

Case Study

Laser Cleaning – Pre MPI



Project: Laser Cleaning Pre- Magnetic Particle Inspection (MPI)

Requirement: Prepare surface areas that were previously unreachable with grinders and other conventional cleaning methods in order to inspect through MPI.

Background: The main challenge was to clean old paint and scale away from surface areas that other methods were not able to clean, particularly behind bolts which have never had enough clearance for a grinder or power tools to reach.

The area being inspected had some previous MPI indications so this had to be done to a high standard without damaging the surface area which techniques like Grit Blasting (GB) and Power Wire Brushing (PWB) may do.



Image 1 Pre Laser Clean

Solution: Using the new patented laser technology from G.C. Laser Systems, Sonomatic performed Laser Cleaning on the hard to reach areas that were proving to be impossible for all other methods tried. The Laser Cleaning technique brought the surface to an inspectable standard to perform NDT Inspection. Previously no other technique would have been able to prepare the surface, as shown in the figures to the right. The work was carried out promptly and safely and Sonomatic did not encounter any problems. By absorbing the energy of the laser beam, the molecules of the targeted material are excited very quickly, making it break apart and ablate or vaporise off the surface. As the surface below does not absorb any energy, it remains unaltered.



Image 2 Post Laser Clean

Benefits: By performing Laser Cleaning versus another method of surface preparation, Sonomatic were able to 100% prepare the required area to a good quality of finish to allow the NDT inspection to be carried out without having to use blasting techniques or removing Nuts and Bolts for the use of power tools. The process clears away undesired material from a solid surface by irradiating it with a laser beam which leaves no debris and requires no extra time for clean up operations following the laser cleaning process. The only support needed for Sonomatic to perform Laser Cleaning is a power supply.