Product Improvement

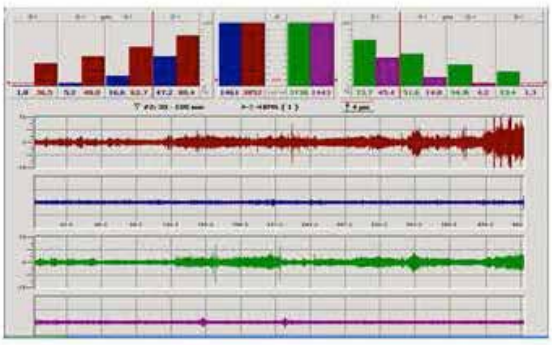
Rail Corrugation Measurement System

Accelerometer Based Corrugation System for use on rail vehicles to measure corrugation intensity.

SUMMARY

The rail corrugation system utilizes robust high response accelerometers mounted to the axle box of the car, based at the wheel/rail interface. The measuring devices are connected to the Jupiter Control System for interpretation and analysis. The data is then analyzed using digital signal processing (DSP) to isolate the frequency responses of the vehicle in response to the corrugation.

The main operating screen provides the user with options for controlling the system as well as feedback on the data recorded and analyzed. Onboard the grinder this allows the operator to make decisions on grinding patterns and speeds.



The corrugation display bar graph panel is the primary visual tool for an operator to determine when recorded track measures in excess of exceedance limits that correspond to the selected filter settings.

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HARSCO RAIL

Product Improvement

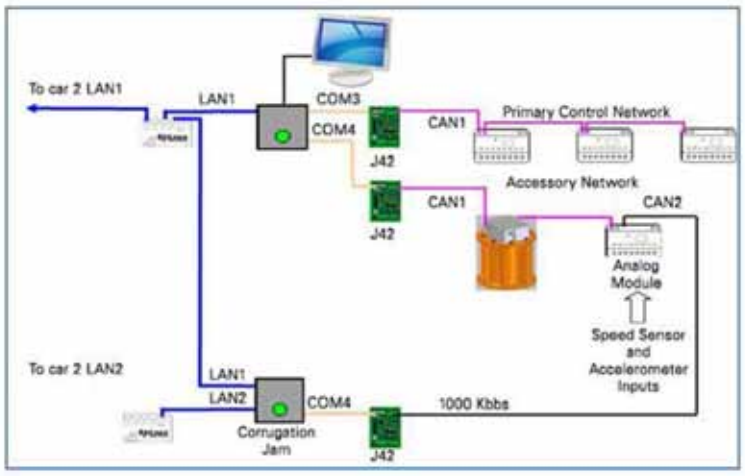
Rail Corrugation Measurement System

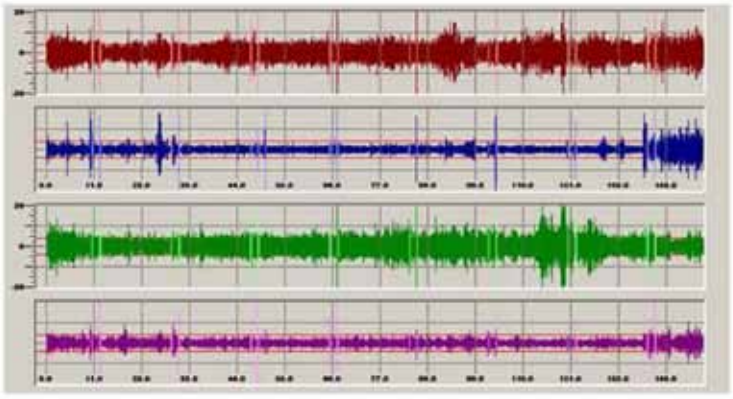
FEATURES:

- Measures short wavelength corrugation (10-1000 mm)
- Effective at speeds of 2 to 12 mph
- Allows for measurement where the wheel meets the rail
- Ability to compare two measurement runs (i.e. before and after grinding)
- Results displayed in real time
- Especially suited for track maintenance equipment and HY-RAIL® vehicles

COMPONENTS

The measurement system is comprised of several hardware components and a primary software component. The predominant hardware components are the accelerometers. Harsco accelerometers are selected based on wheel diameter, measurement speed range, suspension components, and vehicle component masses. This software analyzes the accelerometer data according to EN13231 and provides results for user defined thresholds and filters/analyses including Root Mean Square (RMS), Peak to Peak (P2P), and Maximums (MAX). The collected and analyzed data are archived to a mass data storage device.





TRACK DETAIL PANEL

These graphs show results that are aligned to reflect displacement measurements along absolute locations on the track. The horizontal red lines indicate the displacement limits for the selected filtering, exceedance detection method, and exceedance class.

When the machine is recording track, these traces scroll the measurement data from right to left as the machine moves in the direction of recording. One-meter spacing is set between the graph vertical grid lines whenever a recording is started.

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Bulletin #RC-01PI-0414
Printed in USA, April, 2014