

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

July 22, 2016

GPS Factual Report

Specialist's Report
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1. EVENT

Location: Port Townsend, Washington
Date: September 28, 2015
Aircraft: Cessna 150F
Registration: N8529G
Operator: Private
NTSB Number: WPR15FA268

2. SUMMARY

On September 28, 2015, about 1320 pacific daylight time, a Cessna 150F, N8529G, sustained substantial damage following an emergency landing and collision with terrain after a reported loss of engine power during initial climb near Port Townsend, Washington. The commercial pilot and his sole passenger were seriously injured. Visual meteorological conditions prevailed for the personal flight, which was being conducted in accordance with 14 *Code of Federal Regulations* Part 91, and a flight plan was not filed. The flight departed the Jefferson County International Airport (0S9), Port Townsend, Washington, about 1315, with its destination unknown.

3. DETAILS OF INVESTIGATION

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

GPS Manufacturer/Model: Garmin Aera 500
Serial Number: 1QN012218

3.1. Garmin Aera 500 Device Description

The Garmin Aera 500 is a portable GPS navigation device employing 4.3 inch touch-screen and color moving map display. The Aera is capable of storing track logs that contain position location information for a 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 Garmin Aera 500 Data Recovery

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed no substantial impact damage was sustained (figure 1). The unit was powered on and the memory was downloaded using the manufacturer's recommended procedure.



Figure 1. Photo of Garmin Aera 500 as received.

2.3 GPS Data Description

The data extracted included 26 sessions from October 6, 2012¹, through October 21, 2015. The accident event was located by the recorded date and time stamp on September 28, 2015, and started from 20:11:21 to 20:20:55 UTC, consisting of 292 data points.

A flight just prior to the event flight was identified on the same day, September 28, 2015, from 17:43:27 to 18:33:22 UTC. Data from the prior flight was not evaluated in this report although it is included as an attachment with the event flight.

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	Derived groundspeed (knots)
Track	Derived true track (degrees)

2.5 Overlay and Tabular Data

The following figures were created using Google Earth. 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 contains the recorded event flight spanning from the first and last recorded data points at 20:11:38 and 20:20:55 UTC, respectively. A yellow marker near the last recorded data point indicates the wreckage location, as provided by onscene investigators. Figure 3 is a side view of figure 2 that details the flight path of the event flight.

The overlay shows that the aircraft began its take off from Jefferson County airport at 20:18:17 UTC. At 20:19:43 UTC, the aircraft began a descent continuing until the last recorded data point. At 20:20:41 UTC, an altitude of 214977 ft was recorded. This large value is consistent with errors induced from impact forces.

Tabular data used to generate figures 2 and 3, along with data not plotted from the previous flight, are included as Attachment 1. This attachment is provided in electronic comma-delimited (*.CSV) format.



Figure 2. Top view of event flight.



Figure 3. Side view of event flight.