

Metalock Engineering UK Ltd



Protecting Britain's Heritage

One word - METALOCK - has become synonymous with a complete service for the cold mechanical repair of cast iron and other metals. Initially developed to give new life to invaluable and sometimes irreplaceable industrial machinery, the process proved highly successful. Further research and refinement of the technique was undertaken which increased the scope of the process, most significantly in the application of repairs and restoration to cast iron structures.

Much has been written about Britain's industrial and architectural heritage and in recent years the Metalock cold repair process has been used extensively and very successfully in restoring and repairing many famous landmarks and historic buildings, both large and small.

This brochure shows a selection of these, illustrating the contribution an accepted, unique, modern engineering remedy has made to 'Protecting Britain's Heritage'.

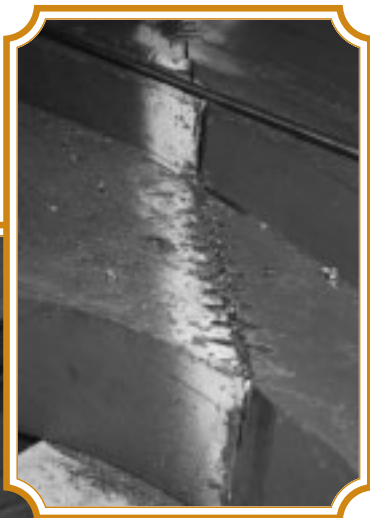


• ALBERT MEMORIAL •

Metalock Engineering UK Ltd were asked to repair London's Albert Memorial.

Upon completion of a thorough inspection it was decided to retain as much of the original castings as possible with Metalock cutting away major damage and supplying new sections, these were then secured into position using the Metalock cold repair process.

In excess of 100 metres was repaired using the Metalock process.





• SUPPORT COLUMN •

Metallock repairs carried out to the base of a Support Column without the costly need to remove the Column.

A new section was cast and split in two halves. A section was cut out of the column to match one of the halves, the new section was inserted and secured by the Metallock process, the remaining section was removed and replaced with the second new section and finally secured into position.



• RAILWAY PLATFORM SUPPORT COLUMN •

Railway platform Support Column fractures due to frost and repaired on-site by Metalock Engineering UK.



• SOMERSET HOUSE MAIN GIRDER REPAIR •

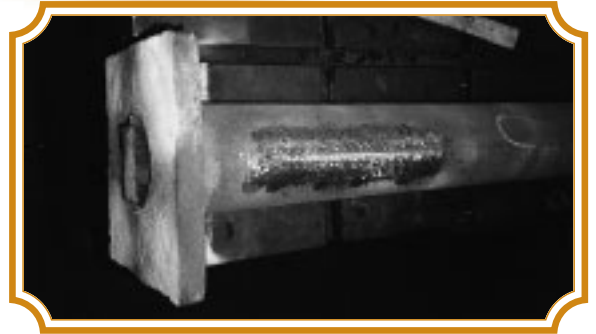
During refurbishment at Somerset House, inspection to the Main Support Girders showed extensive fractures.

These fractures were repaired using a combination of Masterlocks and Metalock Keys, giving additional strength to the repair.



• SUPPORT COLUMNS FOR BELLWAY HOME •

A series of Metallock repairs carried out under workshop conditions to Support Columns showing the removal and replacement of damaged sections.



• OLD WEST BRIDGE ~ LEICESTER •

Metallock Engineering UK has used its cold repair expertise to repair and refurbish parapet panels, copings and cornices on the Old West Bridge in Leicester.





• HA'PENNY BRIDGE ~ DUBLIN •

The Ha'penny bridge was opened to the public in May 1816 and spans 42 metres across the river Liffey.

Refurbishment was carried out in 2001 and Metalock Engineering UK were asked to undertake all repairs to the cracked cast iron sections.





• CHETWYND BRIDGE ~ 1998 •

Following an assessment by Metalock engineers of a grade 11 Star listed cast iron bridge that had developed fractures, it was decided that the company's cold repair process could provide an effective and long lasting repair.

Seventy four metres of cracks were repaired without dismantling the bridge, taking three months to complete.



• NORTHUMBERLAND BRIDGE •

Metalock Engineers undertaking repairs to cast iron Column supporting a river bridge in Northumberland.



• GAS STREET BRIDGE ~ BIRMINGHAM •

The scourge of low cast iron bridges are high sided vehicles coming into contact with the structures, causing major damage. Metalock are able to replace these areas with new sections secured into position by the cold repair process.



• CODSALL RAILWAY BRIDGE •

Broken cast iron lips that hold parapet panels in place on a grade 11 listed railway bridge at Codsall in South Staffordshire have been repaired by Metalock Engineering.





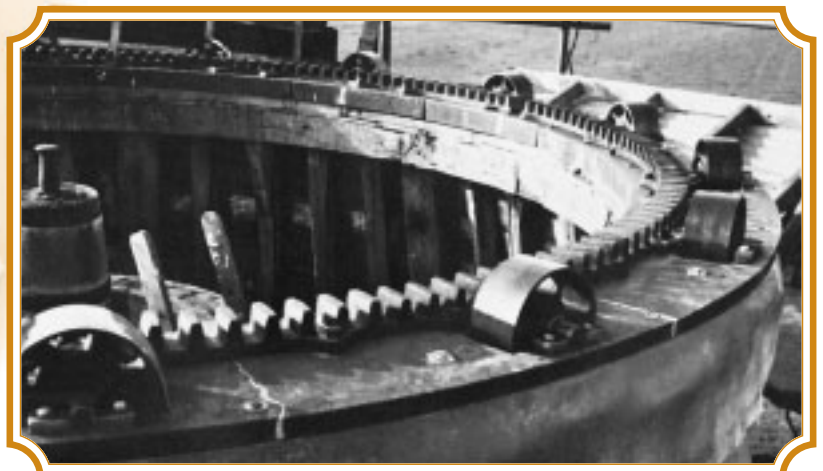
• HEAD ASHBY & CO ~ NAME PLATE •

Historical Name Plate suffers damage and is repaired by the Metalock process thus retaining its originality.



• LACEY GREEN WINDMILL •

Lacey Green Windmill is thought to be the oldest surviving smock mill and the third oldest windmill in the British Isles. The machinery it still contains could be that which was installed when it was originally built in 1650. Metalock repaired ten segmental castings, six of which were cracked, and four broken in two. In addition, ten circular rack sections were broken in two or three pieces. From patterns Metalock were able to repair these and also produce three additional segmental sections.



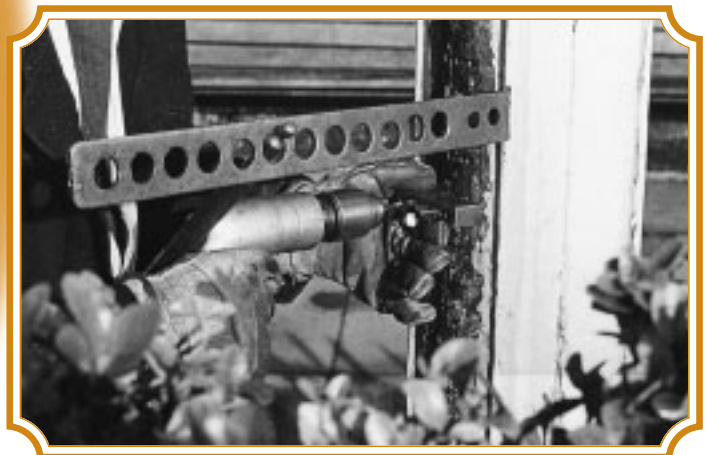


• CHARING CROSS BRIDGE •

A famous landmark in Central London, the 100 year old Charing Cross Bridge carries 123,000 commuters across the Thames by rail each day. 720 feet of cracks to the structure's sixteen cast iron columns were successfully repaired by the Metalock process with 108,000 drillings and 36,000 tappings performed on site - without disruption to rail services.

• MADEIRA TERRACE •

Visitors to Brighton who will recognise and appreciate the iron terrace built in 1895 will be pleased to learn that Brighton Corporation were able to save the structure with the aid of Metalock. The repair, accomplished on site, introduced no additional stresses, which would occur if it was conventionally welded, returning the cracked supporting columns to their original strength.



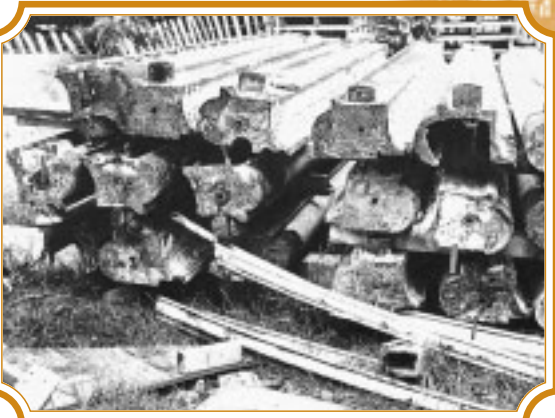


• WOOTTON WAWEN AQUEDUCT •

Built 166 years ago, the Aqueduct at Wootton Wawen was damaged by a heavy road vehicle, causing a 3 foot fracture in a cast iron tray. As it carried the busy A34 road from Birmingham time was of the essence. The watertight repair was successfully completed in four days with minimum disruption to road and canal traffic.

• KEW GARDENS •

The Palm House forms an integral part of the structure of Kew Gardens, and is being renovated as part of the overall restoration programme. The sills, guttering and floor plates, which are over 100 years old, need to be restored to their original condition. Metalock are undertaking this work by their cold repair process which restores the inherent strength and is the only way of retaining the authentic appearance of this historic structure.





• DARLINGTON MARKET •

Restoration of this 100 year old historic covered market was carried out under a preservation order. Inspection showed 24" to 48" fractures in six of the cast iron architectural columns supporting the roof. As it was virtually impossible to replace the columns without a total stripdown, a repair was essential, avoiding the shortcomings of welding. The Metalock repair required no dismantling, was guaranteed and approved by Lloyd's.

• WORTHING PIER •

Following a crack detection survey by Metalock to the cast iron columns of the pier, originally constructed in 1862, Worthing Borough Council commissioned the company to repair the columns under the Southern Pavilion which had been damaged by years of corrosion and erosion. Conducted with the columns in position, this operation required only 82 man days to complete.



• ORNATE GATE ~ DAMAGED LUG •

Irreplaceable Gates restored to pristine condition using the Metallock repair process.



Metallock repairs are not confined to large prestige structures. The company is often called upon to

carry out restoration and renovations to notable individual subjects of historic or local interest.

Here are photographs of two such projects:



A 50 year old double ended oval main posting box in the commercial centre of Leeds. The Post Office commissioned Metallock to carry out a speedy repair to a 63" fracture in the 1 1/4" thick casting.

A lamp post architect-designed to blend with the University of London's Senate House Complex, which was shattered after being struck by a lorry.

• THE PROCESS •

The Metallock repair consists of peening into prepared apertures layers of multi-dumbbell shaped keys. These keys are manufactured from a special highly ductile alloy (MN211) specifically developed by Metallock's own engineers and unobtainable outside the Metallock organisation.

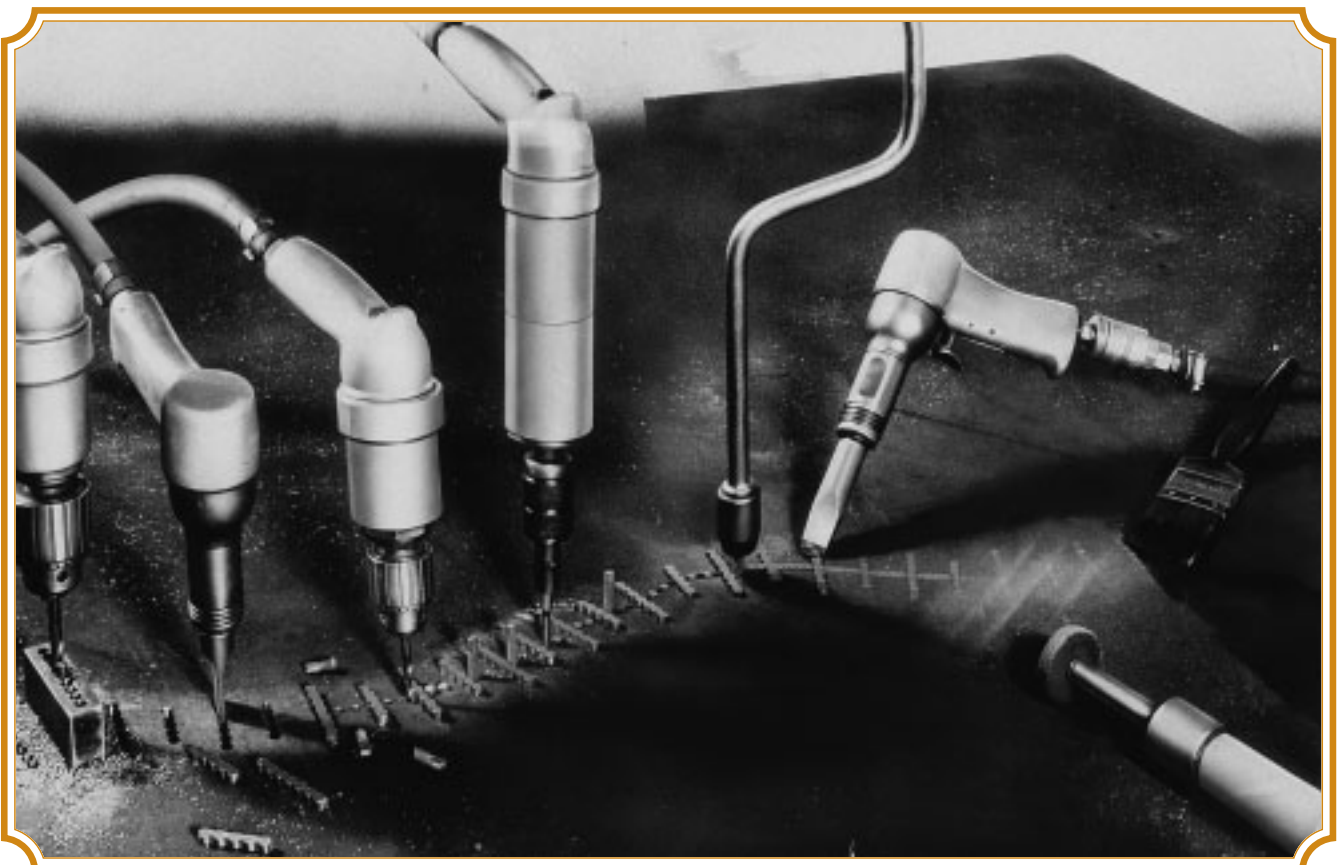
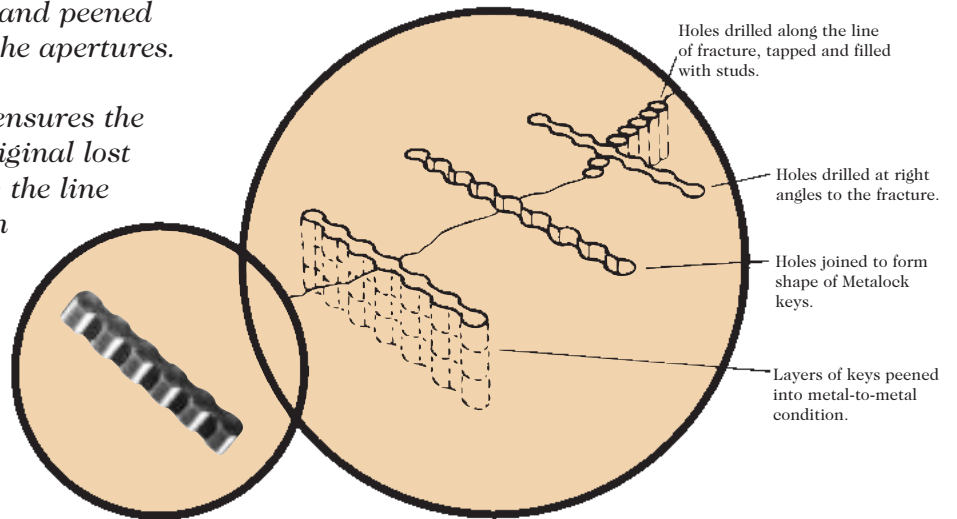
A series of holes are drilled to pre-determined depths at intervals and at right angles to the fracture. The holes are then joined by the use of pneumatic chisels to take the exact female form of the Metallock keys. Metallock keys, size-matched to the holes, are inserted layer by layer and peened into a metal-to-metal condition into the apertures.

The high tensile strength of the keys ensures the return of a large percentage of the original lost strength. Holes are then drilled along the line of the fracture, tapped and filled with studs, each stud biting into its predecessor. This operation restores rigidity to the casting and ensures a pressure tight joint, essential for vessels subject to high steam or hydraulic pressures.

Hand grinders are used to finish off the repair prior to painting, and every repair is covered by the Metallock warranty.

Metallock is indeed a unique method of joining two pieces of metal together. It is recognised by Lloyd's and all the leading classification societies and insurance companies as the ideal answer to metal fracture, and where a cold repair is desirable.

Before you consider scrapping, or an expensive replacement, think METALOCK





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