

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

May 17, 2018

Electronic Devices

Specialist's Factual Report
By Christopher Babcock

1. EVENT SUMMARY

Location: Lake Clark National Park, Alaska
Date: October 28, 2016
Aircraft: Pilatus PC-6
Registration: N5308F
Operator: Private
NTSB Number: ANC17FA004

On October 28, 2016, about 1828 Alaska daylight time, a turbine-powered tailwheel-equipped Fairchild Pilatus Porter PC-6, registration N5308F, sustained substantial damage after impacting mountainous terrain about 57 miles north-northeast of Port Alsworth, Alaska, in the Neacola Mountains of Lake Clark National Park and Preserve. The airplane was being operated as a visual flight rules (VFR) cross-country personal flight under the provisions of Title 14 *Code of Federal Regulations* Part 91. The commercial rated pilot, the sole occupant of the aircraft, sustained fatal injuries. Visual meteorological conditions prevailed at the departure and destination, with areas of reduced visibility and lower cloud ceilings along the route of flight. No flight plan had been filed. The flight departed Lake Hood Seaplane Base, Anchorage, Alaska, at 1711, destined for a private airstrip near Port Alsworth.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	Garmin GPSMAP 396
Serial Number:	28205887

Device Manufacturer/Model:	Apple iPhone 6
Serial Number:	N/A

3.1. GPS Device Description

The Garmin GPSMAP 396 is a battery-powered portable 12-channel global positioning system (GPS) receiver with a 256-color LCD display screen. The unit can store date, route-of-flight, and flight time information for up to 50 flights. A flight record is triggered when groundspeed exceeds 30 knots and altitude exceeds 250 feet and ends when groundspeed drops below 30 knots for 10 minutes or more. A detailed tracklog can be stored within the unit whenever the receiver has a lock on the GPS navigation signal and recording functionality has been enabled by the user. Position is updated within the tracklog as a function of time or distance moved, depending on how the unit has been configured. Once the current tracklog memory becomes full, new information either overwrites the oldest information or recording stops, depending on how the unit is configured. The current tracklog can be saved to long-term memory and 15 saved tracklogs can be maintained in addition to the current tracklog.

3.1.1. GPS Data Recovery

Upon arrival at the laboratory, mechanical damage was noted on the device (Figure 1). Data recovery was attempted by connecting the device to a computer running manufacturer software, but the device was not recognized by the computer.



Figure 1. Photo of damaged Garmin GPSMAP 396, as received.

The flash memory chip containing the non-volatile (NVM) memory was removed and imaged using a chip reader (Figure 2).¹ Examination of the image file revealed 33 power cycles of the GPS between September 25, 2015, and October 24, 2016. Several power cycles contained only a few points of ground operation. The last flight recorded was April

¹ Non-volatile memory is semi-conductor memory that does not require power to retain information

9, 2016. Seventeen flights were recorded between Anchorage and an airstrip northeast of Port Alsworth Airport.

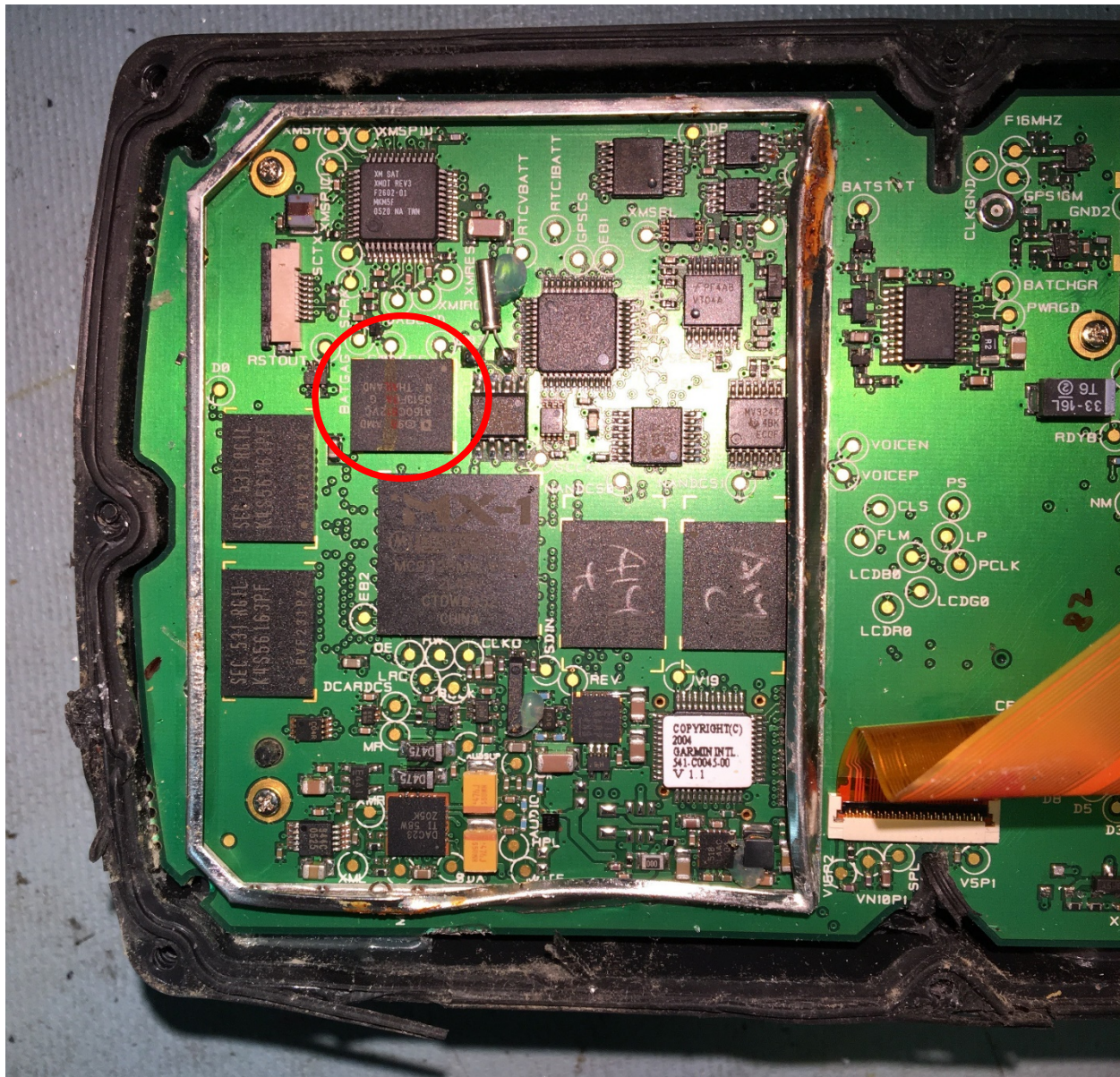


Figure 2. Chip containing NVM (circled in red).

3.2. Apple iPhone 6 Device Description

Portable electronic devices (PED) 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 and can be accessed through manufacturer-provided interfaces.

3.2.1. Apple iPhone Data Recovery

Upon arrival at the laboratory, mechanical damage was observed on the device, however it was able to power on (Figure 3). The device was locked with a passcode. In consultation with the investigator in charge, no further attempts were made to access the device.



Figure 3. Front and rear of the iPhone, as received.