



The Parting Shot Jack Champaigne

Pushing the Boundaries

I attended the October SAE Fatigue Design and Evaluation Committee meeting at the University of Illinois. One of the most interesting topics covered in the meeting was the "weld challenge". The SAE Fatigue Design and Evaluation Committee asked for estimates of fatigue life of a weld test specimen. Actual pieces, fabricated by committee members, were fatigue tested. Two of the specimens were shot peened by Progressive Technologies in Grand Rapids, Michigan. Results: The unpeened specimen failed after 250,000 cycles. Testing was halted on the two peened specimens because they broke at the mounting flanges, not the expected weld point. There are plans to repair the flanges and continue the tests. One specimen had reached 2.5M cycles and the other, which had been duplexed peened, reached 3.5M cycles. Is shot peening helpful for welds? A three piece sample isn't much for statistics but more testing is planned. This project is in its early stages and 30 more specimens will be tested. For more information go to www.fatigue.org/Weld/weld.html.

We are pleased to have Gear Technology magazine represented in The Shot Peener. We're looking forward to sharing information with our readers on the gear industry and manufacturers like Indiana Tool/Indiana Gear (article on page 4). Gear designers are being pushed to get more strength and longer life out of gears and we're confident shot peening is the answer. It certainly was the answer for Structural Integrity Associates and the wind field they saved through shot peening (article on page 6). Watch for more useful information on shot peening and gears in upcoming issues of The Shot Peener and subscribe to Gear Technology at www.geartechnology.com— it's the gear industry's information resource.

The history of modern peening dates to the 1930's when automotive valve springs were failing. John Almen at the Buick Motor Division of General Motors discovered that "Shot Blasting" the springs, done as a cleaning treatment, substantially improved the fatigue life. Wanting to capitalize on this improved performance, Almen developed the intensity methods we use today. Peening then played a critical role in the war effort since exotic alloys could not be used in fatigue prone applications. Peening continued to be the resource of choice when components failed, both in automotive and aerospace sectors. (Often called "Rescue Peening") You can see numerous examples of progress by visiting our web page and reviewing the "Patents" section of the library.

Non-destructive inspection, introduced at the 14th annual North American Shot Peening Workshop, is on the horizon and this will bring a high level of confidence in process control. Other new technology, like peening with micro-bead to reduce sliding friction, will continue to expand shot peening's applications. Future issues of The Shot Peener will have more information on both of these processes.

We had numerous requests for the location of the 2005 European Shot Peening Workshop—Barcelona, Spain. Attendees will have the opportunity to learn from many innovators in the industry such as Professor Xavier Gil. Professor Gil is with the Department of Metallurgy at the Technical University of Catalonia. He will be presenting his work on titanium dental implants. Medical implants are an exciting market for shot peening and blast cleaning and we are very pleased to share this information with you. The workshop will be held at the University and hotel accommodations will be available at a discounted rate from the beautiful Hotel Victoria Suites. Thank you to Agustín García and Beatrix Gea with Materias Primas Abrasivas, S.L. (MPA) for their help in organizing the workshop. MPA, Electronics Inc. (EI) and the university are sponsors of the workshop. More information and registration forms are available at www.shotpeener.com.

These are just a few of the topics that prove that our industry has the capacity to evolve and grow. EI is a manufacturer, educator and publisher, and we are continually pushing the boundaries and seeking new frontiers. We look forward to sharing it all with you. Don't forget to renew your subscription to The Shot Peener—it's the window to the opportunities in the industry.

A man who really knew how to push the boundaries—Christopher Columbus. This statue is in Barcelona, the location of our 2005 European Workshop. Columbus points to the "New World".

