



2010 SAE Congress Returning to our Roots

"The SAE World Congress, an annual gathering of thousands of automotive engineers, is reinventing itself, like the auto industry," wrote David Shepardson with *The Detroit News*.

The atmosphere at the recent SAE Annual Exhibition at COBO Hall in Detroit was electric—the number of automotive industry exhibitors with electric themes was the most we've ever seen.

During the horsepower wars of the 1950s and 60s, auto engineers were more than happy to provide enough energy to push the biggest of the gas guzzlers to amazing speeds. Those days are over. More than a century after the first electric vehicles were replaced with cars with gasoline engines, automotive engineers are facing problems and opportunities associated with today's electric vehicles and other energy-saving technologies.

Does this mean less shot peening since the gasoline engine is fading into history? Not by a long shot (pun intended). If saving weight was important in automotive design before, it is even more important now.

Recall that our industry was started primarily because of the fatigue failures of engine valve springs. Engineering work of John Almen at the Research Division of Buick Motor Division of General Motors led to the adoption of "shot

blasting" to dramatically increase the fatigue strength and life of valve springs.

It didn't take long to add numerous items to the list of shot-peened components including crankshafts, camshafts, gears, drive shafts, torsion springs, leaf springs, and the list goes on and on. Any metallic component subjected to cyclic loading can benefit from shot peening to extend its fatigue life.

Additionally, springs, drive shafts, gears, welds, and many more components can be made lighter and stronger by the application of shot peening. The energy storage currently available (no pun intended here) in electric cars is meager. This means that anything that can be done to reduce weight is of utmost urgency. That's why shot peening will come to the rescue, again. ●

Did you know?

Woods Phaeton invented the first hybrid car in 1916 with both a internal combustion engine and an electric motor.

The decline of the early electric vehicle was brought about by several major developments:

- By the 1920s, America had a better system of roads that now connected cities, bringing with it the need for longer-range vehicles.
- The discovery of Texas crude oil reduced the price of gasoline so that it was affordable to the average consumer.
- The invention of the electric starter by Charles Kettering in 1912 eliminated the need for the hand crank.
- The initiation of mass production of internal combustion engine vehicles by Henry Ford made these vehicles widely available and affordable in the \$500 to \$1,000 price range. By contrast, the price of the less efficiently produced electric vehicles continued to rise. In 1912, an electric roadster sold for \$1,750, while a gasoline car sold for \$650.

Resource: <http://inventors.about.com>



Andrew Brown, Jr., 2010 President SAE International, presented the 2010 Technical Standards Board Outstanding Contribution Award to Jack Champaigne at the SAE Awards Ceremony.