



Figure 1 - 1937 Alfa Romeo 8C 2900B Touring Berlinetta.

BACKGROUND

A classic car restoration company, RX Autoworks from Vancouver, British Columbia Canada, contacted Supersonic Spray Technologies for assistance in restoring an oil pan on a 1937 Alfa Romeo 8C 2900B Touring Berlinetta (Figure 1).

THE PROBLEM

Wear/tear and corrosion over the years had a severe impact on the aesthetics and functionality of the aluminum casting oil pan. There were visible cracks on the inside of the oil pan that were causing leaks. The outside of the pan did not look aesthetically pleasing (Figure 2). Replacing components on vintage vehicles is undoubtedly not an option as they are long out of production. Additionally, aluminum casting alloys used to fabricate components like this are heat treated and are sensitive to procedures such as welding or conventional thermal spray techniques. Therefore, selecting a repair technique that did not compromise the integrity of this one of a kind component was paramount.

THE SOLUTION

SST cold spray process enables metal consolidation than can dimensionally restore heat-sensitive components with minimal or no thermal effects. Therefore, SST manual cold spray technology, operating at low pressures and temperatures, was considered a reliable and effective solution for this challenge. The SST job shop team prepped the parts and applied cold spray to repair the damage (Figure 3).

Final machining was completed by RX Autoworks. SST was successful in restoring the original oil pan to full mechanical functionality (stopped the leaks) and aesthetically to its original appearance (Figure 4).

BENEFITS

- RX Autoworks were able to salvage and restore the irreplaceable oil pan almost back to its original state.
- The Alfa Romeo went on to win Best In Class and Best In Show at the prestigious 2018 Pebble Beach Concours d'Elegance.
- RX Autoworks and the owner of the vehicle were both extremely pleased with the final product.



Figure 2 - Leaks caused by visible cracks and unacceptable aesthetics inside and outside the oil pan.



Figure 3 - Cold sprayed oil pan prior to machining.

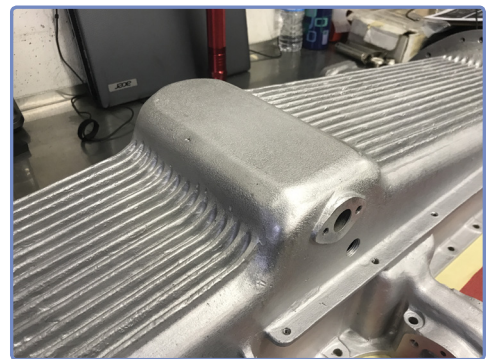


Figure 4 - Restored oil pan.

Practical cold spray coatings.



This repair (Figure 5) was achieved with the following SST equipment and parameters:

Equipment Parameters

Spray System: Series P with manual spray gun and 2.0 mm UltiLife™ nozzle. (Figure 6)

Powder: SST-A0050 (aluminum) (Figure 7)

Substrate: Al alloy

Powder Usage: 6 lbs.

Processing Parameters

Temperature: 400° C

Pressure: 170 psi

Total Time: 8 hrs. (includes preparation and spray time)

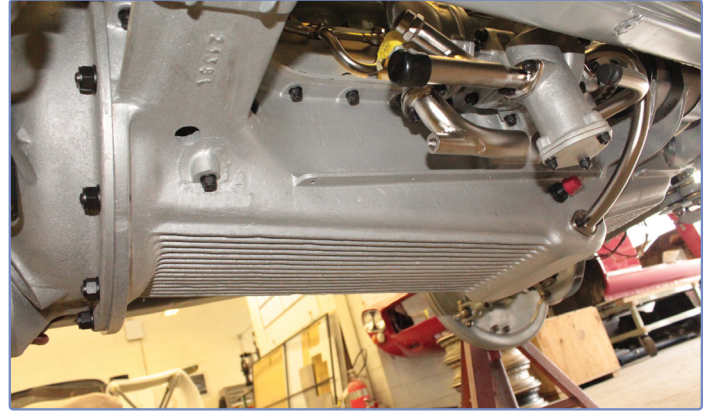


Figure 5 - Finished oil pan installed.



Figure 6 - Series P Spray Machine.



Figure 7 - SST-A0050 Aluminum Powder.

Contact CenterLine's SST™ Division today to discuss your repair needs and how cold spray can protect, repair, restore and refinish your high value components.

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