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

October 4, 2012

17 - GPS Factual Report

by Bill Tuccio

A. EVENT

Location:	Macon, Georgia
Date:	September 18, 2012
Aircraft:	Beech 400
Registration:	N428JD
Operator:	Private
NTSB Number:	ERA12FA567

B. GROUP - No Group

C. SUMMARY

On September 18, 2012, about 1003 eastern daylight time, a Beech 400, N428JD, was substantially damaged when it overran runway 28 during landing at Macon Downtown Airport (MAC), Macon, Georgia. The airplane had departed from Charleston Air Force Base/International Airport (CHS), Charleston, South Carolina about 0930. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan had been filed. Both Airline Transport Pilots (ATP) and one passenger sustained minor injuries. The corporate flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

D. DETAILS OF INVESTIGATION

On September 20, 2012, the NTSB Vehicle Recorder Laboratory received the following device(s):

GPS Manufacturer/Model:	Garmin GPS 500
Serial Number:	86001245

Garmin GPS 500 Device Description

The Garmin GPS 500 is a panel-mounted, IFR capable navigation and communication system. The unit consists of a display screen with data entry keys and knobs. The unit is capable of communications, VOR/ILS/GPS navigation, and on some software versions, situational awareness display of terrain information. The unit can be optionally upgraded to provide functions such as terrain awareness and warning system (TAWS), traffic information service (TIS), fuel system integration, and ground based weather data links.

The unit retains user settings through an internal lithium-ion button battery which must be replaced by an authorized service center at periodic intervals on the order of years. The unit has no non-volatile memory storage of track history information. The navigational database and, if installed, TAWS database, are updated through front panel mounted data cards.

GPS Data Recovery

Upon arrival at the Vehicle Recorder Laboratory, an exterior examination revealed that the unit had not sustained any damage. External power was applied to the unit and it started normally. Various screens of the unit were photographed for this report.

GPS Data Description

The GPS 500 does not record track history information, as such only an examination of the various screens of the unit was performed. Figure 1 shows the startup screen, indicating the main software version of 5.04 and GPS software version of 3.03. Figure 2 shows the obstacle database on the unit was version 2.04, cycle 05B2, effective March 17, 2005. Figure 3 shows the IFR database was cycle 1009, effective August 26, 2010 and expired September 23, 2010.

Figure 4 shows messages on the unit. The messages indicated the internal memory battery, used to save state information between power cycles, was low. The messages also indicated GPS stored data was lost. These messages were consistent with the lack of further information on the unit, such as active flight plan or saved routes.

Figure 1. Garmin GPS 500 startup screen.

Figure 2. Garmin GPS 500 obstacle database.

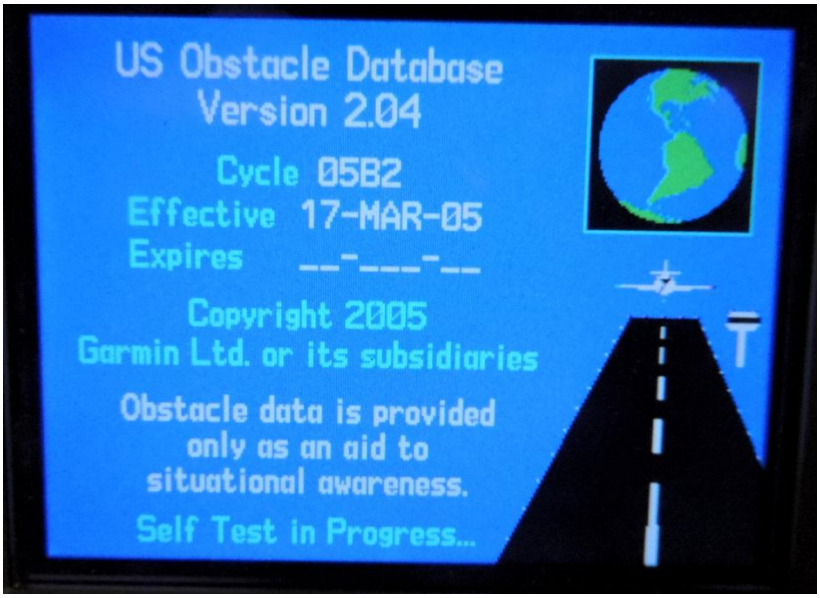

Figure 3. Garmin GPS 500 IFR database.

Figure 4. Garmin GPS 500 messages.