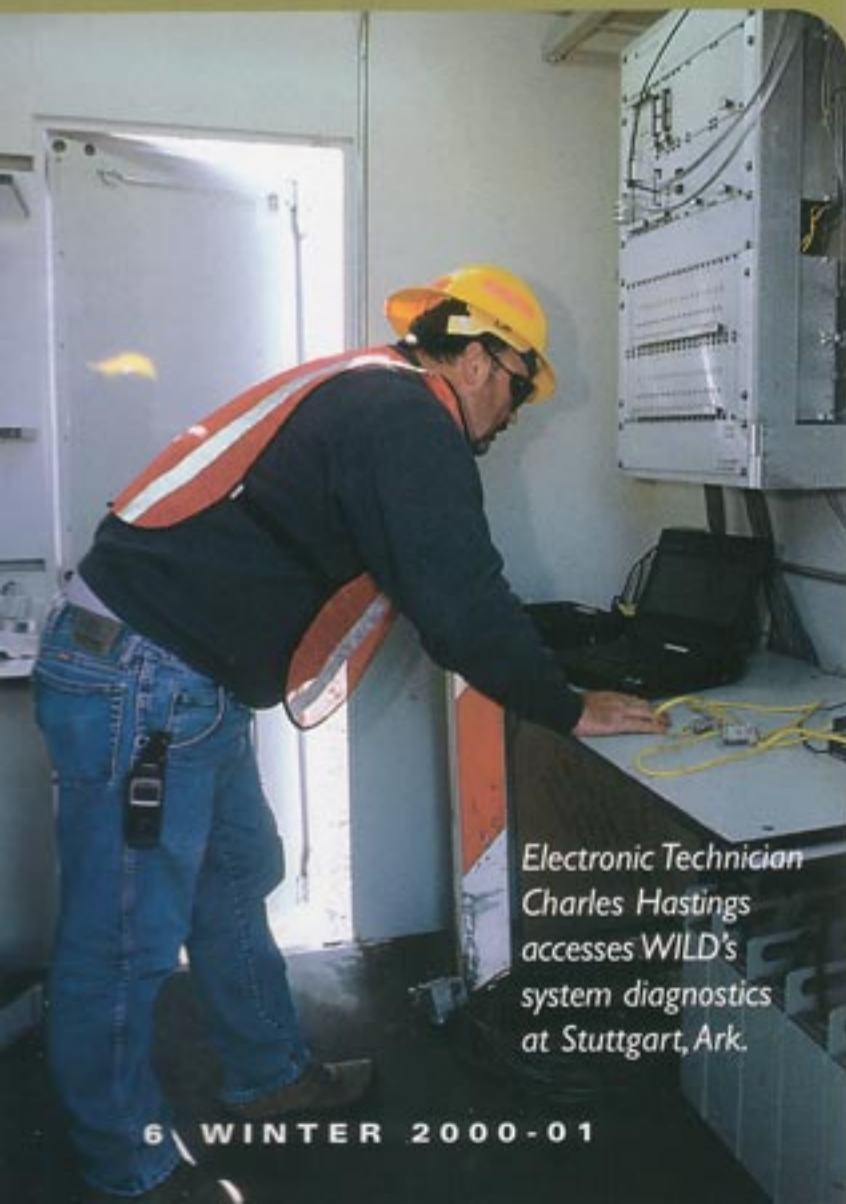




Morris Gotschall, writer
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GONE WILD



Electronic Technician Charles Hastings accesses WILD's system diagnostics at Stuttgart, Ark.

It was science fiction 10 years ago, an experimental railroad technology featured in an *Info* magazine article called "On the Edge of Tomorrow."

Today, the Wheel Impact Load Detector (WILD) is an integral part of UP's wayside electronic detection system, fulfilling early hopes that defective rail wheels could be identified before causing derailments or track damage.

The WILD finds "thumpers" – wheels with flat spots that pound and damage rail. After a decade of testing and upgrading, WILD's electronic eyes can see even miniscule wheel imperfections long before they represent serious danger.

WILD uses electronic strain gauges attached to the rail that measure wheel impact in "kips." One kip equals 1,000 pounds of vertical force on the rail, with a normal wheel producing a vertical load up to 45 kips. On a loaded rail car, any wheel measuring 100-plus kips triggers a computerized alert that earmarks it for change-out once the car is emptied.

Years of accumulated data show 90 kips is the threshold of mechanical soundness. Defects as slight as a few thousandths of an inch, invisible to the human eye, can cause wheels to lose their perfect cylindrical shape required by industry standards.

WILD is 99 percent accurate, says the Mechanical Department's Lynn Faulkner, general superintendent-quality assurance. "Its increased reliability allows us to send cars straight to the shop instead of confirming the detector's report with an inspection."

For Car Mechanical employees, WILD has become a key preventative maintenance tool. "WILD has made a big contribution to eliminating defective wheels," says Faulkner. "This is preventive maintenance at its finest – looking for a potential failure long before it occurs."

Nine WILD detectors located on UP's busiest traffic lanes, each with 256 electronic strain gauges attached to the rails, daily identify about 100 wheels exceeding 100 kips.

Monitoring the detectors are Car Help Desk personnel at the Harriman Dispatching Center (HDC) – John Renth, Jim Padgett, Marv Nesiba, Jeff Olsen and Mark Smith. They alert UP car shops to take appropriate action, with most of the wheel change-outs handled in North Platte, North Little Rock, Pine Bluff, Tucson, Green River, Roseville, Portland and Los Angeles.

In the North Platte area, for example, WILD scans more than 115,000 wheels on some 120-plus trains daily, identifying about 20 of them for replacement. Mechanical Director Dean Buhlig views the additional work as his department's contribution to higher train velocity.

North Platte's carmen helped develop WILD technology after the first detectors were stationed on the double mainline at Gothenberg, Neb., in 1990. That location was chosen because 100-ton coal cars were considered most susceptible to out-of-round wheels.

Leading that pioneering development were Engineering's Bill Thompson and Larry Doll, recently retired manager of methods and research. Now director of derailment prevention, Thompson says WILD is helping UP

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WILD Locations

- Gothenberg, Neb.
- Donaldson, Ark.
- Peru, Wyo.
- Westvaco, Wyo.
- Fields, Ore.
- Wister, Calif.
- Martin Bay, Neb.
- Stuttgart, Ark.



Using an A-frame fixture to calibrate each of the WILD's 32 measurement zones in Stuttgart, from left, are Signal Maintainer Chuck Shock, Engineering Manager Bill GeMeiner and Hastings.

eliminate broken-rail derailments. "UP has led the rail industry in developing WILD's technology, and other railroads now see the benefits and are trying to catch up."

The Engineering and Signal departments maintain WILD's nine installations. Bill GeMeiner, manager-engineering methods and research, oversees the system.

Out-of-round wheels are replaced whenever possible during the unloaded portion of the car's cycle "because we don't want to delay the customer's cargo unless the wheel's condition requires immediate attention," GeMeiner said.

Some wheels do require immediate attention. Each WILD system provides a radio alert to train crews and HDC train dispatchers, giving instructions for inspection, reduced speed limits and set out.

For wheels not requiring immediate attention, WILD now has its own UP intranet web page, with a complete database maintained for all wheels passing any WILD installation within the past 180 days.

As WILD reduces the population of high-impact wheels,

GeMeiner said UP rail detector cars should find fewer internal rail defects. "That means fewer broken rails and joint bars, two major causes of derailments. It also means less stress and extended life for the rail."

This year, UP will install WILD units at Elton, La., on the chemical corridor, and at Dalhart, Texas, a primary route for grain and intermodal cars. Installation strategy over the next five years is to extend coverage to all major routes and major commodities.

Looking to the future, GeMeiner sees more technical advances for WILD, including:

- satellite communication with the Harriman Dispatching Center;
- software to detect shifted loads and overloads; and
- sensors and software that measure lateral forces on moving cars.

After a decade of technical advances, WILD is no longer an emerging technology; it's a premier electronic tool protecting UP's most basic assets – steel wheels rolling on steel rail. ■