Heavy Vehicle Tilt Facility

CSTT measures the roll stability and roll response characteristics of fully loaded vehicles with its heavy vehicle tilt facility. Computer simulations of heavy vehicle dynamics & performance augment these analyses.

Features

- Consists of a hydraulically tilted table, left and right electronic scales for each axle group, and an extensive range of instruments to measure and record roll-response characteristics
- Capable of tilting fully loaded vehicles
- Controlled conditions ensure repeatable, accurate measurements

Applications and benefits

- Enables precise determination of rollover threshold, load transfer ratio relationships, triaxial centre of mass location, static wheel/axle loads, and suspension roll centre heights
- Quantifies vehicle roll performance relative to other vehicles
- Verifies design specifications

Specifications

- Table surface dimensions 24.4 m long, 2.9 m wide
- Maximum vehicle weight: 130 tonnes
- Maximum tilt angle 35°

(continued on back)

Instrumentation and data acquisition

- Eight movable wheel load platforms, each 3.6m long x 0.9m wide, with a capacity of 45 tonnes
- Relative and absolute roll angles, displacements, etc.
- Digital data acquisition

Some recent/current uses

- Tanker rollover study of more than 50 tanker styles, for Transport Canada, Dangerous Goods
- Measurement of the rollover characteristics of civil and military emergency vehicles, tank trucks, A-, B-, and C-train configurations
- Investigation of accidents involving rollover of heavy vehicles
- Measurement of roll response characteristics for modelling and verification of centre-of gravity height estimates

Some Recent Clients:

- Transport Canada, Dangerous Goods
- Department of National Defence
- Canadian Liquid Air Ltd.
- CP Bulk
- Imperial Oil
- Ministère des Transports du Québec
- Ministry of Transportation Ontario
- Société de l'énergie de la Baie James

Centre for Surface Transportation Technology (CSTT)

The Centre for Surface Transportation Technology offers its clients unique expertise and facilities to improve the productivity, competitiveness, reliability and safety of railway and road transportation. Rail and road transportation companies, vehicle designers and manufacturers, military and commercial vehicle owners, lumber and mining companies, consultants and contractors, municipalities, highways departments and regulatory agencies use the Centre for Surface Transportation Technology. CSTT conducts engineering research using full-scale facilities and performs field tests of commercial rail and road vehicles.

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