



Shot Peening Comes Along for the Ride



David Thomas has been the Technical Instructor/Engineering Training for Air New Zealand based in Christchurch, New Zealand for over 28 years. David teaches Basic Aircraft Engineering, Roto Peening, Shot Peening, Hardness Testing, Heat Treatment of Metals, Aircraft Structural Repairs, Metallic Materials, and Composite Construction and Materials.

In addition to his enthusiasm for sharing information, David enjoys keeping fit (he's the president of the Air New Zealand Gym Fitness Club). He has biked to work for 35+ years. "Biking to work is fun," says David. What wasn't fun was the intermittent problem of broken spokes. He would have to remove the wheel, tire and tube to gain access to the broken spoke. The spokes always failed at the same place—the radius of the bend close to the hub.

"I teach roto peening and shot peening so I knew that the failure was primarily due to the tension stresses in the bend area, leading to fatigue failure," said

David. He decided to get the spokes peened with glass bead. "I can report that since peening the spokes, no further failures have occurred. I take the same route every day so conditions have remained the same. Glass bead peening of the spokes provided a 100% improvement in reliability. I am on the lookout for further uses for the mechanical pre-stressing to add durability to other components," he added.

After we heard David's story, we researched the internet to see if anyone else has had his experience with broken spokes and his success with shot peening them. We found lots of marketing for "shot-peened rims" but no shot-peened spokes even though broken spokes are a common annoyance. Maybe David can start a new industry?

Not everyone can apply their work skills at home — a brain surgeon, for example — but David was able to "practice what he preaches" and engineered a solution that he appreciates every day. ●



Above: David Thomas enjoys riding his bike to his job as the Technical Instructor/Engineering Training for Air New Zealand. Left: One of Dave's bike spokes that was peened with glass beads.