

AGENDA

E.I. Shot Peening Training

2025 **Shot Peening & Surface Treatment Workshop**
Noblesville, Indiana



**Shot Peening
Training**
Est. 1991

Class Schedule / Descriptions / Menu
Workshop Map - Exhibitor List

Registration and Setup	
Time	Monday, October 27, 2025
3pm - 5pm	<p>Early Student / Instructor Sign-in and Material Distribution Exhibitor Sign-in and Booth Setup</p> <p>Event Desk - Ballroom Foyer</p>

Event Map

Not Available

The Shot Peener



EI Shot Peening Training



PRELIMINARY

WORKSHOP DAY 1
















Tuesday, October 28, 2025

6:00 - 8:00

Breakfast Buffet via Hotel (must be a hotel guest)

8:00 - 8:25

Opening Remarks / SPOTY Award / Group Photo
Please gather **beforehand** in the *Exhibition Hall* wearing your workshop tee shirt

Time/Rooms	Waters C	Waters D	Waters E	Ditslear C
8:30 - 9:10	Shot Peening Introduction EI SPT Instructor   			
9:10 - 9:40	Peening Media EI SPT Instructor  			
9:40 - 10:40	Peening Intensity EI SPT Instructor   			
30 minutes	Morning Trade Show Break			
11:10 - 11:40	Saturation Curve Generation EI SPT Instructor   			
11:40 - 12:30	Peening Coverage & Masking EI SPT Instructor   			
12:30 - 1:30	Lunch Buffet			
1:30 - 2:20	Peening Applications <i>Presented Twice</i> Breuer	Wheel Machine Design and Setup Wright	AMS-2431 Media Specifications Balan	
2:25 - 3:15	Air Peening Machine Design and Setup <i>Presented Twice</i> Coralic	Dry Airblast & Wetblast Techniques Wright	Cast Steel Shot Balan	
30 minutes	Afternoon Trade Show Break			
3:45 - 4:35	Peening Techniques for Challenging Applications Whalen	Rotary Flap Peening (Lecture)  Kernan	Cut Wire Media Maddy	
4:40 - 5:30	Abrasive Grit Blasting as a Surface Treatment Process Hilbrands	Linking Peening Media and Process Impacts Gruninger	Blast Cleaning and Abrasive Media Selection Balan	
5:45 - 7:45	EA Evening Reception			

Classes marked **L1** & **L2** are recommended as preparation for Level 1 and 2 exams respectively. Classes marked **FL** are recommended for flapper peening exam however "Flapper Peening Practice / Practical" is required for any persons sitting for the flapper peening exam. All break out classes should be considered preparation for Level 3 exam as its questions concentrate on real world applications and on the job experience.

WORKSHOP DAY 2

Wednesday, October 29, 2025

6:00 - 8:00	Breakfast Buffet via Hotel (must be a hotel guest)			
Time/Rooms	Waters C	Waters D	Waters E	Ditslear C
8:00 - 9:00	Peening Media Inspection & Maintenance EI SPT Instructor L2			
9:00 - 10:00	Advanced Intensity & Parameter Adjustments EI SPT Instructor L2			
30 minutes	Morning Trade Show Break			
10:30 - 11:00	Saturation Curve Analysis EI SPT Instructor L2			
11:00 - 12:00	Advanced Coverage & Surface Texture EI SPT Instructor L2			
12:00 - 1:00	BBQ Lunch Buffet			
1:00 - 1:50	Shot Peen Process Development Beach	Peening Applications <i>Presented Twice</i> Breuer	History of Shot Peening Kernan	Media Quality Inspection <i>Presented Twice</i> Chevrie / Painter Hands-On
1:55 - 2:45	Part Coverage Development Kernan	Laser Peening Breuer	Operating your Automated Peening Machine Safely and Efficiently Balan	Media Quality Inspection <i>Presented Twice</i> Chevrie / Painter Hands-On
30 minutes	Afternoon Trade Show Break (<i>Open exhibition 3:30-5pm</i>)			
3:15 - 4:05	Enhancing Aircraft Component Reliability Van Wonderen	High Density Ceramic Beads for Shot Peening Girman	Advanced / Other Topics <i>Presented Twice</i> Balan / Barkley	Rotary Flap Peening Written & Practical Testing** FL Kernan Certification Candidates Only
4:10 - 5:00	Study of Fatigue / Best Peening Parameters Bandini	Intelligent Nozzle Motion Hart	Case Studies, Applying Peening Theory: Automotive and other industries Balan	Daily Tutoring (Español Disponible)

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WORKSHOP DAY 3

Thursday, October 30, 2025

6:00 - 8:00	Breakfast Buffet via Hotel (must be a hotel guest)			
Time/Rooms	Waters C	Waters D	Waters E	Ditslear C
8:00 - 8:50	Fine Particle and Unconventional Peening Bandini	Air Peening Machine Design and Setup <i>Presented Twice</i> Coralic	Advanced / Other Topics <i>Presented Twice</i> Balan / Kernan	Daily Tutoring (Español Disponible)
8:55 - 9:45	Operating Costs, Cleaning & Peening Balan	Peen Forming & Super Finishing Siler	Residual Stress Measurement Brauss/Harrison	Rotary Flap Peening Written & Practical Testing** Kernan FL <i>Certification Candidates Only</i>
30 minutes	Morning Trade Show Break			
10:15 - 11:05	Audit Survival Part 1 Kernan/Beach	Equipment Design for Peen Forming Wright	Ultrasonic Peening Processes Cossio	
11:10 - 12:00	Audit Survival Part 2 Kernan/Beach	Solid Film Lubricants Breuer	MagnaValve Systems for Air and Wheel Blast Machines Ingram	
12:00 - 1:00	Fiesta Lunch Buffet, plus Gift Card \$\$\$ Giveaway			
1:00 - 1:15	Level 1 Exam Prep	Level 3 & Early Exams (NO Reviews)	Individual Class Evaluations Link Overall Evaluation for Workshop Link ** Written and practical testing is required for Rotary Flap Peening Certification.	
1:15 - 2:00	Level 1 Exam			
2:00 - 2:15	Level 1 Exam Review			
2:15 - 2:30	Level 2 Exam Prep			
2:30 - 3:30	Level 2 Exam			
3:30 - 4:30	Optional Level 2 Personal Exam Review			

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FAA LEVEL 1 PEENING COURSE

Class Name Instructor	Class Description
Shot Peening Introduction EI SPT Instructor L1 FL	This entry level class discusses the history and fundamentals of the peening process that we know today as terms used in the industry are introduced and explained. This session also defines when the peening process should be performed. This class is recommended for preparation for the Level 1 and Rotary Flap certification exams.
Peening Media EI SPT Instructor L1	The media is the real tool of the peening process. This session gives an overview of the four types of media commonly used in peening and their attributes. This class also briefly discusses what to look for when selecting the right media for your application. This class is recommended for preparation for the Level 1 certification exam..
Peening Intensity EI SPT Instructor L1 FL	This class will introduce the concept of peening intensity and how it is measured using Almen strips, holders and gages. The saturation curve and the 10% rule are explained and guidelines for new set-ups and verification trials for peening intensity are discussed. This class is recommended for preparation for the Level 1 and Rotary Flap certification exams.
Saturation Curve Generation EI SPT Instructor L1 FL	This session explores simplified saturation curves as workshop attendees are asked to plot arc height data in order to determine intensity. This class is recommended for preparation for the Level 1 and Rotary Flap certification exams.
Peening Coverage & Masking EI SPT Instructor L1 FL	This session outlines Coverage requirements for the peening process. We discuss why Coverage is important, how to inspect for proper Coverage, and how to prevent peening with various masking options This class is recommended for preparation for the Level 1 and Rotary Flap certification exams.

FAA LEVEL 2 PEENING COURSE

Class Name Instructor	Class Description
Peening Media Inspection & Maintenance EI SPT Instructor L2	Using the correct media and maintaining its quality is a must for a consistent process. This session discusses different media specifications and their requirements. Examples of both shape and size inspection are reviewed and on-machine devices that help meet specifications and maintain media quality are also examined. This class is recommended for preparation for the Level 2 certification exam.
Advanced Intensity & Parameter Adjustments EI SPT Instructor L2	This session looks at how other peening parameters can effect the intensity results in your process. Changes in the media and machine condition can cause undesired results. This class is recommended for preparation for the Level 2 certification exam.
Saturation Curve Analysis EI SPT Instructor L2	This hands on practical asks students to produce slightly more challenging saturation curves. It shows that saturation curves can tell us more about the process than just the peening intensity, and warns about having blind-faith in curve solvers. This class is recommended for preparation for the Level 2 certification exam.
Advanced Coverage & Surface Texture EI SPT Instructor L2	For the process engineer, this session discusses how to determine part processing time to insure proper coverage and how avoid peening parts for too long. We examine coverage problems and offer solutions for hard to peen locations. Surface texture options are also discussed This class is recommended for preparation for the Level 2 certification exam.

Classes marked **L1** & **L2** are recommended as preparation for Level 1 and 2 exams respectively. Classes marked **FL** are recommended for flapper peening exam however "Flapper Peening Practice / Practical" is required for any persons sitting for the flapper peening exam. All break out classes should be considered preparation for Level 3 exam as its questions concentrate on real world applications and on the job experience.

Questions on the Level 3 exam are based primarily on real-world experiences. A student wanting to sit for the Level 3 exam should have complete understanding of all material presented in the Level 1 and Level 2 classes. Level 3 exam questions may also come from any class regularly scheduled at the US workshop that concentrate on the shot peening industry. This includes process applications, peening parameters, various equipment, media characteristics, inspection procedures and problem resolution.

Specialty and Advanced Topics

Class Name Instructor	Class Description
Abrasive Grit Blasting as a Surface Treatment Process Hilbrands	Much more than just sandblasting, abrasive blasting uses a wide variety of materials to achieve process goals. We will discuss blasting media, equipment features unique to abrasive blasting, protective masking methods, and operator techniques that affect surface finish.
Advanced / Other Topics <i>Scheduled Twice</i> Balan / Kernan	For process engineers and managers, this session contains more topics that time allows so selection is determined by the class collective. Topics can include: Example of finding a target intensity, Caution with single point intensity verification, Efficiently verifying intensities of multiple Almen test strip locations with a single time, Explaining residual stress profile generation and why we do it, optional secondary processes that further improve fatigue life, Estimating coverage time, Extreme lean-peening example, Two vs. three exponent selection for saturation curve generation, and Vibratory Peening.
Air Peening Machine Design and Setup <i>Scheduled Twice</i> Coralic	Learn an overview of the shot delivery, media reclaim and control devices common on air blast and peening machines. Learn about different nozzle types and how they can be used. Some basic troubleshooting techniques are also discussed.
AMS-2431 Media Specifications Balan	This course goes through the AMS 2431 spec "slash-by-slash". Each media type will be discussed along with its properties and procedures of size & shape control, inspection and specifications. This presentation also includes a brief history of how MIL-13165 was replaced with AMS 2431.
Audit Survival Part 1 & 2 Kernan/Beach	This two-part presentation will help you prepare your team for an audit such as those conducted by PRI/Nadcap. Part 1 is an introduction to audits, checklists, timing and scope. Part 2 discusses job audits, common findings and audit preparation.
Blast Cleaning and Abrasive Media Selection Balan	SAE and Abrasive Media Selection will discuss the "J" Specifications of Steel Abrasive and the wide spectrum of blasting medias for blast cleaning.
Case Studies, Applying Peening Theory: Automotive and other industries Balan	Bring all your theoretical knowledge and practical experiences to this highly interactive interchange based on at least two real-life case studies. The two cases will be presented to the audience, followed by a discussion of available data and development of a solution. The suitable machine type will then evolve from the discussions. These case studies will also help you understand how a process specification is developed and the manner in which it differs from a general peening specification.
Cast Steel Shot Balan	Produced from select steel scrap, controlled Atomization process and a quench & temper thermal treatment, Cast Steel Shot is the most widely used media in the Shot Peening Industry for it's durability, true-sphere shape and economic cost. Come learn more about how it's made and controlled.
Cut Wire Media Maddy	This presentation discusses in detail what cut-wire media is and how it may be incorporated into your peening process.
Daily Tutoring (Español Disponible)	Having trouble understanding saturation curves, coverage times, or other FAA course material? This time slot will be staffed with one or two E.I. SPT Instructors for questions and personalized help. <i>This is not a presentation . Spanish Speaking Instructors available</i>

Specialty and Advanced Topics

Class Name Instructor	Class Description
Dry Airblast & Wetblast Techniques Wright	Learn more about the specific architecture of these equipment for ensuring an accurate surface preparation or peening process with sample of applications in Aerospace.
Enhancing Aircraft Component Reliability Van Wonderen	Implementing Total Quality Management (TQM) in Shot Peening Processes for MRO. This presentation delves into the critical role of Total Quality Management (TQM) and Six Sigma methodologies in optimizing the shot peening process within the aircraft Maintenance, Repair, and Overhaul (MRO) industry. Shot peening, a specialized repair process, is pivotal for enhancing the life span and fatigue strength of aircraft components, ensuring their airworthiness and operational safety.
Equipment Design for Peen Forming Wright	Peen Forming Equipment design and Pre-Stressing techniques.
Fine Particle and Unconventional Peening Bandini	Starting from the basic concepts on shot peening, the presentation shows what happens if peening is applied using fine shots or unconventional parameters in a different way to interact with crystalline structure of metals and how those modifications can be used to improve fatigue performance. This presentation gives a glance on the state of the art of new peening applications.
High Density Ceramic Beads for Shot Peening Girman	Learn about shot peening applications for ceramic media, including the new High Density Ceramic (HDC). Topics will cover rudiment aspects of ceramic beads and their chemical properties, and various surface applications, all with emphasis on shot peening.
History of Shot Peening Kernan	Need a break from all these technical discussions? Join us for a presentation on the history of shot peening. Dating back thousands of years to developments up to the modern present day times.
Intelligent Nozzle Motion Hart	This class presents how proper shot delivery can be obtained through intelligent mechanical nozzle movement and motion interaction.
Laser Peening Breuer	Laser peening (LP) utilizes energy from a pulsed laser to drive compressive stress into a metal's surface. Laser peening is applied on an individual spot basis and is 5-10x deeper than shot peening making it more effective than shot peening for certain types of fatigue failure.
Linking Peening Media and Process Impacts Gruninger	<p>The Center for Surface Engineering and Enhancement (CSEE), an industrial funded consortium at Purdue University supporting over 15 faculty and students on a variety of surface engineering projects, is coupling the ability to characterize peening media with the peening process and the resulting impact on surface finish and residual stress profiles on peened parts.</p> <p>We will highlight how variations in coverage change the point-to-point variation in stresses in peened parts, how to incorporate additional statistics about variations into the mechanical performance, and how to predict the stress profiles and link those to standardized Almen strips.</p>

Specialty and Advanced Topics

Class Name Instructor	Class Description
MagnaValve Systems for Air and Wheel Blast Machines Ingram	MagnaValves offer many advantages over mechanical valves in air blast applications, such as low maintenance and compatibility with computer control. Learn how to specify, install and maintain this new type of valve.
Media Quality Inspection <i>Scheduled Twice</i> Chevie / Painter Hands-On	This session is a Hands-On version of the Level 2 Lecture on Media Inspection and Maintenance. The lecture will be quickly reviewed and followed by demonstrations of a "RoTap" machine for media size inspection. Make sure to bring your magnifier for media shape inspection. A microscope will be available for greater magnification. Representatives from classifier manufacturers will be on hand for questions/demonstrations.
Operating Costs, Cleaning & Peening Balan	Whether your process involves cleaning or peening components, you will be faced with a steady challenge to minimizing operating costs. We will discuss different cost elements involved in running your air or wheelblast process and the influence each has in controlling the overall cost. This is not an accounting exercise. Our discussions will revolve around the technical aspects of each cost element with practical hints to keep them in control.
Operating your Automated Peening Machine Safely and Efficiently Balan	This class will discuss the safety considerations associated with the major components of a modern automated/robotic shot peening machine. Best practices for part trajectory generation will be presented along with several validation criteria. Part visual inspection, manipulation and masking will also be looked at to optimize your peening performance.
Part Coverage Development Kernan	Coverage considerations to avoid over-peening. Shot peening at intensity and not at intensity. Part set up with nozzle types, traversing, robotic, single and multiple. Application with part geometry and turntable. Discuss coverage maps.
Peen Forming & Super Finishing Siler	<p>Shot peening's compressive stress is used for applications beyond fatigue life enhancement. Peen forming is a technique that forces a predictable distortion on parts that have large surface area relative to cross sectional thickness. The most common application of peen forming is aluminum wing skins for aircraft. It can also be used to correct parts that are out of contour.</p> <p>Super finishing is a technique primarily used for gears and blades. Both applications require compressive stress and excellent surface finishes.</p>
Peening Applications <i>Scheduled Twice</i> Breuer	This session covers shot peening theory at a technical level and explains the benefit of peening a variety of different components in different industries. Attendees are encouraged to 'Stump the Presenter' with their peening related questions.
Peening Techniques for Challenging Applications Whalen	Learn about tools and techniques to solve difficult peening configurations with emphasis on robotic parts handling.
Residual Stress Measurement Brauss/Harrison	X-ray diffraction (XRD) is the standard tool for measuring residual stress in shot peened components. This session will explain how XRD is used to quantitatively measure residual stress, the types of equipment that are available, the basic techniques and the type of information that can be obtained to optimize the shot peening process and ensure that peening has been correctly applied.

Specialty and Advanced Topics

Class Name Instructor	Class Description
<p style="text-align: center;">Rotary Flap Peening (Lecture) Kernan</p> <p style="text-align: right;">FL</p>	<p>Rotary Flap Peening has become a popular industry process. With a relatively small investment in the proper tools it can satisfy many requirements for small area peening without the need for a blast cabinet and without the mess of open-area peening. This session discusses the origins of Rotary Flap peening and outlines how it uses a slightly different set of rules from conventional peening. Various equipment requirements and recommendations are also discussed. A supplemental Practical Preparation class is also offered (see schedule) for those seeking certifications.</p> <p><i>This session is required for all those seeking Rotary Flap Peening certification, but is also open to those wanting to learn more about the process.</i></p>
<p style="text-align: center;">Rotary Flap Peening Written & Practical Testing <i>Scheduled Twice</i> Kernan</p> <p style="text-align: right;">FL</p> <p style="text-align: center;"><i>Certification Candidates Only</i></p>	<p>This session is for those seeking Rotary Flap Peening Certification. Each candidate must complete practical testing as required by SAE's AMS2590. Each candidate will also take a written exam as required by the FAA.</p> <p>Due to time restrictions, the number of candidates for Rotary Flap Peening Certification is limited. Please schedule testing with instructor during lecture</p>
<p style="text-align: center;">Shot Peen Process Development Beach</p>	<p>This class delves into the requirements of a shot peening process from purchase order review to end product certification. Covering not only what is required, but offers some best practice tips along the way.</p>
<p style="text-align: center;">Solid Film Lubricants Breuer</p>	<p>Unlike greases and traditional oils, a solid film lubricant (SFL) provides lubrication in a dry environment. SFL's are able to lubricate in much harsher environments than traditional wet lubricants.</p>
<p style="text-align: center;">Study of Fatigue / Best Peening Parameters Bandini</p>	<p>Peening process is characterized by three major parameters – shot, intensity and coverage. Through knowledge of fatigue damage mechanism, this presentation shows how peening parameters can be optimized for best fatigue performance. Though these parameters are dictated by OEM specifications, non-conformance can happen, and will lead to detrimental results. Let's discuss the effects, and avoidance techniques through some practical case studies and examples.</p>
<p style="text-align: center;">Ultrasonic Peening Processes Cossio</p>	<p>Ultrasonic peening uses a vibrating surface to provide kinetic energy to spherical medias (Ultrasonic Shot Peening) or cylindrical pins (Ultrasonic Needle Peening and Ultrasonic Needle Forming). This class will cover theoretical aspects, key parameters and examples related to this unique peening technique.</p>
<p style="text-align: center;">Wheel Machine Design and Setup Wright</p>	<p>Wheel type machines can propel large volumes of shot for applications in both the blast cleaning and shot peening industries. This session goes over the features, design, function, and setup of a wheel blast machine.</p>