

NRC-CNRC

From *Discovery*
to *Innovation...*



BUSINESS ON RAILS 2009

Equipment Needs of The Brazilian Railroads

November 11, 2009



National Research
Council Canada

Conseil national
de recherches Canada

Canada

NRC-CNRC

*From Discovery
to Innovation...*

The Centre for Surface Transportation Technology (NRC-CSTT)

- Recognized leader in road and railway research, consulting, and innovation
- ≈135 highly skilled employees
- 100% cost recoverable
- 3 Business Divisions and 1 Advanced Products/Technology Group



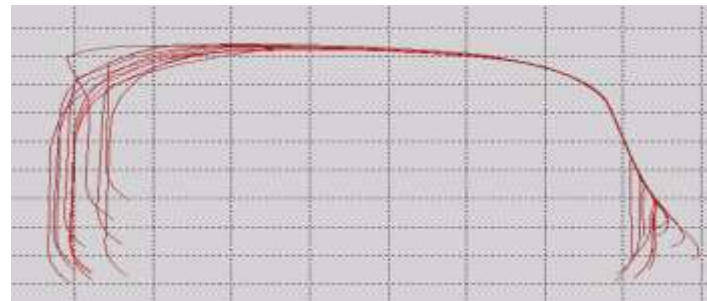
Rail Division Core Competencies



Rail Grinding

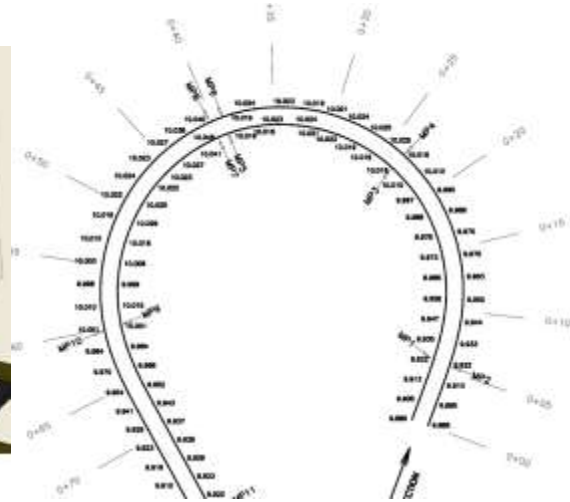
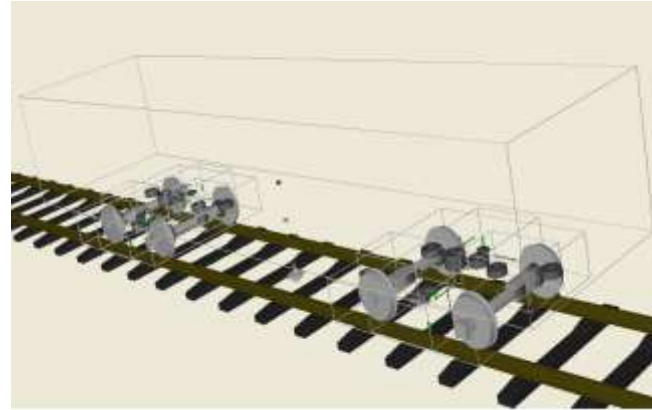


Friction Management

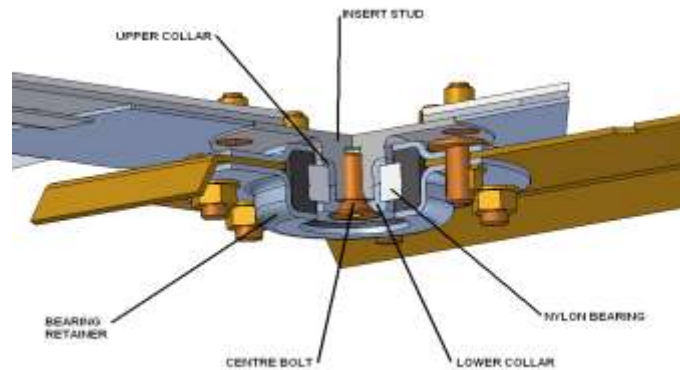


Wheel / Rail Profile
Optimization/Maintenance

Rail Division Core Competencies



Dynamic Simulations



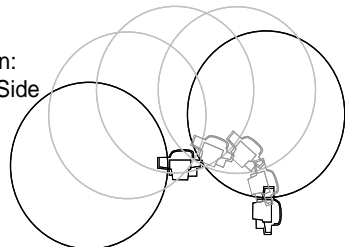
New Product Development

Equipment Needs Freight Operators

- Retained by Transport Canada
Dangerous Goods



Final Position:
Rolled onto Side

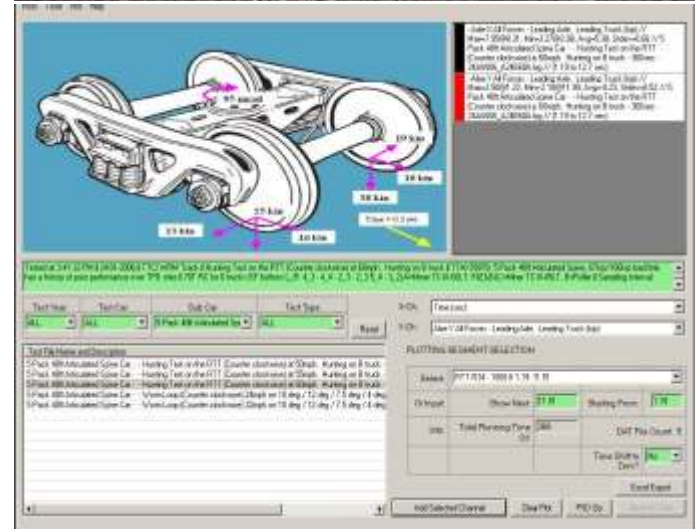


Initial Position:
Upright on Track



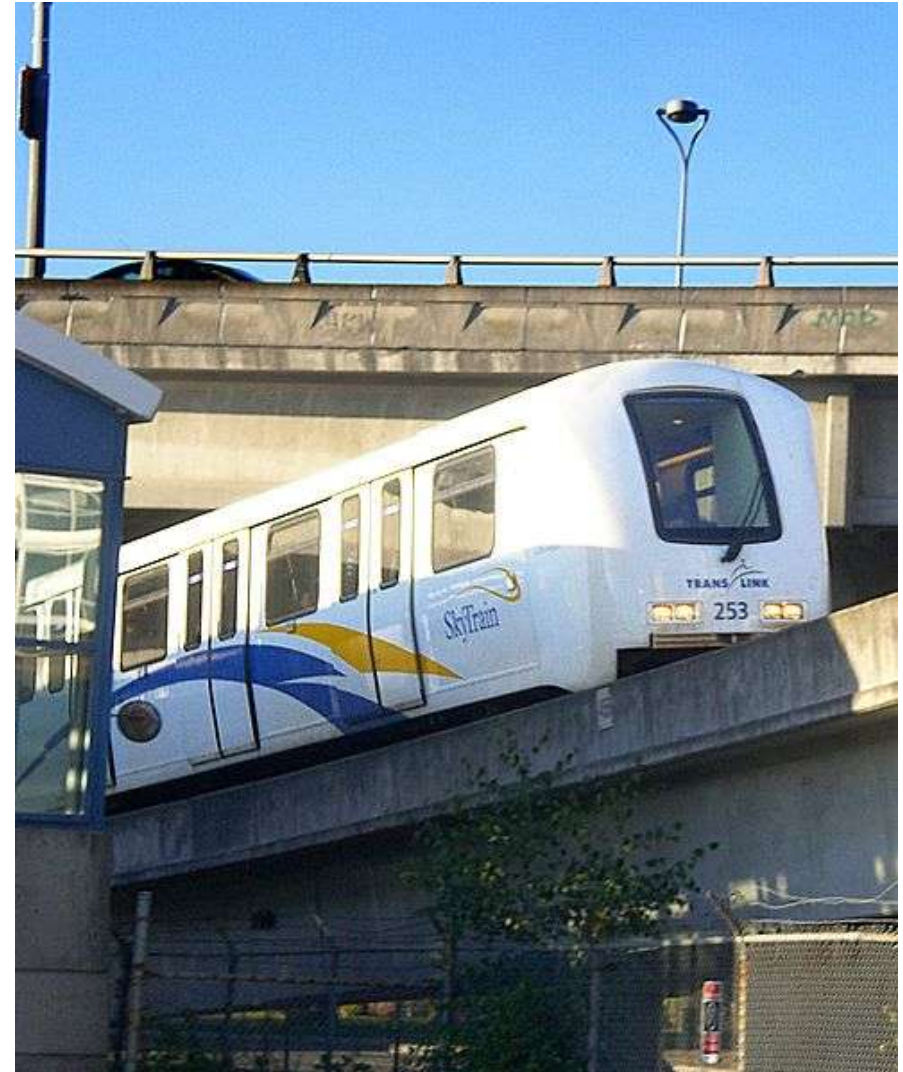
Equipment Needs Freight Operators

- Wheelsets instrumented with strain gauges and turned into dynamic load cells
- The strain-gauge bridges are combined to give wheel/rail forces in all axis
- IWS provide information on the wheel/rail contact point
- Processes data in real-time



Equipment Needs Metro Operators

- Premature Asset Wear
- Noise & Vibration
- Track Design and Simulation



Equipment Needs Metro Operators

- Procurement of Rollingstock & Rail Sections
- Track Design
 - Layout
 - Fixation
- Friction Management
- Wheel Maintenance



Equipment Needs Regulators

- Multi-year freight rail program with Transport Canada and FRA pertaining to:
 - Capacity Improvements of freight transportation
 - Cold Weather Operations
 - Monitoring Devices (Rail Breaks)
 - Rail/Rollingstock Equipment Inspection (Bogie Performance, Brake Inspection Limits)



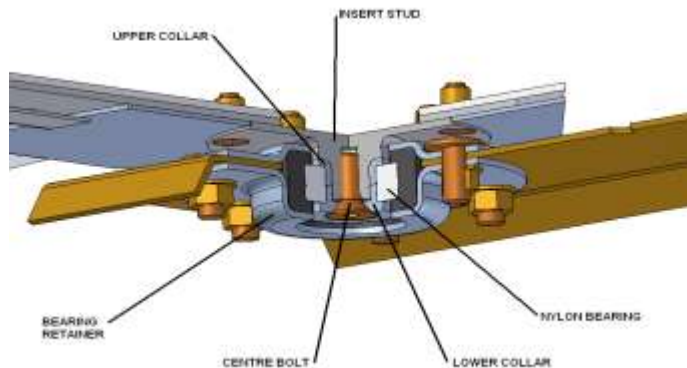
Transport
Canada

Transports
Canada



Equipment Needs Manufacturers

NRC-CSTT has worked with leading rollingstock and component manufactures to develop new or improve existing products.



New materials (stronger/lighter), corrosion resistance, new welding Techniques, certifications

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*Centre
for Surface
Transportation
Technology*

Science
— at work for —
Canada



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