COMMERCIAL VEHICLE SCREENING FOR ANOMALOUS TIRES
Weigh in Motion and additional screening parameters / Tire Anomaly and Classification System (TACS) for detection of tire problems

R MALHOTRA

Vice President, International Business
International Road Dynamics Inc. (IRD)
702 – 43rd Street East
Saskatoon, SK S7K 3T9
Canada

ABSTRACT

Vehicle safety is of primary concern and involves all aspects of the vehicle and driver. Tire performance is critical for commercial vehicle safety, and tire inflation is paramount for effective vehicle operation and safety. Tire anomalies, such as under-inflated and over-inflated tires, missing tires or having a load imbalance can lead to serious vehicle crashes. Recent statistics from the U.S. Federal Motor Carrier Safety Administration (FMCSA) indicate that tires were a factor in 19% of fatal crashes where a vehicle-related factor was identified.

New technologies and approaches can assist in the identification of commercial vehicles with potential tire safety issues, and provide information about the condition of a vehicle's tires as it travels on a roadway at highway speeds. One such system screens commercial vehicles on the highway and at weigh station facilities to identify those vehicles which are unsafe due to missing or under-inflated tires. The system consists of in-road sensors for tire detection and measurement, roadside electronics to capture information from the sensors, software and a Graphical User Interface (GUI) to present information to the operator or user.

This presentation examines results from tire anomaly detection systems deployed in North America. Results include an assessment of the accuracy of the sensing system in detecting tire anomalies, as well as statistics on the frequency at which commercial vehicles with unsafe tires are detected in the traffic stream at these sites. In addition, tire type classification, axle width, and lateral vehicle lane position data is presented.

Real-world applications for this type of technology are highlighted, and an explanation is provided as to how the system can be integrated with other technologies to enhance commercial vehicle safety.