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NY TRANSIT

# Welding the Subway Rails

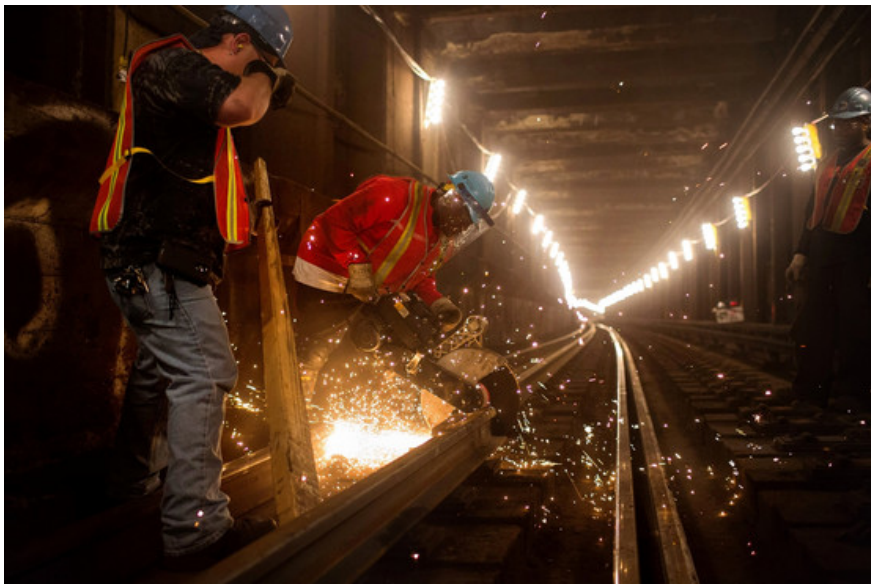
Transit Agency Works to Replace Bolted Joints That Break More Easily

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BANDREW TANGEL

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Workers for the Metropolitan Transportation Authority install continuously welded rail on the express train tracks below East 96th Street. *Kevin Hagen for The Wall Street Journal*

For decades, subway rails bolted together on the Eighth Avenue line have carried express trains hurtling between Columbus Circle and Harlem.

But on a weekend early this month, crews swapped about six city blocks' worth of those traditional 39-foot pieces of steel under the Upper West Side with longer ribbons of new rails that are welded together.

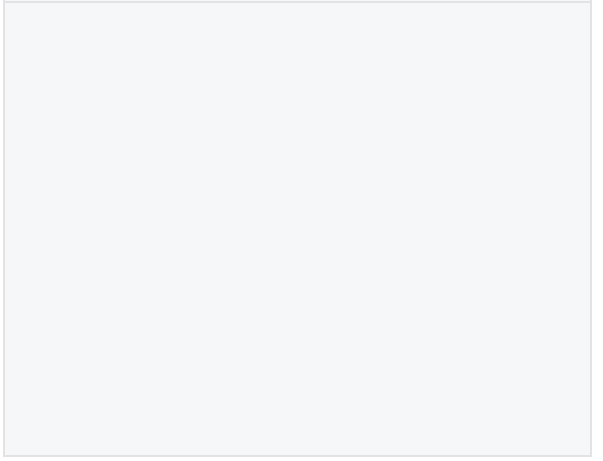
Faced with a worrisome increase in fractures in the last few years, the Metropolitan Transportation Authority has stepped up installation of welded rails on the subway lines with the most track troubles. The aim: cut down on bolted rail joints that are more prone to wearing down and breaking.

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"That is where the weakness in that track is," said Joe Leader, senior vice president for subways in the MTA's transit division. "Your joint bars could break. Your bolts could break."

Subway rails don't get much attention in the shadow of the MTA's marquee projects. The authority has been finishing the long-stalled Second Avenue subway, extending the 7 train to Manhattan's West Side and building a Long Island Rail Road station beneath Grand Central Terminal.

But rails have become a focal point of the agency's construction work since an F train's derailment in May highlighted the dangers of broken subway tracks. The MTA said it is also looking into purchasing portable welding devices to speed up the installation of welded rail.



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The MTA discovered a broken rail underneath the Manhattan-bound express train that jumped its tracks in the Woodside neighborhood in Queens, injuring 19 passengers. It was the worst subway derailment since 1991, when an intoxicated motorman crashed a train at Union Square, killing five passengers.

The authority's investigators believe a rail fractured as the F train passed over, according to a person familiar with the matter. The broken rail appears to have then derailed the express train, this person said, though the MTA hasn't disclosed what may have caused the fracture. The rail in question had been installed in February.

Like the Eighth Avenue line in Manhattan, the stretch of track in Queens where the F derailment occurred had been slated to get welded rail. A portion of the line from Midtown to Forest Hills in Queens experienced 46 serious rail breaks in 2013, down from 61 the previous year but twice as many as in 2005, according to MTA data.

"We just didn't get to it in time," Mr. Leader said, adding that it wasn't clear whether welded rail could have prevented the derailment.

The Staten Island Railway has experienced two derailments this year, but the MTA doesn't believe they were related to track problems, the person familiar said.

The authority said factors including cold weather and heavier trains because of increasing ridership could have contributed to the increase in broken rails. Mr. Leader said the authority's heightened inspections in trouble spots have also helped prevent breaks since 2012.

The MTA has been installing welded rail in New York City's subway system since 1979—long after it opened in 1904. The authority said it has replaced nearly half of 660 miles of track with the welded variety, and has seen three times fewer breaks in such rail.

MTA officials stressed that traditional jointed rail was not unsafe and noted that tracks are regularly inspected by workers and specially equipped cars.

The long-running, piecemeal work is designed to make trains safer and more reliable, not to mention quieter with a smoother ride.

Welded rails can reduce subway car breakdowns, experts say, much like filling potholes cuts down on auto repairs. They come with rubber plates and other track components to reduce vibrations. And for passengers, that can muffle the subway's din.

But swapping in new rails can inconvenience riders. The work on the Eighth Avenue line, for example, required rerouting downtown A and D express trains on the local track.

And it takes a lot of time and manpower. Thirty-two subway workers, including supervisors, labored through the weekend to lay down four pairs of 390-foot stretches of the new rail around the 96th Street station. The welded rail lengths are composed of 10 pieces of traditional rail that would have otherwise been bolted together.

While jointed rails have been in use since at least the Civil War, welded rail came into vogue about four decades ago and is in wider use on newer rail systems across the country, experts say. The Bay Area Rapid Transit in the San Francisco area, for example, opened in 1972 and relies almost entirely on welded rail, a spokeswoman said.

Robert Paaswell, a distinguished professor of civil engineering at the City College of New York and a former executive director of the Chicago Transit Authority, has called for making improvements to the subway's aging tracks and signal systems a priority, even though they are not glamorous.

"Without good track, the trains aren't going to work well," Mr. Paaswell said. "You could have the most modern stations, the most modern trains, and a lousy signal system and lousy track and you'll have a lousy system."

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