

National Transportation Safety Board

Office of Railroad, Pipeline and Hazardous Materials

Washington, DC 20594



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MECHANICAL

Group Chair's Factual Report

December 21, 2022

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A. ACCIDENT

Location: Mendon, MO
Date: June 27, 2022
Time: 12:42 pm (LTZ)
6:42 pm (UTC)
Train: Amtrak Train 4 Southwest Chief

B. MECHANICAL GROUP

Group Chair	Matt Thompson National Transportation Safety Board (NTSB) Federal Way, WA
Group Member	Scott Goforth Federal Railroad Administration (FRA) St. Louis, MO
Group Member	Felton Enyard Missouri Department of Transportation (MDOT) Jefferson City, MO
Group Member	Steven Curley Amtrak Wilmington, DE
Group Member	Jeff Kirby BNSF Railway (BNSF) Kansas City, KS

C. SUMMARY

For a summary of the accident, refer to the IIC accident summary report within this docket.

D. DETAILS OF THE INVESTIGATION

1.0 Consist Information

Amtrak Train 4 Southwest Chief consisted of eight passenger railcars and two General Electric (GE) locomotives. One baggage car, one sleeper transition car, one sleeper car, one dining car, one lounge car and three coach cars. The total length of the train was 818 feet, weighing 1,912,000 pounds.

- 133 GE Locomotive P42DC facing forward - derailed
- 166 GE Locomotive P42DC facing forward - derailed and leaning
- 61053 Baggage - B end facing forward - derailed and leaning
- 39045 Sleeper Transition- B end facing forward - derailed and on its side
- 32104 Sleeper - A end facing forward - derailed and on its side
- 38060 Dining Car- A end facing forward - derailed and on its side
- 33046 Lounge Car- A end facing forward - derailed and on its side
- 34026 Coach - A end facing forward - derailed and on its side
- 31029 Coach - B end facing forward - derailed and on its side
- 34102 Coach- A end facing forward - derailed and on its side

1.1 Locomotive Consist

The lead locomotive ATK 133 was built in December 2000, the trailing locomotive ATK 166 was built in May 2001, both are General Electric (GE) model P42DC (GE Genesis) locomotives. The locomotives are 69 feet in length, 10 feet wide, 14'4" tall, weighing 268,240 pounds and equipped with 16-cylinder 7FDL, 4250 horsepower engines.

1.2 Car Consist

Amtrak Train 4 (Southwest Chief) consisted of two locomotives and eight passenger cars. Two coach cars are Superliner I cars built by Pullman between 1975-1981. Weight 148,140 pounds, height 16'2", width 10'2", length 85'. One sleeper transition, one sleeper, one dining, one lounge and one coach car are Superliner II cars built by Bombardier between 1991-1996. Weight ranging between 148,140 and 156,605 pounds, height 16'2", width 10'2", length 85'. The baggage car is a Viewliner II built by CAF in 2015, Weight 147,700 pounds, height 16'2", width 10'2", length 85.33'.

The LA to Chicago train consisted of two locomotives and eight cars, seven passenger cars were on their side, one car leaning, one locomotive leaning and the lead locomotive upright but derailed.

1.3 Predeparture Inspection

The Amtrak maintenance personnel provided pre-departure inspection records for train 4. Amtrak stated that they conducted pre-departure inspections pursuant to 49 Code of Federal Regulations (CFR) Part 238, Passenger Equipment Safety Standards. This regulation consisted of subsections 238.303, Exterior Calendar Day Mechanical Inspection, 238.305, Interior Calendar Day Inspection, and 238.313, Class I Brake test. The inspection records indicated that all pre-departure inspections were completed on June 26, 2022, at 1:03 p.m. at the Albuquerque Facility.

An Exterior Calendar Day Mechanical Inspection consists of examination of the following components and systems:

- Battery venting
- Coupler systems
- Suspension systems
- Wheels
- Grounding and jumper cables
- High voltage markings
- Air compressor
- Rescue access markings

An Interior Calendar Day Mechanical Inspection consists of examination of the following components and systems:

- Moving parts and electrical system safety guards
- Floors and passageways
- Manual door releases
- Emergency equipment and signage
- Doors
- Public address and intercom

A Class I Brake test consists of the following inspections and tests:

- Friction brakes apply and release as intended
- Brake shoes and pads are properly seated and aligned
- Piston travel
- Communicating signal system
- Operation of the engineer's brake controller
- Brake pipe leakage
- Emergency brake application and dead man pedal
- Air valves are properly aligned
- Brake rigging operation
- Brake disc inspection

- Communication of the brake pipe pressure to the rear of the train

E. EQUIPMENT POST ACCIDENT INSPECTIONS

June 28, 2022 - Arrived on scene in Mendon, MO. Inspected all 8 cars and both locomotives. Scanned FRA Forms F6180.49A (Blue card) and predeparture and daily inspection records. Observed video recording of impact from lead locomotive ATK 133. Inspected point of derailment with operations investigators. Requested mechanical documents. Had Amtrak employees attempt to conduct air test of locomotive ATK 133. Damage to the magnet valve and brake pipe cut out prevented an air test from being performed. Requested repairs to test air system. Observed recovery of video and event recorder information on trailing locomotive ATK 166.

June 29, 2022 -Observed repairs to the air system of locomotive ATK 133 and observed a successful air brake test including crew alerter. Amtrak was unable to charge air system on locomotive ATK 166 after multiple unsuccessful attempts to charge the system for an air test due to accident damage. Inspected passenger cars again after they were up righted and moved off the right of way.

June 30, 2022 -Inspection of the dining car and inspected the lead locomotive ATK 133 ditch lights and headlights.

F. MECHANICAL DOCUMENTS RECEIVED

- Train consist
- Diagrams and photos of the accident scene
- Event recorder data
- F6180.49A (Blue cards) for the locomotives
- Locomotive daily inspection records
- Air brake test record
- Train repair/inspection records
- Mechanical damage estimates

The mechanical group reviewed and took no exceptions to the documentation received nor to the maintenance history of the equipment.

Submitted by:

Matthew C. M. Thompson
Railroad Accident Investigator NTSB

APPENDIX A

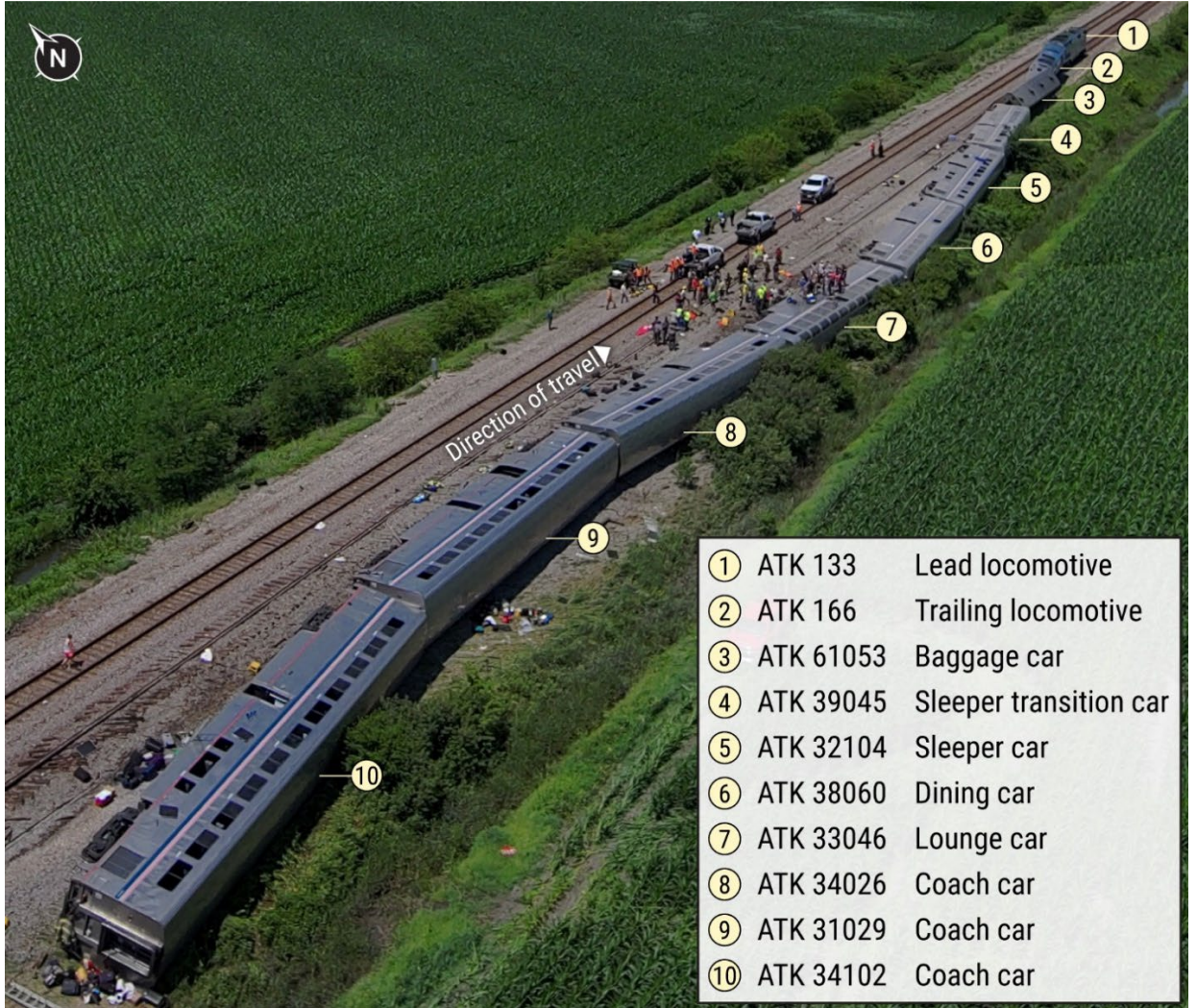


FIGURE 1: PHOTO OF AMTRAK TRAIN 4 SOUTHWEST CHIEF. (PHOTO PROVIDED BY MISSOURI HIGHWAY PATROL EDITED BY NTSB)