

Supertie: Maximizing wood-tie life

Railroads keep searching for a better crosstie, especially in heavy tonnage, heavy grade territory. Concrete ties have become the ties of choice for a number of roads. In part because of their lower profile, steel ties have been chosen for tight clearance situations. What about wood?

Obviously, most new ties going into track are wood. And CP Rail is touting wood, with installations and tests of a hardwood timber crosstie with what amounts to high-tech hardware.

Ed Taylor is CP Rail's supervisor-track design and development, and he talks about the railroad's aims in getting maximum life out of wood ties:

"The concept was to put a wear barrier plate on the top of the tie, to install a tie plate, and then to use screw spikes to fasten the plate to the tie to prevent movement at the interface between tie and plate." Rail is then laid in the seat of the tie plate, using conventional spikes, which allows the rail to "breathe" under train movements.

The system reduces movement between tie and plate to a minimum. And if there is movement, it occurs on the wear barrier plate, which is regarded as a "sacrificial, replaceable component."

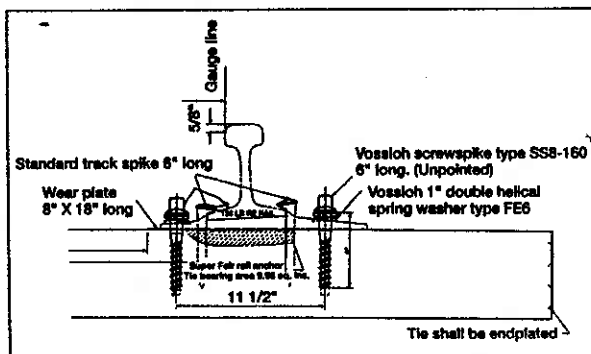
Tests of the Supertie concept began about three years ago, after CP Rail had done a study of crosstie deterioration in territories with heavy grades and curvature and with 70 million gross tons of traffic. Those tests indicated that problems did exist with tie life and with other factors such as maintaining superelevation and equilibrium in territory with both major grades and major curvature.

What CP Rail came up with was an oak tie especially selected for its hardness. The wood is hard enough, it's said, that abrasion has more effect on the bottom of the plate than elsewhere. CP installed ties, heartside up and sapwood side down. That provides the most dense surface and greatest resistance to deformation and tie plate cutting, while it also allows for tie-ballast interaction that tends to retain longitudinal and transverse characteristics in track lining. All of these ties are end plated, to reduce splitting.

But there was more, to try to reduce wear. CP Rail concluded that, short of going to larger tie plates (from 16-inch to 18-inch plates), a better option would be to use wear barrier plates.

After tests of wear barriers with screw spikes, CP Rail settled on the German Vossloh screw spike used in conjunction with Portec Super Fair rail anchors.

The railroad did its first test of a first version of Supertie (without screw spikes) in November 1991. After a year, the ties



Cross-section of a Supertie showing endplates, Vossloh screw spikes, and wear plates designed to greatly extend tie life in-track.

were examined and the results were encouraging. There was no wear on the ties, after about 70 MGT.

A second installation of Superties was made last September, with screw spikes holding the plate down and cut spikes restraining the rail in the tie plate seat. These 4,000 ties were inserted in 11-degree curves, on mountain grades of 2-1/2%, again on lines carrying about 70 MGT annually. CP Rail expects to have something to say about the results of this test in a couple of months.

Ed Taylor has these observations: "We've taken what's known to everybody and created all these conditions, put them together and put them into a tie. Now, you can take any one of these improvements, or you can take them all, depending upon track characteristics."

Even with the added costs of fastenings, he says, costs are "significantly" under the costs of concrete or steel installations. He's expecting to have more answers by spring of this year. In the meantime, he says, he believes that many railroad engineering/maintenance officers who have seen Supertie in track "are convinced that it has a number of features that we are looking for."

Shippers forecast intermodal growth

Martin S. Tendler, vice president and director of transportation for Ralston Purina, sees intermodal as being "on a growth curve in the '90s, and as the railroads keep improving they will see more and more traffic due to intermodal's reliability and ride quality."

Tendler was one of six shippers who attended the annual sales meeting of Alliance Shippers, Inc. in Oak Brook, Ill., on Jan. 15. They engaged in a discussion with some 150 Alliance sales people.

Roger Woody, corporate traffic manager, Hallmark Cards, observed that there had been significant improvement over the fragmented marketing packages that characterized intermodal some years ago. "When we started going with intermodal in the mid-'90s, we were impressed with the turnkey nature of the service packages being offered."

Bulk commodities traffic presents an opportunity for intermodal growth, said Jay Farrell, director of logistics for Corn Products, a unit of CPC International. "We utilize intermodal products quite extensively today," he said, "and it will probably continue that way."

John Baisley, director of materials transportation for General Motors, said, "We look to intermodal for simplification: one carrier, one document. Those are your primary opportunities—to sell door-to-door with service that is economical and reliable."

Jay Galligan, director of transportation for Quaker Oats, said a shortage of truck drivers is working in intermodal's favor: "We have found it is less expensive and less hassle to deal with third parties, and now we can help solve the driver shortage we are having with highway movements. It makes sense for us to put a cross-country load on intermodal, and put scarce drivers on highway movements of 300-500 miles where they can handle traffic most economically."

Bob McIntyre, corporate director of traffic and transportation for Griffith Labs, agreed that intermodal is particularly useful for longer hauls: "Initially, I was able to use intermodal as a competitive edge against trucking. But now I continue to use intermodal because I found it to be reliable and efficient for movements over 500 miles."