

Transportation Research Center Inc.

Volume III Issue 8 February 2011



Audible Driver
Instruction System



Automotive News
RACE Awards



TRC Inc.'s Roger
Schroer Featured at
the NAIAS



TRACKS newsletter

TRC Inc.'s Digital Transition

Transportation Research Center Inc. (TRC Inc.) is proud to present our inaugural digital newsletter, along with several social media applications to expedite the exchange of information and dialogue with our customers. This new initiative is an effort to reduce paper, while continuously providing information and updates about our facilities and capabilities.

This newsletter, along with the next issue, are the final paper copies. If you have already received the digital copy via email, your subscription will continue unless you opt-out. However, if you did not receive the digital newsletter and you would like to continue to receive our newsletter, please visit: http://www.trcpg.com/newsletter_signup.asp.

In addition to the digital newsletter, we are launching a Facebook page, Twitter, blog feed, and YouTube channel. Be sure to friend us on Facebook, check out our Tweets, follow our blog, and watch our channel.



TRC Inc.'s new digital newsletter front page, Facebook page, Twitter page, & blog.

SmartWay Tractor & Trailer Programs Conducted at TRC

In 2004, the Environmental Protection Agency (EPA) launched SmartWaySM — an innovative brand that represents environmentally cleaner, more fuel efficient transportation options. The SmartWay brand identifies innovative programs, products, and services that reduce transportation-related emissions like carbon dioxide and air pollutants, and is designed to improve fuel efficiency and ensure a cleaner environment. The impact of the SmartWay brand, however, is much greater as it signifies a partnership among government, business, and consumers to protect our environment, reduce fuel consumption, and improve our air quality for future generations. EPA SmartWay transportation programs result in significant, measurable air quality and/or greenhouse gas improvements while maintaining or improving current levels of other emissions and/or pollutants (www.epa.gov/smartway).



SmartWay fuel economy testing on the Center's 7.5-Mile Test Track.

United States EPA and SmartWay certified tractors and trailers are a new generation of long-haul rigs equipped with cleaner, fuel-saving features. SmartWay tractors achieve lower greenhouse-gas emissions levels, and significantly reduce oxides of nitrogen, particulate matter, and other air pollutants (Interim Test Method for Verifying Fuel Savings Components for SmartWay). In February 2010, SmartWay issued a test procedure titled, "Interim Test Method for Verifying Fuel-Saving Components for SmartWay: Modifications to SAE J1321." This EPA document describes how the Joint TMC/SAE Fuel Consumption Test Procedure Type II (SAE J1321 Surface Vehicle Recommended Practice, October 1986) can be adapted as an interim test method to quantify the fuel consumption impact of fuel-saving equipment to determine eligibility for inclusion in SmartWay.

TRC Inc. has extensive experience in conducting both the SAE J1321 and EPA SmartWay Fuel Economy tests. The testing is conducted on Transportation Research Center's (the Center) 7.5 Mile Test Track (<http://www.trcpg.com/facility75testtrack.asp>), which allows for a controlled environment in order to avoid variability in the test runs. TRC Inc. retains a staff of experienced fuel economy drivers and support personnel who offer excellent repeatability of test runs and can identify potential vehicle issues that can alter test results. TRC Inc. personnel are members of the J1321 Revision Task Force, which is currently reviewing and revising the SAE J1321 Fuel Economy Standard.

Additional services are also offered to support evaluation and development for fuel economy components. These services include instrumentation to record vehicle BUS (J1939), GPS, and other outside sensors such as thermocouples, in order to evaluate the affect of components on the overall operation and fuel economy of a vehicle. Additionally, Fuel Flow Meter systems can be used to obtain instantaneous fuel consumption rates during specific events. One such important event that can greatly affect fuel economy is the presence of Diesel Particulate Filters (DPF's) on 2007 and newer trucks and their periodic regeneration events, which significantly increases fuel consumption. TRC Inc. has experience testing trucks equipped with DPF's and can properly equip a truck with data acquisition systems and transducers to help identify the occurrence of regenerative events.

TRC Inc. has experienced heavy truck mechanics, tools and garage space to complete most any task required for fuel economy testing, including engine and drive train replacements, if necessary. TRC Inc. can procure trucks, tractors and trailers in support of fuel economy testing.

Automotive News PACE Awards 2011

Automotive News, Transportation Research Center Inc. (TRC Inc.), and Ernst & Young are gearing up for the 2011 Automotive News PACE Awards (Premier Automotive Suppliers' Contribution to Excellence).

Now in its 17th year, the annual award celebrates automotive suppliers who have embraced change, adapting and reinventing themselves to meet the demands of the original equipment manufacturers. The PACE award sets the standard for creativity and excellence is recognized around the world as the industry benchmark for innovation.

Each year hundreds of entries are received from automotive suppliers around the world, from which a panel of industry experts recently selected 35 finalists. Winners will be announced during the SAE World Congress on April 11, 2011 at a ceremony held at the Max M. Fisher Music Center in Detroit.

If you would like more information about the PACE awards, including a list of finalists, please see our website at <http://www.trcpg.com/whatsnewdetail.asp?id=56>.

This is TRC Inc.'s 10th year as an awards sponsor.



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Quality In Everything We Do

TRC
Transportation Research Center Inc.

Audible Driver Instruction System



TRC Inc. has acquired an Audible Driver Instruction System (ADIS), which is used in durability test vehicles to provide audible driving directions to our drivers testing on the Center's roadways. Developed to enhance driver safety and test accuracy, the driver receives audio commands based on the vehicle's Global Positioning System (GPS) location, instead of relying on the drivers' ability to memorize the driving cycle.

The ADIS includes a ruggedized notebook computer, a GPS receiver and an interface to receive signals from the vehicle's main computer. The mounting system, because of its orientation, allows limited access to the computer keyboard and the touch screen display goes black when the vehicle is in motion. The mounting system has been crash tested and has shown to restrain the system in the event of a crash. The ADIS must be programmed with the GPS locations of test track segments, and then driving instructions are programmed using a spreadsheet-type interface. A voice reads the instructions at the appropriate GPS location, while the system records the driver's speed, position, engine speed, and throttle position for later review. TRC Inc. has assembled 23 ADIS and is capable of writing driving programs for our customer's test modes that are specifically adapted to our test roadways.

To fully utilize the ADIS, TRC Inc. must be able to access the vehicle's Controller Area Network (CAN) through the On-Board Diagnostics (OBD) II port and at a minimum be able to discern the vehicle speed. The instructions we provide to drivers are speed changes, transmission shifting, accessory operation (such as AC or radio, lights) and other commands that are important to the customer.

The new program has proven to increase the accuracy of durability driving programs.

Feature Facility

7.5-Mile Test Track

The Center's 7.5-Mile (12.1-km) Test Track contains one asphalt and three concrete lanes on the front straightaway and curves, and two asphalt and three concrete lanes on the back straightaway. The 7.5-Mile Test Track's parabolic banking allows neutral

speeds from 80 mph (128 km/h) up to 140 mph (225 km/h) and it features level 2-mile (3.2 km) straightaways.

Test programs that are conducted on the 7.5 Mile Test Track include:

- Mileage Accumulation
- Brake Burnishes
- Fuel Economy
- Coastdown Testing
- Long-Term Durability Programs
- High-Speed Testing

For more information about the Center's 7.5-Mile Test Track, visit our website at <http://www.trcpg.com/facility75test-track.asp>.



TRC Inc.'s Roger Schroer Featured at the NAIAS



TRC Inc.'s Roger Schroer was featured at the North American International Auto Show (NAIAS), 2011 for his land speed world record while driving The Ohio State University's (OSU) Buckeye Bullet 2.5.

The OSU student team's Buckeye Bullet now holds three world records including:

- American Electric record set in 2004, in the Buckeye Bullet 1, at 315 MPH;
- FIA International Record set in 2009, in the Buckeye Bullet 2, at 302 MPH;
- FIA International record set in 2010, in the Buckeye Bullet 2.5, at 307 MPH.

The new target in the next generation Bullet, which will be the Buckeye Bullet 3, is 400 MPH, utilizing multiple motors with a target output of 2500 to 3000 HP, and including dual transmissions and four-wheel drive.

Watch the video of Roger's interview at the NAIAS by visiting: <http://www.engineeringtv.com/playlist/NAIAS-2011-Videos>.



INDUSTRY EVENTS 2011



SAE Hybrid Vehicle Technologies Symposium
February 9-10, 2011
Anaheim, California

PACE Awards 2011
April 11, 2011
Detroit, Michigan

SAE 2011 World Congress
April 12-14, 2011
Detroit, Michigan

7th Annual Injury Biomechanics Symposium
May 22-24, 2011
Columbus, Ohio

Impact Laboratory Improvements & Upgrades



The Center's crash test facility with the new curtains.

TRC Inc's Impact Laboratory has recently made some improvements and upgrades, in response to our customers' needs. The interior of the Impact Laboratory building was painted, a new curtain system was installed in the crash test barrier room, and the roadside safety and

embassy barrier test area were expanded. The new curtain system provides better fields of view for high speed



photography, while the expansion of the roadside safety and embassy barrier test area allows for testing of larger roadside safety equipment and larger embassy barriers.

The Center's expanded embassy barrier test area.

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