

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

April 26, 2019

Electronic Devices

Specialist's Factual Report by Gerald Kawamoto

1. EVENT

Location: Salem, Oregon
Date: June 3, 2018
Aircraft: Kitfox Model 1
Registration: N375KF
Operator: Private
NTSB Number: ANC18FA041

On June 3, 2018, about 1815 Pacific daylight time, a Mason Hal J Kitfox Model 1, experimental light sport airplane, N375KF, sustained substantial damage during an impact with trees and terrain near Blue Skies Airport (OR87), Salem, Oregon. The airplane was registered to a private individual and operated by the pilot as a 14 *Code of Federal Regulations* (CFR) Part 91 visual flight rules flight when the accident occurred. The student pilot, the only occupant, was fatally injured. Visual meteorological conditions prevailed and no flight plan had been filed. The last time the airplane had been seen was about 1800 when taxi operations were being conducted.

2. DETAILS OF INVESTIGATION

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

Device 1: Grand Rapids Technology EIS 2000
Device 1 Serial Number: 20712
Device 2: Appareo Stratus 2i
Device 2 Serial Number: 002475
Device 1: Apple iPhone 6
Device 1 Serial Number: 354443065391751
Device 2: Rami AV-801 GPS Antenna
Device 2 Serial Number: 171177

2.1. Grand Rapids Technology EIS 2000 Device Description

The GRT EIS Model 2000 is a panel mounted engine monitor. The device contains a back-lit, sunlight readable display providing the operator graphical and digital displays of

various engine parameters. The device also assists the pilots to lean the engine and allows for various alarms when monitored systems exceed various settings. The device does not contain any internal memory for the recording of engine information, other than retention of total engine time.

2.1.1. Grand Rapids Technology EIS 2000 Data Description

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the unit had not sustained any damage and the device powered on normally. The screen shown in Figure 1 was pertinent to the accident investigation. It showed the last flight time was 6 minutes and the accumulated engine time was 37.7 hours.

Figure 1. Screen showing a last flight time of 6 minutes and accumulated engine time of 37.7 hours.



2.2. Appareo Stratus 2i Device Description

The Appareo Stratus 2i is a wireless non-certified Automatic Dependent Surveillance - Broadcast (ADS-B) “In” unit receiver that is Wide Area Augmentation System¹ (WAAS) enabled. The device provides the ability to record GPS positions, altitude speed, and attitude. The unit communicates wirelessly with compatible devices, such as an iPad to display all acquired information.

2.2.1. Appareo Stratus 2i Data Description

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed the unit had not sustained any damage. The device was connected to ForeFlight using lab equipment and the settings revealed that the “Logging” feature was turned off. Therefore no data pertinent to the accident event were recovered.

2.3. Apple iPhone 6 Device Description

Personal Electronic Devices (PEDs) are a category of devices comprised primarily of portable computing devices and mobile phones. Portable computing devices are typically capable of internet access, email, messaging services, and can run user-installed applications to perform specific tasks. PED user and system data is typically stored on non-volatile memory (NVM)² and can be accessed through manufacturer-provided interfaces.

¹ The WAAS is an air navigation aid to augment the GPS, by improving its accuracy, integrity, and availability.

² Non-volatile memory is semiconductor memory that does not require external power for data retention.

2.3.1. Apple iPhone 6 Data Description

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination showed evidence of damage to the top corners of the screen, as shown in Figure 2. The device was unable to power on normally and the board was removed and installed in a lab surrogate. The surrogate powered on normally but the device was passcode protected. The Investigator-In-Charge (IIC) determined that further data recovery for this device would not be pursued.

Figure 2. iPhone 6 as received.



2.4. Rami AV-801 GPS Antenna Device Description

The Rami AV-801 is a WAAS GPS antenna designed to meet Federal Aviation Administration (FAA) Technical Standard Orders (TSO) C190. The device does not record NVM.