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

March 10, 2016

Personal Electronic Devices

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

1. EVENT SUMMARY

Location:	Bloomington, Illinois
Date:	April 7, 2015
Aircraft:	Cessna 414A
Registration:	N789UP
Operator:	Make It Happen Aviation, LLC
NTSB Number:	CEN15FA190

On April 7, 2015, about 0006 central daylight time (CDT), a Cessna model 414A twin-engine airplane, N789UP, was substantially damaged when it collided with terrain following a loss of control during an instrument approach to Central Illinois Regional Airport (BMI), Bloomington, Illinois. The airline transport pilot and six passengers were fatally injured. The airplane was owned by and registered to Make It Happen Aviation, LLC, and was operated by the pilot under the provisions of 14 *Code of Federal Regulations* Part 91 while on an instrument flight rules (IFR) flight plan. Night instrument meteorological conditions prevailed for the cross-country flight that departed Indianapolis International Airport (IND), Indianapolis, Indiana, at 2307 CDT.

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 iPhone 5S (Pilot's iPhone)
Internal ID:	IIC-001
Serial Number:	F2MLN293FNJJ
Device Manufacturer/Model:	Apple iPhone 6
Internal ID:	IIC-002
Serial Number:	DNVNG594G5MC

Device Manufacturer/Model:	Apple iPhone 4S
Internal ID:	IIC-003
Serial Number:	Unknown
Device Manufacturer/Model:	Apple iPhone 5S
Internal ID:	IIC-004
Serial Number:	F2NLHMW4FF9R
Device Manufacturer/Model:	Apple iPhone 6
Internal ID:	IIC-005
Serial Number:	Unknown
Device Manufacturer/Model:	Apple iPhone 5S
Internal ID:	IIC-006
Serial Number:	Unknown
Device Manufacturer/Model:	Apple iPhone 5S
Internal ID:	IIC-007
Serial Number:	F18MW05EFF9R
Device Manufacturer/Model:	Apple iPad 4 (Pilot's iPad)
Internal ID:	IIC-008
Serial Number:	DMPL20BJF18C
Device Manufacturer/Model:	Apple iPad 2 (Pilot's iPad)
Internal ID:	IIC-009
Serial Number:	DLXFNVW0DFJ3
Device Manufacturer/Model:	Apple iPad 3
Internal ID:	IIC-010
Serial Number:	DLXH91MXDNQT

3.1. Device Description

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. Depending on the model, mobile phones can perform many of the same tasks as portable computing devices, plus have voice call and text messaging capabilities. PED user and system data is typically stored on non-volatile memory[1] and can be accessed through manufacturer-provided interfaces.

3.2. Data Recovery

All devices had varying degrees of impact damage and security protection. Table 1 summarizes the damage, security outcome, recovery, and reference figures containing photograph(s).

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

Table 1. Data Recovery of PEDs.

Device/Serial Number	Damage	Recovery	Figure
iPhone 5S F2MLN293FNJJ	Minor, bent.	Operative, not password protected, downloaded.	1
iPhone 6 DNVNG594G5MC	Severe.	Repaired, obtained password, downloaded.	2
iPhone 4S Unknown	None.	Obtained password, examined.	3
iPhone 5S F2NLHMW4FF9R	Minor, bent.	Repaired, obtained password, downloaded.	4
iPhone 6 Unknown	Severe.	Attempted repair, would not start. No recovery.	5
iPhone 5S Unknown	Minor.	Operative. Unable to obtain password. Password break attempt unsuccessful.	6
iPhone 5S F18MW05EFF9R	Severe.	Repaired, obtained password, downloaded.	7
iPad 4 DMPL20BJF18C	Severe.	Repaired, not password protected, downloaded.	8
iPad 2 DLXFNVW0DFJ3	Severe.	Attempted repair, would not start. No recovery.	9
iPad 3 DLXH91MXDNQT	Severe.	Attempted repair, would not start. No recovery.	10

Figure 1. iPhone 5S serial number F2MLN293FNJJ (back, front, side views).

Figure 2. iPhone 6 serial number DNVNG594G5MC (back, front, internal views).

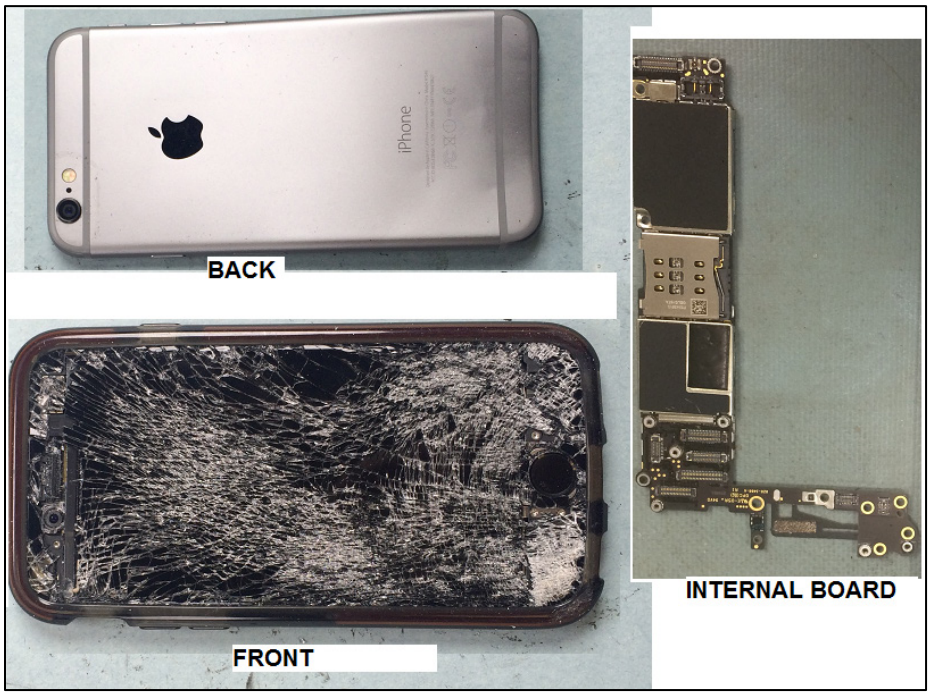


Figure 3. iPhone 4s serial number Unknown (front and case).

Figure 4. iPhone 5s serial number F2NLHMW4FF9R (front and case).

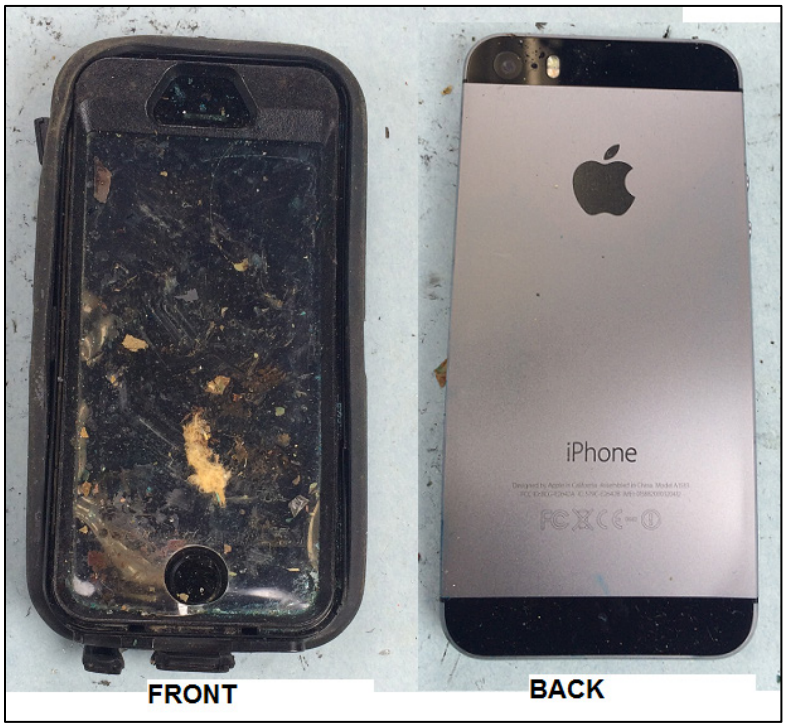


Figure 5. iPhone 6 serial number Unknown (front, internal, internal board).

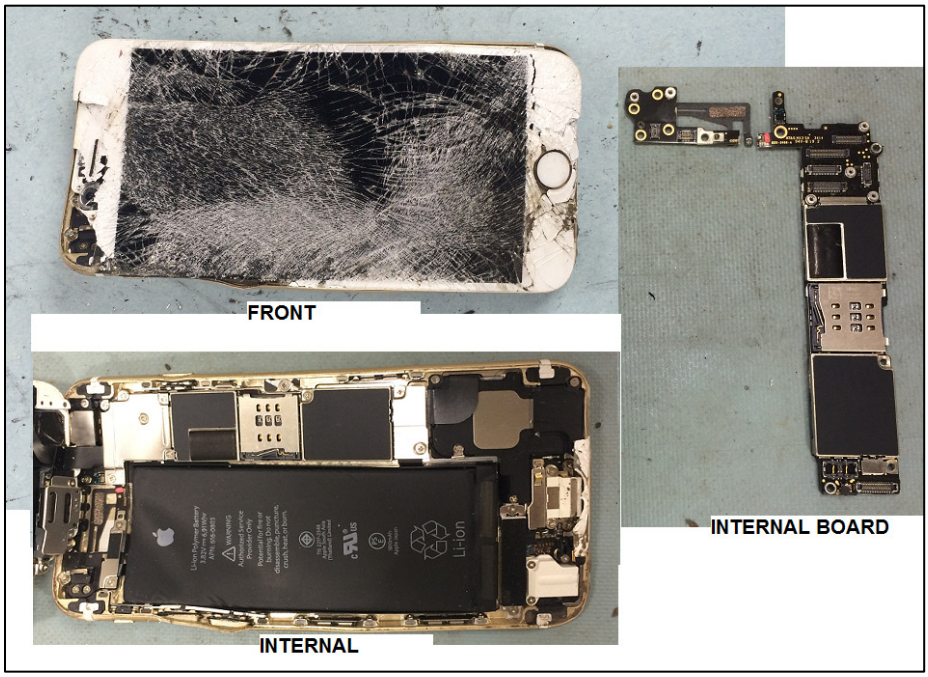


Figure 6. iPhone 5s serial number Unknown.

Figure 7. iPhone 5s serial number F18MW05EFF9R (front, internal board).

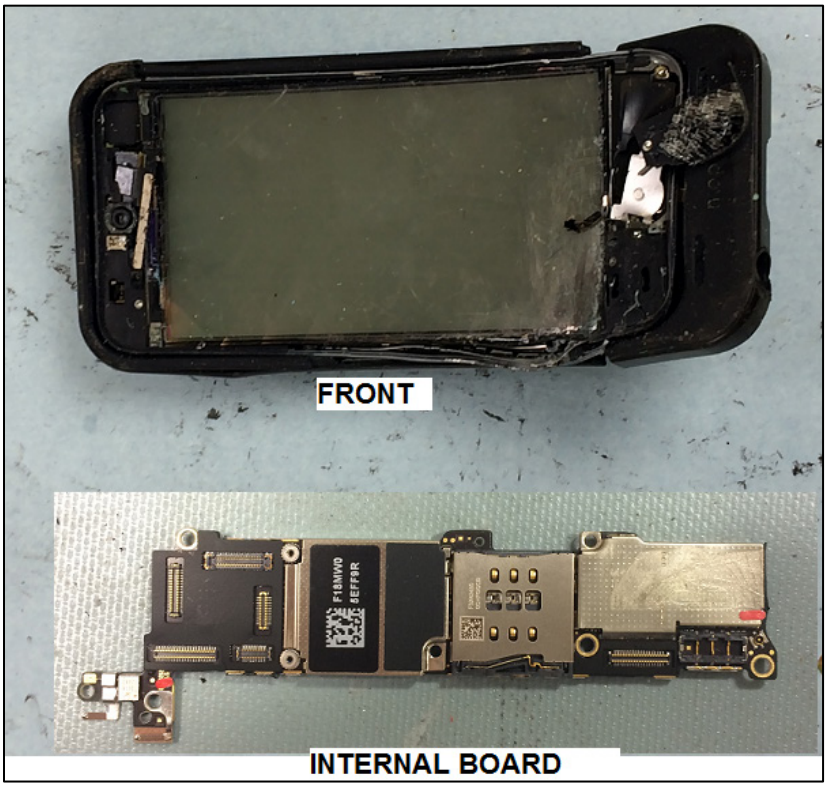


Figure 8. iPad 4 serial number DMPL20BJF18C (front, internal board).

Figure 9. iPad 2 serial number DLXFNVW0DFJ3 (back, internal board).

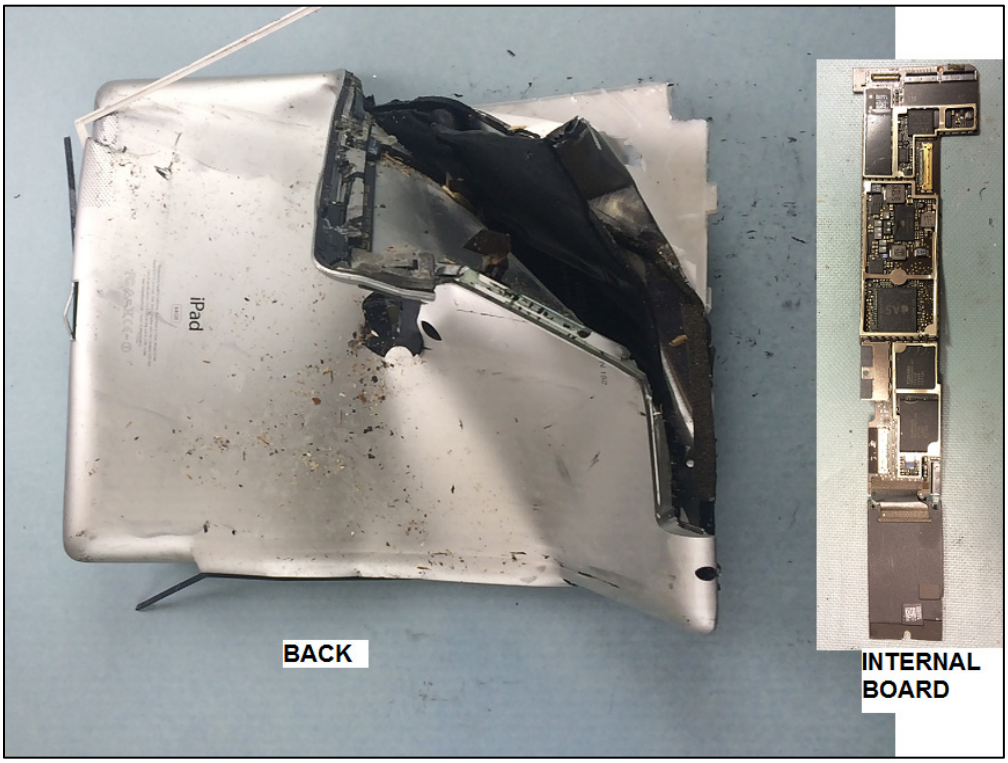
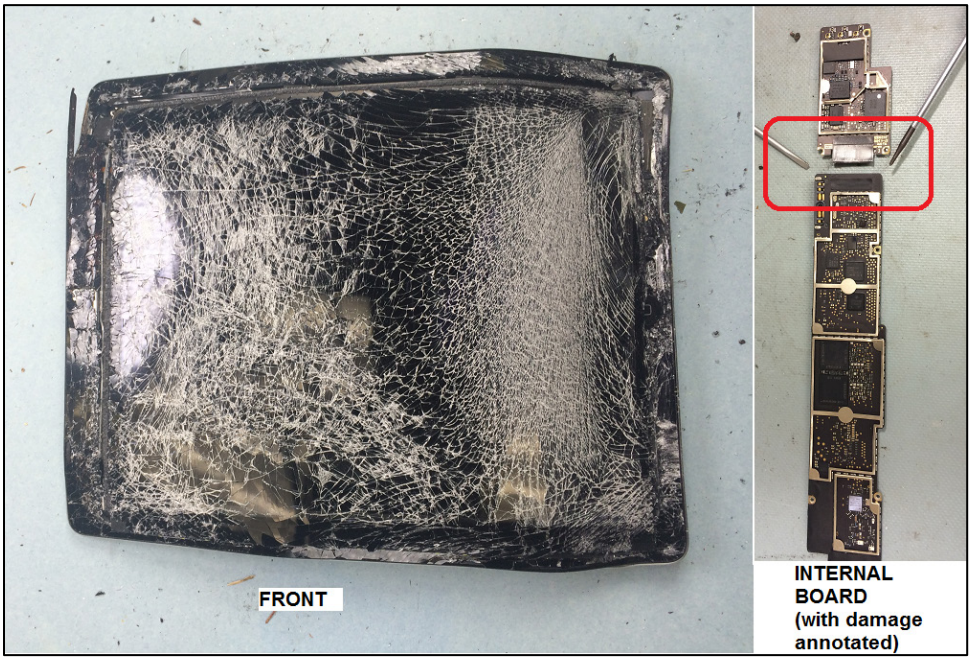


Figure 10. iPad 3 serial number DLXH91MXDNQT (front, internal board).



4. DEVICE INVESTIGATIONS

All devices were examined for pertinent photographs, video, text messages, emails, and internet history; additionally, the pilot's devices were examined for logbook files and flight planning related documents.

Passenger PEDs contained minimal text messages about ground transportation to the IND airport and expected time of arrival at IND airport for departure. There was no other pertinent information.

The pilot's PEDs contained internet browsing of weather related websites; however, the content viewed could not be determined. The pilot's iPad contained ForeFlight and Jeppesen's Mobile FlightDeck application. No application on any device was found to record flight track information or altitude.