# THE MIKADO MESSENGER

2007 PRINCE OF WALES

Building Britain's Most Powerful Steam Locomotive

No. 2007 *Prince of Wales - Mandy Grant/A1SLT*

**Welcome to edition No. 64 of *The Mikado Messenger*, our monthly eNewsletter which aims to provide a regular progress update on the construction of new Gresley class No. 2007 *Prince of Wales*.**

## FUNDRAISING

**A P2 for the price of a pint of beer a week**: around 930 supporters have signed up as Covenantors for No. 2007 *Prince of Wales* from as little at £2.50 per week and are now kindly donating over £205,000 annually including Gift Aid.We aim to reach 1,000 regular donors by the 2020 convention, in September. If you haven't yet signed up as a Covenantor we would encourage you to get on-board. You can find more information here.

**The Motion Club** has now welcomed 160 members, with only 15 places remaining of our 175 members target. You can find more information about The Motion Club here - help us to fund the manufacture of No. 2007's motion!

**The Boiler Club** has hit the 184 members mark, leaving just 116 spaces available. As we have now placed our order for the boiler, we would urge those who haven't yet contributed towards the purchase of No. 2007 *Prince of Wales'* boiler to join us. This is the single most expensive component on the

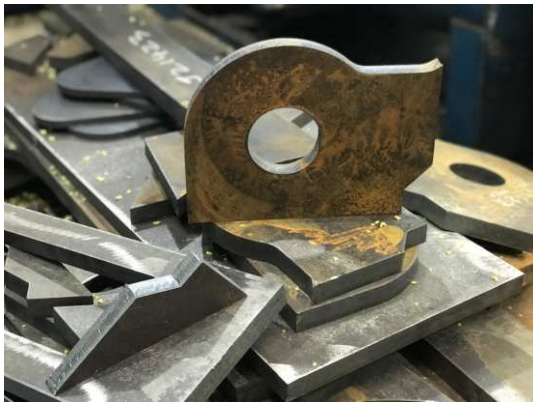
locomotive and is due to be delivered to Darlington Locomotive Works (DLW) in July 2021. More information about The Boiler Club can be found here.

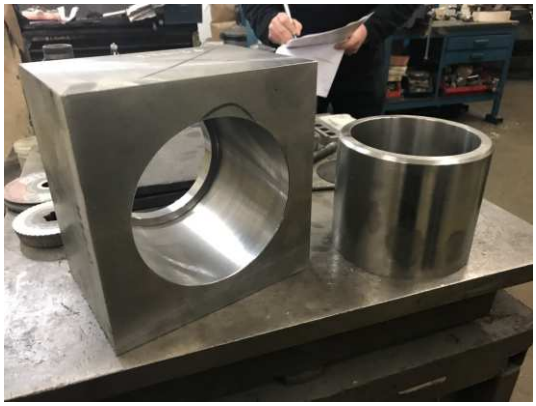
Our newest club, **The Tender Club**, is filling up with 58 places already taken. In order to keep on schedule to complete No. 2007 within three years, the tender frames and tender tank are being delivered to DLW in 2020. Our target for The Tender Club is 250 members, contributing £1,500, so if you would love to contribute towards the tender more information can be found here.

You can sponsor No. 2007 *Prince of Wales* components from as little as £25 ranging up to £15,000! The **Dedicated Donations** scheme has already raised around £400,000. If you would like to sponsor a component, please email dedicated.donations@p2steam.com, detailing the amount you would like to donate and/or if you had a specific part of the engine in mind, we will then send you some component recommendations to suit your donation.

To-date, over £2.1m has been spent, £2.7m raised and £3.5m pledged of the required £5m to complete No. 2007 *Prince of Wales* within the next three years.

## ENGINE FRAMES UPDATE





Pony truck cut profiles; pony truck crosshead fabrication and pintle bush - *A1SLT*

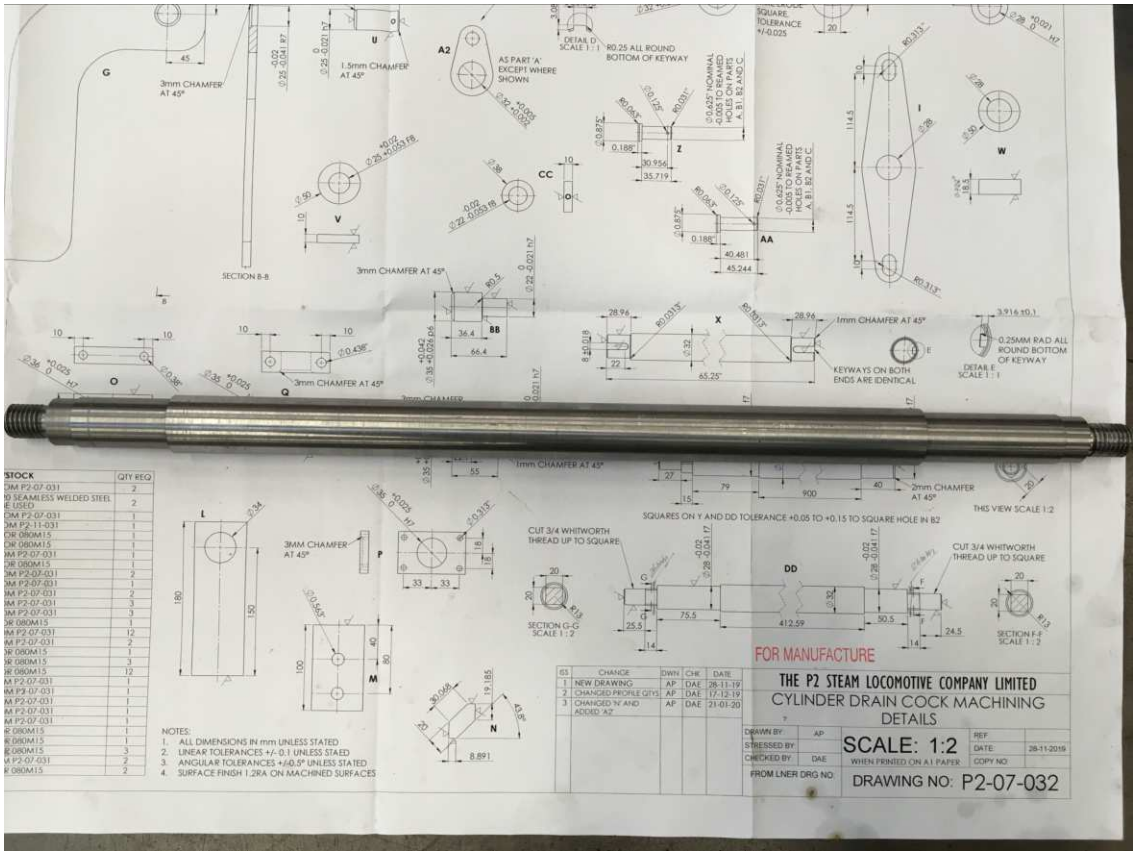
**Summary:** engine's frames erected; all major frame stays, brackets, horn blocks, axle boxes & buffers cast and fitted using around 1,000 driven bolts.

**Progress update**: the pony truck frame is taking shape from a kit of profiled components at North View Engineering Solutions (NVES) in Darlington.

**Next steps**: cold turned rivets and driven bolts have been ordered to permanently fit the spring hanger brackets to the frame. This is one area where we have been obliged to use rivets for two of the holes, in each spring hanger, as the projecting nuts on driven bolts would impede removal and replacement of the springs.

**Fundraising**: The Founders Club was established in September 2013 to give the project a racing start and get it to the point of erecting the engine's frames with a target of raising £100,000 plus Gift Aid from 100 supporters each donating £1,000. The Founders Club closed in July 2014 having attracted 360 members and raised around £450,000.

# CYLINDERS UPDATE




In to out shaft (linkage) for the cylinder drain cocks - *A1SLT*

**Summary:** design studies into cylinder block manufacture and selection of valve gear complete; 3D CAD design of the cylinder block and valve gear substantially complete; further progress has been made in applying the weld details to the cylinder block inside exhaust passages with particular attention being paid to the order of fabrication to ensure that all welds can be completed properly.

**Progress update**: Edward Laxton, our apprentice machinist at DLW, is machining a range of components for the cylinder drain cocks; the 3D model of the monobloc cylinder fabrication has now been completed including all the welds; Alan Parkin has started to produce the 2D manufacturing drawings.

**Next steps:** the main high level design activity is to complete the poppet valve gear models to the point where some trial components can be manufactured and be subjected to testing.

**Fundraising**: The Cylinder Club was founded in October 2017 to fund the redesign and manufacture of the cylinder block with a target of raising £100,000 plus Gift Aid from 100 supporters each donating £1,000. The Cylinder Club closed in March 2018 having achieved its target.

# BOILER UPDATE

A fire hole door pressing; Graeme Bunker-James, Udo Drees, David Elliott, Achim Decker & Christoph Wörfel looking at boiler components, DB Meiningen Works - *A1SLT*

**Summary:** boiler design study completed; forged foundation ring corners manufactured & machined; regulator castings delivered; superheater header cast & machined; boiler cladding manufactured, trial fitted to frames and now in storage; boiler order placed with DB Meiningen (DBM) for delivery in July 2021; foundation ring forgings and regulator castings dispatched to DBM; the minor re-design of the banjo dome to suit the P2 cladding by has been completed by DBM; good progress has been made with producing two sets of superheater elements and procuring basic components which are not affected by any design changes including the firebox tube plate and firehole door pressings.

**Progress update:** the updated design by DBM has been forwarded to their Notified Body TüV for approval under the European Pressure Directive regulations.

**Next steps:** once the design has been approved by TüV, it will be sent for information and comment to various UK bodies including the ORR (Office for Rail and Road), Network Rail, our insurers and our Assessment Body.

**Fundraising**: The Boiler Club was founded in October 2017 to fund the design modification and manufacture of the boiler with a target of raising £600,000, plus Gift Aid, from 300 supporters each donating £2,000 in up to 40 payments of £50. As of today, The Boiler Club has attracted 184 members who have generously donated £460,000. For further information click here - we must reach our 300 members target by July 2021 at the latest.

## WHEELSETS UPDATE

The pony truck cannonbox - *A1SLT*

**Summary:** study into ride & suspension completed using Vampire®; software; crank axle re-designed to comply with modern standards, approved and manufactured; all engine wheelsets complete and trial-fitted to engine; a full drawing set for the pony truck frame has been produced and checked.

**Progress update:** the final set of balance weight plates are being riveted to the intermediate coupled wheelsets; the coupled wheel cannon boxes have been removed from the intermediate and trailing wheelsets to enable completion of their fitting.

**Next steps:** discussions with prospective balancing firms to dynamically balance the tender, Cartazzi and pony truck wheelsets continue; the intermediate and trailing cannonboxes will be sent to have their grease filling plug holes drilled and tapped and to have some excess material removed from the castings, where the spring links are located, to enable the spring links to have a full range of movement.

**Fundraising**: The Mikado Club was founded in March 2016 to wheel the engine with an initial target of raising £200,000, plus Gift Aid, from 160 supporters each donating £1,000. This was extended in May 2017 (to also wheel the tender) to 200 supporters raising £250,000 plus Gift Aid. The Mikado Club closed in May 2018 having achieved its target.

## MOTION UPDATE

Four coupling rods after the initial boring of rod eyes to reduce the maximum thickness of the material to ensure the required mechanical properties achieved during heat treatment- *Robert Stephenson/ A1SLT*

**Summary:** all heavy motion ordered from order with Stephenson (Engineering) Ltd of Atherton, Manchester; work started with first delivery due in autumn; updated poppet valve gear design almost complete with first components in manufacture.

**Progress update:** in order to achieve the desired “S” heat treatment condition, the four coupling rods' holes in the rod eyes have been pre-bored to reduce the maximum thickness of any part of the rods to 4 inches which is a requirement to achieve the “S” condition.

**Next steps:** machining the middle and rear coupling rods and forging the leading coupling rods.

**Fundraising**: The Motion Club was founded in May 2018 to fund forging and machining of the heavy motion, with a target of raising over £210,000 including Gift Aid, from 175 supporters each donating £1,000 in up to eight payments of £125. As of today, The Motion Club has attracted 160 members who have generously donated around £200,000. For further information on how to become a member and help us to reach our target before the convention click here.

## TENDER UPDATE

No. 2007 *Prince of Wales'* tender tank awaiting its forthcoming water test - *David Elliott/A1SLT*

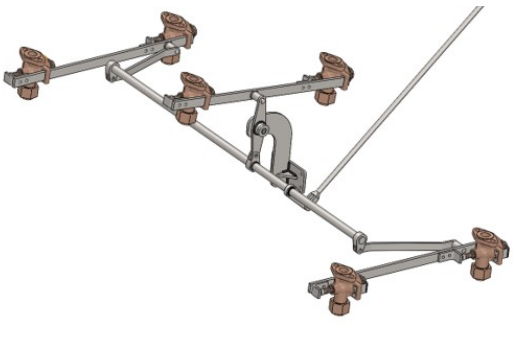
**Summary:** axlebox and other tender castings produced by William Cook Cast Products; frames being assembled by ID Howitt; tank construction under way by NVES; tender wheelsets assembled by South Devon Railway Engineering and returned to DLW.

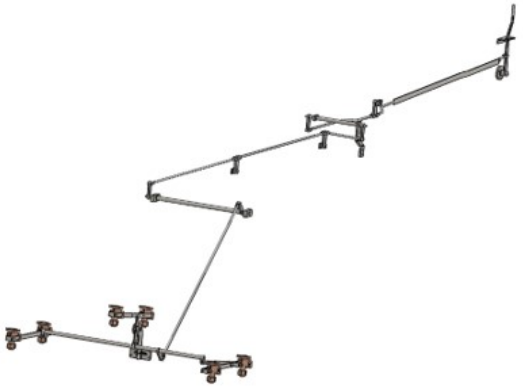
**Progress update:** the tender tank is nearing completion at NVES; I D Howitt are continuing with manufacture of the remaining detail components for the frames.

**Next steps:** completion of the welding on and machining of the manganese liners on the tender hornblocks and machining of the axleboxes by I D Howitt; water testing of the tender tank, followed by grit blasting and delivery to DLW.

**Fundraising:** The Tender Club was launched in April 2019 to fund the construction the tender, with a target of raising £450,000, including Gift Aid, from 250 supporters each donating £1,500 in up to eight payments of £125. As of today, The Tender Club has already attracted 58 members who have generously donated around £110,000. For further information on how to become a member click here.

## MISCELLANEOUS FITTINGS





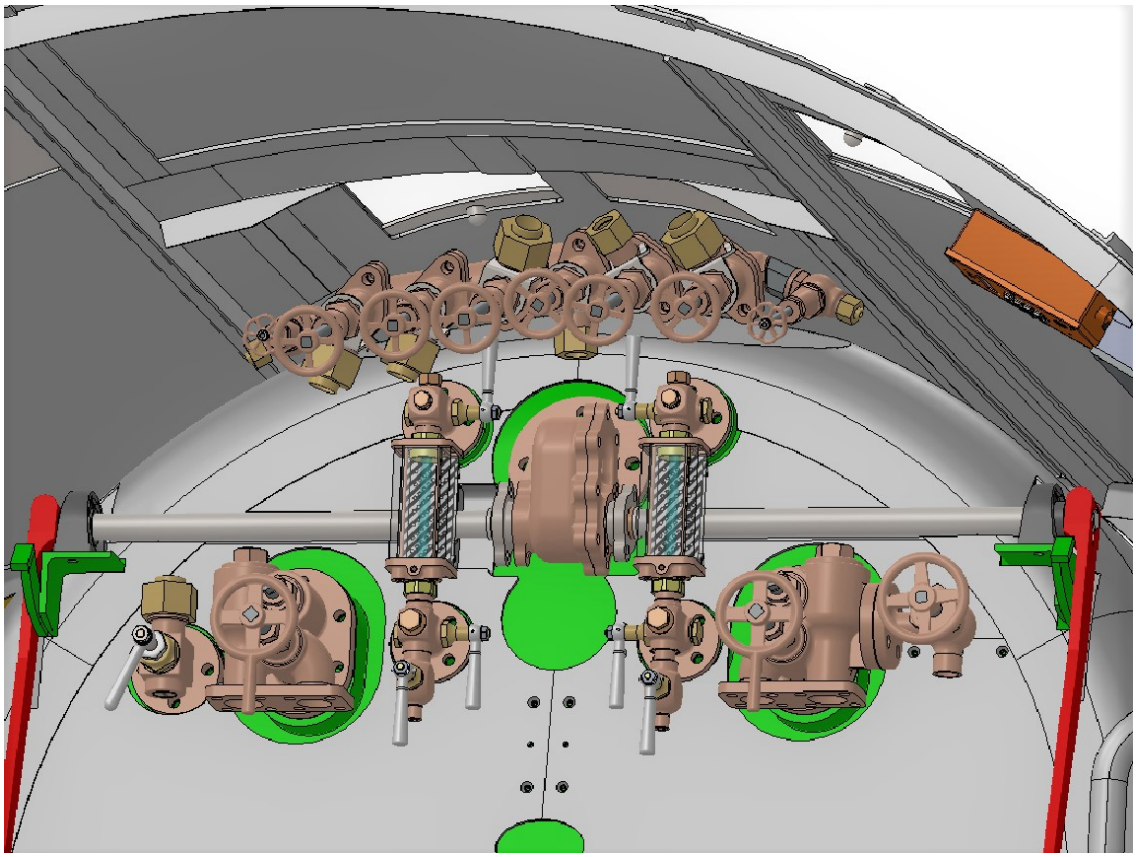
CAD images of the cylinder drain cock to cab lever mechanical linkage - *Alan Parkin/A1SLT*

## Running Gear

**Summary:** the conceptual and detailed design of the cylinder drain cock operating gear has been completed by Alan Parkin.

**Progress update:** the bar and rod material has been delivered; the small operating cranks are being milled from profiles and the short rocking shafts are being turned from bar stock.

**Next steps:** continuing manufacture of cylinder drain cock details.



The steam stand pipework- *Alan Parkin/A1SLT*

## Pipework

**Summary:** the design is well advanced and installation under way.

**Progress update:** Alan Parkin has worked up detailed designs for the six individual sand traps and

pipes. The design of these are different from the originals. All the sanders are now air operated, as per those on *Tornado*, and use rugged and simple Class 66 Diesel sand traps. The original P2 design used gravity sanding for the leading coupled wheels and steam for forward sanding of the driving wheelset and no back sanders were fitted.

**Next steps:** continuation of designing the layout of secondary pipework (drains etc) and ordering of materials.

Axle driven alternator pulleys with a shaft - *A1SLT*

## Electricals

**Summary:** significant progress on design and manufacture of electrical system; belt driven tender alternator nearing completion, turbine wheel for steam turbo alternator manufactured.

**Progress update:** our apprentice machinist, Edward Laxton, has produced parts for the special plug and socket assembly for connecting speedo generators to their cables; the design review of the electrical system,which effectively “freezes” the design, has been completed; the location and enclosure of the main AWS/TPWS and OTMR system components under the driver’s and fireman’s seats has been signed off; the new P2 shore power supply has been designed and is now being built; a 200A load bank has also been designed and is under construction. This will be used for testing the shore power supply and axle driven alternator; the main input shaft and two variants of pulleys for the axle driven alternator (one for vee belts as fitted to the tender installation and the other for a flat belt as used on our existing support coach) have been delivered.

**Next steps:** work will soon start on the design of the electrical conduit systems for the tender; on the system side, we are beginning detailed design of the major subsystems, starting with the I/O panels (these take in power from all available sources and distribute it to loads around the engine).

## Fundraising

The Dedicated Donations scheme was founded to fund numerous components including the non-ferrous

fittings and has raised around £400,000 to-date with new parts being frequently made available for sponsorship. For further information, click here.

Progress on No. 2007 *Prince of Wales - Mandy Grant/A1SLT*

# AN AUDIENCE WITH THE *PRINCE OF WALES*

**NEW 2020 ROADSHOW PROGRAMME**

Following on from the success of our 2018 and 2019 Roadshow programme, we are continuing the Roadshows in 2020 with a series of presentations on the project to build new Gresley class P2 No. 2007 *Prince of Wales*. Each presentation will feature key team members including Mark Allatt and/or David Elliott and will cover the background to the project, progress to-date, future plans and details of how to get involved. We would encourage you to attend one of these Roadshows and bring along some friends and family members who would be interested in hearing about the project. The two hour presentations will start promptly at 11:00hrs and run until 13:00hrs* on each of the days listed below and are open to existing supporters and interested members of the public:

- 29th February - London Transport Museum, Covent Garden, London
- 21st March - Great Northern Hotel, Peterborough
- 18th April - Darlington Locomotive Works
- 23rd May - Nene Valley Railway, Wansford*
- 6th June - Hallmark Hotel, Carlisle *
- 4th July - Darlington Locomotive Works
- 23rd July - Jurys Inn Aberdeen, Aberdeen *
- 22nd August - Darlington Locomotive Works
- 3rd October - Darlington Locomotive Works
- 10th October - Great Northern Hotel, Peterborough
- 21st November - Darlington Locomotive Works

* Please contact the office for timings.

For more information, visit www.p2steam.com, email enquiries@p2steam.com or call 01325 460163.

## OPEN DAYS AT DARLINGTON

We hold public open days at Darlington Locomotive Works on the first and third Saturday of every month from 11:00hrs to 16:00hrs. If you are driving to DLW, please park along Hopetown Lane as the Head of Steam museum car park is for those visiting the museum.

- Saturday 7th March
- Saturday 21st March
- Saturday 4th April
- Saturday 18th April

Come and see the progress of No. 2007 *Prince of Wales* for yourself!

## VOLUNTEER

As ever, we are looking for more volunteers. It takes a lot of people to both keep *Tornado* on the main line and also to build *Prince of Wales*. There is always so much more that we can achieve with the right volunteers, with the right skills and can-do attitude. **We are currently looking for more volunteers to join the Open Days team** at Darlington Locomotive Works and the **P2 Roadshow team.** If you have a passion for fundraising or engineering please do get in contact. For more information, please email our volunteers coordinator.

## TRAVEL WITH *TORNADO*

No. 60163 *Tornado* passing Beeston Castle, December 2019 - *John Halliwell/A1SLT*

For more information on *Tornado's* 2020 Railtour programme click here or call Tornado Railtours on 01325 488215. The Trust respectfully requests that anyone wishing to see *Tornado* follows the rules of the railway and only goes where permitted.

## PRESENTATIONS

If any railway society, or indeed other interested groups, would like a presentation on the project they can contact us by emailing enquiries@p2steam.com

## EASYFUNDRAISING

Users of Easyfundraising to support the Trust should please note that the relationship with Amazon is changing. Rather than Amazon donating via Easyfundraising, they will now do so via their own Amazon Smile process. The A1 Steam Locomotive Trust is registered as a charity with Amazon Smile so please ensure that next time you use Amazon, you opt to join Amazon Smile and select the Trust to benefit from anything that you buy.

For anyone who doesn't use Easyfundraising but does use Amazon, please help by selecting the Trust. Just type "The A1 Steam Locomotive Trust" into the search box the click to select when it is displayed as the result. Please contact us at enquiries@a1steam.com for more information.

*Copyright © 2020 The A1 Steam Locomotive Trust, All rights reserved.*

**Our mailing address is:**
The A1 Steam Locomotive Trust, Darlington Locomotive Works, Hopetown Lane, Darlington. DL3 6RQ