

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

March 8, 2017

Global Positioning System Device

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Viborg, South Dakota
Date: September 02, 2016
Aircraft: Vans Aircraft RV-6
Registration: N676DT
Operator: Private
NTSB Number: CEN16FA344

On September 2, 2016, about 1000 central daylight time, an experimental amateur-built AVES DOUGLAS JAMES RV-6 airplane, N676DT, impacted a corn field near Viborg, South Dakota. The commercial rated pilot and passenger were fatally injured and the airplane was destroyed. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed and no flight plan had been filed. The local flight departed from Marv Skie-Lincoln County Airport (Y14), Tea, South Dakota about 0900.

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:	Appareo Stratus PRX V2
Serial Number:	222325

3.1. Appareo Stratus PRX V2 Device Description

The Appareo Status device is a self-contained battery powered unit that contains an internal AHRS¹, GPS/WAAS² receiver, ADS-B³ radar transponder receiver and weather receiver all in one compact unit. The unit communicates wirelessly with the pilot's i-Pad or i-Phone to display all of the acquired information. The pilot needs to have a particular software application called ForeFlight⁴ installed on his laptop/i-Pad to view the Stratus data in the cockpit. In addition to communicating with the pilot's computer, the Stratus device records the same information internally on a non-volatile flash memory chip. The internal memory has the space to store over 16 hours of flight data that is sampled at a rate of 5 data records per second.

3.1.2 Appareo Stratus Data Recovery

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed the unit had sustained minimal impact damage as a result of the accident. The tracks that were recorded within the unit were downloaded using the manufacturer's specified procedures.

3.1.3 Data Description

The data extraction consisted of 12 flights all located in and around the South Dakota - Minnesota area. The dates of the individual flights ranged from July 8, 2016 to July 17, 2016. No flights were recorded on the day of the accident.

¹ The Attitude Heading Reference System consists of a set of 3-axis gyroscope, accelerometers and heading reference sensors that enable the unit to compute the aircraft's pitch, roll and yaw motions.

² The Wide Area Augmentation System (**WAAS**) is an air navigation aid to augment the Global Positioning System (GPS), by improving its accuracy, integrity, and availability.

³ Automatic dependent surveillance – broadcast (ADS-B) is a cooperative surveillance technology in which an aircraft determines its position via satellite navigation and periodically broadcasts it, enabling it to be tracked. The information can be received by air traffic control ground stations as a replacement for secondary radar. It can also be received by other aircraft to provide situational awareness and allow self-separation.

⁴ i-Pad app (program) that communicates wirelessly with the Appareo Status unit to display aircraft's attitude, navigation, weather, and traffic information.