

PROBLEM SOLVER

Problem: Premature Wear Puts Safety at Risk and Increases Signals Maintenance

Turnouts are essential components of rail infrastructure, enabling trains to switch tracks, keeping freight and passenger operations flowing. A reliable signals network is crucial for safe and efficient rail operations. Switch machines contain critical internal components that must perform consistently over years of service.

When a Class I railroad began experiencing recurring switch machine wear, the issue highlighted a broader maintenance challenge faced in certain turnout applications. In a typical switch, the switch rods have a three-point connection between the track and the switch machine, meaning the switch machine does not bear the weight of the rods. However, Moveable Point Frog (MPF) switch rods have a two-point connection between the trackwork and switch



machine, applying substantial weight and vibratory forces directly to the switch machine. Over time, these forces can accelerate wear on critical components, leading to increased maintenance requirements and reduced long-term reliability.

Solution: Nortrak's Rod Support Enhances Safety and Switch Reliability While Decreasing Maintenance Costs

Rather than accepting premature wear as an unavoidable maintenance burden, voestalpine Railway Systems Nortrak worked closely with the customer to understand the root cause of the issue and develop a practical, field-ready solution. The result was the Rod Support System, a retrofit product engineered specifically to reduce the forces transmitted from MPF switch rods to the switch machine.

The patented Rod Support features a simple bolt-on design that mounts to the base of the field-side running rail between the switch machine and MPF. This straightforward installation allows it to be easily retrofitted to existing MPF turnouts. The Rod Support System utilizes a two-roller arrangement, providing support for both the point detector rod and the lock rod. The supports are independently and incrementally adjustable, allowing maintainers to provide the appropriate level

of support for each rod and application. The system is easily adjustable in 1/16-inch increments while maintaining proper rod position relative to the switch machine.

By bearing the static and dynamic forces originating from the switch rods, the system significantly reduces loading on the switch machine, helping minimize maintenance requirements while extending the service life of critical components. Electrically insulated for signal reliability and designed for easy inspection and maintenance, the Rod Support provides a practical solution to a long-standing operational challenge. The system has undergone rigorous fatigue testing and is currently in service across Class I railroads, demonstrating proven performance under demanding operating conditions. It also meets full Buy America compliance standards, with all parts designed, tested, and manufactured in the United States.

What began as a customer-specific challenge has evolved into a proven solution for the broader rail industry. The Rod Support System reflects Nortrak's commitment to working alongside customers to identify operational issues, develop practical innovations, and deliver solutions that improve safety, reliability, and maintenance efficiency across North America's rail networks.



RAILWAY
SYSTEMS
by voestalpine

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