

WAYSIDE VEHICLE INSPECTION

Improve safety, maintenance and efficiency of your fleet by detecting wear-and-tear, defects and potentially dangerous conditions

A Full Range of Wayside Inspection Services

Wayside systems from ENSCO can be used to measure dynamic lateral and vertical forces applied to the rail. In cooperation with leaders in track-based measurement systems, ENSCO can help integrate state-of-the-art technologies to develop complete wayside detection systems. These systems can accurately assess wheel and bearing conditions as well as measure angles of attack at speeds over 100 mph.

Wayside Detection Systems

Wayside Systems from ENSCO can be used to measure the dynamic lateral and vertical forces applied to the rail. In cooperation with leaders in track-based measurement systems, ENSCO can help integrate state-of-the-art technologies to develop a complete Wayside Detection System. These systems can accurately assess wheel conditions and measure angle of attack at speeds over 100 mph and assess bearing conditions.

Working in conjunction with an Automatic Equipment Identification (AEI) system, wayside systems can monitor a variety of parameters - including vertical/lateral forces, wheel/bearing condition and angle of attack - to give a complete picture of the condition of, and forces generated by, specific vehicles passing over the site. Data can be used to identify trends over a range of equipment types, or to identify specific vehicles having an unsafe or marginal condition that require follow-up action.

Information is correlated by vehicle and train ID. It is sent to a database application residing on one or more PCs at user locations where the data can be accessed for viewing, analyzing and storing.



ENSCO can provide a number of services to help you with your wayside inspection needs.

Wheel/Rail Force Testing

The accurate determination of dynamic forces at a single rail location is essential to a variety of studies, including the measurement of weights of vehicles in motion, the evaluation of locations exhibiting high wear, the assessment of lubrication practices, and the investigation of vehicle dynamics.

Using well-established technology, ENSCO has developed wayside force

measuring systems at several locations, including special test sites on curves on Amtrak's Northeast Corridor and Harrisburg line, Philadelphia's 30th Street Station, and high-volume freight track.

Data collection/analysis equipment in the vicinity of these wayside locations can be manned to instantly evaluate information or configured for automated acquisition and processing of wheel/rail forces upon the approach of a train. An onsite proces-

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sor can analyze all data acquired from the wayside measurement, detect any pre-defined alert and/or alarm conditions, and report such conditions through a communication link.

A system of this nature, in combination with an AEI tag reader or other source of train consisting information, allows critical information to be relayed to central locations to alert users to conditions of concern, such as specific vehicles generating high rail forces (commonly referred to as “bad actors”).

Automated Air Hose Inspection

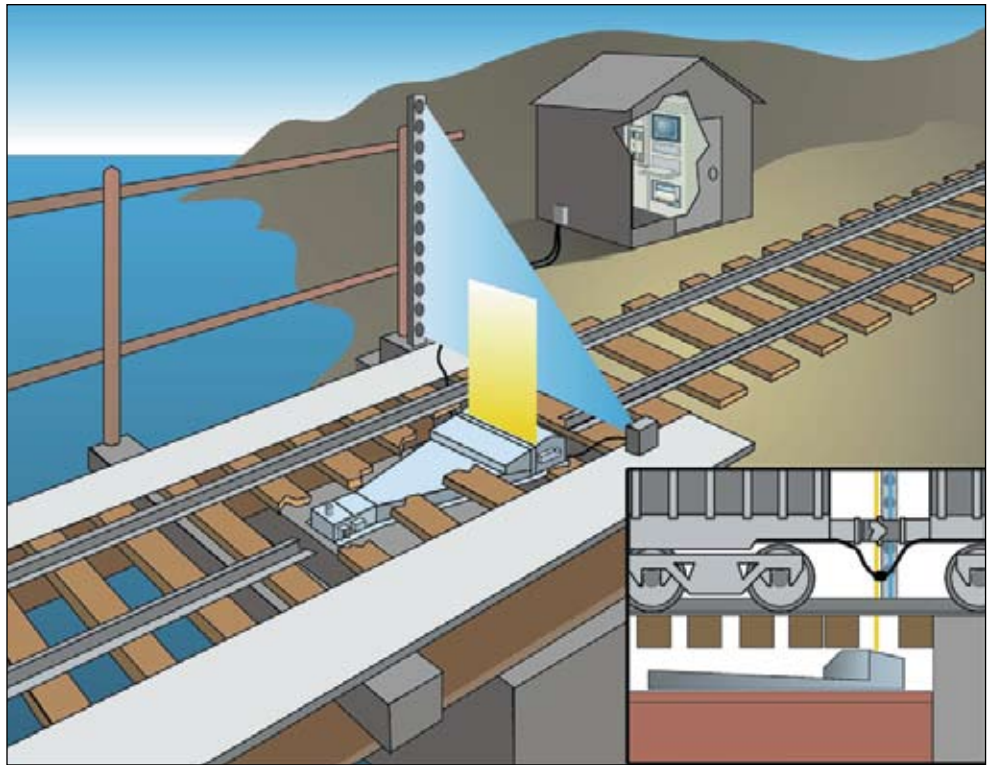
The Automated Air Hose Inspection System automatically detects low-hanging and worn air hoses—a potential cause of train delays and derailments. Installed in the track, this real-time system automatically inspects hoses on passing trains and alerts designated personnel when air hose exceptions are detected.

ENSCO has combined its experience in machine vision and image processing and analysis to develop the Automated Air Hose Inspection System. Instrumentation can be placed at various locations, including bridges or exits to major yard facilities. Trains with air hose problems can be intercepted as they pass these locations and appropriate personnel notified.

The system consists of two major elements:

1. An above ground optical array system to detect hose presence and measure minimum hose height, and
2. A below ground imaging system to detect damage marks on hoses. The system remains in a resting state until a train wheel is detected; its location is indicated by the number of axles from the front of the train.

The system contains two wheel detectors to determine train speed, direction of travel and axle positions. A phototransistor array records a low-resolution silhouette of hoses at possible coupling positions. If a low-hanging hose is detected, an alarm message is generated. If excessive wear is detected, it is quantified by size and other patterns of defect characteristics, and a wear alarm is generated. A photographic image is recorded for any exception.



The Automated Air Hose Inspection system detects low-hanging or damaged air hoses and notifies appropriate railroad personnel.