

ON THE BI-LEVEL

Metra®



Metra's Monthly Commuter Newsletter

August 2014

The way to really tie

Routine tie job deploys unusual special machines

The parade begins just after rush hour.

A series of yellow contraptions slowly rolls down the tracks. They look like something Dr. Seuss might have dreamed up, and you want them to have Dr. Seussian names – something like the Automatic Puller-Outer Gizmo or Whatchamacallit Thingamabob 3000. Instead, they are boringly named after their functions – the tie extractor, the tie crane, the anchor spreader, the rail broom, the tamper, the spiker.

Each of them performs an important task in our annual effort to replace worn ties on our system. Deployed in what we call a “tie gang,” the machines are used to replace 30,000 to 50,000 railroad ties each year. If the operation is flowing smoothly, the gang can replace 800 to 1,000 ties a day.

Although the parade is a routine event, most riders haven’t seen it, since the work is necessarily done in the off-peak hours after they have already arrived at work. To give riders a feel for this interesting process, we



A tie inserter machine places a new tie under both rails as part of a tie replacement project last month.

went out with a tie gang that was working on a three-mile section of the Rock Island line on the south side of Chicago last month.

The gang is made up of about 14 machines and about 32 workers. It starts simply, with General Track Foreman Juan Rosales, a 26-year Metra veteran, walking the rails and spraying a bright yellow dot on all the ties that need to be replaced. After that, the machines, each of them controlled by skilled operators, take over.

First, the spike puller rolls along and, well, pulls out all the spikes from the ties to be

removed. Next comes the tie remover. It sinks a set of jaws into the ground around the worn ties, grabs them on the edge and quickly and easily pulls them out from under the rail, sucking some of the ballast (the rocks surrounding the ties) along with it, and dropping it on the side of the tracks.

Back in the day, before these specialized machines, worn ties had to be dug out with shovels and then extracted with tie tongs and old-fashioned muscle power – a much slower process. For the machine, it’s as effortless as removing a block from a Jenga

block tower.

The remover is followed by the anchor spreader. The anchors are attached to the base of the rail and are designed to prevent the rail from moving lengthwise on the ties. The spreader moves the anchors so a new tie can fit between them.

A couple of tie cranes follow the spreader. One uses its long arm to pick up the old ties on the side of the tracks and pile them on a railroad trailer. The other grabs new ties from a stack and lines them up with the toothless gaps left by the removal of the
(Continued on Pages 2 and 3)

Consider the simple railroad tie:

The purpose of the railroad tie (also known as a sleeper in other parts of the world) is to hold the rails in place and distribute the weight of the train to the ballast and subgrade.

An average mile of track in the United States has **3,249 ties**.

For the Metra system, which has **1,155.1 miles of track**, that works out to **3,752,919 ties**, not counting the ones in yards.

Metra does not maintain the tracks on the BNSF and three UP lines, nor does it maintain those on the Heritage Corridor and North Central Service lines, which are owned by CN. That leaves about **399.4 miles** of track for Metra, or about **1,297,650 ties**.

We replace **30,000 to 50,000 ties a year**, or about **2.3 to 3.8 percent of the total** on Metra-maintained tracks. The freight railroads also have routine tie-replacement programs.

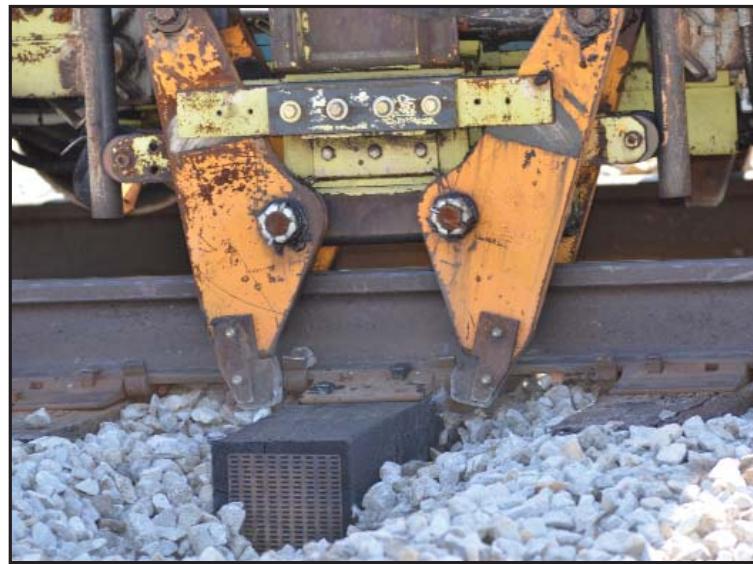
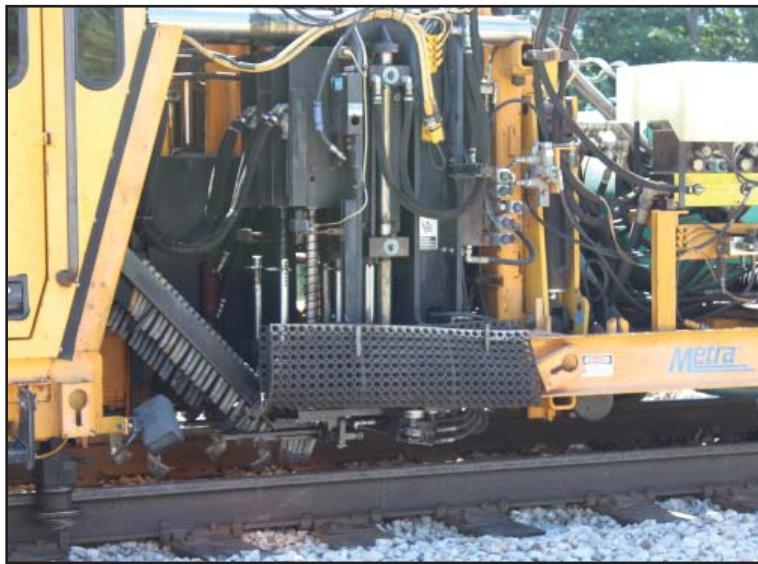
More than **93 percent of the railroad ties** in the United States are made of wood, according to the Railroad Tie Association, an industry group. Almost all are pressure-treated with EPA-approved creosote or creosote blends to prolong their life.



After the spike puller removes the spikes from the ties, the tie remover (top) rolls along the rails, grabs the worn ties and pulls them out from under the tracks. Next comes the anchor spreader (left), which pushes the anchors apart so a new tie can fit between them.



Two tie cranes follow, one to pick up and stack the old ties (above left) and the other to place new ties in line with the gaps where the old ties were removed (above right). After the tie inserter (pictured on the cover) forces the new ties into the gaps under the tracks, a rail broom (left) comes along and begins the process of leveling and restoring the ballast.



The tamper (top left) has paddles that reach down and push and compact the ballast rocks so they are properly leveled under the rails. The rail lifter (top right) grabs and lifts the rail so a tie plate can be inserted between the tie and rail. The spiker (bottom left) hammers the spike through a hole in the tie plate, securing the tracks to the ties. It is followed by the anchor adjuster (bottom right), which pushes the anchors around the ties.

Ties

(Continued from Page 1)

old ties.

Along come the tie inserters. They grab the new ties, wedge them into the ground and thrust them into the gap under the two rails. Again, the machine turns what used to be a strenuous task into an effortless one.

The inserters are followed by the rail broom. Removing and inserting the ties disturbs the ballast. The broom has several rotating brushes that sweep the rocks from the tracks and start to level and restore the ballast

around the ties and track. Thick rubber sheets that hang on the front and sides of the broom deflect the rocks to the ground and protect the nearby workers.

Next comes the tamper machine. It has paddles that reach down to push and compact the ballast rocks under and around the ties so they are properly leveled under the rails. It takes just seconds per tie.

Now that the ties are properly positioned under the rails, they need to be attached to them. There are different rail fastening systems, but Metra generally uses tie plates between the rail and tie and spikes to fasten the

rail to the tie. The next machine that comes along, the rail lifter, helps to do that. It grabs the rail and lifts it up so that workers can slide a tie plate between the tie and rail.

The spiker then rolls along and hammers a spike through a hole in the tie plate into the tie. The tie is now firmly connected to the tracks. The last machine, the anchor adjuster, can now pull the anchors around the new ties.

The tie gang is followed by a surfacing gang, usually the next day. The tracks can be used in the interim, but only after an inspection and only at restricted speeds. It's another parade of

machines, but a smaller one (see photos on next page).

The surfacing gang starts with a laser-guided tamper machine that makes minute adjustments to precisely line up the rails vertically and horizontally. It is followed by a ballast regulator that distributes the old and some new ballast so that it properly supports the tracks.

The last machine is called a stabilizer. It rolls along the tracks very slowly and vibrates the ground to compact, strengthen and stabilize the ballast.

With one final inspection, the tracks can now be used at full speed.



On the Bi-Level

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The surfacing gang generally follows a day behind the tie gang. It's lead by the laser-guided tamper machine (top), which makes tiny adjustments to precisely line up the rails vertically and horizontally. The ballast regulator (middle) is equipped with a variety of scoops and plows to distribute the ballast so it properly supports the tracks. Finally, the stabilizer slowly rolls down the rails, vibrating the ground to compact, strengthen and stabilize the ballast.

For more photos of the tie gang at work, go to <http://metrarail.smugmug.com/Rock-Island-Tie-Gang/>

SOUND OFF

She'll wait her turn

I am an older woman who has happily ridden the UP North to work for over 30 years. I have one fairly small issue in the grand scheme of things. The way we empty trains at Ogilvie is that the people in front who wish to detract get off first. Those in the rear follow. Upper deck people are allowed to enter the line one at a time as we proceed to the door. Works like a champ. However, some individuals, almost exclusively older men, refuse to cut in front of me when it is their turn to enter the line even if I stop and wave them in. They may feel chivalrous, but I feel patronized. It would be great if we all remain polite, caring, and accept the gift of our rights, even if it is from a female fogey.

Sara

This reminds us of a New Yorker cartoon from last year. A man and a woman stand in front of an open elevator, each of them politely deferring to the other, back and forth, back and forth, about who would get on first. The caption: "Canadian Standoff." While most of our riders aren't Canadian, they are still mostly polite.

Script suggestion

Last issue, Paula had requested that riders who choose the Quiet Car make the request to those offenders by politely talking to them. I'd like to go one step further and provide a "script" that has worked for me in the past: "Excuse me, I'm not sure you were aware, but you chose to sit in one of the Quiet Cars today and it's generally library quiet. Thanks!"

Joy

Please feel free to use Joy's reasonable and helpful suggestion.



A Metra love story

Michelle Blake and Chris McCarthy were both veteran Metra riders when they met on a UP Northwest train three years ago.

"It was a random Wednesday afternoon when I was in the city meeting with clients and decided to sit upstairs for the ride back home," Chris said. "I was studying for a securities exam, and noticed Michelle sit next to me."

As Michele remembers it, "I had a meeting in the city and decided to sit upstairs for the ride home. When I walked past Chris I thought to myself, wow, I have to talk to this guy. We talked the whole ride back and exchanged business cards. When I heard from Chris I was so happy the 'train guy' followed up with me, just couldn't believe it."

So started their romance. Last month, the couple took the train – the UP Northwest, of course – from the city into the suburbs for dinner plans. Naturally they sat upstairs. It was all fairly routine, except when Chris got down on one knee halfway through the ride and proposed to Michelle.

"The entire train car was up for grabs – passengers were clapping and celebrating our engagement with us. It was perfect and so far the best night of my life," Michelle said. "When the train pulled into our stop everything happened so quickly...thinking back I can see Chris giving his email address to a family taking pictures and can hear people congratulating us on our way out."

"When we tell friends and family that we got engaged on Metra most say, 'Oh, that's perfect – you two met on the train,'" Michelle said.

Lost luggage found

My wife and I rode Metra into the city from Palatine for the weekend and on our return trip I left our luggage on the train. Whoops! Between calling Lost & Found and the conductors run-

ning the July 5 trains, we got our bag back only a few hours later. So, big thanks to all! Job well done!!!!

Mel

Thanks, we're glad it worked out for you.

Department of Oops

These comments apply to the highlights in your 30th Anniversary edition, by date:

April 12, 1990: Electro-Motive Division was a division of GM (General Motors), not GE (General Electric). At present, Electro-Motive is part of Progress Rail Services, which is part of Caterpillar.

January 23, 2006: The UP West Line could not extend to Geneva because it was already in Geneva since historic times. The UP West Line service was extended from Geneva to Elburn. La Fox is an intermediate station on the extension.

John

You are correct on both counts and we are sorry for the errors. We've been made to understand that mistaking GE for GM could be considered an unpardonable offense by partisans of either company and we sincerely apologize.

Conductor thanks

I want to thank the conductor who was working June 25 on SWS train No. 810 for turning my phone into the Metra Lost and Found. I was in a taxi when I realized it was gone.

Panicked, I asked the driver to call my number hoping it was buried in my bag. A woman from Lost and Found answered and told me the conductor turned it in. She didn't have your name so I can't thank you personally but please know your honesty and kindness is not only appreciated but will be passed forward over and over again. THANK YOU!!

Kimberly

You're quite welcome, and thanks for recognizing a great worker.

Summer Travel Notes

Metra team honored for safety efforts

The Association of American Railroads (AAR) recently recognized Metra for its commitment to employee safety in best safety practices from railroads around the industry at the annual Railroad Safety Leadership Forum in Atlanta. Metra's Safety and Interactive Management team from Elgin was credited with making Metra a safer system for employees and passengers. Team members include: Mark Llanuza, Daniel Gavina, Tim Peters, Jim Lauber and Brad Clark. One of the team's accomplishments was identifying the need for a safer walking surface at the Elgin Yard, particularly during winter months, which resulted in the installation of a metal grate-style walkway system. The team also was honored last month in a proclamation from the Elgin City Council.

Metra executives named to APTA panels

Metra Executive Director/CEO Don Orseno and Safety Director Hilary Konczal were appointed chairman of separate American Public Transportation Association (APTA) committees at its recent annual commuter rail conference in Montreal. Orseno was appointed chairman of APTA's Commuter Rail Committee, which deals with the issues and challenges affecting the industry, and also of its Commuter Rail CEO Subcommittee. Konczal was named chairman of the Commuter Rail Safety and Security Subcommittee, which covers all aspects of commuter rail safety and security.

BACK TO SCHOOL SUPPLY DRIVE

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Any classroom supply is needed.
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