

# Development of a Rolling Platform for Side Impacts

Transportation Research Center Inc.



# Transportation Research Center Inc.

- Transportation Research Center (The Center)
  - The Center is an independent automotive proving ground located on approximately 4,500 acres of land in East Liberty, Ohio, 40 miles northwest of Columbus.
- Transportation Research Center Inc. (TRC Inc.)
  - TRC Inc. provides comprehensive research, development and testing services, and facilities to manufacturers, industry organizations and government agencies worldwide.

# Impact Laboratory



# Transportation Research Center Inc.

## ■ Impact Laboratory

- Facility overview
  - Crash Test Facility
  - HYGE Sled Crash Simulator
  - Static component test fixtures
  - Calibration Lab
- Support services
  - Dummy calibration
  - Instrumentation calibration
  - Photography
  - Fabrication

# Rolling Platform for Side Impacts

- Why?
  - EuroNCAP
  - FMVSS 201
  - FMVSS 214 Oblique Pole Test
- Produce accurately controlled side impact testing of vehicles into stationary poles
- Develop repeatable & reproducible methods to propel a vehicle sideways into a stationary pole

# Rolling Platform for Side Impacts

- Prior Vehicle Towing Methods:
  - Vehicle tires and wheels are replaced with dolly wheels that are aimed in the appropriate direction
  - Vehicle is pulled sideways and forced to slide on its tires on a low-friction surface.
- Weaknesses:
  - Errors in impact point and impact angle accuracy
  - Errors in impact speed accuracy
  - Slow test preparation
    - Pole alignment with impact point
    - Vehicle preparation and test pulling
    - Facility preparation and clean-up

# Rolling Platform for Side Impacts

- Rolling Platform Description:
  - 16' x 16' aluminum platform
  - Supported by 24 pneumatic wheels
  - Carrying capacity = 7000 pounds
  - Maximum velocity = 30 mph



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# Rolling Platform for Side Impacts

- Platform Features:
  - Attachments front and rear for lateral guidance
  - Utilizes TRC Inc. common towing attachment
  - Vehicle is placed at desired impact angle and is rolled fore or aft to achieve desired impact point
  - Platform is decelerated by a pair of tuned hydraulic shock absorbers
  - Set of traps captures the platform preventing rebound

# Rolling Platform for Side Impacts

## ■ Benefits:

- Achieve desired impact point and impact angle accuracy
- Achieve desired impact speed accuracy
- Test preparation process is simplified reducing preparation time

# Rolling Platform for Side Impacts

- Thank You!
- Questions?