

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

February 6, 2014

GPS Factual Report

by George Haralampopoulos

1. EVENT

Location: Delta, Colorado
Date: November 29, 2013
Aircraft: Cessna 182
Registration: N3087Y
Operator: Private
NTSB Number: CEN14FA071

1. SUMMARY

On November 29, 2013, about 0750 mountain standard time, a Cessna 182E airplane, N3087Y, impacted terrain near Delta, Colorado. The student pilot, the sole occupant, was fatally injured and the airplane was destroyed. The airplane was registered to Ray Veatsch Agency Inc., and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Day instrument meteorological conditions existed at the time of the accident and no flight plan was filed. The flight departed from Blake Field Airport (KAJZ), Delta, Colorado at 0748 and was destined for Crawford Airport (99V), Crawford, Colorado.

2. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Laboratory received the following device(s):

GPS Manufacturer/Model: Garmin Aera 560
Serial Number: 1QV000191

2.1. Garmin Aera 560 Device Description

The Garmin Aera 560 is a portable GPS navigation device employing 4.3 inch touch-screen and color moving map display. The Aera is capable of interfacing with the Garmin GTX 330 Mode S transponder to display TIS traffic alerts. The Aera is capable of storing track logs that contain position location information for an unspecified number

of points in non-volatile memory. This data is stored internally in an industry-standard format and may be transferred to a PC running Windows Explorer via USB.

2.2 GPS Data Recovery

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed the unit sustained minor impact damage to the casing (figure 1). An internal inspection was performed and revealed the unit's integrated circuit board remained intact. The unit was powered on and the memory was downloaded using the manufacturer's recommended procedure.

Figure 1. Photo of Garmin Aera 560 as received.



2.3 GPS Data Description

The data extracted included 38 sessions from September 7, 2013¹ through November 29, 2013 and consisted of 9,999 total data points. The accident event was located on November 29, 2013 and started from 14:38:03 to 14:47:30 UTC, consisting of 19 data points.

2.4 GPS 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 groundspeed between current and previous data point (knots)
Track	Average course between current and previous data point (degrees)

2.5 Overlay and Tabular Data

The following overlay was created using Google Earth.

Figure 2 is a Google Earth top view overlay of the entire accident event. The first and last recorded data points are shown at 14:38:03 and 14:47:30 UTC respectively. The track shows the aircraft taxiing and taking off on runway 3 before the recording ends. The last recorded data point shows a groundspeed of 21 knots.

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

Figure 2. Overlay of accident event.

