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Metro-North Bolsters Winter Arsenal



To prepare for winter, MTA Metro-North Railroad has upgraded its snow-fighting arsenal of specialty equipment and improved customer communications and storm response protocols after last year's record snow falls. Nonetheless, the New Haven Line remains vulnerable because the bulk of its fleet is comprised of older equipment that is more susceptible to winter conditions.

To fight snow on the tracks and yards, the railroad added three new jet turbines to blow snow, two new cold-air snow blowing trucks and 150 modern switch heaters. Also on the shopping list were an additional front-end loader and a backhoe to better plow the tracks and access interlockings and substations.

Over the summer, the railroad's three jet-powered snow blowers were completely rebuilt. Each received a new Cummins diesel engine (for traveling over the rail) and a new, high-efficiency, Rolls Royce Viper aircraft turbine engine for melting snow. The engines produce exhaust that's 600 degrees Fahrenheit, which virtually vaporizes snow.

"If the jets do the job right, all you see is steam coming off the steel," said Peter Hall, Foreman of the Maintenance of Way Equipment Shop in North White Plains. "They produce 2,500 pounds of thrust, which makes them very good at getting under heavy, wet slush, ice and crusty snow."

The Rolls Royce turbines use half the fuel of the engines they replace, 1950s-era General Electric/Westinghouse J57 turbines that were used in B-52 bombers. The Vipers burn about 100 gallons of kerosene per hour at 70% capacity - the optimal level for fuel efficiency.

"With fuel tanks that hold 1,800 gallons, these new jet blowers can run continuously without having to stop to refuel in the middle of a storm," Hall said.

The Rolls Royce engines, sold as surplus, once were used in military aircraft, including drones. These turbines produce less smoke, "spool up" (get up to speed) quicker, run cooler and are more reliable than the one they replaced.

The turbines have directional controls that allow the operator to point the turbine's 600F degree exhaust straight ahead or sweep from side to side. This specialized, self-propelled, 30,000-pound, rail vehicle travels no more than 30 miles an hour to move from place to place, but much slower when the jet engine is engaged.

The turbines make noise (imagine an airport runway) so the operator's cab has sound-deadening insulation and ear protection is required. This is one reason these machines are intended for use in the rail yards and remote locations. In densely populated areas, the railroad relies on cold-air snow blowers.

Cold-air blowers are heavy-duty, rubber-tire trucks that also have steel wheels that enable them to travel over the roads and the rails. They are designed to blow snow off tracks and even platforms and are most effective against fluffy snow. This year, the railroad expanded its fleet of cold-air snow blowers from three to five.

In a further effort to improve the New Haven Line's performance in brutal winter conditions, one of the three, old, cold-air snow blowers has been shipped back to its manufacturer in Canada to be retrofitted. In this pilot, the truck will be fitted with a blower on the roof that is designed to blow snow off the tops of New Haven Line equipment, which have pantographs on their roofs. Pantographs are the spring-loaded arms that press up against the catenary wires to provide propulsion power (versus the third rail in use on the Hudson and Harlem lines.) Pantographs are particularly vulnerable to icing because of weather-exposed mechanical systems, including latches and springs. This pilot vehicle is due to return in early January.

The New Haven Line's passenger cars are being replaced. So far, four dozen of new, highly reliable M-8 rail cars are in service. Delivery of the M-8s will continue at a rate of about 10 per month throughout the winter and they will put in service as they complete testing. All the M-8s are due by April 2015.

The railroad also has purchased 150 new switch heaters. They will replace old switch heaters that have reached the end of their useful life. The new heaters have more surface area and are expected to out-perform the old models in colder weather and deeper snow. They were tested last year at Tuckahoe and in the New Haven Yard, where they performed very well.

Metro-North has taken many other precautions for hazardous travel conditions associated with severe winter weather.

Mechanics have winterized all rail cars to the fullest extent possible before the weather gets bad.

Door panels are sprayed with an anti-freeze agent; air brake lines are purged of moisture to prevent them from freezing; electric trains are fitted with

special third rail shoes with holes in them to prevent snow from sticking, exposed shoes are treated with deicers and exposed couplers are covered to keep snow out.

Also on the New Haven Line, bridge reconstruction between Southport and Bridgeport has been suspended for the winter so that there will be three tracks in service, thus providing more operational flexibility when it is most needed.

Metro-North also has improved the content and coordination of real-time information with the creation of a Customer Communications Center, which oversees platform announcements and platform display signs, email alerts, and service status box updates on the website. The Center also monitors Metro-North Train Time, which provides real-time service status on your Smartphone or computer.

If a storm is severe enough to warrant a reduction in service, the railroad makes every effort to base the reduced plan on the current weekday or weekend schedule.

Depending on the condition of the track and power systems, the number of train cars available, and the ability of train crews to get to their assignments, schedule changes may be necessary. Metro-North strives to communicate these changes to the public as quickly as possible.

Suspending service ensures that trains do not get stuck along the right of way, leaving customers stranded. Temporary suspensions also permit railroad employees to make maximum use of snow removal equipment to clear drifting snow and ice from tracks, switches and train yards and removal any fallen trees and power lines.

In an Official State of Emergency, stay safe: Stay home if at all possible. Roads will be impassable, and travel will be considered dangerous. Metro-North will only operate enough trains to clear tracks and transport emergency personnel until weather conditions improve.

Customers are encouraged to check www.mta.info for updates, sign up for email and text message alerts, listen to television and radio news, call the Customer Information Center at 511 (in Connecticut call 877-690-5114), use Metro-North Train Time (mta.info/mnr) and CoCoCo (cococo.com) for real-time train information on your Smartphone or computer.

In severe winter weather, Metro-North's goal is to provide the best and safest service available, and to return to regularly scheduled service as soon as possible.

