

Safety Inspection Fleet



BUILDING AMERICA®

EC-5 GEOMETRY CAR



The EC-5 Geometry Car's optical gauge measuring system, consisting of lasers and cameras under the rail car, produces real-time track geometry images. The system evaluates track structure wear and tests for defects to help prevent derailments, maintain track health and increase track longevity. Union Pacific currently has two evaluation cars, featuring military-grade navigation, covering a combined 70,000-80,000 track miles per year – enough to cover Union Pacific's main lines at least twice a year.

Safety is Union Pacific Railroad's No. 1 priority. As we deliver the goods Americans use daily, nothing is more important than the safety, security and well-being of our employees and the people who reside in the communities where we live and work. Safe operations also are critical to meeting our customer commitments. We invest significant resources training employees, developing innovative technologies, increasing rail safety awareness and using state-of-the-art equipment to conduct regular safety inspections in excess of federal requirements. Our ultimate goal is to operate an incident-free environment.

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UNMANNED GEOMETRY BOX CAR



Currently in pilot testing, the self-sufficient Unmanned Geometry Box Car tests track for geometry defects and requires no fuel. The car's axle mounted generator detects wheel movement to engage the measurement system while simultaneously charging its internal battery box. The Unmanned Geometry Box Car communicates in near-real time the type, severity and location of track defects to a data facility for verification and remediation.

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GAUGE RESTRAINT MEASUREMENT SYSTEM



The Gauge Restraint Measurement System Truck features a geometry measuring system scanning for loose or broken fasteners in the track. Wear, weakness and stability are tested by applying 9,000-10,000 pounds of lateral forces to the track, similar to the force of a locomotive. The operator verifies detected exceptions and immediately remediates.

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GEOMETRY HY-RAIL TRUCK



The Hy-Rail Truck takes static track gauge measurements and ensures the tracks are level. Track inspectors exit the vehicle when potential defects are identified to take additional measurements and assess any concerns.

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MACHINE VISION TRACK INSPECTION



Machine Vision uses under-car lasers and cameras to identify track ties needing replacement.

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CLEARANCE CAR



The Clearance Car's high-accuracy, tunnel laser is used to identify potential issues, specifically studying tunnel, bridge and underpass train clearance.

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PRECISION MEASURING VEHICLE



The Precision Measuring Vehicle's high-definition, 360-degree cameras record video of the track and locates track assets, such as turnouts, road crossings, and signals, with GPS coordinates. The videos are integrated into employee training simulation modules.

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YARD TEST VEHICLE



Exclusively used in rail yards, the Yard Test Vehicle (YTV) evaluates secondary tracks with 28 ultrasonic transducers placing high-frequency sound into the rail to locate and identify internal defects needing to be repaired. It features a detachable unit, called the “walking stick,” for uninterrupted maintenance for short tracks, main line crossovers and repair rail certification. The YTV keeps rails tested, safe and ready for use.

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RAIL TEST TRUCK



The Rail Test Truck's 48 ultrasonic transducers identify air gaps in the track, indicating the rail part needing maintenance, with high-frequency sound. It features a detachable unit, called the "walking stick," for uninterrupted maintenance for short tracks, main line crossovers and repair rail certification.

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SNOOPER



The Snooper is a hy-rail inspection vehicle used to examine bridge structures for potential defects. Its truck-mounted articulated basket crane gives Union Pacific inspectors detailed access above and below the bridge deck to scan for corrosion or cracks, allowing them to proactively schedule repairs.

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