

**National Transportation Safety Board  
Office of Research and Engineering  
Washington D.C.**

**September 10, 2001**

**GROUP CHAIRMAN'S FACTUAL REPORT - RAILROAD EVENT RECORDER**

**DCA01MR003**

**A. ACCIDENT**

Location : Nodaway, Iowa  
Date : March 17, 2001  
Time : Approximately 11:40 PM Central Standard Time (CST)  
Carrier : National Passenger Railroad Corporation (Amtrak)  
Train : 5 (California Zephyr)  
Locomotives : Amtrak - 140 (Lead), 141 (Trail)

**B. GROUP**

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**C. SUMMARY**

On March 17, 2001, approximately 11:40 p.m. central standard time, westbound National Railroad Passenger Corporation (Amtrak) train No. 5-17, the

California Zephyr, en route from Chicago, Illinois to Oakland, California, derailed near Nodaway, Iowa. At the time of the derailment, the train was being operated at a recorded speed of 52 miles per hour (mph). A broken rail was discovered at the point of derailment.

Amtrak train No. 5-17 was operating over the Burlington Northern Santa Fe Railway (BNSF) Creston Sub-Division at the time of the derailment. The engineer indicated that he was operating his train under the authority of a clear signal indication when he felt the train "tug" in resistance. He subsequently initiated an emergency brake application, and shortly thereafter realized that his train had derailed.

Amtrak train No. 5-17 consisted of two locomotive units and 16 cars. All but the rear five cars derailed. There was no fire, nor hazardous materials involved in the accident.

The Amtrak operating train crew consisted of an engineer and two conductors with 13 "on-board" service personnel. In addition, there were 241 passengers on board the train. As a result of the derailment, there were 78 injured persons, which included one fatality.

The weather conditions were clear and about 21° Fahrenheit. The wind was calm.


Both Amtrak locomotives were fitted with Pulse Integrated Function Control (IFC) recorders, part number 17853. The serial number of the recorder installed on the lead locomotive was 0297617; the serial number of the recorder installed on the trailing locomotive was 0297616. The measured diameter of the drive wheels for both locomotives was 40 inches. Milepost data were input by NTSB based on values provided by the Investigator In-Charge (IIC). The recorder's clock was set to Eastern Standard Time, so the times presented in the tabular data are one hour later than the actual time of the incident.

Data from the lead locomotive indicate that at recorder time 00:39:59, locomotive speed was 52 MPH, load amps were 912, automatic brake pressure (AB) was 111 PSI, brake cylinder pressure (BC) was 0 PSI, end-of-train brake pipe pressure (EOT) was 109 PSI, independent brake (IB) was released, throttle position was notch 8, and the airbrake handle (ABH) was in the released position. One second later, ABH was moved to the suppression position. One second later, AB decreased to 108 PSI and throttle position changed to notch 5. One second later, train speed had decreased to 51 MPH, load amps decreased to 376, AB decreased to 106 PSI, throttle position changed to idle, the pneumatic control switch was opened, the engineer-initiated emergency brake was activated, and the ABH was put into the emergency position.

By recorder time 00:40:04, at a train speed of 48 MPH, AB had decreased to 0 PSI. Between recorder times 00:40:04 and 00:40:08 EOT decreased from 109 PSI to 0 PSI. Between recorder times 00:40:01 and 00:40:30 train speed decreased from 52

**MPH to 0 MPH. Between recorder times 00:40:29 and 00:40:33 BC increased from 0 PSI to 91 PSI.**

**Graphical and tabular event recorder data can be found in Attachment I. Graphical data includes the entire trip before the accident from both locomotives. Tabular data includes the data from the lead locomotive from the entire accident trip. A list of parameters recorded by each recorder is included in Attachment II.**



**David Case  
Mechanical Engineer  
Vehicle Recorder Division**

**Attachments:**

<b>Attachment I</b>	<b>Graphical and Tabular Data</b>
<b>Attachment II</b>	<b>Parameter List</b>