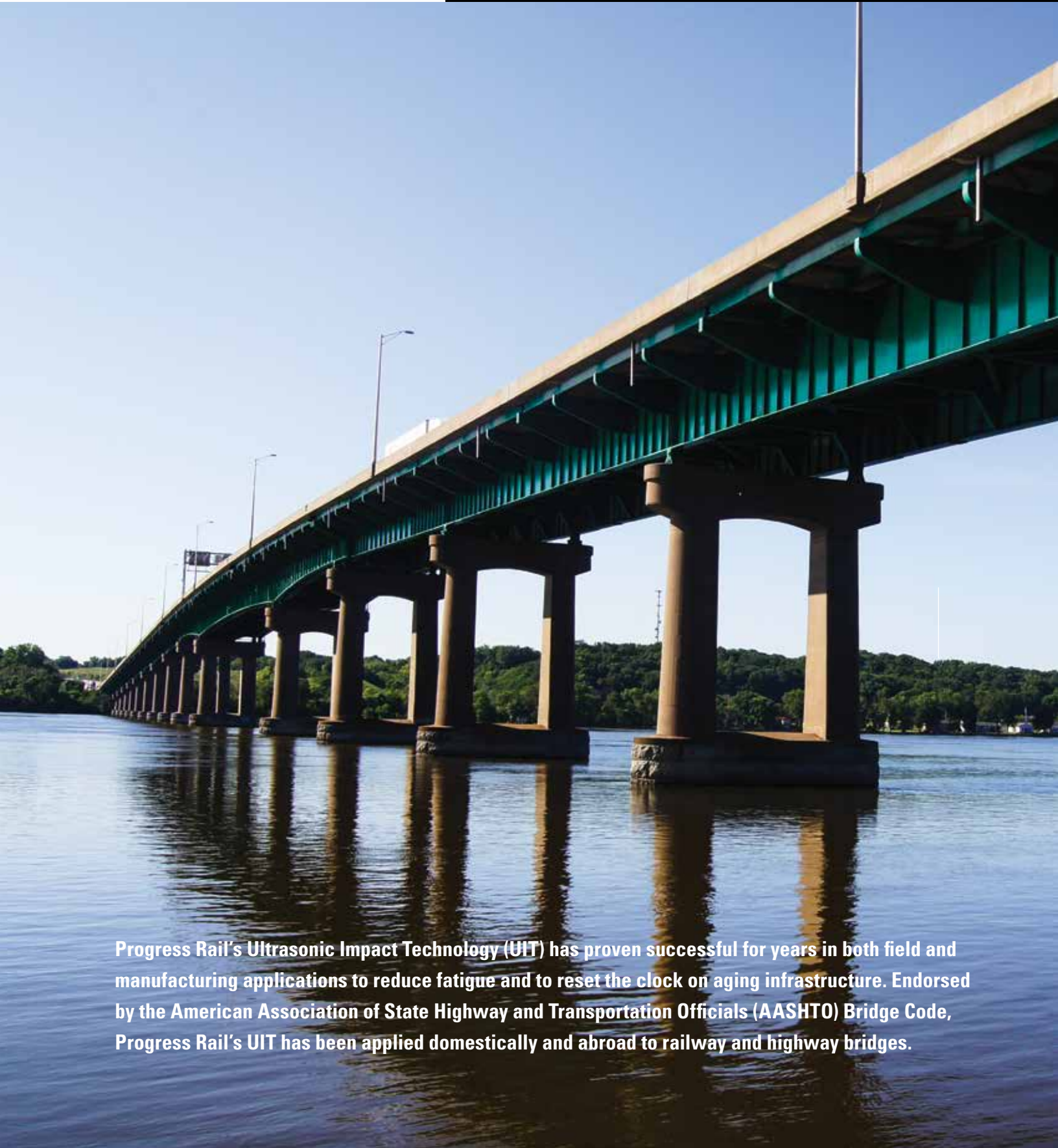


Progress Rail

A Caterpillar Company

ULTRASONIC IMPACT TECHNOLOGY

Reset the Lifecycle Clock on Structures



Progress Rail's Ultrasonic Impact Technology (UIT) has proven successful for years in both field and manufacturing applications to reduce fatigue and to reset the clock on aging infrastructure. Endorsed by the American Association of State Highway and Transportation Officials (AASHTO) Bridge Code, Progress Rail's UIT has been applied domestically and abroad to railway and highway bridges.

SOLID STRUCTURAL STRENGTH

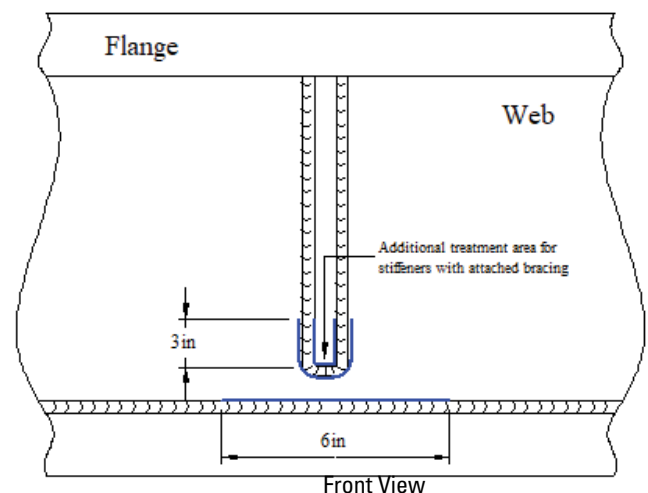


TUTTLE CREEK BRIDGE IN KANSAS

INFRASTRUCTURE IMPROVEMENTS THAT DELIVER

United States Department of Transportation authorities and bridge designers have utilized Progress Rail's UIT process to extend infrastructure life and enhance roadway safety. Endorsed by AASHTO, this proven technology's unique ability to restore aging infrastructure by resetting its life cycle clock results in significant cost savings compared to replacement or costly repairs. Progress Rail's UIT process allows Department of Transportation stakeholders to more effectively allocate infrastructure funds across a state's overall needs.

A prime example of the power of this technology is the Tuttle Creek Bridge in Kansas, shown above. KDOT was faced with either replacing or repairing the structure, which possessed significant structural issues. Following an engineering analysis, the customer chose to use Progress Rail's UIT to strengthen both existing critical girder details and repair welds. Progress Rail's UIT allowed peace of mind on fatigue critical details and contributed to an overall multi-million dollars in savings.



I-94 BRIDGE OVER BUFFALO RIVER IN MINNESOTA



Progress Rail's UIT process was used on the I-94 bridge over the Buffalo River by the Minnesota DOT to improve the structure's fatigue life and strength. During the resurfacing phase, the bridge's cover plates were exposed, creating an opportune time to apply Progress Rail's UIT process to both existing and repair welds.

I-64 Bridge Over Buckingham Branch Rail Line



Another powerful application where Progress Rail's UIT process was used to improve the weld toe profile and fatigue details on the Lateral bracing and Flange Cover plates was on the route 64 bridge over the Buckingham branch railroad in Richmond, Virginia. By applying Progress Rail's UIT process as a post weld application tensile stresses resulting from welding were mitigated and the stress risers at the weld toes were eliminated. By using Progress Rail's UIT process to impart residual compressive stresses and modify weld toe geometry, a strong and more durable structure was created.

Ultrasonic Impact Technology



PROGRESS RAIL'S UIT PROCESS

The UIT system is a highly portable handheld device that is ergonomically designed for speed with control delivering:

- Residual compressive stress
- Localized stress mitigation
- Grain structure modification
- Weld toe geometry modification

These benefits translate into extended fatigue life for bridges, light poles, highway sign structures, and other structures.

Progress Rail's highly portable, 100% duty cycle industrial equipment, is easily mobilized to remote job sites. Our extensive tooling options are tailored to meet and exceed the application requirements.

Requiring only 120VAC power, the system delivers ultrasonic energy, creating mechanical impacts at a true Hi-Frequency, exceeding 25kHz, strengthening the metal structure's ability to withstand dynamic loading forces.

Put Progress to Work for You.

INDUSTRIES WE SERVE



NAVY AND MARITIME

The United States Navy and the commercial maritime industry have successfully utilized UIT to address a wide range of needs. Progress Rail's UIT has a proven successful track record with the U.S. Navy saving the Navy millions of dollars in repairs while improving availability.



RAIL INDUSTRY

Progress Rail's UIT serves as a powerful tool to aid rail customers extending product life and reliability. Progress Rail has employed UIT in rolling stock, freight cars, and infrastructure, witnessing first-hand the value, cost savings and peace of mind Progress Rail's proprietary Magnetostrictive technology provides.



OIL AND GAS

In an industry where downtime can rapidly lead to millions of dollars of losses, Progress Rail's UIT offers an exceptional opportunity to increase availability and uptime, increasing profits. By incorporating Progress Rail's UIT Technology into the repair process a customer gained an additional fifteen years of service from their deep-water, semi-submersible drilling rig by resetting the fatigue life-cycle that was at the end of its certified life-after receiving recertification from the governing body.



MINING & CONSTRUCTION

Mining and construction industries deal with some of the harshest operating environments in the world, and put equipment through some of the toughest challenges. Progress Rail's UIT technology has proven its value on shovels, draglines, dozers, haul trucks, and many more by extending equipment life through extending the fatigue life of welds, improving availability while reducing maintenance cost across the globe.

Progress Rail UIT: What We Do

Progress Rail can provide immediate, on-site service, training, support, and equipment through rental or lease. We can tailor a program to fit your metal and welded component needs, saving time and funding needed for more costly repairs and even replacement. Utilizing either a portable system or a shop designed system for shop operations, our team employs proprietary Magnetostrictive ultrasonic energy designed to work around the clock, coupled with mechanical impact to modify the grain structure of metals, extending asset life and increasing overall reliability to satisfy your needs. Applications include bridges, infrastructure, rail; marine, oil and gas, aerospace and defense, heavy equipment, industrial process equipment, bridges and more.

Who We Are

Progress Rail acquired Applied Ultrasonics in 2015 after becoming their largest customer. We understand first-hand the value of Magnetostrictive ultrasonic energy. Progress Rail's UIT Technology is endorsed by the American Association of State and Highway Transportation Officials (AASHTO), Ultrasonic Impact Technology (UIT) extends the life of in-service infrastructure. This proven technology can reset the clock on aging infrastructure subjected to years of fatigue exposure. Additionally, for new construction, Progress Rail's UIT improves fatigue performance of critical structural connections. In both circumstances, life cycle costs are substantially reduced, allowing infrastructure funding to be stretched and maximized.

Progress Rail, a Caterpillar company, is one of the largest integrated and diversified providers of rolling stock and infrastructure solutions and technologies for global rail customers, with nearly 200 facilities in 16 countries. Progress Rail delivers advanced EMD® locomotives and engines, railcars, trackwork, fasteners, signaling, rail welding and Kershaw® Maintenance-of-Way equipment, along with dedicated locomotive and freight car repair services, aftermarket parts support and recycling operations. The company also offers advanced rail technologies, including data acquisition and asset protection equipment, as well as other innovations, such as our Ultrasonic Impact Technology to enhance the structural strength of infrastructure around the world. Our deep industry expertise, together with the support of Caterpillar, ensures a commitment to quality through innovative solutions for the rail industry.

Our business mission is to deliver superior value in a cost-effective manner. Our team works hard to create lifelong customer relationships, supplying comprehensive rolling stock and infrastructure solutions for the global rail industry and setting the standard for excellence. We care about fostering the sustainable movement of goods and people for generations to come, and we know our customers care, too. Our strategic footprint ensures responsive, quality customer support all day, every day.

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