

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

October 1, 2019

Electronic Devices

Specialist's Factual Report
By W. Deven Chen

1. EVENT SUMMARY

Location: Zaleski, Ohio
Date: January 29, 2019
Aircraft: Bell 407
Registration: N191SF
Operator: Viking Aviation INC.
NTSB Number: CEN19FA072

On January 29, 2019, at 0650 Eastern standard time, a single-engine, turbine-powered, Bell 407 helicopter, N191SF, collided with forested, rising terrain about 4 miles northeast of Zaleski, Ohio. The helicopter was registered to and operated by Viking Aviation, LLC, doing business as Survival Flight, Inc., as a visual flight rules helicopter air ambulance flight under the provisions of 14 *Code of Federal Regulations Part 135* when the accident occurred. The certificated commercial pilot, flight nurse, and flight paramedic were fatally injured, and the helicopter was destroyed. Visual meteorological conditions existed at the departure location, and company flight following procedures were in effect. The flight departed Mt. Carmel Hospital, Grove City, Ohio at 0628, destined for Holzer Meigs Hospital, Pomeroy, Ohio, about 69 miles southeast.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	Garmin GTN 650
Serial Number:	1Z8410780

Device Manufacturer/Model:	Garmin GTN 650
Serial Number:	1Z8410866

Device Manufacturer/Model:
Serial Number:

Kannad 406 AF-H ELT
2611568-0012

3.1 Garmin GTN 650 Description

Garmin GTN 650 is a flight GPS navigation instrument by Garmin Ltd. The panel-mount units are equipped with touchscreens, remote audio control, flight planning and electronic chart capabilities. There is a built-in terrain database that shows when potential conflicts are ahead. There is also XM Satellite weather, traffic and lightning available on a moving map. The units also allow pilots to fly GPS-guided LPV (localizer performance with vertical guidance) glidepath approaches down to ILS (Instrument Landing System) minimums.

3.1.1 Garmin GTN 650 Data Recovery

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the devices had sustained impact damage, as shown in Figure 1. From this point on, the one with serial number 1Z8410780 is named Garmin GTN 650-780, and the one with serial number 1Z8410866 is named Garmin GTN 650-866. The screen of Garmin GTN 650-866 was fixed with parts from the screen of Garmin GTN 650-780. Both devices powered up normally once the screen was repaired.



Figure 1. Garmin GTN 650-780 (left), Garmin GTN 650-866 (right) as received

3.1.2 Garmin GTN 650 Data Description

Both devices were embedded with software version of 6.21 and GPS version of 5.2 as shown in Figure 2 and Figure 3. The figures also show that the installed databases were expired by July 19, 2018. The last frequency stored in Garmin GTN 650-780 was 123.07

for active communication and 120.05 in standby, while Garmin GTN 650-866 stored 123.02 for active communication and 132.75 in standby. Both devices had airport 221 (Vinton County Airport, New Plymouth, Ohio) stored. Figure 4 shows the stored airport information of Garmin GTN 650-866. Neither device stored flight plans. Figure 5 shows the flight plan panel of Garmin GEN 650-866.

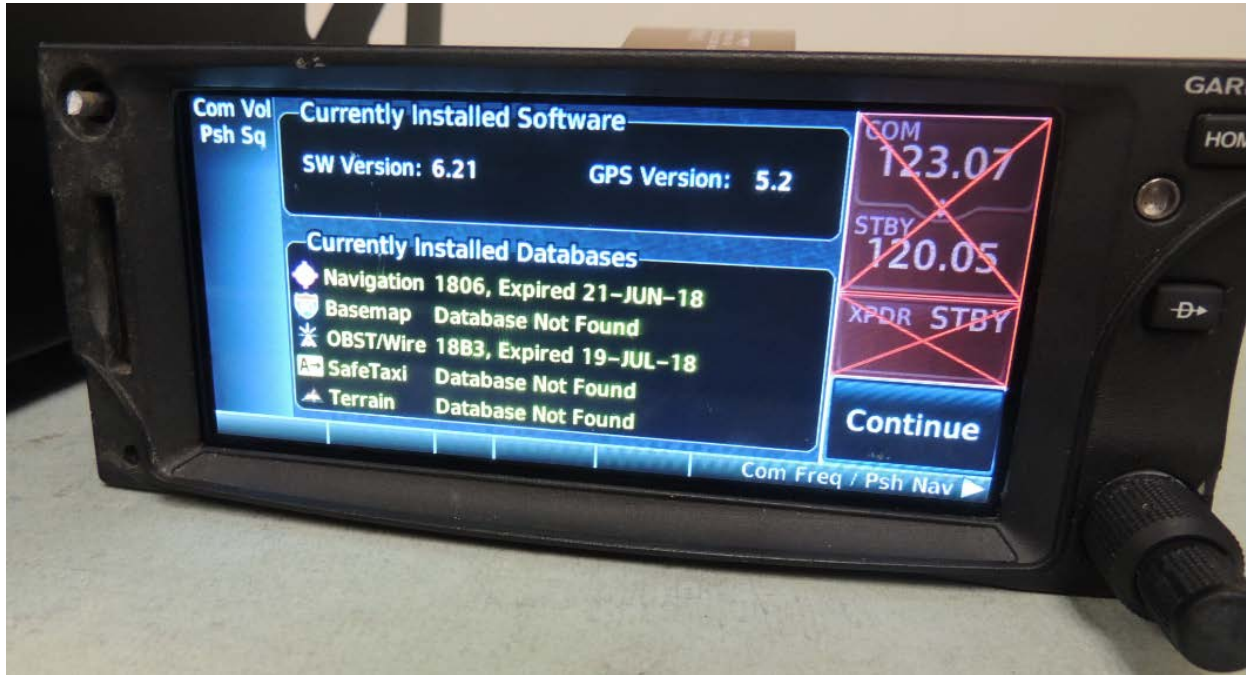


Figure 2. Garmin GTN 650-780 firmware and last frequency



Figure 3. Garmin GTN 650-866 firmware and last frequency



Figure 4. Garmin GTN 650-866 stored airport 221 Vinton County



Figure 5. Garmin GTN 650-866 flight plan panel

3.2 Kannad 406 AF-H ELT Description

Kannad 406 AF-H ELT is an emergency location transmitter (ELT) designed for helicopters. The unit has an internal 406MHz antenna and a complete internal GPS. The unit sends a distress message with GPS coordinates when it is active in emergency situations.

3.2.1 Kannad 406 AF-H ELT Data Recovery

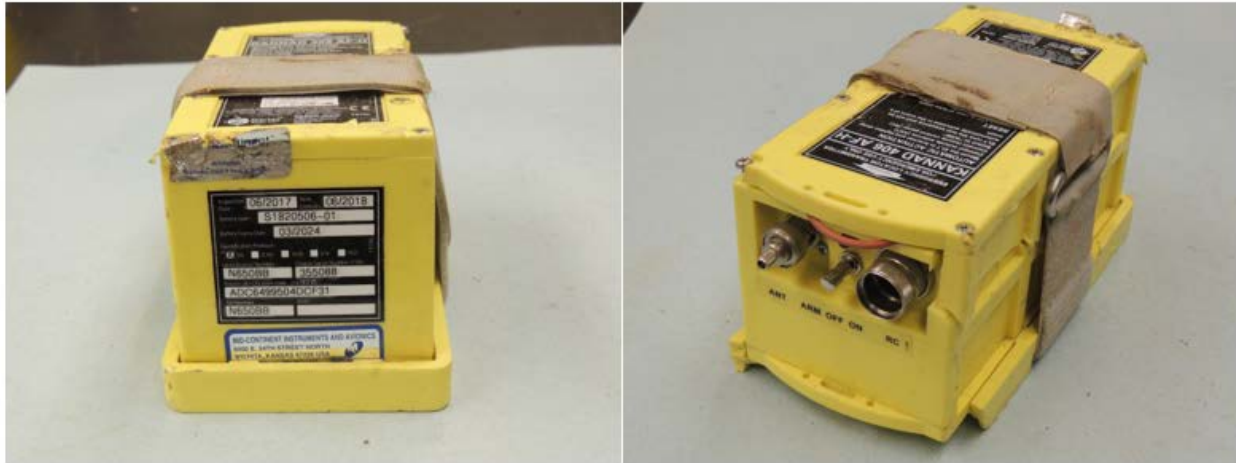


Figure 6. Front and side views of Kannad 406 AF-H ELT as received

The Kannad 406 AF-H ELT does not record data. A separate unit, the Kannad CS144, can record data in conjunction with the AF-H, however, the helicopter was not equipped with a CS144. No data was recorded on this device.