



JACOB A. WAGNER, P.E.
SENIOR MANAGING CONSULTANT

jawagner@engsys.com

Mr. Wagner is a mechanical engineer with Engineering Systems Inc. (ESI). He has experience in failure investigation and analysis of railroad equipment, industrial equipment, structural products, vehicles, and utility infrastructure.

He specializes in both routine and custom testing for material or product evaluation, as part of root cause analysis or quality control. In addition, he has extensive experience in solid modeling, 3D-Laser scanning, reverse engineering, and fabrication.

Additionally, he has worked extensively with the rail industry to provide engineering expertise from work equipment design to AAR and AREMA testing. Mr. Wagner has a wide range of experience with both mechanical and engineering components, such as freight car trucks, air brakes, couplers as well as ties, track, and signal equipment. He has worked with equipment manufacturers to design new products and identify metallurgical and mechanical defects in existing products. Mr. Wagner has worked to develop new engineering standards to be implemented in industry to increase reliability and performance of products.

Other interests include electronic systems and control, machine design, and manufacturing technologies.

Areas of Specialization

- Solid Modeling and 3D Laser Scanning
- Reverse Engineering and Fabrication
- Engineering Failure Analysis
- Data Acquisition and Instrumented Testing
- Accident Investigation
- Derailment Cause Finding
- Mechanical Testing
- Laboratory and Industrial Testing
- Non Destructive Testing and Inspection
- Mechanical and Materials Design
- Railroad Engineering, Design and Testing

Education

- B.S., Mechanical Engineering, University of Nebraska-Lincoln, 2012
- Passed F.E., May 2012
- M.S., Mechanical Engineering, Georgia Institute of Technology, 2014

Licensed Professional Engineer (P.E.)

State of Nebraska, License No E-15896

Professional Affiliations/Honors

ASM International

Member

American Society of Mechanical Engineers (ASME)

Member

American Railway Engineering and Maintenance of Way Association (AREMA)

Member of Committee 30 – Ties and Fasteners

Positions Held

Engineering Systems Inc., Omaha, Nebraska

Senior Managing Consultant 2021 - Current

Senior Consultant 2018 - 2021

Senior Staff Consultant, 2017-2018

Staff Consultant, 2012 - 2017

Technician, 2010 - 2012

RSI Materials Engineering/Rail Sciences, Inc., Omaha, Nebraska

Technician, 2008 - 2010

Publications/Presentations

“A Review of Recent Heavy Haul Wheel and Bearing Failures on North American Freight Railroads”, C. Lonsdale, J. Hasebrock, J. Wagner, S. Karunakaran, T. Wynne. International Wheelset Congress (IWC), June 2023, Chicago, IL.

“Failure Analysis of Open End Wrenches Containing Forging Defects”, ASM Journal of Failure Analysis and Prevention, (2010) 10:520-524