the accident session file begins on November 6, 2020, at 22:32:31 UTC and ends on November 6, 2020, at 23:17:35 UTC. Tabular data used to create the following plots will be included in Attachment 1 to this report.

Figure 1 shows an overview of the recorded data from the Appareo Vision 1000.

Figure 2 shows data from the end of the accident flight.

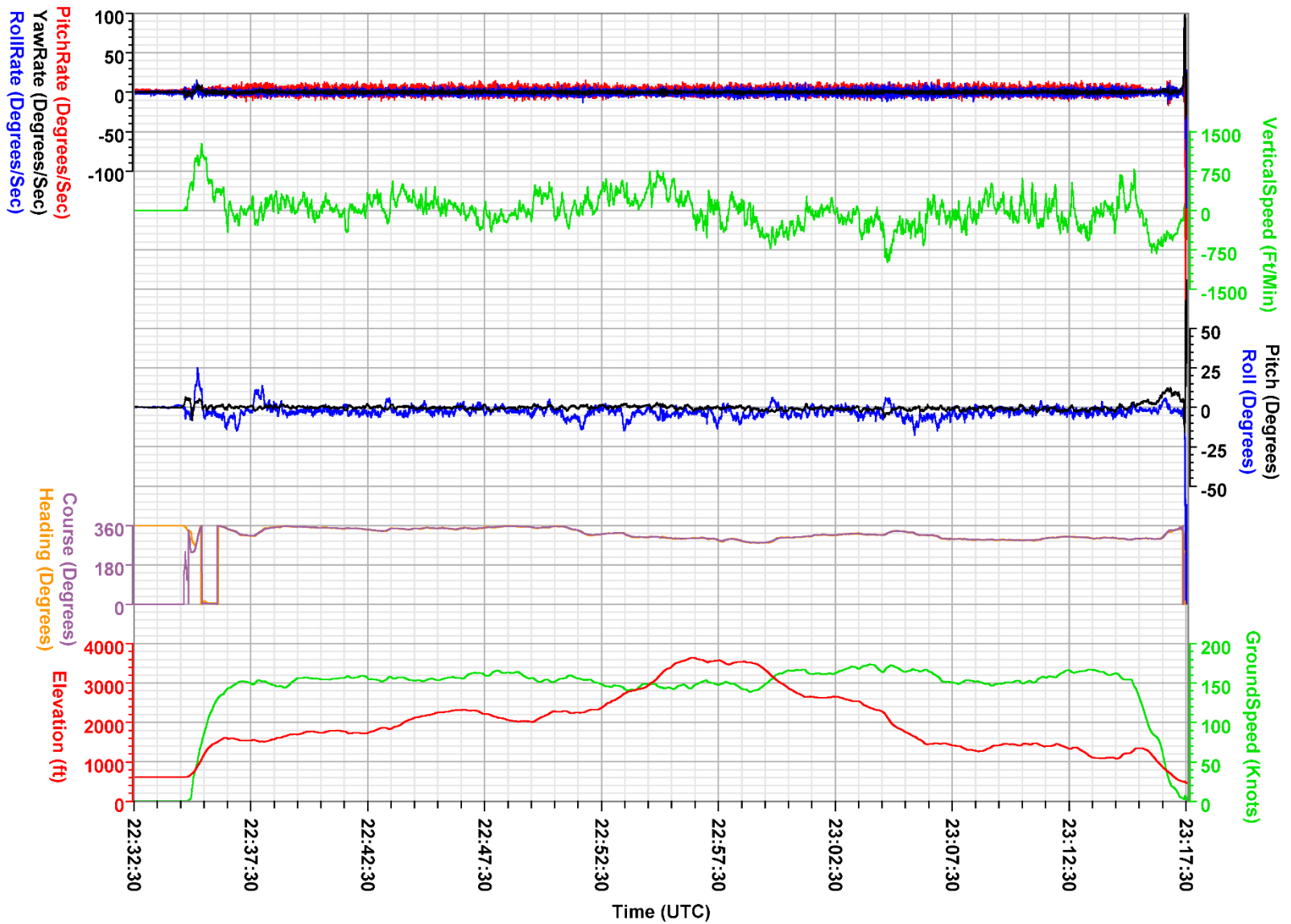


Figure 1. An overview of recorded flight data from the accident flight.

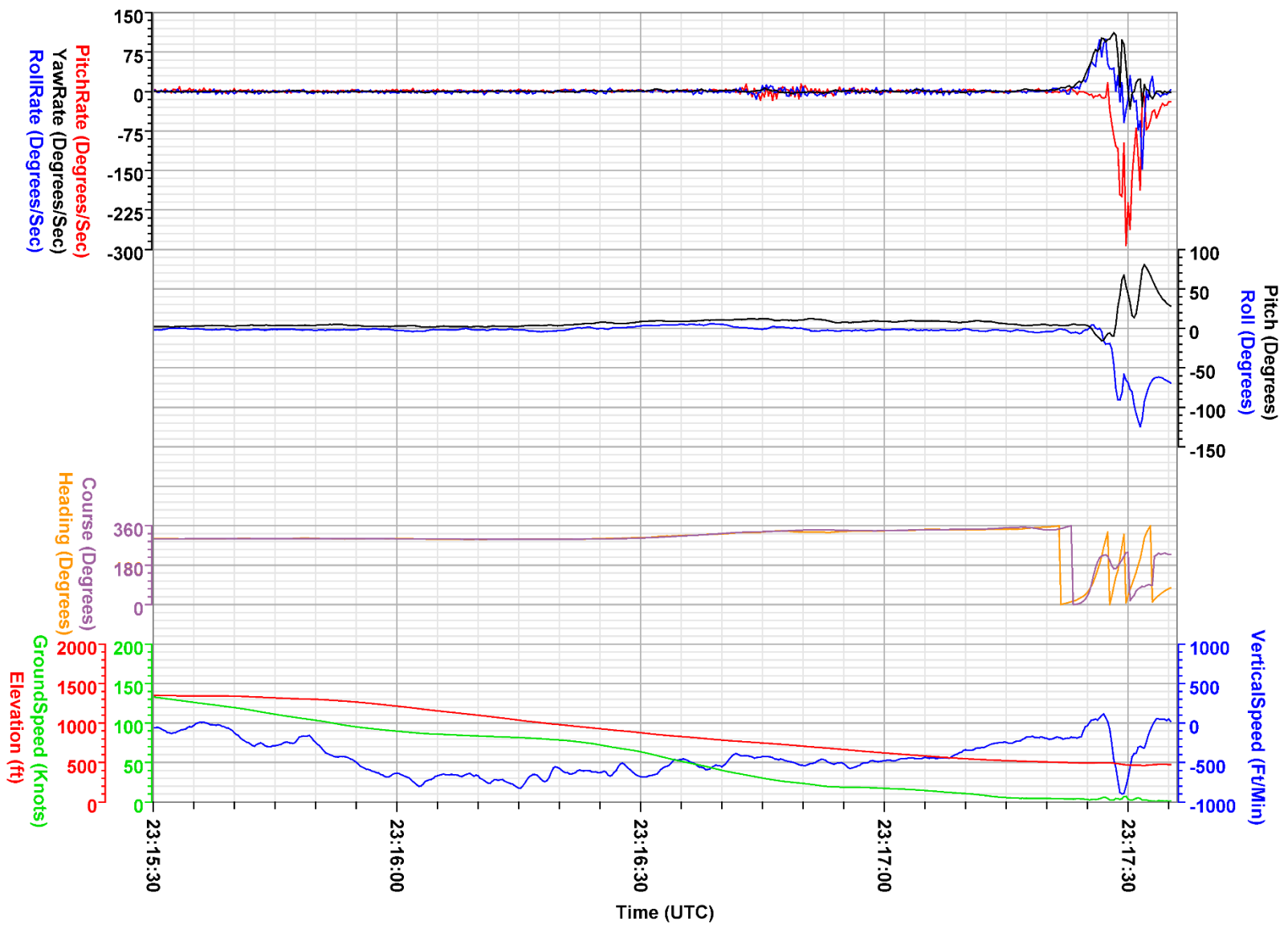


Figure 2. Recorded flight data from the end of the accident flight.