

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

May 23, 2018

Continuous Positive Airway Pressure Device

Specialist's Factual Report by Charles Cates

1. EVENT

Location: DuPont, Washington
Date: December 18, 2017
Company: Amtrak
Train ID: Amtrak 181
NTSB Number: RRD18MR001
Summary: Refer to the Accident Summary report, within this docket.

2. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following devices, which belonged to the engineer of the accident train:

Device: Somnetics Transcend Continuous Positive Airway Pressure (CPAP)

Device Serial Number: B14C10508

Device: Philips Respironics CPAP Data Card

Device Serial Number: Data card only

2.1. 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 Both the Somnetics Transcend CPAP and the Philips Respironics CPAP are capable of recording compliance and efficacy data while being used. The Somenitcs device contains an internal memory capable of recording at least 365 days of summary compliance and efficacy data. The Philips device has a removable data card that stores data consistent with the capacity of the card.

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).

2.1.1. Somnetics Transcend CPAP Data Recovery

The Somnetics Transcend CPAP device was identified in the locomotive engineer's belongings by investigators. The device was downloaded to a computer using the manufacturer's software and recommended procedures.

2.1.2. Philips Respironics CPAP Data Recovery

The locomotive engineer provided the data card from the CPAP device to investigators. The SD data card contents were copied via a forensic write-blocker. The binary files were read using SleepyHead open source software.

2.1.3. Somnetics Transcend Data Recovery

The data from the Somnetics Transcend device was timestamped beginning in 2014 and ending in July 2017. The data showed inconsistencies beginning in June 2017. According to the manufacturer this was symptomatic of the unit's internal clock battery being depleted. This caused the recorded timestamp to be invalid. Further consultation with the manufacturer determined that the compliance data was valid, but that the time data was not able to be recovered.

2.1.4. 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.