



**Unconventional Solutions, Inc.**  
Partnering with Your Industry to Repair - Protect - Upgrade

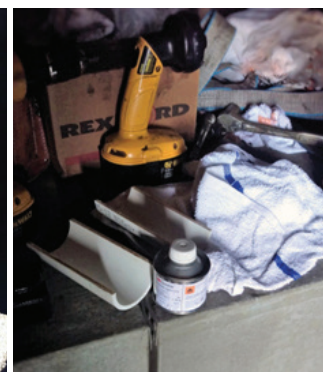
# Leading Edge

## METAL CASE STUDY: HVAC Shaft Repair

An automotive manufacturing company was hearing heavy vibration of a fan shaft on top of the roof, so they called Unconventional Solutions out for an emergency repair to fix a cracked shaft. The shaft was located in a penthouse HVAC building on the roof of a warehouse used for heating. The shaft was 6 feet long, with a wear area 2" - 3" wide, by roughly 1/16" - 1/8" deep, caused from a bad bearing. A new shaft alone costs nearly \$2000 and would take 4 weeks to be delivered. A factor of 4 days of downtime and labor costs of 4 employees working 10+ hour days totaling approximately \$5000 to get the replacement shaft installed and ready for service, was also an issue.

As a turnkey project, Unconventional Solutions recommended using **Resimetal 101 Metal Repair Paste**. The shaft was solvent cleaned with **USI Universal Cleaner** and prepped with the **MBX Bristle Blaster** to achieve an anchor pattern of 2-3mils and SSPC-SP2 or SP3 standard, followed by another application of **USI Universal Cleaner** to remove any oil or debris.

The **Resimetal 101 Metal Repair Paste** was properly mixed according to its Technical Data Sheet and formed with PVC pipe lined with **3M Scotchkote Release Agent 035** and hose clamps to the wear area of the shaft. Heat was applied for a quicker overall cure time. The project was completed in 6 hours and allowed to finish curing and was back in service within 48 hours. 



**SUBSTRATE**  
Metal

**PRODUCTS USED**  
USI Universal Cleaner  
MBX Bristle Blaster  
RESIMETAL 101 Metal Repair Paste  
3M Scotchkote Release Agent 035


## Clarifier Tank Repair and Upgrade

One of North America's largest flat role steel producers had a clarifier at its continuous caster was starting to leak and needed a long-term repair.

**THE UNCONVENTIONAL SOLUTION:** The customer was concerned about possibly blasting through the substrate in badly corroded areas. This concern restricted our surface preparation options. We opted to use NACE #3/SSPC- SP-6 commercial blast vs. NACE 1 or 2. We applied **Maxon CRS** as a steel primer to insure proper adhesion due to the commercial blast. We then applied **Duromar SAR**, a ceramic repair to build up and repair and strengthen damaged steel thus avoiding hazardous welding and brazing.

To repair the concrete crack, we used a 100% solid, zero VOC concrete resurfacing compound called **RP-C (Repair Polymer Concrete)**. Next, we applied DF-1030, a zero VOC to primer the concrete. We then

applied **Duromar RPL DF-1303**, a Zero VOC to prime the concrete floor and repairs made with **Duromar RP-C**, a 100% Solids, Zero VOC concrete resurfacing compound.

We then applied **Duromar HPL 1110-F**, a high performance, multi-functional lining, as the liner to protect the steel, concrete, and the chime area of the clarifier to prevent further corrosion in the internal chime area. The clarifier was coated 3 feet up the steel and 3 feet on the concrete floor. The entire project was completed in two, 16-hour shifts of the scheduled 72-hour outage, thus allowing the coating to properly cure for 12 hours before returning the clarifier to service. 



Keeping You in the Know Since 2002



## USI Dates to Remember

**April 20**

**SEMPPEs** at Whiskey's on the Water (Wyandotte, MI)

**June 9**

**USI Dayton-Cincinnati Golf Outing** (Miamisburg, OH)

**June 16**

**USI Wixom, MI Golf Outing** (Milford, MI)



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## PRODUCT HIGHLIGHT

### Peat Sorb

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