

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

October 7, 2019

Global Positioning System Device

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Homer, Alaska
Date: July 19, 2019
Aircraft: de Havilland DHC-2
Registration: N68083
Operator: Rusts Flying Service
NTSB Number: ANC19FA035

On July 19, 2019, about 1010 Alaska daylight time, a float-equipped, de Havilland DHC-2 (Beaver) airplane, N68083, sustained substantial damage following a loss of control and impact with ocean waters about 12 miles south of Homer, Alaska. The airplane was registered to Rust Properties LLC and operated by Rust's Flying Service as a visual flight rules on-demand charter flight under the provisions of Title 14 *Code of Federal Regulations* Part 135. The airline transport pilot and three passengers sustained minor injuries, one passenger was uninjured, one passenger sustained serious injuries, and one passenger was fatally injured. Visual meteorological conditions prevailed and company flight following procedures were in effect. The flight departed Tutka Bay about 1005 destined for Lake Hood Seaplane Base (PALH), Anchorage, Alaska.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	Garmin GPSMAP 495
Serial Number:	1E0003451

3.1. Device Description

The Garmin GPSMAP 495 is a battery-powered portable 12-channel GPS receiver with a 256-color TFT LCD display screen. The unit stores 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 including latitude, longitude, date, time, and GPS altitude information is stored within the unit whenever the receiver has a lock on the GPS navigation signal. 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. Tracklog storage may be activated or deactivated at user discretion. All recorded data is stored in non-volatile memory¹. The unit contains hardware and software permitting the download of recorded waypoint, route, and tracklog information to a PC via a built-in serial port using the NMEA 0183 version 2.0 protocol. The unit can also communicate with external devices such as a computer using a built in USB port. An internal button-battery is used to back-up power to the internal memory and real-time clock during those periods when main power is removed.

3.2. Data Recovery

The device was recovered from salt water and received in distilled water upon arrival at the Vehicle Recorder Laboratory. Exterior and interior examinations revealed the unit had sustained water damage as shown in figures 1 and 2. The circuit board was removed, cleaned, dried, and installed in a functioning surrogate. The surrogate unit powered on normally and the device settings showed that the Record Mode was set to "Off" and no Tracks had been saved to the NVM, as shown in Figure 3. Therefore no data were recovered.

Figure 1. Front and back of the Garmin GPSMAP 495 as received.



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

Figure 2. Interior of Garmin GPSMAP 495.

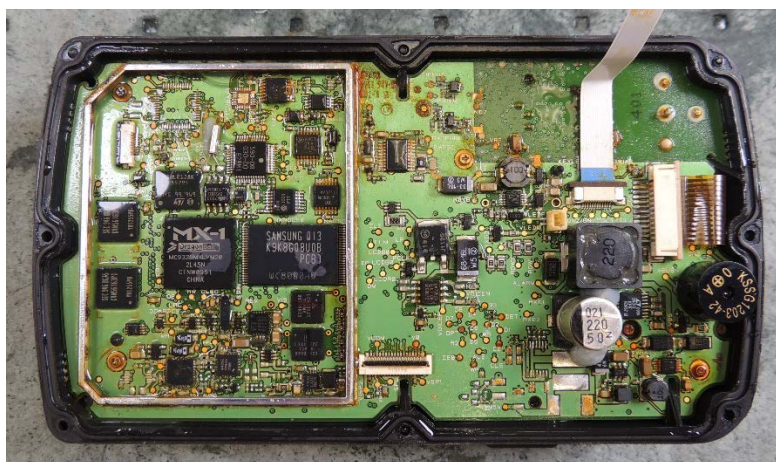


Figure 3. Track Log settings.

