

## BELZONA REPAIRS STEAM TRAIN FOR UNDERGROUND ANNIVERSARY

### CUSTOMER

Locomotive repair workshop, Forest of Dean, UK

### APPLICATION DATE

February 2014

### APPLICATION SITUATION

Corroded steam train engine

### PROBLEM

The steam chest (part of the main cylinder block on the train engine) had corroded and had several holes due to steam pressure and the corrosive chemicals wearing it away over many years. Without fixing these holes the engine would lose pressure and fail to run.

### PRODUCTS

Belzona 1511 (Super HT-Metal)

Belzona 1391 (Ceramic HT)

Belzona 4181 (AHR Magma-Quartz)

### SUBSTRATE

Cast Iron engine and steel doubler plates

### APPLICATION METHOD

Application was carried out in accordance with Belzona Know-How System Leaflets ENC-1 and modified FPA-1. Doubler plates were bonded in place with Belzona 1511 before being coated with Belzona 1391 to provide corrosion protection. Belzona 4181 was then applied to give additional corrosion resistance and resistance to foot traffic during maintenance work. The repair was then overlaid with fire clay to give an authentic appearance.

### BELZONA FACTS

A new engine block would cost a minimum of £50,000 (\$85,322.75). Many steam trains are scrapped if they have holes in the engines as it is too costly or not possible to cast this size of engine anymore. Belzona was able to carry out a repair at a fraction of this cost, putting the steam train back into service for the London Underground's 150<sup>th</sup> anniversary celebration trips through the underground.

### PICTURES

1. Metropolitan number one shown with a heated application hut built around the front nose section
2. Steam chest after grit blasting and application of Belzona 1511 under doubler plates bolted into place
3. Belzona 1391 applied over the doubler plates
4. Belzona 4181 applied as a final protection from foot traffic



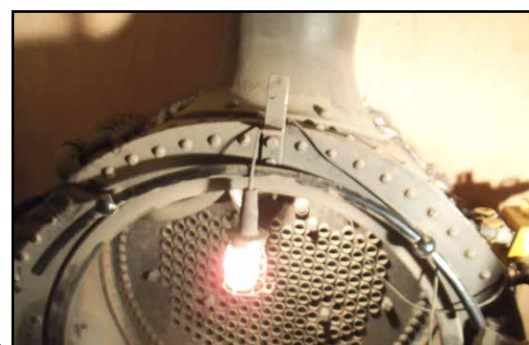
1.



2.



3.



4.

For more examples of *Belzona Know-How In Action*, please visit <http://khia.belzona.com>



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Q 09335  
ISO 14001:2004  
EMS 509612

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