

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

May 6, 2016

GPS Data Factual Report

Specialist's Factual Report
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1. EVENT

Location: La Junta, Colorado
Date: May 7, 2013
Aircraft: Bell 206L-1
Registration: N20Z
Operator: Corporate Aircraft Services
NTSB Number: CEN13LA310

SUMMARY

On May 7, 2013, about 1149 mountain daylight time, a Bell model 206L-1 helicopter, N20Z, sustained substantial damage when it impacted the ground near La Junta, Colorado, following an in-flight loss of tail rotor control. The pilot and two passengers were not injured. The helicopter's tail boom was separated and it sustained additional damage to the fuselage and main rotor system. The aircraft was registered to Helicopters Inc. and operated by Corporate Aircraft Services under the provisions of 14 *Code of Federal Regulations* Part 91 as an aerial observation flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated from the La Junta Municipal Airport (LHX), La Junta, Colorado.

2. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Laboratory received a DVD containing a video file of the event flight. According to the pilot, the video file was created with a Sony HDR-CX760V camera that was GPS enabled. Inspection of the file's metadata yielded a GPS track of the accident flight.¹

2.1. GPS Data Recovery

The GPS data was extracted from the video file by examining the file's metadata, also known as exchangeable image file format (EXIF) data.

¹ More information about the accident video can be found in the docket under "On Board Image Recorder" Factual Report.

2.2. GPS Data Description and Parameters Provided

Information found in the EXIF data can vary depending on file format. Some examples of EXIF data are geotagging, file creation data, and camera settings. The video file from the event flight appeared to have GPS data tag recorded at a variable rate from once a second to a max of three times a second.

GPS data was extracted for the full 14 minutes and 16 seconds duration of the video. The data extracted included 1710 points containing data, time, latitude, longitude, GPS altitude, groundspeed, and true track. The recording started on May 7, 2013, from 17:34:55 to 17:49:11 UTC. All times are referenced in Coordinated Universal Time (UTC). An additional offset of 6 hours can be subtracted from UTC to obtain local time, mountain daylight time (MDT).

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)
Video Time	Corresponding video time as elapsed seconds.
Latitude	Recorded Latitude (degrees)
Longitude	Recorded Longitude (degrees)
GPS Alt	Recorded GPS Altitude (feet)
GPS Groundspeed	Recorded Groundspeed (knots)
True Track	Recorded Track (degrees)

2.3. Overlays and Tabular Data

The following overlays were created using Google Earth. The green path represents the aircraft's track. The weather and lighting conditions in Google Earth are not necessarily the weather and lighting conditions present at the time of the recording.

Figure 2 is an overlay of the entire extracted GPS data. The overlay begins with the aircraft tracking in a southern direction. The first and last recorded data points are shown at 17:34:55 and 17:49:11 UTC.

Figure 3 is a detailed overlay that highlights the time of impact. The first shown data point shows the derived track and groundspeed at about 130 degrees and 33 kts. At this point the groundspeed begins to decrease over time to about 28 kts at 17:48:49 UTC.

Concurrently, the track begins to increase to the right. The track and groundspeed continue their trends until the last recorded data point at 17:49:11 UTC, with a groundspeed and track of 0 kts and 345 degrees.

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 1. Overlay of extracted data containing the accident flight.



Figure 2. Aircraft track highlighting last recorded data points.