

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

April 20, 2017

Personal Electronic Device (PED)

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

1. EVENT

Location: Coeur d'Alene, Idaho
Date: June 25, 2016
Aircraft: Cessna A185F
Registration: N4585F
Operator: Private
NTSB Number: WPR16FA131

On June 25, 2016, about 1200 Pacific daylight time, a Cessna A185F, N4585F, airplane was substantially damaged when it collided with terrain about 16 miles northeast of Coeur d'Alene, Idaho. The private pilot, sole occupant of the airplane, was fatally injured. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no flight plan had been filed for the local flight. The pilot departed Felts Field Airport (SFF) Spokane, Washington, about 1126.

2. DETAILS OF INVESTIGATION

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

Device 1: Apple iPad Mini 1
Device 1 Serial Number: F9FNJ0ZLFPFQ

2.1. Apple iPad Mini 1 Device Description

The Apple iPad Mini is a tablet computer with a high-resolution color touch-screen interface. All iPad devices support WiFi and Bluetooth connectivity, and varied capacities of non-volatile memory¹ for storage (depending on model). Some devices also support data connectivity via cell-phone networks (as did the device in this case). The iPad Mini 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 electronic flight charts. Application data is stored in non-volatile memory and may

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

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.

2.1.1. Apple iPad Mini 1 Data Recovery

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the unit had sustained significant impact damage, as shown in figure 1. Initially the screen and digitizer were replaced and the unit started; however, it was protected by a password. The Investigator-in-Charge obtained the proper password and the unit unlocked. During subsequent restarts of the unit with only the replacement screen and digitizer, all functionality stopped working after a short period of time and the screen froze (that is, “locked up”). The unit was disassembled and the main printed circuit board, shown in figure 2, was installed in a surrogate unit.

When installed in the surrogate, the lightning connector interface would not connect to a host computer, which would have enabled a full forensic download. The unit was examined from the user interface and photo-documented.

Figure 1. Apple iPad Mini 1, as received.



Figure 2. Internal printed circuit board removed from accident unit.



2.1.2. Apple iPad Mini 1 Data Description

Text message and email content on the device were examined, and only one text message socially mentioning the likely accident flight was discovered and was not pertinent to the investigation. The most recent photo/video content was from June 7, 2016, and was not pertinent to the investigation.

The device contained one aviation-specific application, Garmin Pilot, which is an electronic flight bag application capable of flight planning and inflight navigation by displaying course-to-be-flown and aircraft position overlaid on a moving map. Upon starting the Garmin Pilot application and going to the map screen, figure 3 shows the image presented. A “direct to” navigation was enabled to the S77 airport, which corresponds to the Magee turf airstrip. Other screens within the Garmin Pilot application were examined (such as, the scratch pad, settings, flight plans) and contained no data pertinent to the investigation.

Figure 3. Map screen from Garmin Pilot.

