



**Sean M. McDonough, M.S.**



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- EXPERIENCE:** **Engineer** - Kineticorp, LLC, Denver, Colorado, January 2015 to Present  
**Fellowship** – University of Colorado Denver, September 2013 – December 2014  
**Lead Automotive Technician** – Tires Plus, June 2003 – May 2013
- EDUCATION:** **M.S. Mechanical Engineering** (2014), University of Colorado at Denver, Colorado  
**B.S. Mechanical Engineering** (2013), University of Colorado at Denver, Colorado
- CERTIFICATIONS:** **ASE Certified Master Automotive Technician:** ASE ID# ASE-1410-2080  
**ASE Certified Master Medium/Heavy Duty Technician**  
**ASE Advanced Engine Performance (L1)**  
IMACA – Mobil Air Conditioning  
**Class A Commercial Driver’s License**, with tanker, double/triples, Passenger Vehicle  
**Accredited Traffic Accident Reconstructionist (ACTAR)**  
**Tire Industry Association (TIA) Certified Advanced Automotive Tire Service Instructor**

**FORENSIC MECHANIC:** Mr. McDonough is an expert in automotive maintenance, service, and repair. He analyzes procedures and vehicle components to determine if the maintenance was performed in compliance with industry standards. Mr. McDonough earned the certification of Automotive Service for Excellence (ASE) Automotive Master Technician in May of 2006. An ASE Master Technician has to have a minimum of 2 years on the job experience in all of the following categories: Engine Repair, Automatic Transmission/Transaxle, Manual Drive Train and Axles, Suspension and Steering, Brakes, Electrical/Electronic Systems, Heating and Air Conditioning, and Engine Performance. Once the required experience is met a 1-2 hour test is given in each category. Once all 8 tests are passed, then the title of Master Technician is achieved. There are also specialized test levels. Mr. McDonough obtained an Automobile Advanced Engine Performance certification. He has maintained his credentials through recertification exams every 5 years.

At Tires Plus, Mr. McDonough was responsible for properly diagnosing customer concerns with their vehicle. This included brake, steering, suspension, heating and cooling, transmission, engine, and electrical systems. His process included identifying the root cause of an issue, informing the customer of that issue, and communicating the repair options to the customer. Mr. McDonough was also responsible for training other associates on techniques used in the diagnostic process.

**FORENSIC ENGINEERING:** Mr. McDonough evaluates and reconstructs vehicular accidents involving passenger cars, medium to heavy duty tractors and trailers, motorcycles, pedestrians, and mechanical failures to determine the sequence of events leading up to an accident. Mr. McDonough’s current area of research include the use and extraction of data from vehicle infotainment systems, accuracy of smart phones to track movement, use of smart phones as a data acquisition system. His research has been published through the Society of Automotive Engineers (SAE).

**FELLOWSHIP:** While obtaining his Master’s Degree, Mr. McDonough designed, analyzed, and manufactured medical devices used in neurosurgery. From the devices constructed, a provisional patent was obtained and licensing negotiations are underway.

**INSTRUCTOR:** Mr. McDonough was a co-instructor of *Vehicle Instrumentation* at CU Denver and a teaching assistant for Senior Design from August 2013 – December 2014. He tutored students in dynamics, vibrations, heat transfer and vehicle dynamics. While at Tires Plus he trained numerous employees in diagnostic strategies, oscilloscope, electrical systems operation & diagnostics, engine repair, brake systems, ABS & traction control, air conditioning service & diagnostics, suspension systems, transmissions, and drivetrain repair.

- AFFILIATIONS:** Society of Automotive Engineers (SAE) member, 2012 – present  
IATN (International Automotive Technicians Network), 2004 – present  
Tau Bata Pi (Engineering Honor Society), 2013 – present  
National Society of Collegiate Scholars, 2010-present

## Publications

1. Danaher, D., **McDonough, S.**, Donaldson, D. “*Two Phase Heavy Truck Acceleration Model*”, SAE 2019-01-0411
2. Danaher, D., Neale, W., **McDonough, S.**, Donaldson, D. “*Low Speed Override of Passenger Vehicles with Heavy Trucks*”, SAE 2019-01-0430
3. **McDonough, S.**, Danaher, D., Neale, W. “*Mid-Range Data Acquisition Units Using GPS and Accelerometers*”, SAE 2018-01-0513
4. Bortles, W., **McDonough, S.**, Smith, C. “*An Introduction to the Forensic Acquisition of Passenger Vehicle Information & Telematics Systems Data*”, SAE 2017-01-1437
5. Neale, W., Danaher, D., **McDonough, S.**, and Owens, T. “*Data Acquisitions Using Smart Phone Applications*”, SAE 2016-01-1461

## Presentations

1. “*Mid-Range Data Acquisition Units Using GPS and Accelerometers*” SAE Technical Paper Presentation, 2018 Society of Automotive Engineers World Congress, Detroit, MI, April 3, 2018
2. “*The Role of Vehicle History and Maintenance Information in Litigating a Product Liability Claim*” American Bar Association – Emerging Issues in Motor Vehicle Product Liability Litigation, Phoenix, AZ, April 5, 2018
3. “*EDR and Accident Reconstruction*” Next Generation Lead Products Litigation Lawyer Summit, Phoenix, AZ, April 5, 2017
4. “*Data Acquisitions Using Smart Phone Applications*” SAE Technical Paper Presentation, 2016 Society of Automotive Engineers World Congress, Detroit, MI, April 13, 2016.

## Technical Conferences and Seminars

1. Automotive Tire Service Advanced Instructor Training, Tire Industry Association (TIA), Presented by Matthew White, August 21-24, 2018.
2. Air Brakes Certification, Colorado Motor Carriers Association, Presented by Lonnie Schneider of Downtime Defender, August 4, 2018.
3. Society of Automotive Engineers World Congress 2018, Detroit Michigan, April 2018
4. Vehicle Dynamics for Passenger Cars and Light Trucks, Society of Automotive Engineers, Presented by Richard Lundstrom, August 7-10, 2017
5. Accessing and Interpreting Heavy Vehicle Event Data Recorders, Society of Automotive Engineers, Presented by John Steiner, Timothy Cheek, David Plant, and Tim Austin, May 17-20, 2016
6. Applying Automotive EDR Data to Traffic Crash Reconstruction, Society of Automotive Engineers, Presented by Rick Ruth, April 20-22, 2016
7. Reconstruction and Analysis of Rollover Crashes of Light Vehicles, Society of Automotive Engineers, Presented by Nathan Rose, April 15, 2016
8. Society of Automotive Engineers World Congress 2016, Detroit Michigan, April 2016
9. Crash Data Retrieval (CDR) Technician Level 2, CSI Collision Safety Institute, Longmont, Colorado, March 30, 2016
10. Crash Data Retrieval (CDR) Technician Level 1, CSI Collision Safety Institute, Longmont, Colorado, March 29,

2016

11. PC Crash Online Training, Vehicle Control, November 17, 2015, On-Line Training
12. Vehicle Crash Reconstruction Methods, Society of Automotive Engineers, Presented by Raymond and Matthew Brach, June 22-24, 2015
13. Digital Oscilloscope, Pro Auto Tech, Presented by Kevin Markel, Denver, Colorado
14. Millennium Diagnostics, Pro Auto Tech, Presented by Kevin Markel, Denver, Colorado
15. Hybrid Vehicle Service HYB-200, Car Quest Technical Institute, Presented by Don McDonald, Denver, Colorado
16. Network Diagnostic Strategies, Professional Technician's Seminar, Presented by R. Barrett, Denver, Colorado, October 27, 2009
17. Delphi VI ABS & Traction Control Seminar, Presented by Chuck Kennedy, Denver, Colorado, May 4, 2009
18. Diagnostic Strategies, Professional Technician's Seminar, Presented by Michael E. McDonald, Denver, Colorado, September 25, 2006
19. Bendix Brakes Training Course, Import Car Braking Systems, Presented by Thomas Card, Denver, Colorado, May 10, 2005
20. Automotive Air Conditioning Diagnostics & Service AC-200, Car Quest Technical Institute, Denver, Colorado
21. Vehicle Driven Brakes, Car Quest Technical Institute, Denver, Colorado
22. Suspension Systems, Car Quest Technical Institute, Denver, Colorado