Joseph F. Arruda III

Senior Consultant

Mr. Joseph Arruda is a Senior Consultant for ESi, with over 28 years of experience in consulting, failure analysis, laboratory procedures, and testing. He has performed failure analysis investigations on mechanical, electrical, hydraulic, and pneumatic systems and components for recreational, commercial, and industrial vehicles, as well as light civil aircraft.

Mr. Arruda specializes in the maintenance of automotive and light civil aircraft systems, components, tires, and standard-of-care for automotive and aviation maintenance personnel and facilities. He has over 50 years of automotive experience, is a Master Automotive Technician, and is certified by the National Institute for Automotive Service Excellence (ASE). He also has more than 32 years of experience as a certified Federal Aviation Administration (FAA) Airframe and Powerplant (A&P) Technician and holds a current FAA Inspection Authorization (IA)

Education

Automotive

Southern California Regional Occupational Center (Automotive Maintenance, Power Mechanics)

Bosch Automotive Technical Training Classes (Fuel injection, Ignition & Charging and Electrical Systems)

Bendix Commercial Truck Products Training

Automotive Career Development Center – UYV-43 (Hybrid and Electric Vehicle Training)

Human Factors in Traffic Crash Reconstruction (IPTM) 2017

Applied Vehicle Dynamics Course Precision Auto Research 2018

Bosch CDR Tool Technician Training (IPTM) 2018

Automotive Career Development Center – UYV-65 (update H&EV Training) 2022

Ruth Consulting – Event Data Recorder Update and Analysis 2023

Contact Information

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ESi Santa Ana

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Areas of Specialization

- Vehicle Maintenance, Industry Practice, and Standard-of-Care
- Vehicle System and Component Performance, Failure Analysis, and Testing
- Post-Accident Vehicle Inspection and Documentation
- Post-Repair Evaluation for Return to Pre-Accident Condition
- Commercial Truck Brake Inspection
- Vehicle CDR / EDR Imaging
- Aircraft Repair, Maintenance, and Alteration
- Aviation Maintenance Standard-of-Care and Industry Practice
- Aircraft System and Component Performance, Failure Analysis, and Testing
- Post-Accident Aircraft Inspection and Documentation

Aviation

El Toro Marine Aero Club A&P Mechanic Apprenticeship

Teledyne Continental Motors Aviation Technician Advanced Training Program

Embry Riddle Aeronautical University (Professional Aeronautics)

Lycoming Engine Service School and Disassembly/Reassembly Courses 2013

Greater Southwest Aviation Maintenance Technician Inspection Authorization (IA) Refresher Training 2020

Aircraft Propeller Accident Investigation Course – Hartzell Propeller 2024

Greater Southwest Aviation Maintenance Technician Inspection Authorization (IA) Refresher Training 2026

Licenses & Certifications

- ASE Master Automobile Technician A1 – A8, 1979 - Present
- ASE L1 Advanced Engine Performance Specialist, 2016
- ASE L3 Advanced Light Duty Hybrid/Electric Vehicle Specialist, 2016
- Airframe & Powerplant Mechanic, License #: 3477791
- Federal Aviation Administration (FAA) Inspection Authorization
- Private Pilot (Single & Multi-engine Land), License #: 3477791
- Sports Car Club of America SCCA Competition License
- Certified Industrial Forklift Truck Operator
- Volvo of America - Master Technician Certification
- Saab Scania - Master Technician Certification

Positions Held

Engineering Systems Inc., Santa Ana, California

- Senior Consultant, Automotive & Aviation Maintenance, 2011 – Present

Exponent, Failure Analysis Associates, Irvine, California

- Senior Associate, March 1997 – April 2011
- Consultant – Specialized in automotive and aviation failure analysis related to tire installation, vehicle repair, and system and component maintenance. Analysis of forklift truck operation, preventative maintenance and repair.

Exponent, Failure Analysis Associates, Irvine, California (continued)

- Test Specialist – Artifact testing, failure analysis, evidence handling, storage, documentation, database maintenance and ASTM standards compliance.
- Laboratory Technician – Artifact testing, laboratory facility and equipment maintenance, equipment calibration, and regulatory compliance.

Lenair Aviation, Inc., Santa Ana, California, John Wayne Airport

- Airframe & Powerplant Mechanic, 1997 – 1998
- Responsible for the maintenance of 15 single and multi-engine flight school aircraft.

Tustin Nissan Saab Alpha Romeo Maserati Buick Pontiac, Tustin, California

- Master Automotive Service Technician / Advanced Diagnostician, 1996 – 1997
- Performed new and used vehicle repair, with a focus on vehicles with complex system malfunctions and intermittent failures.

Mission Viejo Acura Saab, Mission Viejo, California

- Master Automotive Service Technician / Lead Saab Technician, 1995 – 1996
- Led the setup and operation of a Saab vehicle service department and provided oversight and direction for other Saab technicians.

Gotta Love Airplanes, Inc., Santa Ana, California, John Wayne Airport

- Corporate Officer / Co-Owner / Operator, 1994 – 1999
- Owned and operated a general aviation maintenance company specializing in maintenance, repair, and alteration of light civil reciprocating engine aircraft.

Tustin Nissan Saab Alpha Romeo Maserati Buick Pontiac, Tustin, California

- Master Automobile Service Technician, 1994 – 1995
- Responsible for new and used vehicle maintenance, repair, and reconditioning.

Brady's Foreign Car Repair, Laguna Niguel, California

- Master Technician / Lead Technician, 1994
- Performed general automotive maintenance and repair.

Viking Independent Auto Service, Laguna Hills, California

- Master Automotive Service Technician, 1992 – 1994
- Performed maintenance and repair of Saab and Volvo automobiles

MCAS El Toro Marine Aero Club, El Toro, California

- Apprentice Aviation Mechanic / Airframe and Powerplant Technician, 1991 – 1993
- Performed repair, maintenance and alteration tasks on aviation systems and components.

Swedish / Asian Auto service, Santa Ana, California

- Master Automobile Technician / Lead Saab Technician, 1989 – 1992
- Led the set up and operation of the newly developed Saab automobile service and maintenance department.

J&B Imports, Inc., Orange, California

- President / Co-owner / Operator, 1982 – 1989
- Owned and operated an independent import and domestic auto repair and restoration shop. Expanded business to five full-time employees and two working partners.

Volvo of Riverside, Riverside, California

- Master Technician, Shop Foreman, 1981 – 1982
- Performed maintenance and repair of Volvo automobiles. Responsible for shop work quality and day-to-day operations of a new car dealer service department.

Orange County Volvo, Inc., Anaheim, California

- Master Automotive Service Technician, 1976 – 1981
- Responsible for the maintenance and repair of all vehicle systems, specialized in gasoline/diesel engines, automatic/manual transmission, drive axle maintenance, repair and overhaul. Managed preparation and competition driving of the Orange County Saab sponsored Saab race car.

Kramer Motors Volvo, Inc., Santa Monica, California

- General Automotive Technician / Line Technician, 1975 – 1976
- Responsible for general powertrain maintenance and repair; specialized in automatic transmission repair and overhaul.

Professional Affiliations/Honors

Society of Automotive Engineers (SAE)

- Member

Professional Aviation Maintenance Association (PAMA)

- Member

Volvo International Service Technical Association

- VISTA III Competition Finalist

Sports Car Club of America

- Regional Class Champion 1979, 1980

Project Experience

Automotive

Vehicle Disabled on the Highway

- Inspected Plaintiff's vehicle post-accident for the cause and nature of an on-road disablement.
- The stationary vehicle was rear ended at high speed by overtaking traffic as it sat reportedly unable to proceed out of the traffic lanes.
- Investigation and analysis revealed the disablement was due to an unrelated flat tire.

Unintended Acceleration and Brake Failure

- A vehicular manslaughter defendant involved in a multi vehicle fatal accident claimed loss of control of the vehicle following an unintended acceleration event and total brake failure.
- Inspection and analysis of the subject vehicle revealed the throttle assembly jammed fully open and both front and rear brake hydraulic circuits compromised by severed brake lines.

Wheel Off Axle Failure Following Wheel Bearing Replacement

- Performed destructive disassembly of a vehicle rear axle assembly that had been previously overhauled approximately 2,500 miles earlier.
- Investigation and analysis revealed an aftermarket wheel bearing installed during the overhaul was an inferior design.
- The aftermarket wheel bearing was incapable of carrying the vehicle weight than the bearing it replaced was designed to carry.

Flat Rate Time Study for Vehicle Manufacturer

- Performed independent time studies in a dispute over the required time to perform recall repairs to motor vehicles.
- The time studies were conducted with video surveillance and timing equipment to determine an average time for conducting a repair from a series of repair attempts. The resulting timing and documentation were presented to support the time study conclusions

Determined The Standard of Care as it pertains to Tire Inspection

- Determined the standard of care for the process of tire inspection as it pertains to the inspection of tires to remain on a vehicle following a two-tire replacement.
- The methodology used to determine the standard of care in a given locality, and circumstance, was determined by essay style survey and undercover customer testing. The results of the data collected were analyzed for statistical certainty, peer reviewed, and reported.

Truck

Truck Rollover

- Performed vehicle inspections and investigation in a matter involving an overloaded landscape maintenance truck accident.
- Mechanical inspections of the truck and trailer's brakes revealed the truck had unserviceable foundation brake assemblies and the trailer brakes were not connected at the time of the accident.

Fatal Automobile / Bus Accident

- Performed inspections and destructive examination of a disabled bus that resulted in a fatal accident.
- Inspection and analysis of the bus operator's maintenance records revealed that the bus was being operated with known discrepancies that caused the on-road disablement.

Military Truck Tire Failure

- A large, military truck tire failure caused the truck to cross the center line and collided with an oncoming automobile.
- Performed investigation and analysis that revealed a history of reported uneven tire wear, driver complaints, shaking steering, and vibrations from the affected tire wheel assembly.

Aviation

Business Jet Maintenance Standard of Care

- Performed analysis of an A&P's repair of a business jet tire failure that occurred on landing.
- Determined that the A&P's actions caused damage to the aircraft of such severity that the aircraft was economically unrepairable.

Total Loss of an Experimental Amateur Built (EAB) Aircraft

- Investigated and analyzed a litigation matter involving an experimental amateur built aircraft. The investigation centered on the builder's flight test program.
- Found that repeated high speed taxi tests caused a brake fire and the total loss of the aircraft.

Dispute over Light Twin Engine Aircraft Pre-Purchase Inspection

- Performed document analysis in a legal matter pertaining to an aircraft pre-purchase inspection. Compared pre-purchase conditions to a subsequent annual inspection.
- Evaluated condition using the Code of Federal Regulations (CFR) Chapter 14 Parts 43 and 91. Investigation revealed discrepancies affecting airworthiness of aircraft.

Publications

"Determination of the Standard of Care in the Tire Service Industry," **J. Arruda**, J. Daws, J. Auflick, International Tire Exhibition & Conference, (ITEC), September 2016.