The Parting Shot

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Performance Engineering

In auto racing, a split second can be the difference between the winner's circle or being towed back to the garage wondering what improvements can be made to make the difference in the next race. This year's Indianapolis 500 Auto Race had the second closest margin of victory in the race's prestigious history. Sam Hornish Jr. won the race in 3.10.58.7590 hours, just 0.0635 seconds in front of second place finisher, Marco Andretti. With a track temperature of 100 degrees F (38 degrees C) and average speed of 157.085 MPH (252.8 km) the race cars were pushed to endurance limits. The competition keeps teams feverishly looking for the technology to improve their edge on the track under extreme conditions. Auto racing teams and car owners are often pioneers to innovations in making autos "faster, stronger, and lighter". Often, the result is these improvements find their way into the automobiles we drive everyday in the streets around the world.

The Society of Manufacturing Engineers recognized a need to bring "technology that wins races" to the growing industry of motor sports (See Industry News, p.10). Shot peening delivers state-of-the-art technology to the auto sport industry worldwide, and is an integral part to the motor sports industry. From connecting rods and piston skirts, to springs and gears, racing teams are turning to experts in shot peening from original equipment manufacturers (see Herb Tobben's article, p.12), media suppliers, and service providers, such as job shops and consultants. The end goal — improve the performance of their cars, whether for strength, safety, or even gas mileage. If a critical part breaks or the car's performance is sub-par, the driver is at a disadvantage or worse—the car may not finish the race. Five cars at Indianapolis didn't finish due to mechanical failures.

Auto racing is only one industry that has recognized the importance of performance engineering. For decades, the aerospace industry has recognized the value of controlling and improving technologies, including shot peening. With the average age of humans rising worldwide, and the baby boomers coming of age, the demand for and life of medical implants (orthopedic and dental) has also increased dramatically. As a result, the implant industry has also turned to technologies to improve implant performance, not only in strength but also in tissue adhesion. Dr. Dwayne Arola's article on Hydroxyapatite Waterjet Treatment of Implants (p.6), is an example of the resources and energy put into developing performance technologies.

At the International Shot Peening and Blast Cleaning WorkShop in Montreal in May, David Cook gave a terrific class on Peen Forming of Wing Skins. The class was not only informative but gave a clear endorsement for the need and future of Shot Peening as a technology today and going forward. We were so impressed with David's enthusiasm that we ask him to give the keynote address at the U.S. Shot Peening Workshop in Indianapolis October 31 through November 2. Coincidentally, David and his wife are heavily involved in Formula One car racing and are developing a race course in Texas.

David Cook led a class on peen forming of wing skins at the EI Montreal Shot Peening Workshop. He will be the keynote speaker at the Indianapolis workshop this fall.

Additionally, Drazen Galovic kicked off the Montreal workshop with a wonderful endorsement for the need for training and continuing education in the industry. I would like to again thank him and all the other presenters, exhibitors and students for making the event a success. We will be back next year in Montreal due to the response of all involved. If you missed Montreal, join us in Indianapolis. We will have a large exhibit area and 30 plus speakers with four classrooms going at a time!

All workshop attendees will be our guests at the Grounds Tour of the Indianapolis Motor Speedway. The Grounds Tour is a behind-the-scenes view of the Indianapolis Motor Speedway's awe-inspiring infrastructure and history through a 90-minute guided tour. Notable IMS landmarks that are normally accessible only to officials, drivers and teams during events, such as the timing-and-scoring suite in the Bombardier Pagoda, the Media Center, Victory Podium, Gasoline Alley garage area and the world-famous "Yard of Bricks" are part of the Grounds Tour. Our guests also will tour the Hall of Fame Museum and enjoy a ride around the famed 2.5-mile IMS oval in one of the Museum's comfortable tour buses.