



**National Transportation Safety Board**

**Office of Railroad, Pipeline and Hazardous Materials Investigations**

**Washington, DC 20594**

**Mechanical Group Supplemental Factual Report  
Examination and Measurement of Evidence at Beech Grove, IN  
May 11, 2022**

**Derailment of Train Number 7, Empire Builder  
National Railroad Passenger Corporation (Amtrak)  
BNSF Railway Hi Line Subdivision near  
Joplin, Montana on  
September 25, 2021**

**RRD21MR017**

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**B. ACCIDENT**

**NTSB Accident Number:** RRD21MR017  
**Accident Type:** Derailment  
**Date and Time:** September 25, 2021; 3:47 p.m. MDT  
**Location:** near Joplin, Montana  
**Track Owner:** BNSF Railway  
**Train Operator:** National Passenger Railroad Corporation (Amtrak)  
**Train Number:** Amtrak Train No. 7(24) - "Empire Builder"  
**Fatalities:** 3  
**Injuries:** 28

**C. MAY 11, 2022 EXAMINATION TEAM**

John Manutes  
NTSB

Howard Gehrke  
FRA

Quinn Ligon  
FRA

Anthony Emery  
FRA

Brian Marquis  
Volpe

Jon Leblanc  
Volpe

David Skillman  
Amtrak

**D. ACCIDENT SUMMARY**

For a summary of the accident, refer to the IIC Factual Report within this docket

**E. EXAMINATION AT BEECH GROVE**

On Wednesday, May 11, 2022 investigators met at Amtrak's facility in Beech Grove, Indiana.

The purpose of the meeting was to gather additional wheel profile data to support the investigation. Additionally, investigators matched on-scene data including reports and photographs with materials at Beech Grove to ensure the location of each wheel at the time of the derailment was accurately described in terms of position in the train and car.

Throughout the day investigators also reviewed and discussed car and track evidence.

**F. WHEELSETS ASSOCIATED WITH ATK 32050 RELATIVE TO ATK 32085**

Prior to the examination in Beech Grove on May 11<sup>th</sup>, questions had arisen amongst investigators regarding the possibility that the wheel profile measurements taken in November 2021 were "Swapped" between the trailing end of ATK 32050 and ATK 32085. It was determined that the most accurate way to resolve the question was to simply re-measure the wheel profiles in question. This was easily accomplished. The wheels from the trailing end (b-end) of ATK 32050 were easily identified at Beech Grove because they were removed, without their trucks, and set aside for examination. These were the only wheelsets that were removed from cars without their trucks. These wheelsets also bore identification numbers that Amtrak personnel could verify in Amtrak maintenance records. For Car No. ATK 32085, the entire truck sets, including wheels, from both ends were removed in Montana and sent to Beech Grove on rubber-tire trailer. The truck sets and wheels were marked accordingly before removal making identification easy.

#### **G. ORIENTATION OF WHEELSETS ON B-END TRUCK OF ATK 32050**

As noted above, the wheelsets from the B-end of ATK 32050 were not retained in the trucks prior to shipment to Beech Grove. Amtrak records were able to tell investigators which axle was Axle No. 1 and which was Axle No. 2, however the orientation of the axles, right vs. left, was not as clear.

Investigators used FRA field notes and two series of photographs that allowed them to determine the orientation based on witness marks from the flanges and roller bearing bolts. See Appendix 03 to this factual report for additional details.

#### **H. MINIPROF MEASUREMENTS OF 32050 AND 32085**

Investigators used a miniprof device from Volpe to record wheel profiles at different locations on each wheel. The wheels had been previously identified and were marked with magnetic dry erase markers for photographs. The wheel profile measurements were made available in Kiteworks. The NTSB also brought a miniprof device and measured four wheels, however the device failed to connect to the data logger after that and additional measurements were not taken.

#### **I. ATK 32050 BUMP STOP DISCUSSION**

The team had a discussion regarding the broken truck bump stop on the B-end Right-Side of Car 32085. The bump stop was broken post-derailment, and had witness marks consistent with the stop striking the truck side.

#### **J. TRACK PANEL DISCUSSION**

The team had a discussion regarding the piece of track panel that was still located in Beech Grove and contained the point of derailment.