

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

April 9, 2018

Global Positioning System Device

Specialist's Factual Report

By Alice Park

1. EVENT SUMMARY

Location: Perrysburg, Ohio
Date: January 15, 2018
Aircraft: MD-369HM
Registration: N4QX
Operator: Vista One Inc
NTSB Number: CEN18FA074

On January 15, 2018, about 11:40 eastern standard time, a MD Helicopters Inc. 369HM helicopter, N4QX, was substantially damaged when it impacted terrain near Perrysburg, Ohio. The commercial pilot and crew member were fatally injured. the helicopter was owned and operated by Vista One Inc. The aerial observation flight was conducted under the provisions of 14 *Code of Federal Regulations* Part 91. Instrument meteorological conditions prevailed and no Federal Aviation Administration (FAA) flight plan had been filed for the flight. The local flight departed from Wood County Airport (1GO), Bowling Green, Ohio.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following global positioning system (GPS) device:

Device Manufacturer/Model: Garmin GPSMAP 496
Serial Number: 19710394

Figure 1. Undamaged exterior of Garmin GPSMAP 496 (front side)



Figure 2. Undamaged exterior of Garmin GPSMAP 496 (back side)



3.1. Device Description

The Garmin GPSMAP 496 is a battery-powered portable 12-channel GPS receiver with a color LCD display screen. The unit includes a built-in Jeppesen database and can receive XM satellite radio for flight information including NEXRAD radar, lightning, METARs, TAFs, and TFRs. The unit stores date, route-of-flight, and flight-time information for up to 50 flights. A flight record is triggered when groundspeed exceeds 30 knots and altitude exceeds 250 feet and ends when groundspeed drops below 30 knots for 10 minutes or more. A detailed tracklog – including latitude, longitude, date, time, and GPS altitude information for an unspecified number of points – is stored within the unit whenever the receiver has a lock on the GPS navigation signal. Once the current tracklog memory becomes full, new information either overwrites the oldest information or recording stops, depending on how the unit is configured. The current tracklog can be saved to long-term memory and 15 saved tracklogs can be maintained in addition to the current tracklog. Tracklog storage may be activated or de-activated at user discretion. The unit contains hardware and software permitting the download of recorded waypoint, route, and tracklog information to a PC. The unit can also communicate with external devices such as a computer using a built in USB port. An internal button-battery is used to back-up power to the internal memory and real-time clock during those periods when main power is removed.

3.2. Data Recovery

The unit was in good condition and data was downloaded successfully. Figures 1 and 2 show the device as received.

3.3. Data Description

Two (2) track logs were downloaded. The first track was from 13:18:24 UTC to 14:24:09 UTC and the second track was from 15:17:14 UTC to 16:36:34 UTC on January 15, 2018.¹ The second track was determined to be of interest.

3.4. Parameters Provided

Table 1 describes data parameters provided by the GPS device. Date, Time, Latitude, Longitude, and GPS Altitude are recorded by the device. Groundspeed and Track are derived from the recorded parameters.

¹ All dates and times are referenced to Coordinated Universal Time (UTC).

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)
Groundspeed	Average derived groundspeed (knots)
Track	Average derived true course (degrees)

3.5. OVERLAYS AND TABULAR DATA

Figures 3 and 4 are graphical overlays 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.

The figures display the entire track, starting at 15:17:14 UTC ending at 16:36:34 UTC near the final resting location of the main wreckage with a GPS altitude of 587 feet above Mean Sea Level (MSL) and a ground speed of 64 knots. Due to data buffering on the GPS unit, the data recording may have ended before the accident event.

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

**Figure 3. Entire flight of the accident recording –
heads to eastbound, turns to south and made a U-turn to north until the impact.
(white arrows indicate direction of the flight)**



**Figure 4. End portion of accident flight recording –
Selected time, altitude, and speed of the flights are overlaid.**



