

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

October 23, 2017

Global Positioning System Device

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Carrollton, Ohio
Date: April 24, 2016
Aircraft: Cessna 182L
Registration: N42411
Operator: Private
NTSB Number: CEN16FA169

On April 24, 2016, about 1815 eastern daylight time, a Cessna 182L airplane, N42411, was substantially damaged during an in-flight collision with trees and terrain near Carrollton, Ohio. The pilot was fatally injured. The aircraft was registered to and operated by the pilot under the provisions of 14 *Code of Federal Regulations* Part 91 as a personal flight. Day visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The flight originated from the Carroll County – Tolson Airport (TSO), Carrollton, Ohio, about 1800. The intended destination was the Salem Airpark (38D), Salem, Ohio.

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:	Lowrance AIRMAP 600C
Serial Number:	102260024

3.1. Device Description

The Lowrance AIRMAP 600c is a battery operated hand-portable 16-channel GPS+WAAS receiver equipped with a 320 x 240 pixel 2.83" (7.2 cm) diagonal TFT display, soft key controls, and support for custom maps and a Jeppesen Aviation database. It contains a slot for a multi-media card (MMC) or a secure digital (SD) memory

card (maximum size – 2GB). This card may be used to transfer and store custom maps, waypoint, route, and trail data between a computer and the GPS unit. The Lowrance AIRMAP 600c can store up to 1,000 waypoints; and up to 100 routes employing up to 100 waypoints per route. The unit can also store ‘trail’ data composed of latitude and longitude. Up to 100 trails, each composed of up to 9,999 points, may be stored in the unit. Trail data is not timestamped, and altitude is not recorded. Once the maximum trail point setting is reached, the unit will overwrite the oldest data with the newest data. The AIRMAP 600c may be programmed to update trail data by time, distance, or using a custom algorithm (auto). Updating by time may be set to record a new latitude-longitude point every 1 to 9,999 seconds (default is 3 s). Updating by distance may be set to record a new latitude/longitude point whenever the distance traveled from the last update exceed anywhere from 0.01 miles to 9.99 miles (default is 0.1 miles). The (default) automatic updating mode records a trail point whenever the device deviates significantly from straight-line motion. All recorded data is stored internally in non-volatile memory.¹ The data may be downloaded to a computer running the appropriate software using the serial port built into the unit. The LCD display must be functional in order to access the menu structure and set up the unit for download.

3.2. Data Recovery and Data Description

Trail data was successfully recovered from the device. Figure 1 shows the device, as received.

The device only logs latitude and longitude. Other parameters – altitude, date, time, speed, accelerations, etc. – are not available from a Lowrance Airmap 600c. One trail was recorded on the device, containing 400 points. The device was configured to the (default) automatic mode.

The log contains data from 4 distinct paths, even though the 400 points were contained in a single trail.

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



Figure 1. Photo of Lowrance AIRMAP 600c.

3.3. Overlays and Tabular Data

Figure 2 is a graphical overlay generated using Google Earth, displaying the recovered data. For reference, the VFR Sectional Chart is also included. The trail includes points near and in between Carroll County – Tolson Airport (TSO) and the Salem Airpark (38D), Salem, Ohio.

Tabular data used to generate figure 2 are included as Attachment 1. This attachment is provided in electronic comma-delimited (.CSV) format.

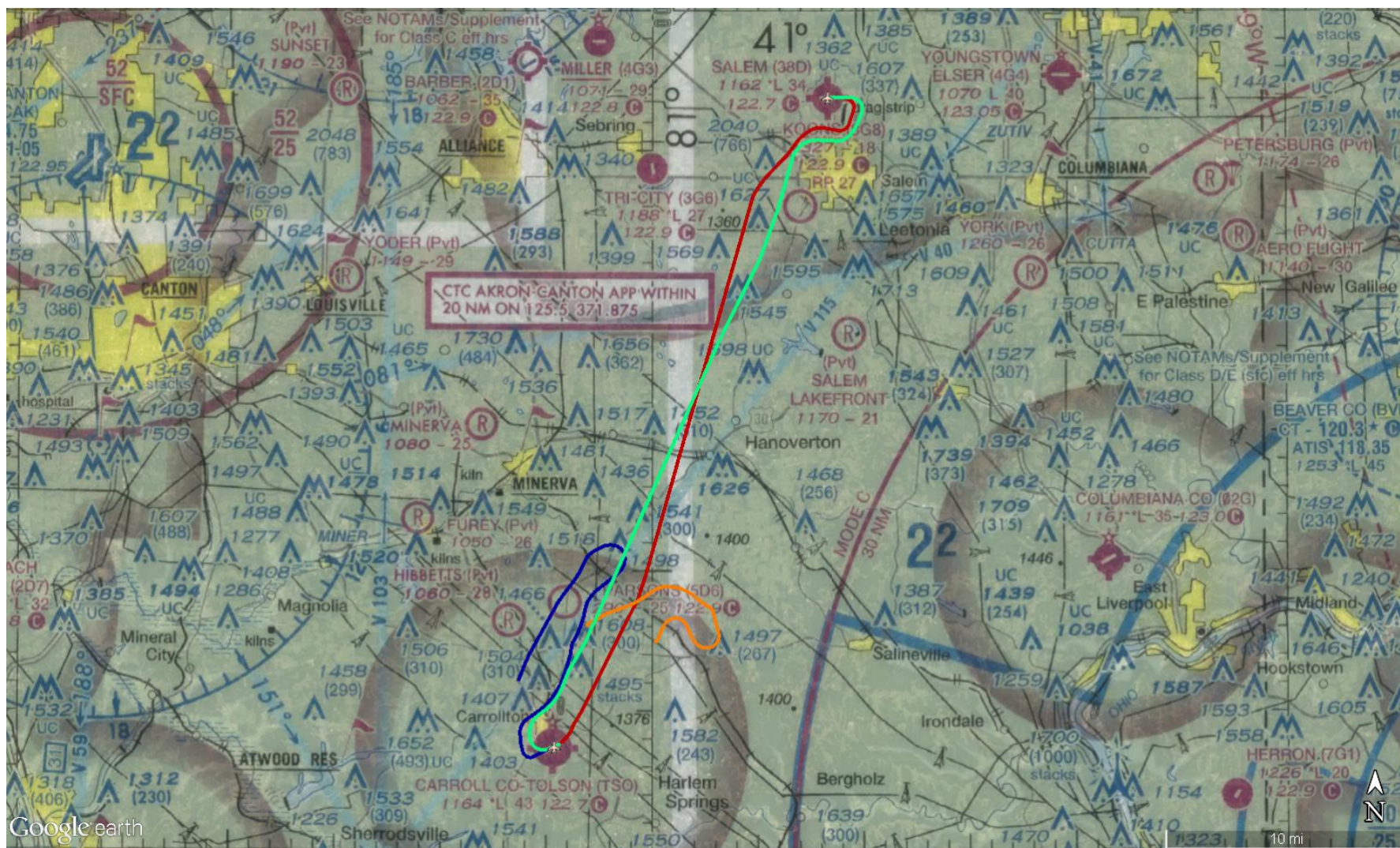


Figure 2. Google Earth overlay showing the recorded trail, with four distinct paths.