



Newsletter

Keeping Shareholders Informed



Issue 17

Spring 2022

The 4253 Locomotive Company Limited, based in Rolvenden, Kent, is a non-profit, non-political organisation. Reproduction of photos by permission of The 4253 Locomotive Company.

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YOUR LOCO



NEEDS YOU!



Spring has arrived and, as far as our finances are concerned, it's a compression spring . . . *we are being squeezed!*



Work on the boiler is progressing well and, with the majority of the copper stays now fitted and tooled, it has been turned on its side to provide access for fitting the new crown stays. Unfortunately, with the top of the boiler now fully exposed, HBSS are concerned with one area of plate that shows evidence of wasting; probably as a result of a dripping whistle. So, in addition to the reassembly costs, we will now need to cover the cost of inserting a repair patch.

Another big ticket item is the final machining of the new rods that were moved to a local engineering company a little while ago. The coupling rod has now been finished and collected and the connecting rod will hopefully follow shortly which will enable us to move ahead with final bearing machining etc.

The downside is that all this activity produces some quite hefty bills and, with far more cash flowing out than coming in, we are approaching crunch time. The bottom line is that, if our cash reserves continue to deplete at the current rate, we shall have no option but to slow progress on the boiler so as to match expenditure to income. Nobody wants to see that happen, especially the volunteers working on the project, the vast majority of whom have already put their hands in their pockets and bought additional shares and/or made donations.

We fully realise this is far from the ideal time to be passing the hat around given the current increases in domestic bills that we are all experiencing but, if you can help, please do so. It would be a great shame if completion of this project suffers a another delay on top of the one already inflicted by Covid. Finally, as a reminder, attendees at the recent AGM unanimously put their hands up to making a contribution towards the funding gap so, if you have 'overlooked' this, now's the time to remedy it!

Jerry Preston-Ladd

4253 Blast Pipe Casting and Machining

As if the recent costs of two new rods, boiler and everything else were not enough, another item that we've had to have remanufactured was the blast pipe. The blast pipe sits immediately under the chimney in the smoke box and directs used steam from the cylinders up through the chimney. The original blast pipe was found to be fairly wasted by heat, steam and rust over many years of use. Many thanks to Maybrey Foundry, Maidstone for the following pictures, which show them casting our new blast pipe. Also, luckily, the West Somerset Railway had a wooden blast pipe pattern which they loaned to us for the casting. We send many thanks to both companies.



The inner pattern is made ready to accept the outer pattern.



Go easy with that gas!!!



The outer pattern is positioned on top of the inner pattern to create the void for the molten metal.



Pouring the molten metal into the mould.



The finished casting back at Rolvenden works. Henry is seen here boring out the opening to the correct diameter.



The blast pipe fitted in the smoke box . . . Chris and Dick are looking into it.

Help get us 'Back On Track'!

With the boiler needing additional work together with the machining costs of the two new rods,
we desperately need your help . . .

**TO KEEP THE PROJECT 'ON TRACK'
AND TO ENABLE US TO GET THESE VITAL
ITEMS FITTED TO THE LOCO.**

At the end of this newsletter are application forms
for **Plug the Gap** and **Stay With Us** appeals.
If you can help in any way, no matter how small,
please either **Buy a 4253 Share,**
Sponsor Plugs and/or **Stays,**
or simply make a **Donation** to help get your
locomotive back into steam.

*We once again thank all shareholders for their
continued fantastic support with this
historic restoration project.*

**To make things easier, we have put all
the options on our website.**

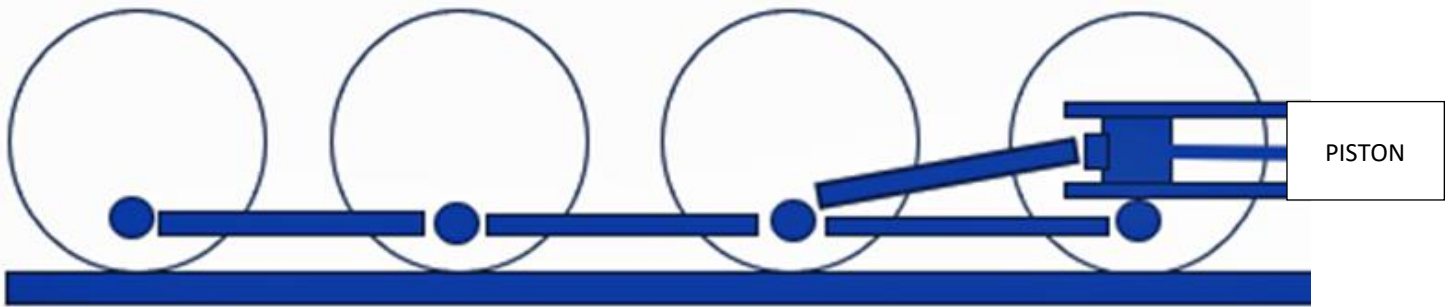
Please go to:

www.4253.co.uk

4253 Connecting and Coupling Rods

Things are moving along (excuse the pun) with the rods, so we thought it time to provide some information about them and their progress.

This simple diagram shows the rod configuration for 4253 which as you know is a 2-8-0 locomotive, with the important number being the 8, the 4 power axles (consisting of 8 wheels).



So how does it work?

On each side of the locomotive, all four axles are connected by 3 coupling rods. The second axle from the front of the locomotive also has a connecting rod, which attaches to the 'crosshead'. I am sure you have seen a photo of this in other reports and on our Facebook page. The crosshead is connected to the pistons and slides back and forth with the force of the pistons, and just like a piston in a combustion engine, converts the piston's reciprocating movement into rotary movement to drive the axles, via the coupling rods.

Unfortunately, we did not have all eight of the required rods for 4253, and therefore we have had to cover the cost of manufacturing two new rods, one intermediate coupling and one connecting.

The forgings were water jet cut to basic shape by SCISS Ltd in Staplehurst, and then taken to Automation Technologies Ltd, who are based in Brede, East Sussex for final machining. The intermediate rod has been finished and is back at Rolvenden while work on the connecting rod will begin shortly.

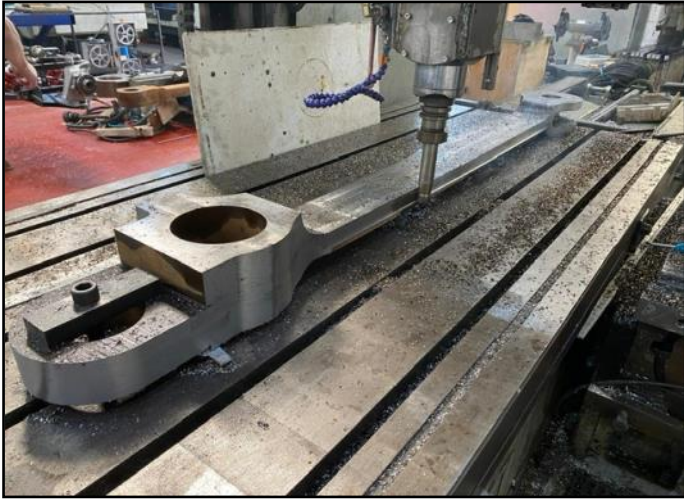


Basic water jet cut completed at SCISS before moving on to the machining stage.



One of the first cuts from the computer controlled machine at Automation Technologies, Brede, East Sussex.

4253 Connecting and Coupling Rods *continued*



Finishing in progress.



Shaping the curved end of the coupling rod.



Finished intermediate rod at Rolvenden

Accordingly, we now have a full set of coupling rods laid out and measuring has begun for machining the various bearings and pins.



Full set of coupling rods

4253 Connecting and Coupling Rods *continued*

As well as the two rods being manufactured, there are also the nuts to hold the rods onto the wheel crankpins, plus the brass bushes with white metal linings that go into the holes which have been cut into the rods that will allow the wheel crankpins to rotate within the holes.



Test fitting prior to cutting.



Old nut with new one being made.



A selection of bushes needed, which have been white metalled ready for final machining and fitting.

Don't forget our website and online shop!

We're always open - 24/7 at:

www.4253.co.uk

Find out how you can help with buying

Shares, Stays, Mugs, Plugs,

making Donations and much more!

Also, see past Newsletters and the
weekly Facebook progress reports . . .

it's all there, just go to our website and
support *YOUR* locomotive restoration.



Latest pictures of the boiler progress

- thanks again to HBSS Liverpool for supplying all the pictures

Boiler progress is now accelerating at a rapid rate at HBSS — and so, unfortunately, is the money going out to pay for it!

With most of the stays now in place and all 'knocked over', the next and final step is to cut out and renew the crown stays, which are at the top of the boiler. So, with the boiler having been upside down for many years, it needed to be placed on its side for ease of access. The picture (right) shows the boiler briefly out in the daylight ready for lowering onto its side. It certainly gives a good idea of the hundreds of



The boiler comes out for an hour or two into the daylight. All looking good.



The discovery of another area that needs attention. Hopefully the last!

stays that make up a firebox and boiler.

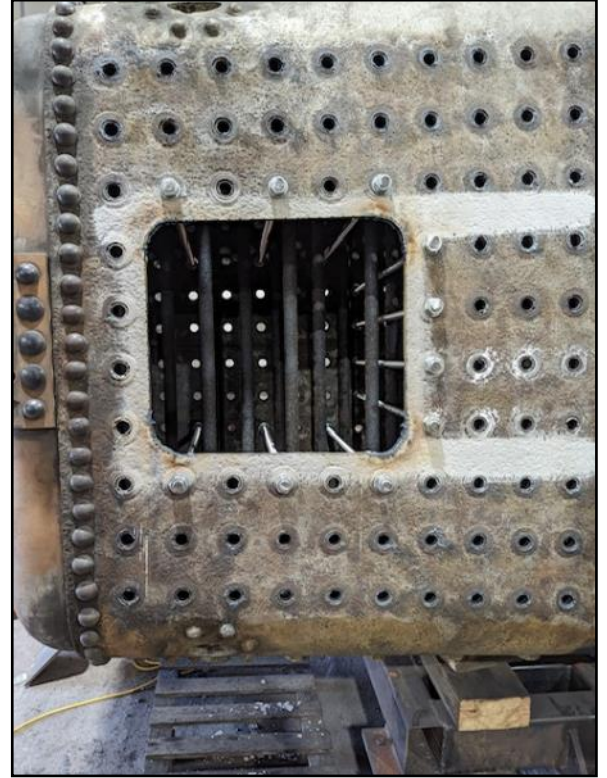
The red arrow (left) indicates the many rows of crown stays that have now been 'blown out' with a torch and which are awaiting replacement.

The red squares show a close up of an area where the boiler plate has now been cut out and is in the process of being replaced (see following page), which is immediately under the whistle. Due to wasting of the metal over many years it was less than the minimum thickness permitted.

Given that our working boiler would have been clad in thick insulation and with perhaps a leaking whistle, water has possibly been trapped in this area which has accelerated rusting.

4253 Boiler Report *continued*

These photos show the area now cut out ready for the new crown insert to be welded in. This also gives an opportunity to look inside and see the complicated criss-cross of stays that keep the firebox and outer boiler plate in place and which provide enormous strength to this area.



The picture on the left shows the new plate ready to be secured in position using 'coded' welding. This will ensure it passes the boiler inspector's inspection. Attached to the new plate are temporary fixings to hold it in place before welding begins. It will then need to be drilled to take the new crown stays.

As you can see, all the other old crown stays have now been removed and the threaded holes will soon be prepared to take the new stays.

The rapid pace of progress now means our finances are being severely strained as every week passes in payments to HBSS.

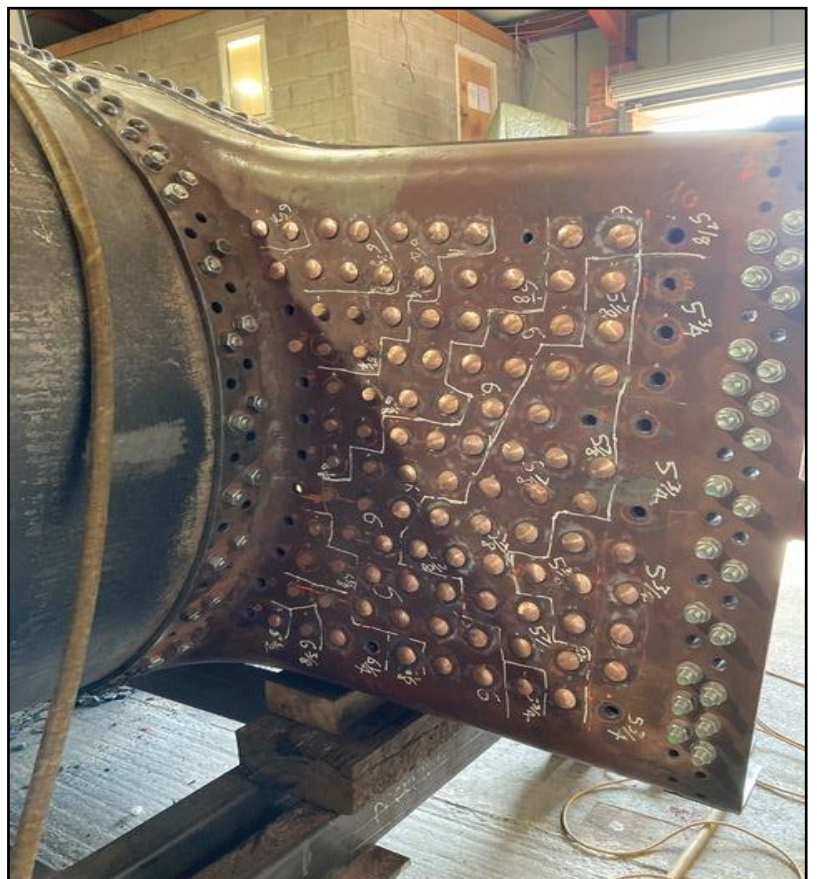
If we can keep pace with the outgoing money, then the boiler should be back with us very soon. If we cannot keep pace with the payments then the boiler will remain in Liverpool and unfortunately the project's completion date will be very noticeably extended.

4253 Boiler Report *continued*



Meanwhile, at the other end of the boiler, these pictures show the foundation ring (*left*) and throat plate (*below*) on their side ready for the final rivets.

At the front of the firebox, the throatplate is shown here requiring just a few more copper stays to complete the job. As you can see, there has been much marking and measuring by the guys at HBSS.



4253 Boiler Report *continued*



The guys at HBSS are seen here in action with the cutting torch, removing the many old crown stays which have all now been removed.

View through the firehole door, showing the inside of the firebox as the stays are removed.



We're not used to seeing the boiler in a horizontal position! But, the mere fact that it is on its side indicates that the pace has really picked up.

From this picture you can see that the foundation ring (*on the left of the picture*) is still in need of its rivets, together with the firedoor opening and a couple of stray ones in the backhead. Apart from the crown stays, that are being worked on as we speak, all other stays are now in place and knocked over.

As many shareholders will realise with projects such as this, rebuilding a boiler entails some work that takes a long time to complete but once finished, allows other work to be completed very quickly. The current pace achieved by HBSS should now only accelerate as most of the difficult and time consuming work is completed.

4253 Boiler Report *continued*



These two pictures (*above*), show an example of some of the crown stay holes that HBSS have had to weld to build up their surrounding edges. Where the boiler has been worked on and maintained over the years, the edges of the crown stay holes have been ‘caulked’ to make them watertight. Caulking is a process of chiselling the metal into and around the stays which, over the years, gradually wears away the metal surrounding the stay hole.

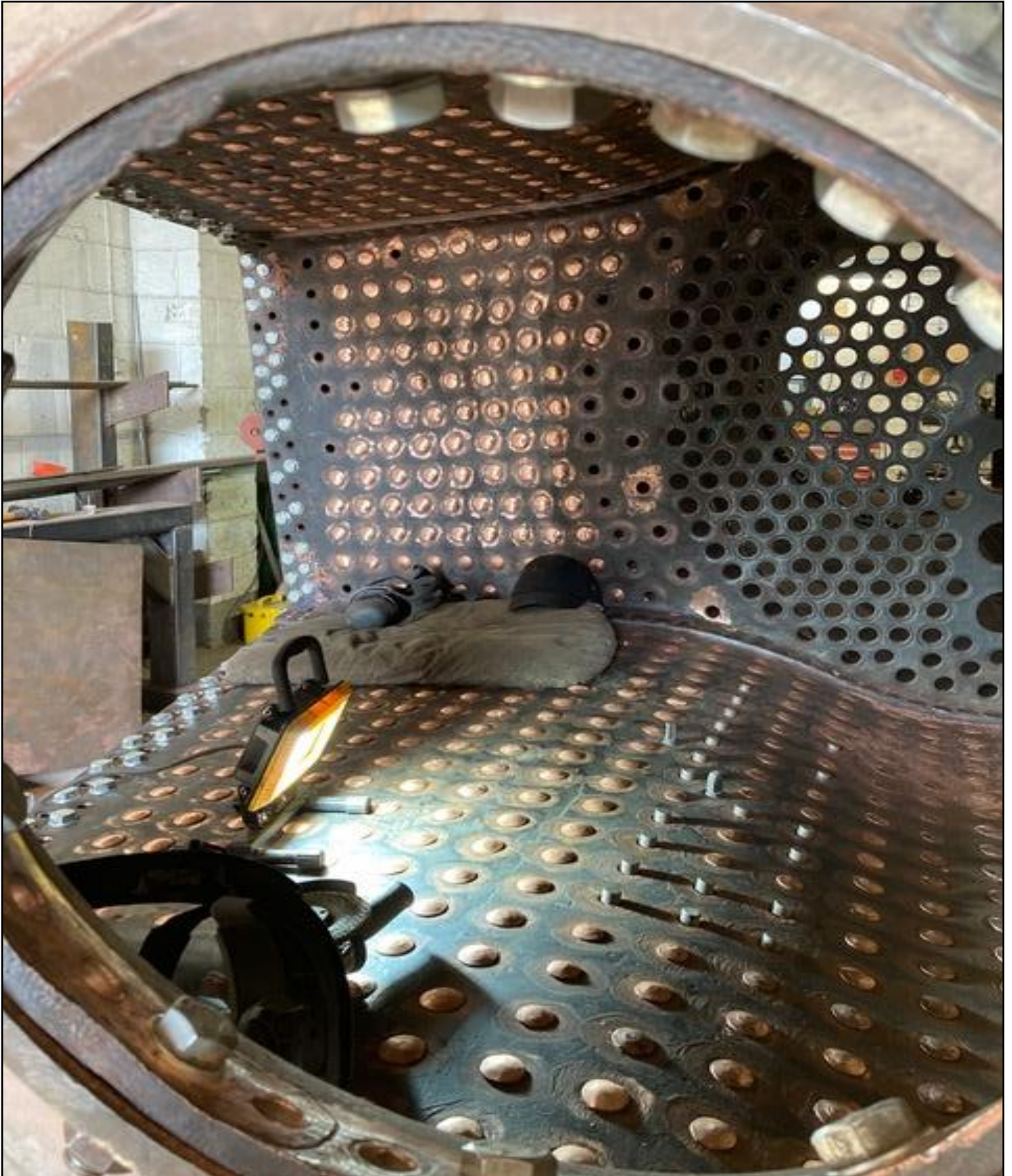


The picture (left), shows in detail the newly fitted ‘sacrificial wear plate’ which will eventually be riveted to the inner edge of the fire hole. This steel plate takes all the wear and tear when shovelling coal into the boiler and avoids the inner copper firebox edges getting damaged. It’s cheaper to put a new wear plate in than replace all or part of the copper firebox!

4253 Boiler Report *continued*

A study of the amazing construction of a steam locomotive firebox . . .

This rarely seen shot shows the inside of the firebox, through the firehole door. All the new shiny copper stays can be seen in place. To the right of the picture is the firebox tube plate that carries all the 235 fire tubes and 14 flue tubes forward through the main boiler water space and into the smokebox. To the left of the picture is where the grate and bed of coal sits, surrounded by the foundation ring which will carry the ashpan.



4253 Boiler Report *continued*

Along with everything else going on, preparatory work is being undertaken for installing the longitudinal stays. These run the length of the boiler from the backhead to the front tube plate and give boiler strength length-wise. Threads are being cut in the backplate to allow these stays to be screwed into position.



A very large and very expensive 'tap' being used at HBSS to thread a backhead hole, ready to screw in a longitudinal stay. This all has to be done by hand!

This shows the boiler barrel from the front end where the tube plate will go. A template has been temporarily fitted to enable alignment of the longitudinal stays, with a test bar shown in place.



The tube plate, which fits in the front end of the boiler barrel, carries the many tubes and longitudinal stays.

It's seen here being lifted on to a lorry for its trip to Liverpool.

If you would like to sponsor one or more 4253 Washout Plugs,
please complete the Plug the Gap form below.

Alternatively, you can also sponsor Washout and Fusible Plugs directly on our
website. Please follow the link below:

<https://www.4253.co.uk/shop/fundraising/plugs/>



GWR 2-8-0T Locomotive 4253 'Plug the Gap' Application Form

Please complete the form below in BLOCK CAPITALS and return to:
The 4253 Locomotive Company Limited
Old Chilmington Oast, Chilmington Green, Ashford, Kent TN23 3DP

Full Name: _____

Address: _____

Telephone Number: _____

Email Address: _____

I hereby make an application for:

_____ Washout Plug(s) @ £45 each _____ Fusible Plug(s) @ £45 each = Total: £ _____

☐ I enclose a cheque made payable to: The 4253 Locomotive Company Limited.

☐ I will pay by BACS (Bank details below): Please use reference 'PLUGS'.

I am a member of The Kent and East Sussex Railway: Yes / No (delete as appropriate)

☐ I consent to being contacted by 4253 Locomotive Co. via email/post
for information updates about 4253 progress and activities.

Signed: _____ Date: _____

PLEASE MAKE PAYMENTS TO:

The 4253 Locomotive Company Limited

Account Number 47817011 • Sort Code 60-01-21

National Westminster Bank Plc.

20 High Street, Ashford, Kent. TN24 8SH.

The 4253 Locomotive Company Limited

25 Winsor Road, Rolvenden Layne, Tenterden, Kent. TN17 4NL Share

November 2021

Stay With Us!

A COMPELLING OPPORTUNITY TO HELP BRING TO FRUITION THE NATION'S MOST EXCITING LOCOMOTIVE RESTORATION PROJECT - SPECIFICALLY TO COMPLETE OUR BOILER!

WE ARE PLEASED TO INVITE YOU TO SPONSOR

CROWN STAYS RIGID STEEL STAYS COPPER STAYS

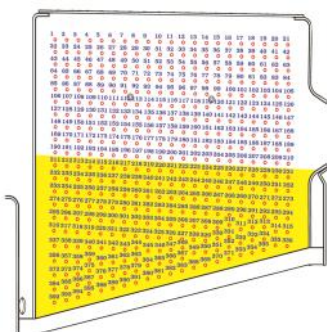
Your chance to help finish the boiler

2019 saw major inroads into our boiler restoration.

However, as the year progressed we realised that we had an opportunity to accelerate the refurbishment work on our locomotive to an earlier conclusion than originally envisaged.

So, with the blessing of our shareholders present at the January 2020 AGM, we immediately arranged for our boiler to be dispatched to Heritage Boiler Steam Services of Liverpool, where work has been progressing steadily ever since.

We had the financial resilience, we had the confidence in our own decision making ability, we had projects in the pipeline and we knew our team could cope with and close the funding gap that existed at that time.



Firebox wrappers

A combination of copper and rigid steel stays. We are renewing all throatplate stays, backhead stays, crown stays and a percentage of the side wrapper plate stays. The stays within the

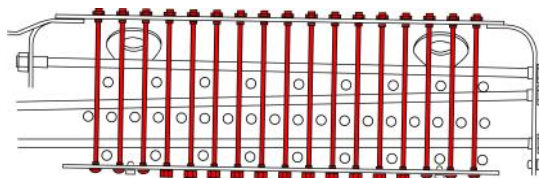
The Layman's Guide to Boiler Stays

Of all the components found in the construct of a locomotive boiler, the humble stay is probably the most important.

The thrust of our 'Stay With Us!' campaign is aimed at those encompassing the burning heart of any steam locomotive - the firebox. A seemingly innocuous piece of engineering, boiler stays are generally composed of a steel or copper rod, threaded at each end and depending on location, vary approximately between 6" & 16" in length. In keeping with Swindon practice 4253's firebox area has a copper inner and steel outer wrapper, with a water space between them - in front of, behind, above (the crown) and on the sides.

The stays are braced between the two in all these areas, strategically providing rigidity and flexibility to what is essentially a massive pressure vessel. The material used is in accordance with the relevant stress design criteria. They are basically screwed into position and riveted over to finish and seal.

Outwardly they have a neat and innocent looking domed

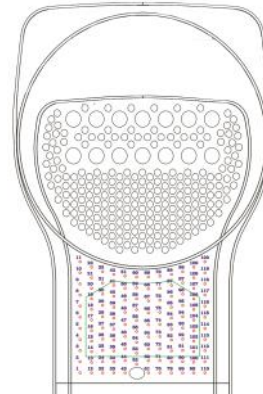
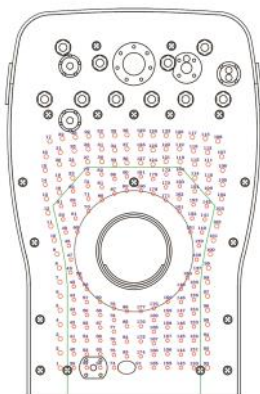


Cross section of firebox

Side view showing crown stays and nuts (in red). 174 stays are required to

How You Can Help

You can sponsor a set of 3 stays for £99. Each set comprises 1 crown stay and 2 nuts, 1 copper stay and 1 rigid steel stay. Two or more sets can be sponsored by Standing Order, spread over 6 months. Alternatively, you can sponsor individual stays.



	Per Stay	Per Set of Stays	Total No. of Stays
Rigid Steel Stay	£17.50	} £99.00	412
Copper Stay	£35.00		288
Crown Stay & Nuts	£50.00		174

By sponsoring any of the above you will receive a personalised certificate and be entered into a draw for

Please help get YOUR boiler back into steam!

Application to set up a Bankers Standing Order for 'Stay With Us' appeal (minimum 2 sets).
Please print, complete the form and post to the address shown below.



GWR 2-8-0T Locomotive No. 4253 'Stay With Us' Application Form

Please complete the form below in BLOCK CAPITALS and return to:

The 4253 Locomotive Company Limited, Old Chilmington Oast, Chilmington Green, Ashford, Kent TN23 3DP

Full Name: _____

Address: _____

Telephone Number: _____

Email Address: _____

I hereby make an application for ____ Rigid Steel Stay(s) ____ Copper Stay(s) ____ Crown & Nuts Stay(s)
and / or ____ Complete set(s) of Stays.

I enclose a cheque made payable to The 4253 Locomotive Company Limited / a completed Bankers Standing Order
(please delete as appropriate).

STANDING ORDER OPTION ONLY AVAILABLE IF SPONSORING COMPLETE SETS OF STAYS - MINIMUM 2 SETS.

I am a member of The Kent and East Sussex Railway: Yes / No (please delete as appropriate).

☐ I consent to being contacted by 4253 Locomotive Co. via email/post
for information updates about 4253 progress and activities.

Signed: _____ Date: _____

Bankers Standing Order Form ('Stay With Us')

(if you wish to pay by monthly Standing Order over 6 months)

To the Manager: _____ (Your) Bank

Your Bank Address: _____

Please make 6 payments of £ ____ on the ____ day of every month commencing on ____ / ____ / ____ to:
The 4253 Locomotive Company Limited, Account Number 47817011 National Westminster Bank Plc.
20 High Street, Ashford, Kent TN24 8SH. Sort Code 60-01-21.

Account Name: _____

Your Address: _____

Sort Code: _____ Account Number: _____

Signed: _____ Date: _____

*Please quote Reference Number in all payments _____ * to be entered by 4253 Project Staff.

The 4253 Locomotive Company Limited, 25 Winsor Road, Rolvenden Layne, Tenterden, Kent TN17 4NL - Stays