Tandy Engineering® & Associates, Inc.
32430 Dobbin Huffsmith Road Magnolia, Texas 77354
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Robert J. Pascarella

Specialized Professional Competence

- Motor Vehicle Accident Reconstruction and Crash Investigation. Includes the assessment of the role the vehicle, its suspension, steering, brakes, tires, and their maintenance in a vehicle crash
- Design, development, analysis, testing, and evaluation of automotive suspension, steering, and braking systems, including ABS, TC and ESC
- Design, evaluation and testing of Driver Assistance Technologies
- Vehicle dynamics testing and Computer Aided Engineering (e.g. ADAMS, CARSIM, etc.)

Professional Qualifications

- Bachelor of Science (Mechanical Engineering), Michigan State University, 1989

- **Principal Engineer**
  Tandy Engineering & Associates, Inc. – 2022 to present
  - Vehicle crash investigation and accident reconstruction
  - Design, evaluation and testing of driver assistance technologies
  - Steering, braking, electronic stability control, and suspension design, evaluation and testing
  - Failure analysis of vehicles steering, suspension, and braking components. Includes the evaluation of tire disablements on vehicle handling
  - Evaluation of maintenance and service on vehicle performance
  - Vehicle, component, and fault injection testing

- **Design Analysis Engineer, Automotive Safety Office**
  Ford Motor Company – 2013 to 2022
  - Crash investigation and accident reconstruction
  - Steering, braking, and suspension design, evaluation and testing
  - Design, evaluation and testing of driver assistance technologies
  - Testing and evaluation of transmission shift performance and drivability
  - Failure analysis of vehicles and steering, suspension, and braking components
  - Vehicle, component, and fault injection testing

- **Graduate Engineer**
  Tandy Engineering & Associates, Inc. - 2006 to 2013
  - Vehicle Crash Investigation and Accident Reconstruction
  - Steering, braking, and suspension evaluation, analysis and testing
  - Failure analysis of vehicles steering, suspension, and braking components. Includes the evaluation of tire disablements on vehicle steering and handling
  - Evaluation of maintenance and service on vehicle performance
  - Vehicle, component, and fault injection testing

- **Supervisor, Brake Controls Engineering, Roll Stability Control Applications/Development**
  Ford Motor Company - 2006
  - Supervised team of engineers in the development and tuning of Roll Stability Control Systems.
  - Included development of arbitration strategies to address interaction and priority for ABS, Electronic Stability Control, Traction Control, and Roll Stability Control

- **Design Analysis Engineer, Environmental and Safety Engineering**
  Ford Motor Company - 2002-2006
  - Crash investigation and accident reconstruction
  - Steering, Braking, and Suspension evaluation, analysis and testing.
  - Failure analysis of vehicles and steering, suspension, and braking components
  - Vehicle, component, and fault injection testing

- **Vehicle Dynamics and Brake Development Supervisor, Truck Vehicle Engineering**
  Ford Motor Company - 1998 – 2002
  - Led team of engineers responsible for Vehicle Dynamics and Brake System Development for the F250-F550 and Excursion. Included ride, steering, handling and trailer tow development
  - Included development of Anti-lock braking system and FMVSS 105 certification for all configurations
  - Six Sigma Champion guiding several Six Sigma Black Belt's in ongoing quality improvement actions

- **Brake Design Supervisor, Truck Chassis Engineering.**
  Ford Motor Company - 1997-1998
  - Led design team in the design and development of the Foundation Brake and Antilock Braking System for the F150 and Expedition Platform
  - Design, development, and introduction of adjustable brake/accelerator pedals
  - Development and release of new TRW 325 ABS module for the 1999 Expedition/F150-F250.
  - FMVSS 105 certification.

- **Vehicle Dynamics Supervisor and Technical Specialist, Light Truck Engineering**
  Ford Motor Company - 1993-1997
  (Light Truck Vehicle Dynamics and Suspension Modeling and Testing)
  - Provided vehicle dynamics CAE analysis (ADAMS) and testing expertise for all Ford Light Truck Programs. Included development and coding of software specific to the ADAMS data set language.
  - Supervised group of ten engineers responsible for the CAE analysis (ADAMS) and objective testing of all Ford Light Truck Programs
  - Through analysis (ADAMS modeling) evaluated and initiated design changes to improve vehicle dynamics performance and meet program targets on all Ford Light Truck Programs
  - On track Objective testing for Ride, Handling, Steering, and Braking on all Ford Light Truck Programs
  - Improve ADAMS modeling methodologies and techniques including development of new ADAMS subroutines to improve modeling capabilities and efficiencies

- **Vehicle Dynamics Engineer, Light Truck Engineering**
  Ford Motor Company - 1990-1993
  - Through analysis (ADAMS modeling) evaluated and initiated design changes to improve vehicle dynamics performance and meet program targets on all Ford Light Truck Programs
  - On track Objective testing for Ride, Handling, Steering, and Braking on all Ford Light Truck Programs
  - Improve ADAMS modeling methodologies and techniques
  - Designed and built tilt table test fixture to provide information to the NHTSA on its ANPRM on rollover metrics

- **Chassis Engineer, Light Truck Engineering**
  Ford Motor Company - 1990
  - Wheel and Tire Engineer responsible for the design and release of Tires, Wheels, and Ornaments for the 1993 Ranger and Mazda B-Series Programs

- United States Government Patent 5,505,480 Controlled Stabilizer Bar/Attachment

- Member of Society of Automotive Engineers

- Recipient of Ford Motor Company Henry Ford Technology Award, Light Truck Achievement Award, and Customer Driven Quality Award

Robert J. Pascarella

Publications & Lectures

- Pascarella, R.; Durisek, N.; Linovitz, S.; 2007-01-0734 *"Analysis of Tapered Roller Bearing Type Hub Separations in Motor Vehicle Crashes,"* Society of Automotive Engineers, 2007.
  Paper was accepted to the 2007 SAE Transactions Publication which is a collection of the year's best technical research in ground vehicle technology. They are an annual collection of papers judged, *"worthy of preserving in the permanent technical literature for its long term reference value,"* by engineering experts.

- Presentation of 2007-01-0734 *"Analysis of Tapered Roller Bearing Type Hub Separations in Motor Vehicle Crashes,"* Society of Automotive Engineers, 2007 World Conference.

- Pascarella, R.; Tandy, D.; Durisek, N.; Granat, K.; Carr, L.; Liebbe, R.; 2007-01-0636 *"An Analysis of Yaw Inducing Drag Forces Imparted During Tire Tread Belt Detachments,"* Society of Automotive Engineers, 2007.

- Presentation of 2007-01-0636 *"An Analysis of Yaw Inducing Drag Forces Imparted During Tire Tread Belt Detachments,"* Society of Automotive Engineers, 2007 World Conference.

- Pascarella, R.; Tandy, D.; Tandy, K.; Durisek, N.; Granat, K.; Carr, L.; 2007-01-646 *"Comparative Dynamic Analysis of Tire Tread Belt Detachments and Stepped Diameter ("Lumpy") Tires,"* Society of Automotive Engineers, 2007.

- Pascarella, R.; Tandy, D.; Tandy, K.; Durisek, N.; Granat, K.; Baldwin, J.; 2007-01-0733 *"Vehicle Response Comparison to Tire Tread Separations Induced by Circumferentially Cut and Distressed Tires,"* Society of Automotive Engineers, 2007.

- Pascarella, R.; *"UN93 4x4 ADAMS Model Correlation,"* Ford Light Truck Division, 1994.

- Pascarella, R.; Tandy, D.; *"Ford Light Truck ADAMS User's Guide,"* Ford Light Truck Division, 1994.

- Pascarella, R.; Baldwin, J.; Tandy, D.; Tandy, K.; Durisek, N.; Granat, K.; Presentation of *"The Chemistry & Physics of a Natural Tread Separation,"* presented at the 2006 meeting of the Tire Society, September 12, Akron, Ohio.

- Paper - *Analysis of Tie Rod Separations in Motor Vehicle Crashes* - Robert J. Pascarella, Michelle M. Vogler - April 14-17, 2008 - SAE #2008-01-0177

- Presentation of *"Effect of Tire Wear on Tire Force and Moment Characteristics,"* The Tire Society, Twenty-seventh Annual Meeting and Conference on Tire Science and Technology. September 2008.

- Paper- "*Effect of Tire Wear on Tire Force and Moment Characteristic*s," Pascarella, R.; Tandy, D.; Neal, J.; Baldwin J.; Rehkopf J.; Tire Science and Technology, TSTCA, Vol. 38, No. 1, January-March 2010.

- Paper - *The Response Characteristics of Several Vehicles Equipped with Electronic Stability Control to Violent Steering Demands on Different Surfaces* - Donald F. Tandy, Jr., B.Nicholas Ault, Kenneth T. Tandy, Robert Pascarella - SAE 2010-01-0095 - April 12, 2010

- Paper - *The Effect of Electronic Stability Control Following a Rear Tire Tread Belt Separation* - Donald F. Tandy, Jr., Kenneth T. Tandy, Jason Colborn, Robert Pascarella - SAE 2010-01-0113 - April 12, 2010

- Paper - *A Technical Analysis of a Proposed Theory on Tire Tread Belt Separation-Induced Axle Tramp* - Donald F. Tandy, Joseph Neal, Robert Pascarella, Eric Kalis - SAE 2011-01-0967 - April 12, 2011

- Paper - *Steering and Handling Performance During a Full Tire Tread Belt Separation* - Donald F. Tandy, Robert Pascarella, B. Nicholas Ault, Clay Coleman and Kenneth Tandy - SAE 2011-01-0973 - April 12, 2011

- Paper - *Steering and Handling Performance Following a Full Tire Tread Belt Separation* – Donald F. Tandy, B. Nicholas Ault, Robert Pascarella – SAE 2012-01-0257 – April 2012

- Paper - *Objective Measurement of Vehicle Steering and Handling Performance When a Tire Loses Its Air* - Donald F. Tandy, B.Nicholas Ault, Jason Colborn and Robert Pascarella - SAE 2013 01 0748 - April 8, 2013

- Paper – M*ainstream Test Methodology for Developing a Vehicle Equipped with an Electronic Control System*" Donald F. Tandy, Steven Beane, and Robert Pascarella – SAE 2015-01-1416

- Paper - *Technical Analysis of a Proposed Shock Absorber Design Standard* – Donald F. Tandy, Robert Pascarella, and Scott Hanba – SAE 2016-01-1543

- Paper - *Technical Analysis of Severe Cornering Induced Tire Wear on Vehicle Limit Handling through Repeatable On-Track Vehicle Testing* -Tandy, D.F., Coleman, C., and Pascarella, R., - SAE Technical Paper 2018-01-0558, 2018