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

September 20, 2017

Continuous Positive Airway Pressure (CPAP) Device

Specialist's Factual Report
by Bill Tuccio, Ph.D.

1. EVENT

Location: Charleston, West Virginia
Date: May 5, 2017
Aircraft: Shorts Brothers SD3
Registration: N334AC
Operator: Air Cargo Carriers
NTSB Number: DCA17FA109

2. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following device, which belonged to the captain of the accident flight:

Device: Fisher & Paykel Icon Continuous Positive Airway Pressure (CPAP)
Device Serial Number: 110818114198

2.1. Fisher & Paykel Icon CPAP Device Description

A CPAP device provides positive air pressure keeping a person's airways open. The device is often used by those who suffer from sleep apnea.[1] This model CPAP is capable of recording 365 days of summary compliance and efficacy data, as well as a shorter period of detail efficacy data, to a removable USB memory stick.

2.1.1. Fisher & Paykel Icon CPAP Data Recovery

Family members of the captain provided the CPAP device to investigators, as shown in figure 1. The USB memory stick was removed from the device and the contents copied via a forensic write-blocker. The binary files were read using SleepyHead open source software.

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[1] Sleep apnea is a common disorder in which a person suffers one or more pauses in breathing or shallow breaths while sleeping (from National Heart, Lung, and Blood Institute website).

Figure 1. CPAP device as received.

2.1.2. Fisher & Paykel Icon CPAP Data Description

The data extracted included over one year of usage history. Data were reviewed with the NTSB Chief Medical Officer and the Human Performance Group Chairman and data pertinent to the investigation were identified.

Screen captures of pertinent data were provided to NTSB Chief Medical Officer.

Dates and times in the screen captures were not verified and were provided as shown when viewed in the SleepyHead software.