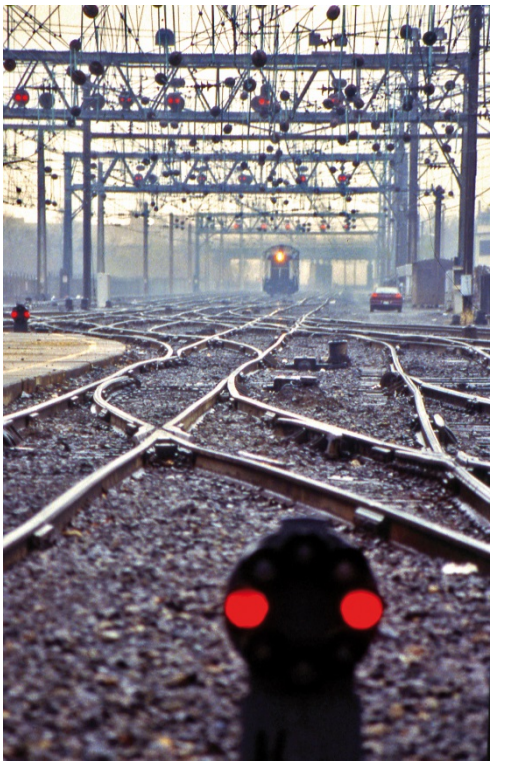
Extreme Heat Preparations

High temperatures can impact Amtrak operations as the extreme heat can cause both rail and catenary wires to expand. As a safety measure, Amtrak imposes heat restrictions, which require locomotive engineers to operate trains at slower speeds than under normal operating conditions. Speed reductions are based on the rail temperature, not the ambient (air) temperature. That data ensures we're only issuing heat restrictions when necessary.

How Amtrak Measures Rail Temperature

- Amtrak monitors rail temperatures and weather conditions at a number of different locations along its right-of-way on the Northeast Corridor, the Keystone Corridor, the Empire Line and the Michigan Line. By measuring the actual rail temperatures instead of the weather conditions in the area, it is possible to reduce the number of slow orders and their impact on operations.



- The equipment at each location in the field is composed of three components: the weather console, the weather station, and the rail temperature probes. The weather station itself is mounted on a pole and contains a number of instruments to measure the local conditions such as temperature, barometric pressure, humidity, solar radiation, and rainfall. Messages are sent by e-mail when rail temperature probe measurements exceed preset limits.

When Amtrak Activates Heat Restrictions

The reduction of speed is based on the rail temperature, not the ambient (air) temperature.

- Rail temperature 131 degrees = maximum speed 100 mph
- Rail temperature 140 degrees = maximum speed 80 mph

The exception is the Hell Gate Line in New York City, where ambient readings are still in use. On this section of track, when the ambient temperature reaches 105 degrees, the maximum operating speed drops to 80 mph. This is an exception because only one small area has a regular maximum operating speed of 100 mph with the rest of the line already at 80 mph or below.

All commuter and freight entities operating on Amtrak infrastructure are required to adhere to Amtrak's speed guidelines.

Smart-Technology ACS-64 Electric Locomotives

A new fleet of advanced-technology electric locomotives, known as ACS-64, are now in operation on the Northeast Corridor and Keystone corridor. The state-of-the-art microprocessor system installed in the locomotives allow for self-diagnosis of technical issues, which helps ensure power is maintained to the passenger cars to keep heating and cooling systems working, the lights on and the doors operational.

Disabled Train Operating Plan

In the event of a mechanical break down and/or loss of air conditioning, Amtrak initiates an operating plan that focuses on the needs of passengers. Elements of the plan include:

Constant Monitoring of On-Board Conditions

Amtrak conductors and senior managers will constantly monitor on-board conditions, identify passengers with special needs and communicate that information to the national operations center for use in developing and revising the response plan. As appropriate, and as safety allows, conductors may open vestibule doors to facilitate air flow and may also call in the Amtrak Police Department and local emergency response crews to assist in attending to the needs of passengers.

Water and On-board Communication with Passengers

Additional water and other beverages are stored on the trains and Amtrak Police Department patrol vehicles are stocked with water to bring to a disabled train. Frequent announcements will be made by train crews to provide passengers with accurate information even if the information does not change from the previous announcement.

Rescue Equipment for Passengers

Rescue locomotives with assigned crews are positioned every 30 to 50 miles along the Northeast Corridor and mobilize immediately in the event of a disabled train. If it becomes necessary to transfer passengers to another train, no train capable of accepting additional passengers is to pass the disabled train. In addition to other trains already en route, Amtrak will use empty trains available at Washington, Philadelphia, or New York as “rescue trains.” Mechanical technicians also ride trains on a daily basis to troubleshoot problems and restart the locomotives.

Catenary Wires

Amtrak trains running along the Northeast and Keystone corridors are powered by an overhead wire system called a catenary system. The catenary system provides electrical power to trains, allowing them to move quickly up and down the corridor. Dramatic swings in temperature (both hot and cold) can cause the catenary wires to expand and contract. In extreme cold or heat, the tension that supports the catenary wires increases or decreases tremendously as they contract. These large tension swings can sometime cause components in the catenary system to fail.

The wires are electrified so power along segments where catenary wire has been damaged must be shutdown, sometimes causing a stoppage of service or delays in the area. Catenary wire is repaired by Amtrak engineering crews using a specialized maintenance vehicle nicknamed a “cat car”, which must be moved into the area in order to make repairs. In addition, we deploy forces from our Electric Traction department to patrol the wires and inspect trains for any pantograph issues to catch problems before they escalate. As always, our goal is to keep the trains moving and minimize delays, so our crews work as quickly and safely as possible to restore the catenary systems and return the system to its full capacity.