

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

December 19, 2018

Global Positioning System Device

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Crozet, Virginia
Date: April 15, 2018
Aircraft: Cessna 525
Registration: N525P
Operator: Private
NTSB Number: ERA18FA127

On April 15, 2018, at 2054 eastern daylight time, a Cessna 525, registration N525P, was destroyed after it impacted terrain near Crozet, Virginia. The private pilot was fatally injured. The flight was operated by an individual under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Night instrument meteorological conditions prevailed, and there was no flight plan filed for the flight, which departed Richmond Executive – Chesterfield County Airport (FCI), Richmond, Virginia, around 2035, and was destined for Shenandoah Valley Regional Airport (SHD), Weyers Cave, Virginia.

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:	19728949

3.1. Device Description

The Garmin GPSMAP 496 is a battery-powered portable 12-channel GPS receiver with a 256-color TFT 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, 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 is stored within the unit whenever the receiver has a lock on the GPS navigation signal. Position is updated within the tracklog as a function of time or distance moved, depending on how the unit has been configured. Once the current tracklog memory becomes full, new information either overwrites the oldest information or recording stops, depending on how the unit is configured. Tracklog storage may be activated or deactivated at user discretion. All recorded data is stored in non-volatile memory.¹ The unit contains hardware and software permitting the download of recorded waypoint, route, and tracklog information to a PC via a built-in serial port using the NMEA 0183 version 2.0 protocol. The unit can also communicate with external devices such as a computer using a built in USB port.

3.2. Data Recovery

Figures 1 and 2 show damage sustained during the accident. Due to the damage, the device was not able to be connected to a computer for a normal download. The device's memory chip was removed and imaged (Figure 3).



Figure 1. Front of damaged GPSMap 496, as received.

¹ Non-volatile memory is semiconductor memory that does not require power to retain information



Figure 2. Rear of GPSMap 496, as received.



Figure 3. GPS memory chip indicated by white arrow.

3.3. Data Description

The data extracted included 27 track logs from December 28, 2017, through April 14, 2018. Not all track logs were associated with an actual flight. The final track log recorded took place from Shenandoah Valley Regional Airport to Chesterfield County Airport the evening before the accident. The accident flight did not appear to be recorded.