

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

October 31, 2019

Non-Volatile Memory Devices

Specialist's Factual Report Marie Moler

1. Event

Location: Greenwood, Mississippi
Date: February 26, 2018
Aircraft/ID: AIR TRACTOR INC AT-802 / N581LA
Operator: Private
NTSB Number: ERA18FA088

2. Event Summary

On February 26, 2018, about 1718 central standard time, an Air Tractor, Inc., AT-802A, N581LA, collided with trees and an open field near Greenwood, Mississippi. The commercial pilot was fatally injured. The airplane was substantially damaged. The airplane was being operated under the provisions of Title 14 Code of Federal Regulations Part 137 as an aerial application flight. Visual meteorological conditions prevailed at the time and no flight plan was filed for the flight that originated after 1706, from the operators airstrip located in Morgan City, Mississippi.

3. Details of Device Investigation

The NTSB Vehicle Recorder Division received the following devices:

Device: Hemisphere SATLOC G-4
Device Serial Number: 1505-09122-LN1-039

3.1. Hemisphere SATLOC G-4 Device Condition

The Hemisphere SATLOC G-4 Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had sustained minor damage, as shown in Figure 1. The device and downloaded.



Figure 1: Hemisphere SATLOC G-4 S/N: 1505-09122-LN1-039.

3.2. Hemisphere SATLOC G-4 Device Description

Satloc devices are part of an on-board control system designed to programmatically control agricultural, aerial spray operations based on vendor and user specified prescription maps. Satlocs can drive a cockpit mounted lightbar guidance system and a real-time graphic moving map display providing visual guidance to the pilot. Flow rates can be pilot selected or based on mapping created using a proprietary software package called MapStar that runs on a desktop computer. Satlocs are capable of recording historical information in a Windows-based operating system format to non-volatile memory:¹ in the case of the G-4, to an internal eSATA drive, and in the case of the M3, to an internal, compact flash (CF) card. Satlocs are now supported by the Satloc division of AgJunction.

3.2.1. Hemisphere SATLOC G-4 Data Description

The data extracted at the accident location recorded three separate flights. The first from 15:48:41 to 16:08:41, one from 16:13:56 to 16:33:08, and the last from 16:38:08 to 17:01:18. Between each recorded flight, the aircraft returned to the local airfield, but the device was set to stop logging data as it landed and resume logging data just after take-off. The last logged data at 17:01:18 showed a successful return to the local airfield. The accident was reported to have occurred at about 17:18 CST and no take-off was logged for the flight.

3.2.2. Hemisphere SATLOC G-4 Parameters Provided

Table 1 describes data parameters provided by the Hemisphere SATLOC G-4 device.

¹ Non-volatile memory is memory that does not need power to retain information.

Table 1: Data Parameters

Parameter Name	Parameter Description
Date	Date for recorded data point (MM/DD/YYYY)
Time	Time (CST) for recorded data point (HH:MM:SS)
Latitude	Recorded Latitude (degrees)
Longitude	Recorded Longitude (degrees)
Altitude	Recorded Altitude (feet)
Groundspeed	Recorded groundspeed (miles per hour)

Altitude data, recorded in feet, was 110 ft lower than the airfield elevation when the airplane was landing and taking off. The altitude was therefore corrected to be consistent with the airfield. Both the recorded altitude and corrected mean sea level (MSL) altitude are in Attachment 1.

4. OVERLAYS AND TABULAR DATA

Figure 2 is a Google Earth overlay of all the data from February 26, 2018 at the accident location. Figure 3 shows the local airfield and the first and last data point of the three separate flights. Tabular data used to generate Figure 2 and Figure 3 are included as Attachment 1. These attachments are provided in electronic comma-separated value (.CSV) format.



Figure 2: Flight data from February 26, 2018. Includes latitude, longitude, and altitude for three flights.



Figure 3: Last and first flight points for the three discontinuous recorded flights. Each data point is over a local airfield.