

HERITAGE BOILER SERVICES CASE STUDIES

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HERITAGE BOILER SERVICES CASE STUDIES

McEwen Boilermakers have operated within the heritage field of steam boiler repairs since the company was established in 1968. We have worked with a number of the leading Heritage Railway Organisations, Industrial Museums and associated trusts across the country, carrying out both on-site repairs, or full re-builds at our Farling Top Works.

We have also worked for numerous private customers completely re-building Traction Engine, Steam Roller, Steam Tractor and Steam Boat Boilers. Our range of traditional boilermaking skills enable us to carry out extremely skilled hot-flanging and presswork, and often mean that we manufacture new components on-site. Our engineers still carry out traditional hot riveting, caulking, beading etc, with all necessary welding work carried out by coded welders. We have a good working relationship with many of the top insurance organisations, who recognise that our re-build and repair projects are carried out to the highest possible standards.

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CASE STUDY:	TRACTION ENGINE REBUILD
CLIENT:	MR MARK HACKNEY
JOB:	COMPLETE RE-BUILD OF 1904 AMERICAN BUILT FRICK TRACTION ENGINE BOILER
SCOPE OF WORK	<p>On receiving an enquiry for the manufacture and fitting of a new inner firebox, we provided a detailed quotation that highlighted the exploratory work we would undertake on receipt of the boiler, as well as the fitting of the firebox. After receiving the order, the boiler arrived at our works and we sandblasted the whole boiler internally and externally. A third-party NDT specialist was brought in, who, on completion of his survey, discovered serious flaws in the boiler barrel. This led to a quotation for the rebuild work being generated. We received the order and commenced re-building the boiler, we carried out the following: Manufactured a new Flanged & Butt Welded Inner Firebox</p> <ul style="list-style-type: none">▪ Manufactured a New Smokebox Tubeplate▪ Manufactured A New Riveted Boiler Barrel With Butt-Strap▪ Fitted All Of The Above▪ Hot riveted all the components into position.▪ Caulked all rivets and lap seams▪ Re-Tubed the Boiler▪ Hydraulically Tested the boiler▪ Steam Tested on completion. <p>The transformation from a mere skeleton of a boiler to a fully restored, fully certificated boiler was a joy to work on and see.</p>



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CASE STUDY:	LOCOMOTIVE BOILER REBUILD
CLIENT:	LINCOLNSHIRE WOLDS RAILWAY
JOB:	RE-FIREBOXING AND REBUILD OF RSH LOCOMOTIVE BOILER
SCOPE OF WORK	<p>McEwen Boilermakers received and off-loaded the boiler at our works. We then proceeded to remove the existing front tubeplate, inner firebox, smokebox and both sides of the outer firebox that had extensive wastage. We used a set of 6" male and female die blocks for pressing out new endplates, these were then butt-welded to a newly hot formed firebox wrapper plate. The existing foundation ring was restored through welding and grinding.</p> <p>Other work undertaken included:</p> <ul style="list-style-type: none">▪ Manufacture Of Replacement Smokebox Tubeplate▪ Rolling and welding into situe of new outer firebox side sheets▪ New Smokebox▪ Fitting Of Firebox▪ Manufacture and Installation Of Welded Stays▪ New Main Steam Pipe▪ Overhaul Of Regulator <p>The boiler was finally hydraulically tested and steamed to the full satisfaction of the insurance inspector and re-united with the frames.</p>



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CASE STUDY:	VINTAGE SHELL BOILER REPAIRS
CLIENT:	CROFTON PUMPING STATION, WILTSHIRE
JOB:	COMPLETE RE-BUILD OF 1904 AMERICAN BUILT FRICK TRACTION ENGINE BOILER
SCOPE OF WORK	<p>After receiving an invitation to tender, we generated a detailed report and quotation after a survey of the work in Wiltshire. We received the order and on a pre-arranged date arrived on-site where we began by burning out the approx 30 condemned rivets.</p> <p>Once these had been burnt out using oxy-propane cutting torches, we then power reamed the holes to fair them true up to 13/16" in readiness for a 3/4" rivet. We then readied our mobile furnace for rivet warming, and with the riveting team in place began gunning down the new rivets with pneumatic riveting hammers.</p> <p>The rivets heads and plate seams were then caulked to seal and finally a hydraulic test was applied to the satisfaction of all involved. The location and people we worked alongside were a pleasure to deal with.</p>



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CASE STUDY:	HOT RIVETING
CLIENT:	SPECIALIST PAPER MANUFACTURER IN MANCHESTER
JOB:	RIVET REPLACEMENTS ON THE SEAMS OF A KIER PRESSURE VESSEL
SCOPE OF WORK	<p>Due to a large number of leaking rivet heads causing problems on sealing the Kier vessels, we were called in. We attended site, during a summer shut, with our mobile riveting equipment and carried out the replacement of approx 25 7/8" rivets on the seams of the Kier Vessel.</p> <p>The timescale was tight due to the shut only being for a few days, so it was paramount that the work was completed on time and with success. We provided all the necessary documentation prior to work commencing such as Risk and Method statement, as well as material certification etc.</p> <p>The work was hot but satisfying, and we have returned to carry out similar repairs to another three of the Kier Vessels that are on-site.</p>



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CASE STUDY:	WELDED FIREBOX
CLIENT:	BARRACKS STEAM MUSEUM, ABERDEEN
JOB:	MANUFACTURE OF FLANGED & BUTT WELDED FIREBOX
SCOPE OF WORK	<p>Careful dimensions are taken from the original firebox, and plate sizes are ascertained before being ordered. Once we have the new boiler plate, we press two new firebox endplates and hot form the wrapper over a curved former.</p> <p>The two endplates and wrapper are then prepped for welding by grinding a bevel onto the plate edges, the box is then tack welded together before being checked by the insurance surveyor. Once given the all clear it's then fully fusion welded by our coded welders. In this case the foundation ring and firedoor ring were re-usable so were seal welded to the box. A new set of roof girders were manufactured and stay bars machined and fit.</p>



CASE STUDY:	RIVETED FIREBOX
CLIENT:	JOHN GLYNN, REPUBLIC OF IRELAND
JOB:	MANUFACTURE OF RIVETED FIREBOX
SCOPE OF WORK	<p>On a cold winter's morning in the dark Mr Glynn dropped off the remains of his original firebox. We began by manufacturing the main components, hot forming the endplates and wrapper. We then let then endplates into the wrapper, mark off and drill for the lap rivets.</p> <p>The endplates are then riveted to the wrapper with pneumatic riveting guns, and the rivet heads and lap seams caulked to seal.</p> <p>The original foundation ring was re-used and fit, along with a washout plug boss. The firebox was drilled for all smoketubes.</p>



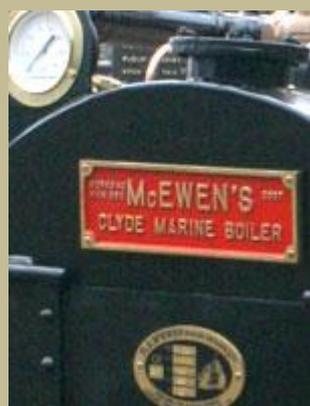
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CASE STUDY:	PRESSWORK
CLIENT:	NORTH EASTERN LOCOMOTIVE PRESERVATION GROUP
JOB:	MANUFACTURE OF OUTER FIREBOX BACKHEAD FOR K1 LOCO BOILER
SCOPE OF WORK	<p>During an overhaul of the K1 Locomotive Boiler it was discovered that there was cracking in the outer backhead. We collected the original as a template and returned to our works where we manufactured 8" thick tooling to press the endplate from.</p> <p>We also manufactured a specialist former to press the Francis-Webb pattern door plate. The backhead and door pressing took six weeks to manufacture and fit.</p>



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CASE STUDY:	NEW STEAM BOILER MANUFACTURE
CLIENT:	NORTH SHROPSHIRE STEAM BOAT COMPANY
JOB:	DESIGN AND MANUFACTURE OF CLYDE MARINE BOILER
SCOPE OF WORK	<p>After being contacted and to quote for the design and build of a fully welded Clyde Marine Boiler, we set to work calculating the size of boiler required to both run the engine and sit within the confines of the boat.</p> <p>With this in mind we purpose designed and built the Clyde Marine Boilers, which have been a success over many years.</p> <p>The Boiler was built to PED 5500, it was fully welded design, and on completion was attractively clad in mahogany timber, complete with copper dome.</p>



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