NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

March 9, 2016

Electronic Devices

Specialist's Factual Report
By Sean Payne

1. EVENT

Location:	Hurricane, Utah
Date:	December 10, 2015
Aircraft:	Barnett Allen Vans Aircraft RV-7
Registration:	N307AB
Operator:	Private
NTSB Number:	WPR16FA036

On December 10, 2015, about 1347 mountain standard time, a Barnett Allen Experimental amateur built, Vans Aircraft, Inc., RV7 airplane, N307AB, experienced an inflight break up, and sustained substantial damage when it impacted terrain about 3 miles west of the General Dick Stout Field Airport, Hurricane, Utah. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 91. The airline transport pilot and passenger were fatally injured. Visual (VMC) meteorological conditions prevailed, and no flight plan had been filed. The local personal flight departed from an unknown airport at an undetermined time.

2. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following devices:

Device 1: **Grand Rapid Technologies Horizon HX EFIS**
Device 1 Serial Number: **331**

Device 2: **Grand Rapid Technologies Horizon HX EFIS**
Device 2 Serial Number: **325**

Device 3: **Apollo Displays Optrex**
Device 3 Serial Number: **QJOZKOKA**

Device 4: **Apollo Displays Optrex**
Device 4 Serial Number: **QJOZPOBF**

Device 5: **Avidyne TAS600**
Device 5 Serial Number: **M111538182**

Device 6: **Iogear GBU521 Bluetooth USB Device**
Device 6 Serial Number: **N/A**

2.1. Grand Rapids Technologies Horizon HX EFIS Device Description

The Grand Rapids Technologies Horizon HX is an electronic flight instrumentation display (EFIS). The EFIS can be ordered with either a 6.5” or an 8.4” display. The EFIS provides a digital display of air data, GPS data, and engine data to the pilot. The EFIS allows integration with other avionics, such as IFR capable GPS devices, via an ARINC 429 interface. The device also includes full autopilot functionality when equipped with an autopilot servo package. When equipped with a Bluetooth[1] interface, the pilot can connect to the display and change settings via an Android capable device.

2.1.1. Grand Rapids Technologies Horizon HX EFIS Data Recovery

The device utilizes a USB drive located in the back of the unit to provide data logging capabilities when a USB drive is inserted. One of the two Horizon HX units contained an USB type device. This device was identified as a Iogear GBU521 Bluetooth adapter. The Bluetooth USB device is covered in section 2.4 of this report.

A discussion with the manufacturer of device revealed that the device does not contain any other form of non-volatile memory[2] (NVM) that would have recorded any flight data in the absence of a data logging USB thumb drive. No flight data was recovered from either serial number 331 and serial number 325.

Figure 1 is a photo of one of Grand Rapids Technologies Horizon HX EFIS serial number 331. Figure 2 is a photo of the Grand Rapids Technologies Horizon HX EFIS serial number 325.

Figure 1. The GRT Horizon HX EFIS SN 331.

[1] Bluetooth – a wireless technology standard for exchanging data over short distances.
[2] Semi-conductor memory that does not need power applied to retain electronic data.

Figure 2. The GRT Horizon HX EFIS SN 325.

2.2. Apollo Displays Optrex Device Description

The Apollo Optrex is the display unit associated with the Grand Rapids Technologies Horizon HX EFIS. The unit functions as a display only and does not log flight data. Figure 3 is a photo of Apollo Optrex serial number QJOZKOKA. Figure 4 is a photo of Apollo Optrex serial number QJOZPOBF.

Figure 3. The Apollo Optrex SN QJOZKOKA.

Figure 4. The Apollo Optrex SN QJOZPOBF.

2.3. Avidyne TAS600 Device Description

The Avidyne TAS600 is a traffic advisory system (TAS). The device is capable of actively interrogating transponder equipped aircraft and able to independently compute

range, bearing, and closure rates of these aircraft and provide pilots with a display of nearby traffic as well as audible and visual alerts of conflicting traffic. The unit is ADS-B capable and has the ability to display ADS-B type traffic targets on the existing TAS capable display. The device does not have the capability to log flight data. No further examination of the Avidyne TAS600 was conducted. Figure 5 is a photo of the Avidyne TAS600.

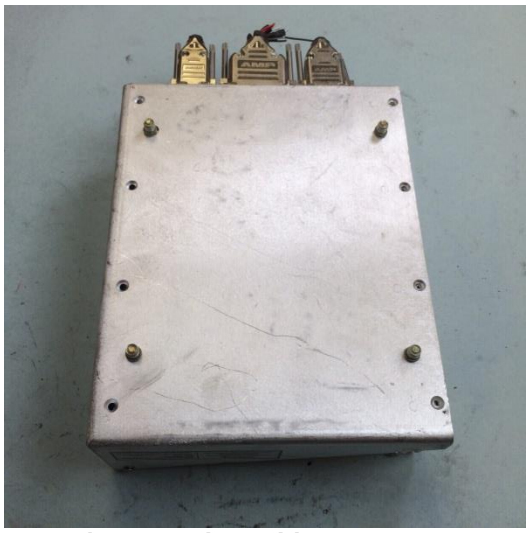

Figure 5. The Avidyne TAS600.

2.4. Iogear GBU521 Bluetooth Adapter Device Description

The Iogear GBU521 Bluetooth adapter is a USB style device that permits Bluetooth capability on USB enabled devices. The Bluetooth adapter allows users to connect up to three Bluetooth devices together to permit file transfers. The device typically allows connection between a hardware device and PED.[3] Figure 6 is a photo of the Iogear GBU521 Bluetooth adapter.

[3] PED – Personal Electronic Device

Figure 6. The Iogear GBU521 Bluetooth adapter.

2.4.1. Iogear GBU521 Bluetooth Adapter Data Recovery

The device is incapable of acting as a memory device and did not log flight data.