



TRACKS

WE'VE GOT A GOOD NEW HEAD ON OUR SHOULDERS!

Fall 2002

Volume II, Issue 43



It's a digital HMS III Aachen Head manufactured by HEAD Acoustics, Inc. that is used to isolate and measure interior and exterior noise levels. We also bought its companion HTB IV Torso Simulator, HPS IV programmable equalizer, Dell laptop data processor, binaural dynamic headphones, RC-V remote controller for the driver, and the ArtemiS 4.0 analysis software.

Combine that with our extensive array of smooth asphalt and concrete test courses and the miles of NVH road surfaces at the TRC Inc. proving grounds, and all we need is your vehicle to provide you with exceptional acoustic and vibration testing services. The acoustics package can simultaneously listen, filter, and analyze noises and their attributes. RPM and speed-based analyses are also possible to determine rotational speed and order-related noise problems. The

database can include product type, operating condition and causal information to help with troubleshooting. Whether its powertrain or electro-mechanical sub-systems, or even tire- or wind-generated noises, we can help you find their sources. Its also a great way to compare product performances. Before it drives your customers crazy, call TRC Inc. if that faint hum turns into a howl!



GET A HEAD START ON PENDING FMVSS TPMS REQUIREMENTS

On November 1, 2000, Congress enacted the Transportation Recall Enhancement, Accountability, and Documentation Act (TREAD Act). The TREAD Act required the National Highway Traffic Safety Administration (NHTSA) to develop a rule requiring all new motor vehicles to be equipped with a warning system to indicate to the operator when a tire is significantly underinflated. (You've got to admit - nobody does acronyms better than the US Congress!) In response to this requirement, NHTSA undertook an evaluation of existing OEM and after-market tire pressure monitoring systems (TPMS) for light vehicles.

Although the new government standards have not yet been adopted, manufacturers eager to gather similar data to help consumers prevent accidents from under-inflated tires are calling

upon TRC Inc. to help them conduct similar testing. With its repeatable and controlled environment, skid trailer, and experienced staff, TRC Inc. is uniquely qualified to gather the tire force-to-ground data. NHTSA's tests evaluated tire pressure measurement sensors to systems that infer tire pressure from monitoring wheel speeds. They also examined the effects of TPMS driver interfaces for visibility and comprehension. In July 2001 NHTSA published "An Evaluation of Existing Tire Pressure Monitoring Systems" (Report No. DOT 809 297). In June 2002 NHTSA also published the final report, "Preliminary Findings of the Effect of Tire Inflation Pressure on the Peak and Slide Coefficients of Friction". The reports may be downloaded from: <http://www.nrd.nhtsa.dot.gov/vrtc/ca/tpms.htm>.

TRC Inc. is available to support the customer's own testing or to provide complete turn-key services. In either case, TRC Inc. can provide: incoming vehicle safety inspection on test vehicles; mounting and balancing and changing tires; instrumentation including data recorders, tire leak-down/metering systems, and time and distance measurement systems. In addition to TRC Inc.'s roadways, also available are Skill Level II test drivers; fuel; and ballast to reach GVWR. Photographic documentation is also available. When you get ready to test your TPMS, call on TRC.

DRIVING SIMULATOR PAPER PUBLISHED

A paper entitled "Vehicle Dynamics Modelling for the National Advanced Driving Simulator" was published in the April 2002 issue of the IMECH E Part D Journal of Automobile Engineering. The paper was co-authored by TRC Inc.'s Kamel Salaani, along

with Gary J. Heydinger of FTI-SEA, and National Highway Traffic Safety Administration's (NHTSA) Reiley Garrott and Paul Grygier.

Their research used a 1997 Jeep Cherokee Sport to gather data from laboratory measurements and instrumented field tests to develop models that represent:

- rigid body chassis and suspension systems
- powertrain
- tires
- brakes
- steering
- aerodynamics

Developed by the National Highway Traffic Safety Administration, the National Advanced Driving Simulator (NADS) is located at the University of Iowa's Oakdale Research Park in Iowa City, IA. The research tool offers high-fidelity, real-time driving simulation to study driver behavior in a safe and controlled environment. That research will lead the way toward developing effective strategies and countermeasures for improved crash avoidance and for the reduction of injuries and fatalities. The NADS will also be beneficial in studying the effects of alcohol, drugs, visual impairments and aging on drivers.

The NADS consists of a large dome in which entire cars and the cabs of trucks and buses can be mounted. The vehicle cabs are equipped electronically and mechanically using instrumentation specific to their make and model. The test subject is immersed in sight, sound and movement so real that impending crash scenarios can be convincingly presented with no danger to the subject. Vehicle and driver data are accurately gathered and stored and tests repeated with exactitude. You can read more about the NADS on the NHTSA website at www.nrd.nhtsa.dot.gov/departments/nrd-12nads/.

TRC INC. CONTINUES PACE AWARDS SUPPORT FOR 2003

Transportation Research Center Inc. (TRC Inc.) is proud to announce that we will continue our support as an affiliate for the 2003 *Automotive News* PACE Awards. PACE is the acronym for Premier Automotive Suppliers' Contribution to Excellence. Established in 1994 by *Automotive News* and Cap Gemini Ernst & Young, the PACE Award honors automotive suppliers who have embraced innovation or adapted and reinvented themselves to meet the demands of the OEM customer. The PACE Awards are a natural tie-in for TRC Inc. as many of the innovations featured are ultimately validated at our proving ground. This also gives us the opportunity to support our customers and their efforts in the marketplace by acknowledging their hard work.

Currently twenty-two finalists are in the running for a 2003 *Automotive News* PACE Award. Winners of the ninth annual program, which honors innovation by auto suppliers in the following categories: Product; Product - Europe; Information Technology and Services; Manufacturing Process and Capital Equipment and Open; will be announced on March 2, 2003, in a black tie affair at the Detroit Opera House.

An independent panel of judges will visit each site and select winners. TRC Inc. has also been participating with the judging by attending many of the site visits.

If you would like to find out more about the PACE awards, please call our marketing department or visit www.trcpg.com/pace_awards_announcement.htm or www.automotivenews.com.