

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

December 23, 2014

GPS Data Factual Report

**Specialist's Factual Report
by George Haralampopoulos**

1. EVENT

Location: Silt, Colorado
Date: January 27, 2013
Aircraft: Bell 206L-3
Registration: N207DS
Operator: Delta Bravo Sierra Inc
NTSB Number: CEN14FA122

SUMMARY

On January 27, 2014, about 1118 mountain standard time, a Bell model 206L-3 helicopter, N207DS, was destroyed when it impacted a wire and terrain near Silt, Colorado. The pilot and two passengers were fatally injured. The aircraft was registered to and operated by Delta Bravo Sierra Inc. under the provisions of 14 Code of Federal Regulations Part 135 as an on-demand air taxi flight. The helicopter was performing aerial surveillance of power transmission lines when the accident occurred. Visual meteorological conditions prevailed for the flight, which was not on a flight plan. The local flight originated from the Garfield County Regional Airport (RIL), Rifle, Colorado about 1045.

2. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Laboratory received the following device:

GPS Manufacturer/Model:	GeoStamp Plus
Serial Number:	Unavailable

2.1. GeoStamp Plus Device Description

The GeoStamp Plus creates a video output stamped with location and time for a record of the event captured. The GeoStamp Plus receives input from a NMEA 0183 GPS receiver, and NTSC or PAL video source such as a color video camera. The GeoStamp

Plus outputs the video with the acquired GPS information such as Latitude, Longitude, Heading, Speed, Altitude, date, and time. The user can change the format and position of the GPS information on the video using the included software.

The Geostamp Plus does not record data to the device and can be connected to a Data Video Recording device that captures the geostamped video. The GPS information can then be extracted from the GPS stamped video by hand or by using Optical Character Recognition (OCR) software.

2.2 GeoStamp Plus Device Condition and Data Recovery

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed the unit had sustained negligible impact damage. The device was determined to not record any data. An SD card was sent to the Vehicle Recorder Laboratory in addition to the GeoStamp Plus, and contained video of the accident with the GPS stamped information. The GPS information was extracted successfully from the video using OCR software.

More information about the accident video can be found in the docket under “On Board Image Recorder” Factual Report. An example of the GPS stamped data is shown in section 4.3.

Figure 1. Photo of GeoStamp Plus as received.



2.3 GPS Data Description and Parameters Provided

The last minute and 43 seconds of data were extracted from the video recording using OCR methods. The data extracted included 100 points containing latitude, longitude, GPS altitude, and time. The recording started on June 6, 2013, from 18:14:53 to 18:16:36 UTC. All times are referenced in Coordinated Universal Time (UTC) .

Table 1 describes data parameters extracted from the recorded onboard video. Date, Time, Latitude, Longitude, and GPS Altitude are recorded by the device.

Table 1: GPS Data Parameters

Parameter Name	Parameter Description
Date	Date for recorded data point (MM/DD/YYYY)
Time	Time (UTC) for recorded data point (HH:MM:SS)
Latitude	Recorded Latitude (degrees)
Longitude	Recorded Longitude (degrees)
GPS Alt	Recorded GPS Altitude (feet)

2.4 Overlays and Tabular Data

The following overlays were created using Google Earth. The green path represents the aircraft's track.

Figure 2 is an overlay of the extracted GPS stamped video data. The overlay begins with the aircraft tracking parallel to Colorado River Rd. The first and last recorded data points are shown at 18:14:53 and 18:16:36 UTC. The aircraft turns right at about 18:15:24 UTC.

Figure 3 is an overlay that shows the points leading up to the last recorded data point. A red line is shown that highlights a portion of power lines that run parallel to the aircraft's track. A higher set of power lines are depicted in gray, which are joined by two towers. The GPS altitude of the base of the tower is 5663 ft (not shown), as determined using Google Earth. The aircraft's track intersects the higher power lines at about 18:16:31 UTC.

Tabular data used to generate figures 2 through 3 are included as Attachment 1. This attachment is provided in electronic comma-delimited (*.CSV) format.

Figure 2. Overlay of extracted data containing the accident flight.

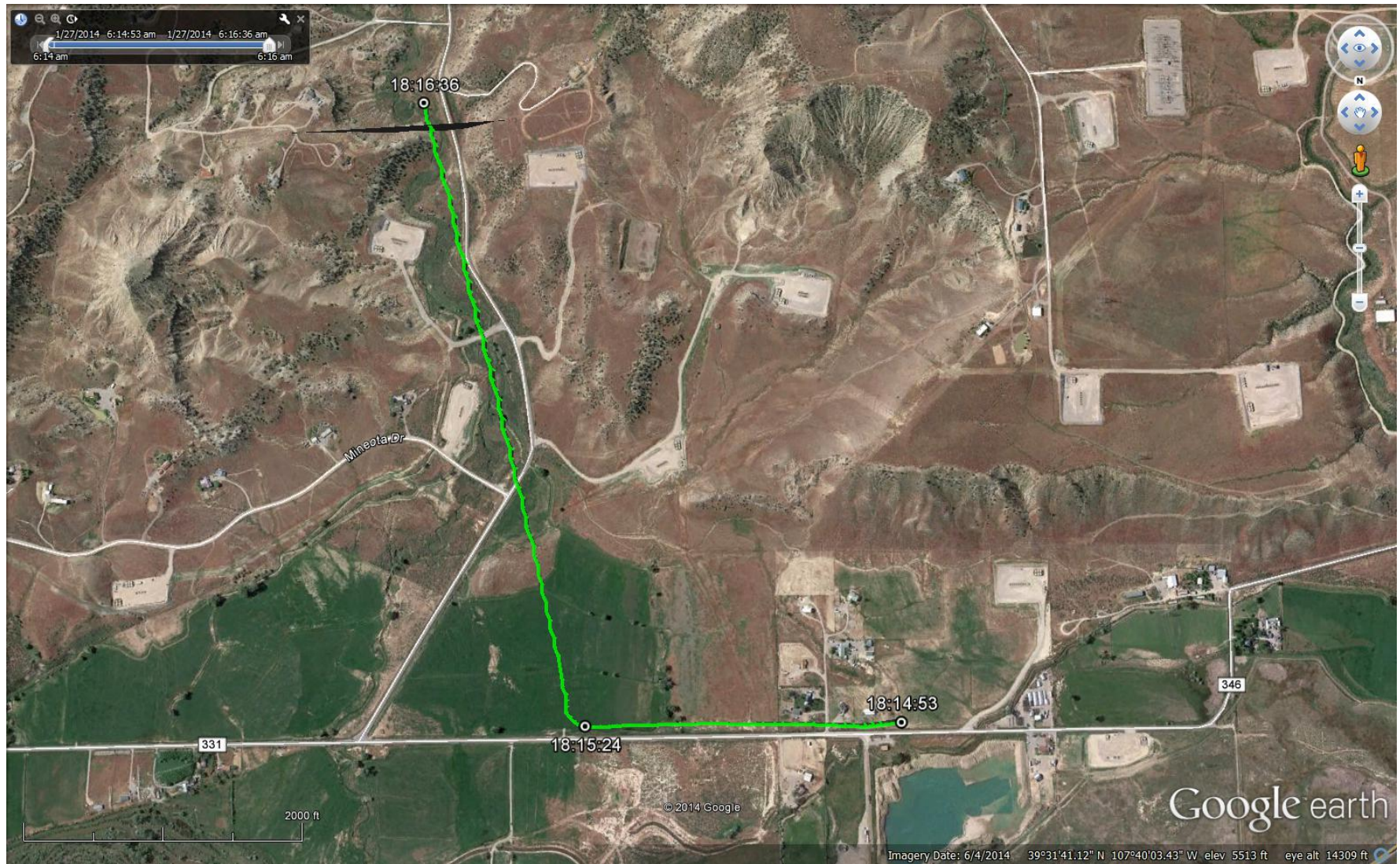


Figure 3. Aircraft track highlighting last recorded data points.

