

National Transportation Safety Board

Office of Research and Engineering

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CEN24FA049

ELECTRONIC DEVICES

Specialist's Factual Report

May 24, 2024

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A. ACCIDENT

Location: Sterling City, Texas
Date: November 29, 2023
Time: 1430 central standard time (CST)
Airplane: MD Helicopters Inc. MD600N, N745MB

B. ELECTRONIC DEVICES SPECIALIST

Specialist: Gerald Kawamoto
Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

A group was not convened. The NTSB Vehicle Recorder Division received the following electronic devices:

Recorder Manufacturer/Model: Garmin GPSMAP 396
Recorder Serial Number: 28208737

Recorder Manufacturer/Model: FreeFlight Radar Altimeter RA-4500
Recorder Serial Number: 1711M086

Recorder Manufacturer/Model: FreeFlight Radar Altimeter System RAD-40
Recorder Serial Number: 1703N012

Recorder Manufacturer/Model: FreeFlight Tone Generator FTG-410
Recorder Serial Number: 1703W001

Recorder Manufacturer/Model: Horizon Aerospace - Dual Analog Indicator
Recorder Serial Number: 1000

Recorder Manufacturer/Model: Horizon Aerospace - Quad Digital Indicator
Recorder Serial Number: 0018

Recorder Manufacturer/Model: Horizon Aerospace - Quad Digital Indicator
Recorder Serial Number: 0025

1.0 Garmin GPSMAP 396 Description

The Garmin GPSMAP 396 is a battery-powered portable 12-channel GPS receiver with a 256-color thin-film transistor (TFT) liquid-crystal display (LCD) display screen. The unit includes a built-in Jeppesen database and is capable of receiving XM

satellite radio for flight information including NEXRAD radar, lightning, METARs, TAFs, and TFRs.

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 track log, 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 track log as a function of time or distance moved, depending on how the unit has been configured.

Once the current track log memory becomes full, new information either overwrites the oldest information or the recording stops, depending on how the unit is configured. The current track log can be saved to long-term memory and 15 saved track logs can be maintained in addition to the current tracklog. Track log storage may be activated or de-activated at user discretion. All recorded data is stored in non-volatile memory. The unit contains hardware and software permitting the download of recorded waypoint, route, and track log information to a PC via a built-in serial 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.

1.1 Garmin GPSMAP 396 Data Recovery

The device was in good condition upon arrival at the Vehicle Recorder Laboratory, as shown in Figure 1. The device powered on normally and a review of its contents revealed that the recording function was set to "off" and no track logs were present, thus, no accident-related data were recovered.



Figure 1. Garmin GPSMAP 396 as received.

2.0 FreeFlight Systems Devices

The Vehicle Recorder Laboratory received three FreeFlight Systems devices. The devices sustained impact damage, as shown in Figure 2. Correspondence with the manufacturer indicated that no historical data is stored internally on the devices, thus, no accident-related data were recovered.



Figure 2. FreeFlight Systems avionics. RA4500 (left), RAD-40 (center), and FTG-410 (right).

3.0 Horizon Aerospace Devices

The Vehicle Recorder Laboratory received three Horizon Aerospace devices. The devices sustained minor impact damage, as shown in Figure 3. No data were recovered from the devices.



Figure 3. Horizon Aerospace avionics. Dual Analog Indicator (left), Quad Digital Indicators (center and right).

Submitted by:

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Recorder Specialist