

ENGINEER: MECHANICAL

G. WAYNE MALTRY, AMT, BSAE, MSME, PE
Engineering Design & Testing Corp.
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EDUCATION:

- 2007 Master of Science, Mechanical Engineering
 North Carolina State University, Raleigh, North Carolina
- 1989 Bachelor of Science, Aerospace Engineering
 North Carolina State University, Raleigh, North Carolina
- 1983 Associates in Applied Science, Aircraft Maintenance Technology
 Spartan School of Aeronautics, Tulsa, Oklahoma

EXPERIENCE, WORK PLACE:

- November 2007 **Engineering Design & Testing Corp.**
to Present Columbia, South Carolina
- Consulting engineer, mechanical systems analysis.
- March 1999 to **Unison Engine Components, a subsidiary of GE Aircraft Engines**
November 2007 **(previously Smiths Aerospace and NCI, Inc.)**
 Asheville, North Carolina
- Lead Senior Engineer, Special Processes, automated and CNC shot
 peening, CNC abrasive waterjet machining, abrasive flow machining,
 abrasive wet blast, parts cleaning, fluorescent dye penetrant testing,
 manual and CNC deburring, broaching, gear hobbing, electrochemical
 machining.
- June 1997 to **Eaton Corporation, Fluid Power Division**
March 1999 **(presently Borg-Warner Cooling Systems)**
 Fletcher, North Carolina
- Manufacturing Engineer, viscous fan drive parts machining and
 assembly lines.

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October 1992
to May 1997

Blue Ridge Metals Corporation
Fletcher, North Carolina

Maintenance and Manufacturing Engineer, steel wire pickling, drawing, annealing, machining, cold forming and parts machining processes.

September 1992
to June 2005

Maltry's Repair Service
Asheville, North Carolina

Automotive and Truck Mechanic, part time position in family business utilized to maintain exposure and mechanical repair skills.

February 1990 to
September 1992

1st Lieutenant, US Air Force
Williams AFB, Phoenix, Arizona; Offutt AFB, Omaha, Nebraska
Scientific Analyst, Missile Trajectory Analysis.

February 1984
to January 1990

Asheville and Raleigh Flying Services
Asheville and Raleigh, North Carolina

Federal Aviation Administration (FAA) licensed Airframe and Powerplant (A&P) Aircraft Maintenance Technician (AMT).

March 1982
to October 1983

Cameron Tempering
Tulsa, Oklahoma

Manufacturing Technician, glass cutting, finishing, and tempering. Machine and truck loading equipment operator.

January 1980 to
December 1986

Staff Sergeant, Infantry, US Army Reserves
Fort Benning, Georgia; Fort Jackson, South Carolina; Fort Sill, Oklahoma; Fort Leonard Wood, Missouri

Basic Training Drill Instructor.

August 1977 to
June 1981

Mitchell Distributing Company
Asheville, North Carolina

Unpaid internship working as an apprentice to shop and field mechanics for heavy equipment servicing and repairs.

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EXPERIENCE–CONSULTING (non-comprehensive listing)

- Vehicle crash investigation and reconstruction
- Vehicle, structure and equipment fires, origin and cause
- Fracture and material analysis
- Mechanical analysis of aircraft, land vehicles, equipment, machinery and processes, pressure vessels, piping, plumbing, heating ventilation and air conditioning (HVAC)
- Lightning damage assessment
- Machinery and equipment scope of damages

EXPERIENCE–DESIGN AND CONSTRUCTION (non-comprehensive listing)

- Automated shot peen, automated turning lathe, parts cleaning and assembly line machines and their components
- Machining center, assembly line and special process tooling, part handling, part holding and reusable masking fixtures
- Whole part manufacturing processes, from raw stock to finished part or assembly
- Machine foundations, production area layouts

EXPERIENCE–SOFTWARE, MACHINE AND VEHICLE OPERATION (non-comprehensive listing)

- Automobile performance driving
- Unigraphics 3D Modeling (and others) Computer Aided Drafting (CAD)
- ANSYS Finite Element Analysis (FEA)
- Programmable Logic Controllers (PLC) programming
- Automated, CNC, and robotic machining centers
- Cold headers and presses
- Forklifts and man lifts
- Trucks and heavy equipment
- Jet and reciprocating engine aircraft (ground and air operations)

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EXPERIENCE–Manufactured Parts (non-comprehensive listing)

- Aircraft jet and land based turbine engine components, to include compressor and turbine air seals, blade retainers, shafts, cooling plates, disks, combustor plates, spacers, and fuel nozzle sections
- Viscous fan drive components and assemblies
- Injection molded fans for heavy trucks and automotive applications
- Automobile suspension supports, steering gears, bearing components, and threaded plugs
- Intercontinental ballistic and ground-to-air missile components

EXPERIENCE–MAINTENANCE (non-comprehensive listing)

- Steel sulfuric acid pickling, wire peeling, wire drawing, heat treating, cold forming, automated and CNC parts machining, and parts cleaning processes and equipment
- Production equipment and machine installation, compressed air, water and electrical supply and distribution systems
- Air compressors
- Automobile and truck troubleshooting and repairs to include brakes, drive train, engine, electrical, engine coolant and HVAC systems
- General, corporate and commercial aviation aircraft troubleshooting and repairs to include all airframe and powerplant systems and components
- Heavy equipment dump trucks, excavators, bulldozers, graders, front end loaders, air compressors, backhoe loaders

EXPERIENCE–METALS TESTING (non-comprehensive listing)

- Fluorescent dye penetrant; ultrasonic flaw detection; x-ray diffraction; metallographic sampling, inspection and analysis; spark testing; hardness testing; and tensile testing for low carbon steels, alloy steels, tool steels, aircraft grade aluminum, titanium alloys and nickel chromium superalloys

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EXPERIENCE-TEACHING AND INSTRUCTION (partial listing)

- Event Data Recorders (EDRs)
- Accident Reconstruction
- Brake System Inspections
- Spontaneous combustion, brass fitting defects detection, hail damage detection, fire origin and cause, brake system inspection
- Shot peening and abrasive flow machining operator training and certification
- Cold forming, wire and part machining operator training
- Firearm handling, maintenance and operation
- Marksmanship
- Physical readiness
- Drill and ceremonies
- Combat and survival skills

REGISTRATION:

Registered Professional Engineer in North Carolina (#032093)

Registered Professional Engineer in South Carolina (#26289)

Registered Professional Engineer in Georgia (#PE033309)

Registered Professional Engineer in Tennessee (#00116818)

Registered Professional Engineer in Virginia (#0402049099)

Registered Professional Engineer in Alabama (#33915-E)

Registered Professional Engineer in Texas (#121189)

Registered Professional Engineer in Florida (#83967)

National Council for Engineering and Surveying (#16-896-16)

CERTIFICATIONS:

Aircraft Accident Investigator

IPTM Certified Traffic Crash Reconstructionist

IPTM Certified Advanced Traffic Crash Investigator

NAFI Certified Fire and Explosion Investigator (CFEI #13585-7017)

FAA Licensed Airframe and Powerplant Mechanic (Certificate # 3640029)

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PROFESSIONAL ORGANIZATIONS:

- National Association of Fire Investigators (NAFI)
- National Fire Protection Association (NFPA)
- American Society of Mechanical Engineers (ASME)
- American Society for Metals (ASM)
- South Carolina Insurance Fraud Investigators, Inc. (SCIFI)
- South Carolina International Association of Arson Investigators (SCIAAI)
- National Association of Professional Accident Reconstruction Specialists (NAPARS)
- South Carolina Association of Reconstruction Specialist (SCARS)
- SAE International

PUBLICATIONS

“Aircraft Accident Investigations: Purpose, Intent, and Methods”, The StressPoint, a periodical of EDT Forensic Engineering and Consulting, June 2018, Volume 31, Issue 1

“Characterization of Copper Tubing and Pipe Ruptures”, The Materials Science and Technology (MS&T) Conference Proceedings, pending release on October 14, 2018

INVITED LECTURES, TUTORIALS, AND PRESENTATIONS

“Characterization of Copper Tubing and Pipe Ruptures”, Materials Science & Technology, October 2018 (Presenter)

“Digital Forensics of Heavy Vehicle Event Data Recorders”, ED&T Seminar, February 2018 (Presenter)

“A Review of Typical Motorcycle – Vehicle Collision Scenarios”, ED&T Seminar, February 2017 (Presenter)

“Incomplete Melding of Leaded Brass”, Materials Science & Technology, October 2013 (Presenter)

“Brass Fitting Water Leaks”, ED&T Seminar, February 2012 (Presenter)

“Characteristics for Automotive Hail Damage-How to Determine if Dents are Formed by Hail”, South Carolina Insurance Fraud Investigators, Inc. Conference, November 2008 and South Carolina Claims Association Meeting, March 2009 (Presenter)

“Spontaneous Combustion”, ED&T Seminar, May 2008 (Presenter)

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Special Process Instructor: “Abrasive Blast Surface Conditioning, Turbine Engine Components,” Unison Engine Components Operator Training Program, January 2002-November 2007

Special Process Instructor: “Abrasive Flow Machining, Turbine Engine Components”, Unison Engine Components Operator Training Program, January 2001-November 2007

Special Process Instructor: “FAA Certified Shot Peening Level 1, Turbine Engine Components”, Unison Engine Components Operator Training Program, October 2000-November 2007

CONTINUING EDUCATION:

“Characterization of Copper Tubing and Pipe Ruptures”, Materials Science & Technology, October 2018 (Presenter)

“Basic Aircraft Accident Investigation”, Federal Aviation Administration, Traffic Safety Institute, April 2018

“Basic Fatigue Analysis”, ED&T Seminar, February 2018

“Understanding Programmable Logic Controller Language for Forensic Analysis”, ED&T Seminar, February 2018

“Twentieth Annual Insurance Fraud Training Seminar”, November 2017

“Review of Texas Engineering Practice Act and Rules”, Texas Board of Professional Engineers, August 2017

“Metallographic Techniques”, ASM International, July 2017

“Fire Retardant Treated Wood”, ED&T Seminar, June 2017

“Digital Forensics of Heavy Vehicle Event Data Recorders”, The University of Tulsa, February 2017

“Technical Review of Unmanned Aerial Vehicles and Their Uses”, ED&T Seminar, February 2017

“Large Loss Report Writing”, ED&T Seminar, February 2017

“Engineering Analysis of Failure: Determination of Cause in a Legal Environment”, ED&T Seminar, February 2017

“Variable Frequency Drives”, ED&T Seminar, November 2016

“Meth Lab and Improvised Explosives Identification”, International Association of Arson Investigators, June 2016

World Reconstruction Exposition 2016 (WREX2016), “A World Crash Exposition”, National Association of Professional Accident Reconstruction Specialist, Inc. (NAPARS), May 2016

“Arson for Profit, NICB Overview, and Vehicle Arson”, International Association of Arson Investigators, March 2016

“Panel Discussion – Revised NFPA 1033”, ED&T Seminar, February 2016

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- “Requirements for Roadway Conditions”, ED&T Seminar, February 2016
- “Power System Protection and Fault Analysis”, ED&T Seminar, February 2016
- “Fire Investigative Approaches”, International Association of Arson Investigators, October 2015
- “Wild Fire Origin & Cause”, International Association of Arson Investigators, June 2015
- “Applied Vehicle Dynamics”, SAE International, May 2015
- “Vehicle Crash Data Retrieval (CDR) Training Update”, ED&T Seminar, February 2015
- “Traffic Crash Reconstruction”, Institute of Police Technology and Management, April 2014
- “Deception Detection & Interviewing Techniques”, International Association of Arson Investigators, March 2014
- “Passenger Car – Motorcycle Collision Analysis”, ED&T Seminar, February 2014
- “Investigating Electric and Hybrid Vehicles”, ED&T Seminar, February 2014
- “Failure Analysis and Prevention-Environmentally Assisted Failures”, MS&T, October 2013
- “Failure Analysis and Prevention-Failure Analysis at the NTSB and TSB Canada”, MS&T, October 2013
- “Failure Analysis and Prevention-Failure Analysis in Oil & Gas Industry”, MS&T, October 2013
- “Failure Analysis and Prevention-Fatigue & Fracture II”, MS&T, October 2013
- “Failure Analysis and Prevention-Fatigue & Fracture I”, MS&T, October 2013
- “Advanced Traffic Crash Investigation”, Institute of Police Technology and Management, April 2013
- “Quantifiable Driver Response Decisions: PRT and Gap Acceptance”, ED&T Seminar, February 2013
- “Tire Construction and Defects”, ED&T Seminar, February 2013
- “At-Scene Traffic Crash/Traffic Homicide Investigation”, Institute of Police Technology and Management, November 2012
- “HVAC Efficiency Improvement”, Boiler Efficiency Institute, August 2012
- “Ethical Challenges for the ED&T Engineer”, ED&T Seminar, February 2012
- “Crash Data Recording Training”, ED&T Seminar, February 2012
- “Fire Investigative Approaches”, International Association of Arson Investigators, October 2011
- “Rotating Equipment and Predictive Maintenance”, ED&T Seminar, September 2011
- “Fractography”, ASM International, August 2011
- “Vehicle Control Systems Modern Technologies of Electronic Control”, ED&T Seminar, June 2011
- “N.F.P.A 921 (2011 Ed.) & N.F.P.A. 1033”, International Association of Arson Investigators, June 2011
- “Aircraft Maintenance Technician Day”, SC Aviation Association, May 2011

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“Engineering Ethics Seminar”, ED&T Seminar, February 2011

“Dry Boilers”, ED&T Seminar, February 2011

“Turbomachinery Fires”, ED&T Seminar, February 2011

“Lightning & Surge Protection”, ED&T Seminar October 2010

“Investigating Solid Fuel-Burning Appliance Fires”, Fire Findings Laboratories, October 2010

“Investigation of Recreational Vehicle Fires”, International Association of Arson Investigators, September 2010

“Investigating Unusual Fire Causes”, International Association of Arson Investigators, June 2010

“P&IDs-Piping and Instrumentation Diagrams”, ED&T Seminar, February 2010

“Hydraulic Hose Failure Analysis”, ED&T Seminar, February 2010

“HVAC Design and Components”, ED&T Seminar, February 2010

“Principles of Failure Analysis”, ASM International, January 2010

“Oil Furnaces and Boilers”, ED&T Seminar, December 2009

“Agri-Specialized Heavy Equipment Fires”, International Association of Arson Investigators, June 2009

“Use of Metallurgical Analysis to Pinpoint a Brake Problem and the Cause of a Bus Fire”, ED&T Seminar, February 2009

“Basic Fatigue Design Analysis”, ED&T Seminar, February 2009

“New Fire/Arson Investigator Academy”, Public Agency Training Council, January 2009

“Warnings vs. Instructions”, ED&T Seminar, May 2008

“Fire Suppression Systems”, ED&T Seminar, May 2008

National Seminar on Fire Analysis Litigation, National Association of Fire Investigators, August 2008

Advanced National Fire, Arson, & Explosion Investigation Training Program, National Association of Fire Investigators, August 2008

“Confined Space Compliance Training”, National Safety Council, December 2007

“Coaching Skills for Managers and Supervisors”, Fred Pryor Seminars, April 2007

FAA Certified Shot Peening Training, Level 3, Electronics, Inc., November 2001

“Supervisor Training”, Asheville Buncombe Technical Community College, December 2000

FAA Certified Shot Peening Training, Level 2, Electronics, Inc., October 2000

FAA Certified Shot Peening Training, Level 1, Electronics, Inc., November 1999

“Technical Writing for ISO-9000”, Western Carolina Industries, August 1996

ISO-9000 Leadership Training, Western Carolina Industries, August 1996

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AGMA Training School for Gear Manufacturing, Daley College, June 1995

“Problem Solving Skills”, Blue Ridge Community College, May 1995

“Cold Forming Technology”, Society of Manufacturing Engineers, September 1994

“Metal Machining and Cutting Tools”, Lehigh University, July 1993

“Computer Programmer”, US Air Force, Offutt AFB, March - November 1991