

PRESS RELEASE

For more information, contact:

Barbara Gould
Director, Corporate Communications – North America
(440) 329-9609 / (440) 225-6869
barbara.gould@knorr-bremse.com

FOR IMMEDIATE RELEASE
Photos Included

LEADER[®], NEW YORK AIR BRAKE'S ON-BOARD ENERGY MANAGEMENT SYSTEM, AUTOMATICALLY OPERATES A FREIGHT TRAIN FROM ZERO-TO-ZERO IN A PTC ENVIRONMENT

Groundbreaking Advancement in Train Control for North American Railroad Operation
Demonstrated on Pueblo Test Track

WATERTOWN, New York – Sept. 12, 2019 – On a test track in Pueblo, Colorado, a heavy-haul freight train started and stopped solely under the command of a computer. On August 27, a Positive Train Control (PTC)-compliant consist of three locomotives and 30 loaded wagons carrying 4,725 trailing tons, traveled on 48 miles of test track with the latest generation of New York Air Brake's LEADER[®] on-board train control and energy management system in full control.

New York Air Brake (NYAB), a North American-based subsidiary of Munich, Germany-based Knorr-Bremse, demonstrated automatic control of throttle, dynamic brake, independent brake, and air brakes. The demonstration was performed at the Transportation Technology Center, Inc., in Pueblo, with railroad executives and industry officials in attendance. While locomotive engineers rode along, the LEADER (Locomotive Engineer Assist/Display & Event Recorder) system automatically controlled the train over a variety of terrain, starting and stopping on uphill, downhill, and flat grades.

"LEADER commands all four freight train control systems – throttle, dynamic brake, independent brake, and air brakes – providing precise control that conserves fuel and reduces in-train forces," said Jason Connell, New York Air Brake senior vice president of marketing, sales, and service.

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NYAB's energy management software uses track profile, consist manifests, and GPS data to "look ahead" and calculate the ideal driving strategy in real time to achieve low fuel consumption, at a desired velocity, with minimal in-train forces.

According to Connell, each generation of the dynamic LEADER® system has brought increased functionality, performance, and value to the industry. "The first generation of LEADER – LEADER® DriverAssist® – advised locomotive engineers on train handling in a way that helped drive increased fuel economy. A few years later, the introduction of LEADER® AutoControl™ evolved the system further, automatically inputting throttle and dynamic brake commands for improved precision, continued increases in fuel savings, and minimizing in-train forces. In 2018, a major Australian mining company began full deployment of LEADER® AutoPilot™, NYAB's most advanced generation to date, to automatically operate ECP trains that carry iron ore from mines in western Australia to ports hundreds of miles away. Today, virtually all of the company's train operations have been fully automated with LEADER's driving strategy engine at the helm. The Pueblo demonstration showed that LEADER can also operate trains with pneumatically controlled air brakes, predominant in North America."

"The Zero-to-Zero demonstration further proved that the power and innovative design of LEADER means the system can precisely execute any individual railroad's driving strategy in the North American PTC environment," stated Deepak Kumar, NYAB director of marketing. "It is an effective on-board digital platform designed for railroads to improve their operation and reduce their operating ratio."

Kumar stressed that LEADER demonstrates the next step in automatic train control, but should always be paired with safe operating habits and ongoing, proactive operator training.

LEADER is deployed on more than 5,000 locomotives worldwide. The system is part of the range of NYAB technology and innovation focused on delivering unequalled reliability, performance, and return on investment.

About Knorr-Bremse

Knorr-Bremse is the global market leader for braking systems and a leading supplier of other safety-critical rail and commercial vehicle subsystems. Knorr-Bremse's products make a decisive contribution to greater safety and energy efficiency on rail tracks and roads around the world. Approximately 29,000 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2018, Knorr-Bremse's two divisions together generated revenues of EUR 6.6 billion (IFRS). For more than 110 years the company has been the industry innovator, driving innovation in mobility and transportation technologies with an edge in connected system solutions. Knorr-Bremse is one of

Germany's most successful industrial companies and profits from the key global megatrends: urbanization, eco-efficiency, digitization and automated driving.

About New York Air Brake, LLC

New York Air Brake LLC (NYAB), a member of the Knorr-Bremse Group, develops and supplies leading-edge air brake control systems and components, electronically controlled braking systems, foundation brakes, training simulators and train handling systems, and wayside equipment to the rail industry. An industry pioneer since 1890, our over 850 team members have a deep customer commitment that fuels us to deliver solutions for improved rail performance, safety, and overall operating cost. New York Air Brake is headquartered in Watertown, New York, with manufacturing plants in Nixa, Missouri; Riverside, Missouri; Salisbury, North Carolina; West Chicago, Illinois; and Wheatland, Missouri; along with Train Dynamic Systems (TDS), a technology development unit located in Irving, Texas. For more information, visit www.nyab.com.

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