

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

December 22, 2015

Personal Electronic Devices

Specialist's Factual Report
By Bill Tuccio, Ph.D.

1. EVENT SUMMARY

Location: Saratoga, Wyoming
Date: September 20, 2014
Aircraft: Piper PA-28
Registration: N4618J
Operator: Private
NTSB Number: WPR14FA382

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	Apple iPad Air
Serial Number:	DLXMK0WYFKYC

Device Manufacturer/Model:	Apple iPad Air
Serial Number:	DMPLTS8DFKYC

3.1. Device Description

The Apple iPad is a tablet computer with a high-resolution color touch-screen interface. All iPad devices support WiFi and Bluetooth connectivity, and use various capacities of non-volatile memory¹ for storage (depending on model). Some devices also support data connectivity via existing cell-phone networks. The iPad implements its functionality by running programs called "Apps" capable of supporting web-browsing, email, audio/video playback, contact and calendar management, and numerous other specialized functions. User-installed Apps can be used to support functionality for electronic flight bags, flight planning and filing, aviation weather depiction, and

¹ Non-volatile memory is semiconductor memory that does not require external power for data retention.

electronic flight charts. Application data is stored in non-volatile memory and may include image, video, and position location information. Specialized application data may be stored in a proprietary file structure using numerous proprietary file formats. The amount and type of data stored varies based on the software version and configuration of the specific device.

3.2. Device Conditions

Upon arrival at the Vehicle Recorder Laboratory, an examination revealed both units had sustained significant impact damage. The extent of the damage is shown in figures 1 and 2.



Figure 1. Photo of damaged unit, serial number DLXMK0WYFKYC



Figure 2. Photo of damaged unit, serial number DMPLTS8DFKYC

3.3. Data Description

The first iPad (serial number DLXMK0WYFKYC) sustained damage that precluded normal recovery procedures and additional attempts were unsuccessful in yielding usable data. Therefore, no data pertinent to the event were recovered.

The second iPad (serial number DMPLTS8DFKYC) was repaired; however, it was protected by an optional security feature that requires a user-password to unlock the device and access functions and stored data. According to the investigator-in-charge, the password was not obtainable so the device's functions and any stored data were not accessible. With consent from the surviving family and via a subpoena, the device was sent to the manufacturer to attempt to bypass the password. The manufacturer was not able to bypass the password. Therefore, no data were recovered.