

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

10/20/2011

## **17 - GPS Factual Report**

by **Bill Tuccio**

**A. EVENT**

Location: Cle Elum, Washington  
Date: October 13, 2011  
Aircraft: Flugzeugbau DG-1000 S  
Registration: N7760A  
Operator: Northwest Eagle Soaring LLC  
NTSB Number: WPR12FA010

**B. GROUP - No Group**

**C. SUMMARY**

On October 13, 2011, about 1558 Pacific daylight time, a Flugzeugbau DG 1000 S glider, N7760A, impacted terrain while being ground launched from a tow vehicle at Cle Elum Municipal Airport (S93), Cle Elum Washington. The commercial pilot, the sole occupant, was fatally injured and the 2-seat glider sustained substantial damage. The glider was registered to Northwest Eagle Soaring LLC, and operated under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan had been filed.

**D. DETAILS OF INVESTIGATION**

On October 19, 2011 the NTSB Vehicle Recorder Laboratory received the following device(s):

GPS Manufacturer/Model:	LX 7000 pro IGC
Serial Number:	01353

## **LX 7000 DU Description**

The LX Navigation LX 7000 pro IGC is a GPS-based navigator, variometer, and flight recorder capable of logging GPS track, GNSS altitude, barometric pressure altitude, and other flight parameters in a secure, binary file meeting IGC<sup>1</sup> requirements. The binary file can be downloaded using a personal computer or handheld device. The flight recorder is powered by an external DC power source. Data is stored in volatile<sup>2</sup> memory that is backed up with a 3V lithium cell, which is recommended for replacement after 5 years of operation. Logging intervals are adjustable from 1 second to 60 seconds per data record. Logged data is continuously recorded up to the internal memory limit, after which the oldest data is replaced with new data on a first-in-first-out basis. Data may be copied from the flight recorder directly to a Windows PC using a built-in RS232 interface. At the conclusion of a flight, IGC security protocols require the unit remain on for 3 minutes for a security calculation to be performed on the data file; if the 3 minute period is not observed, flight data may be compromised. The data is further secured against tampering by physical and electronic seals placed on the device. The physical seal is placed on the exterior of the unit and will be damaged if the user attempts to open the unit. The electronic seal is designed to be triggered if the top cover is removed by an unauthorized individual. In the event the seals are broken, the flight data will no longer be considered 'secure' and will be rendered unacceptable for IGC record-setting and contest purposes.

## **GPS Data Recovery**

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed that the unit had sustained major damage from impact forces (see figures 1 through 3). An internal inspection was performed. The internal backup battery was found to be dislodged from its holder, as shown in figure 3. It was concluded that accident damage had rendered any data once stored in the accident unit unrecoverable.

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<sup>1</sup> IGC means International Gliding Commission of the Fédération Aéronautique Internationale (FAI).

<sup>2</sup> Volatile memory requires a constant application of power to retain data. The instant power is removed from a volatile memory device, all stored data is lost.

Figure 1. Front of unit.



Figure 2. Back of unit.



Figure 3. Interior of unit, dislodged battery.

