

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



CEN24LA144

RECORDED FLIGHT DATA

Specialist's Factual Report

February 27, 2025

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A. ACCIDENT

Location: Muncie, Indiana
Date: April 1, 2024
Time: 1027 eastern daylight time (EDT)
1427 coordinated universal time (UTC)
Airplane: Piper PA-28-236, private operator, N8438B

B. RECORDED FLIGHT DATA 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 GTN 750
Part Number:	011-02282-00
Recorder Serial Number:	1ZA018938
Recorder Manufacturer/Model:	Garmin GTN 650
Part Number:	011-02256-00
Recorder Serial Number:	1Z8021234
Recorder Manufacturer/Model:	Garmin G5 (Horizontal Situation Indicator)
Part Number:	011-03809-00
Recorder Serial Number:	4JQ029196
Recorder Manufacturer/Model:	Garmin G5 (Attitude Indicator)
Part Number:	011-03809-00
Recorder Serial Number:	4JQ029151
Recorder Manufacturer/Model:	Garmin GMC 507
Part Number:	011-04548-01
Recorder Serial Number:	5H1009653
Recorder Manufacturer/Model:	Garmin GMU 11
Part Number:	011-04349-01
Recorder Serial Number:	56J012567
Recorder Manufacturer/Model:	Garmin GSA 28
Part Number:	011-02927-11
Recorder Serial Number:	5G9020532

Recorder Manufacturer/Model: Garmin GSA 28
Part Number: 011-02927-11
Recorder Serial Number: 5G9020544

Recorder Manufacturer/Model: Garmin G29B
Part Number: 011-03236-11
Recorder Serial Number: 5DL006773

Recorder Manufacturer/Model: JPI EDM-700
Part Number: EGT-701-6C
Recorder Serial Number: 10165

Recorder Manufacturer/Model: Horizon Instruments P-1000
Part Number: P100-070-602-00
Recorder Serial Number: 0744202

Data were recovered from the Garmin GTN 750 and Garmin GTN 650. These two units recorded the same parameters. The data from each unit were compared and aligned. The GTN 750 contained about a second of data more than the GTN 650 at the end of the accident session, therefore, only data from the GTN 750 are provided in this report.

No data were recovered from the remaining Garmin devices or the JPI EDM-700. The Horizon Instruments P-1000 is a digital tachometer that solely retains "Tach Time", which was 2661, as shown in Figure 1.



Figure 1. Tach Time shown on the Horizon Instruments P-1000.

1.0 Garmin GTN 750 Description¹

The Garmin GTN 750 is a panel-mounted navigator featuring an 800 x 600 pixel, 6.9-inch color liquid crystal (LCD) display. It has a GPS/SBAS engine and is TSO-c146c approved for primary domestic, oceanic, and remote navigation including enroute, terminal, and non-precision approaches, and approaches with vertical guidance, such as LPV and LNA/VNAV. The unit can simultaneously give aviators vital approach information and weather and traffic data in relation to their position on a large, color moving map display. Its color moving map features a built-in database that shows cities, highways, railroads, rivers, lakes, and coastlines. The unit has a slot on the front for a Jeppesen database containing all airports, VORs, NDBs, Intersections, FSSs, Approaches, DPs/STARs and SUA information. A flight plan composed of multiple waypoints, including user-defined waypoints, can be programmed in the unit. The GTN 750 also includes a TSO approved airborne VHF communications transceiver and TSO approved airborne VOR/Localizer and Glideslope receivers. The unit contains an internal SD card storing flight log data, which can be accessed through the slot in the right side of the unit. If the unit is equipped with a firmware v6.50 or later, the internal SD card will store a limited set of flight data information.

1.1 Garmin GTN 750 Data Recovery

The device as received by the Vehicle Recorder Laboratory is shown in figure 1. Data were extracted normally from the internal SD card.



Figure 2. Garmin GTN 750 as received.

¹ The Garmin GTN 650 is very similar to the Garmin GTN 750; therefore, only the Garmin GTN 750 information is provided.

1.2 Garmin GTN 750 Recording Description

Data included sessions recorded from February 14, 2022, through April 1, 2024, UTC. The accident session started at 9:25:26 EDT and ended at 10:26:25 EDT on April 1, 2024. The recorded time in UTC was adjusted to the local time of the accident, EDT, by subtracting 4 hours (14,400 seconds). Data were sampled once every second.

Table 1 lists the Garmin GTN 750 parameters provided and verified in this report.

Table 1. Garmin GTN 750 Parameters.

Parameter Name (unit)	Parameter Description (unit)
Latitude (deg)	Latitude (degrees)
Longitude (deg)	Longitude (degrees)
AltB (ft)	Barometric Altitude (feet)
AltGPS (ft)	GPS Altitude (feet)
AltMSL (ft)	Mean Sea Level Altitude (feet)
AltPress (ft)	Pressure Altitude (feet)
GndSpd (kt)	Ground Speed (knots)
HDG (deg)	Heading (degrees)
TRK (deg)	Ground Track (degrees)
VSpd (fpm)	Vertical Speed (feet per minute)

D. FIGURES AND TABULAR DATA

Figures 3 through 5 are Google Earth overlays of the accident session generated from the Garmin GTN 750 data. The weather and lighting conditions in Google Earth are not necessarily the weather and lighting conditions present at the time of the accident flight. MSL Altitude and Groundspeed are depicted for data points shown. Green arrows indicate heading direction.

Figure 3 shows the entire accident session. The session began at Monroe County Airport (BMG), Bloomington, Indiana (IN) and the airplane proceeded in a generally northeastward direction towards Muncie, IN.

Figure 4 shows approximately the final 10 minutes of the session and the approach towards Delaware County Airport (MIE), Muncie, IN.

Figure 5 shows approximately the final 2 minutes of the session.

Figures 6 through 8 are plots of the Garmin GTN 750 parameters. Figure 6 covers the entire accident session from 9:25:00 EDT to 10:30:00 EDT. Figure 7 covers the approach towards MIE until the end of recorded data and shows time from 10:18:00 EDT to 10:26:30 EDT. Figure 8 covers the end of the accident event from 10:24:40 EDT to 10:26:30 EDT.

The corresponding tabular data used to create figures 3 through 8 are provided in electronic comma-separated value (CSV) format as attachment 1 to this report.

Submitted by:

Gerald Kawamoto
Recorder Specialist

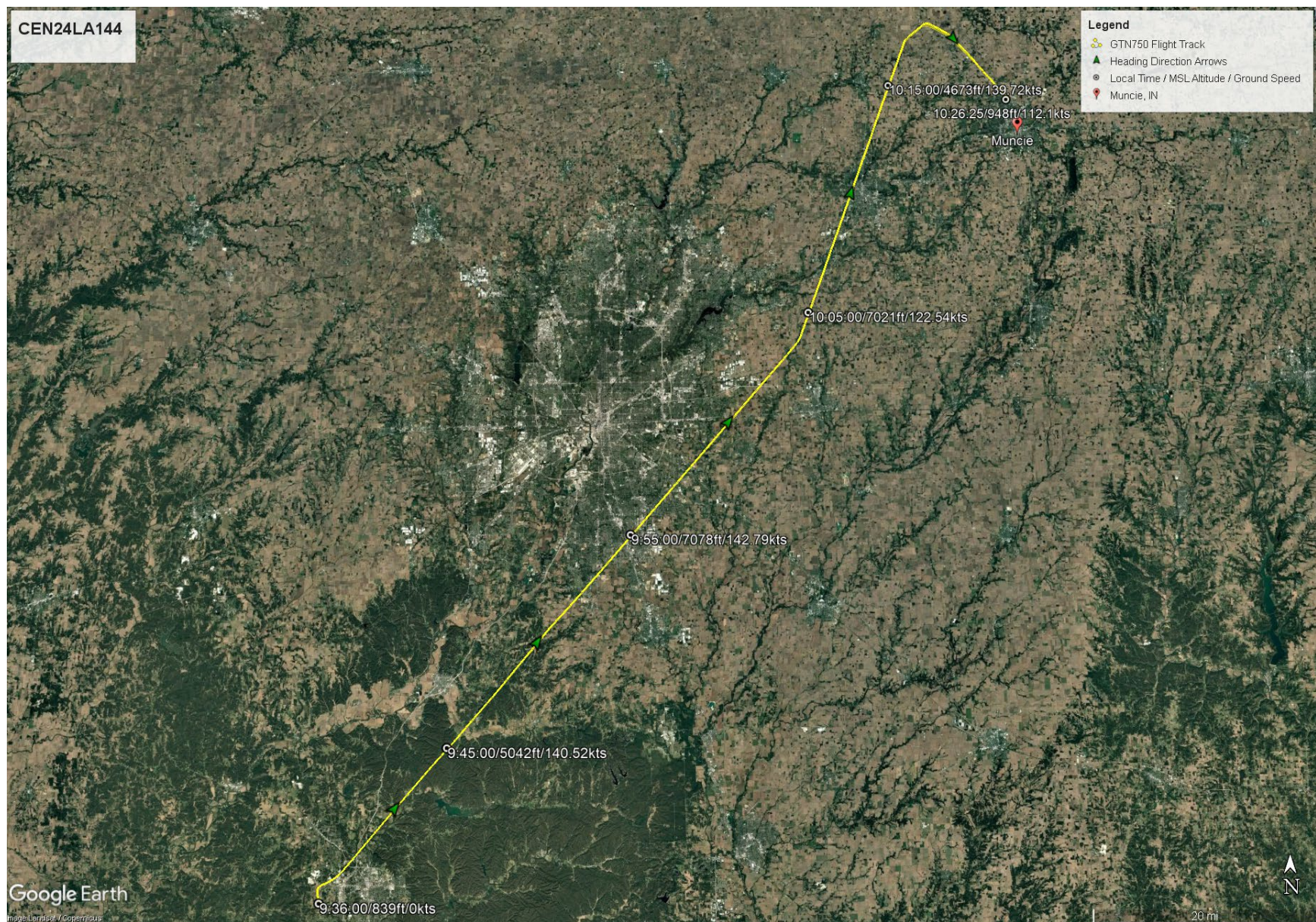


Figure 3. Google Earth overlay of the entire accident session recorded on the Garmin GTN 750.

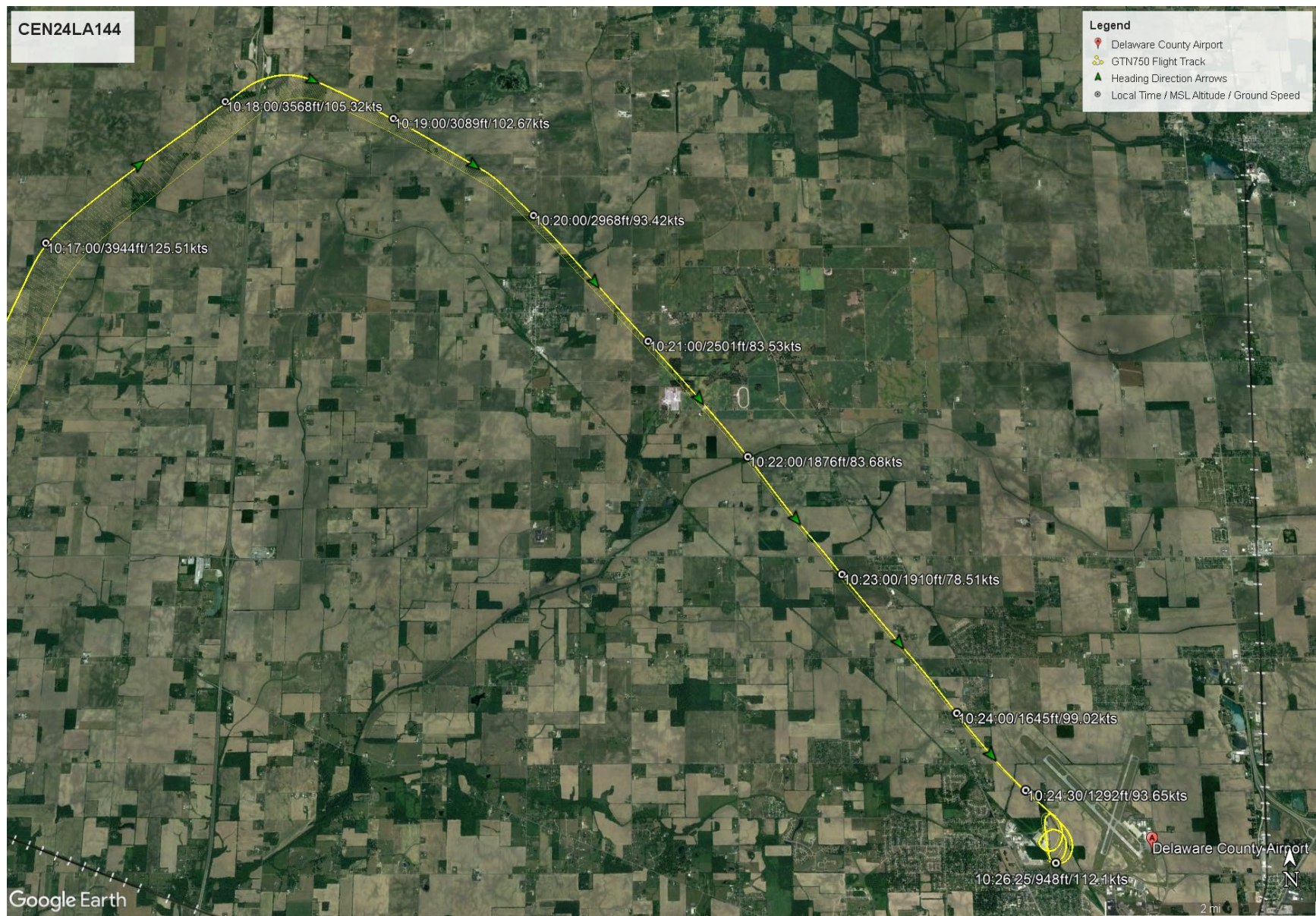


Figure 4. Google Earth overlay of the final approach towards Delaware County Airport (MIE), Muncie, IN.

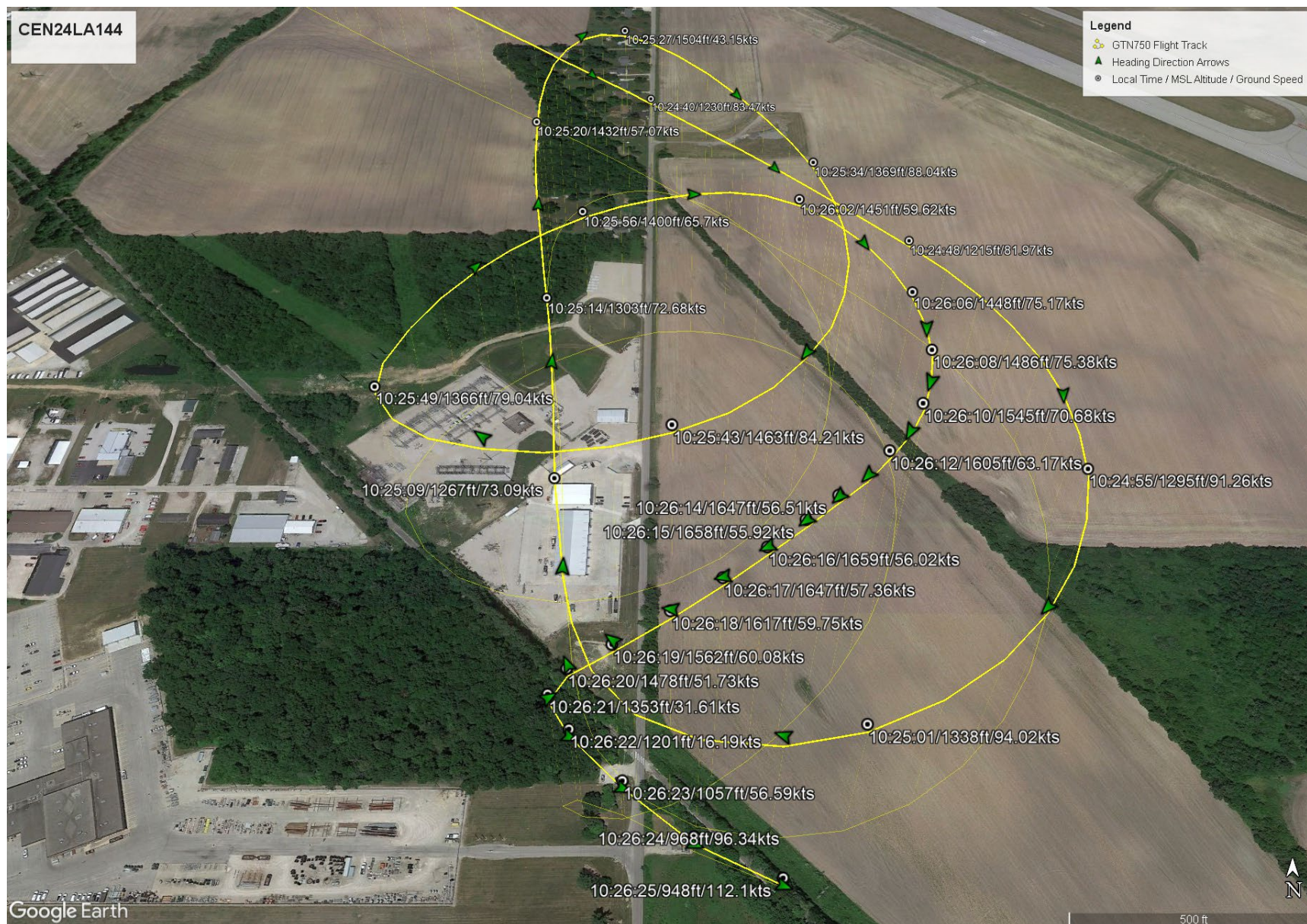


Figure 5. Google Earth overlay of the end of the accident.

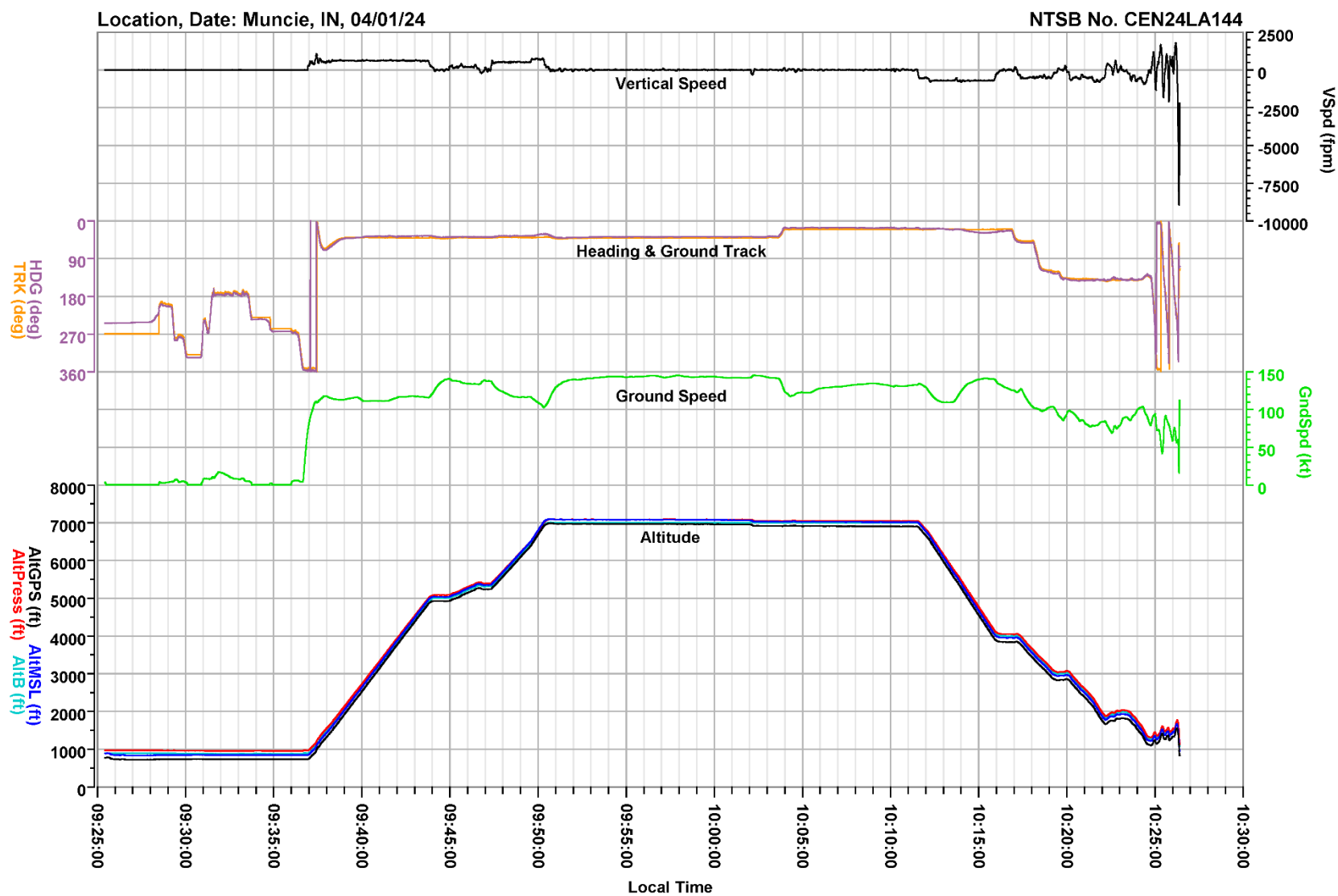


Figure 6. Plot of Garmin GTN 750 parameters for the entire accident session.

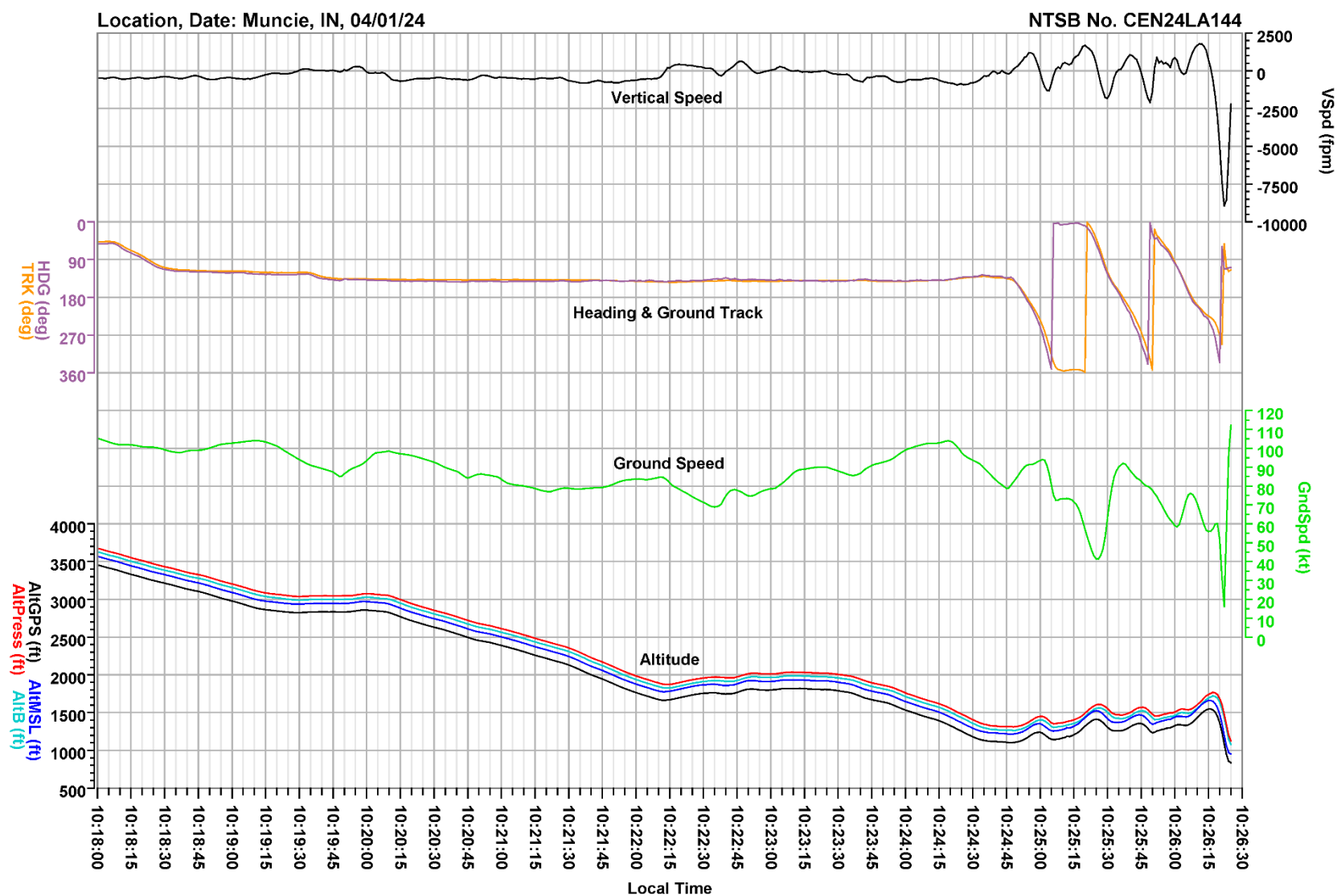


Figure 7. Plot of Garmin GTN 750 parameters for approximately the final 9 minutes of the accident session, starting at the final approach towards MIE.

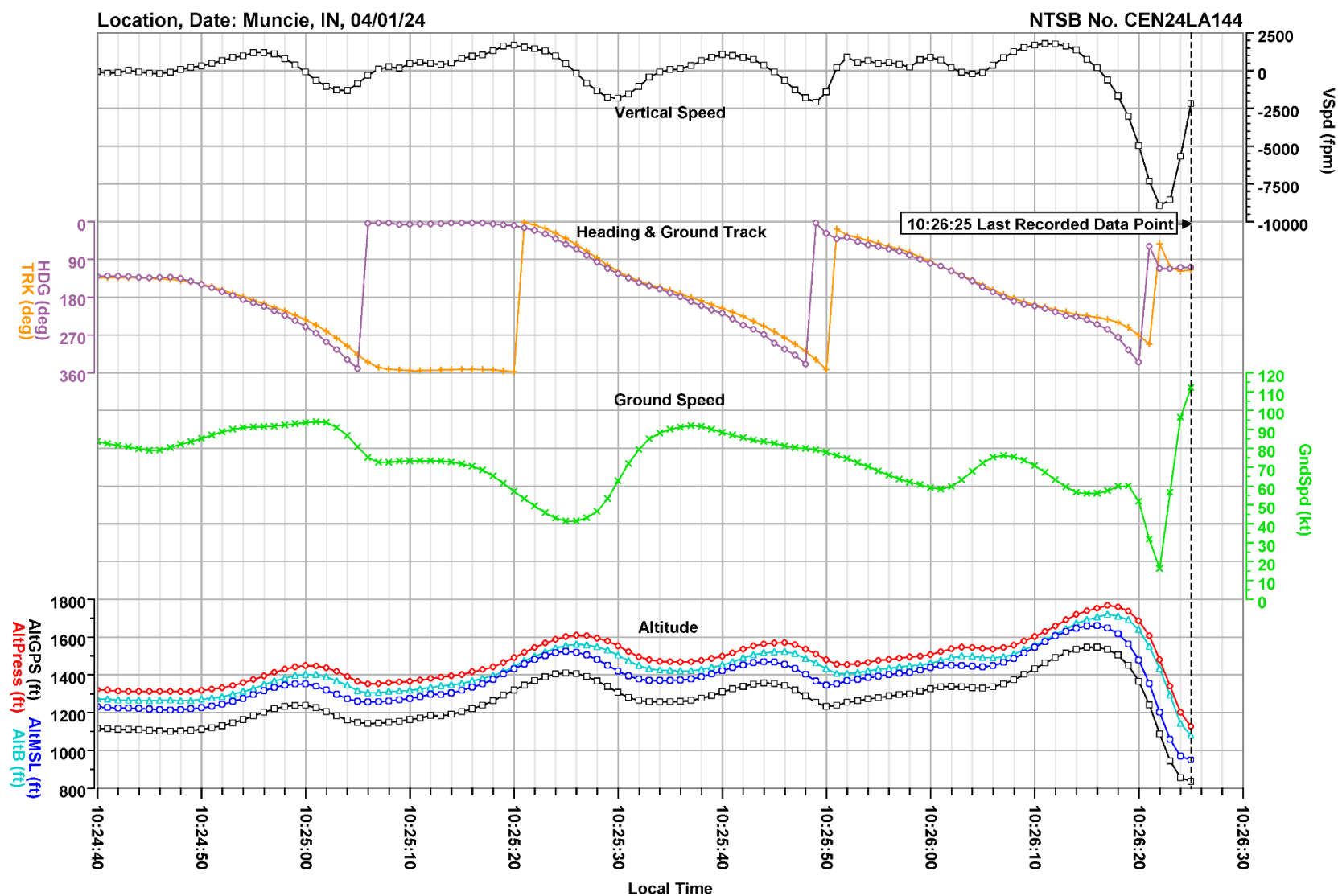


Figure 8. Plot of Garmin GTN 750 parameters for approximately the final 2 minutes of the accident session.