

THE MIKADO MESSENGER



2007 PRINCE OF WALES
Building Britain's Most Powerful Steam Locomotive

Welcome to edition No. 50 of *The Mikado Messenger*. The *Messenger* aims to provide a regular bulletin of news about the construction of No. 2007 *Prince of Wales*.

We would like to wish all our supporters a very merry Christmas and a prosperous New Year. The team working on No. 2007 *Prince of Wales* have been busy preparing the wheelsets for painting and lots of design work has been ongoing in the background.

Also this month, we have seen an uplift in our fundraising activities with lots of components being sponsored for Christmas presents along with interest in The Motion Club and The Boiler Club and Covenantor scheme.

NEWS BRIEFS

BOARD AND MANAGEMENT CHANGES - The A1 Steam Locomotive Trust has made various changes to its Board and Management team. These changes are detailed in Issue 100 of *The Tornado Telegraph*. You can read more about this [here](#).

NEW YEAR COMMITMENTS - The team building No. 2007 *Prince of Wales* have set the following targets for 2019 which will see the project move on significantly.

- Pony truck complete
- Boiler ordered
- Tender tank and frames substantially complete
- Electrical trunking designed
- Two air pumps overhauled for fitment
- Pipework layout designed
- Heavy motion partially delivered
- Cylinder block design complete and under construction
- Valve gear in manufacture.

FRAMES - The order is being placed for the outside motion brackets with North View Engineering Solutions in Darlington with delivery expected late February/early March.

WHEELSETS - Ian Matthews has completed the filling of the coupled wheel spokes as far as he can. He has to leave the area round the balance weights until the balancing is complete as the heat from the molten lead alloy which is to be poured into the weight plates between the spokes will burn paint and filler. The rest has been primed in grey followed by a rather fetching shade of blue undercoat to act as a marker layer to help with the final rub down - high spots will revert to the grey primer without breaking through to the filler.

Daniela Filová has started FEA (Finite Element Analysis) work on the pony truck frames to support a submission to our certification Body Ricardo Rail.

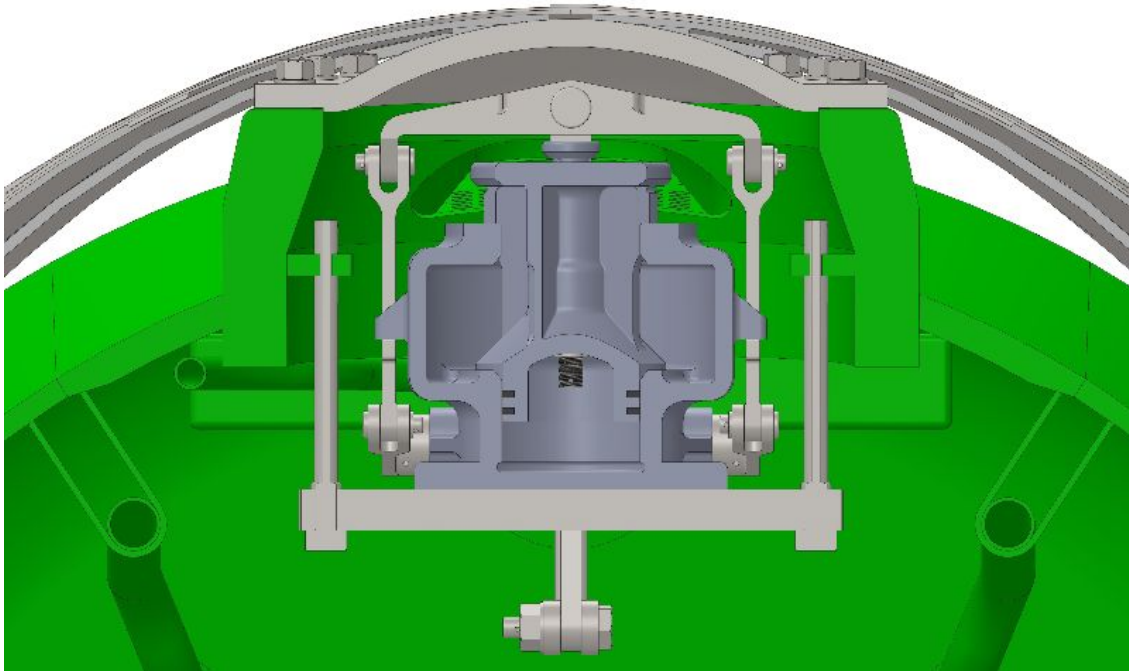


Ian Matthews painting the wheels in undercoat - *David Elliott/A1SLT*

AIR PUMPS - An order has been placed on Meiningen to overhaul the second of two Finnish air pumps that we acquired last year.

BOILER - David Elliott has completed the revised dome profile 3D model to enable Meiningen to incorporate this into the updated boiler design as the *Tornado* dome studs were found to poke through the cladding on the P2! The section on the image below shows the reprofiled dome with the regulator fully open.

Meetings have now been held to discuss the manufacture of the boiler with the companies that have responded to our earlier request for expressions of interest. Once the updated boiler design is available, we expect to be in a position to select a manufacturer and place the order in the first quarter of 2019. The requested delivery date is December 2020.

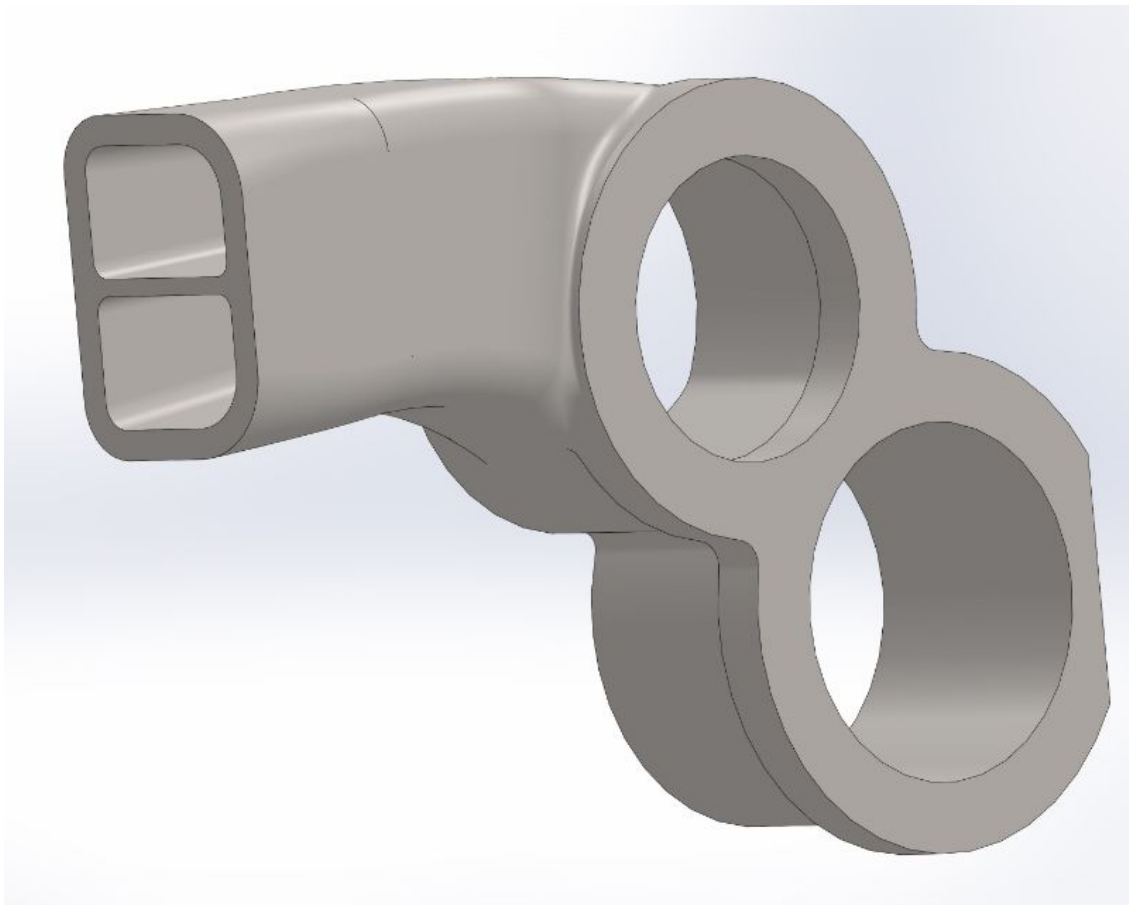


Reprofiled dome with the regulator fully open - *David Elliott/A1SLT*

MAJOR BOILER FITTINGS - The machining of the superheater header is under way at Multi-Tech Engineering at Ferrybridge.

Following responses to requests for quotation (RFQ) for the regulator castings we expect to place an order shortly.

CYLINDERS - Daniela Filová has conducted FEA on the castings for the steam passages/valve chambers including incorporating mid-feathers to reduce the maximum stress to an acceptable value. The sectioned casting model shows the mid feather in the steam passage on one of the castings for the inside cylinder. Quotes are being sought to manufacture these items.



TENDER - I D Howitt Ltd continue to make progress with fabrications and machining castings for the tender frames.

We have received three quotes for constructing the tender tank and are near to a decision on which company to use and expect to place an order in the New Year.

ELECTRICAL - Arrangements are in hand to balance the new turbo-generator turbine wheel, after which it can be tested by replacing a heavily worn turbine wheel on the turbo-generator presently in use *Tornado*.

Quotes are being sought to manufacture the casing and details for the newly designed axle driven alternator which is required to replace the elderly and scarce Stones Altonum alternators presently used on *Tornado* and our support coach. These are expensive to maintain and overhaul and use an increasingly unreliable 1960s transistor design of regulator. The new design uses a 180amp truck/bus alternator which is readily available both new and overhauled, is relatively cheap and has the regulator built in.

ENGINEERING MANAGEMENT - We are pleased to welcome Richard Pearson who has joined us recently from a similar role at Locomotion at Shildon. As Engineering and Workshop Manager he will oversee day to day activities in Darlington Locomotive Works and to beef up our engineering capacity to maintain *Tornado*. Richard's leaving gift from Locomotion was a sponsored component on *Prince of Wales* of 1" BSW driving bolt and nut, specifically, bolt and nut 7 that holds the intermediate RH hornblock onto the frames - an appropriate leaving gift!

TRACKWORK - As you may have noticed, *Prince of Wales* is being built facing the opposite way to *Tornado*. This will assist at the end of the build when we are steam testing as it will be possible to have most of the locomotive in the shed with only the chimney outside. It also provides more exciting photographic opportunities with the front of the engine emerging from the Works. However it does introduce a logistical problem when the tender arrives, in that it will be at the wrong end of the engine! For space and access reasons during the build, the engine needs to be at the street entrance end of the works, as the mess-room and store prevent the use of the fork lift truck on the west side of the building when a vehicle is parked next to them. This is less of a problem for the tender where there is little need for a fork lift to fit and remove components.

To remove the requirement for crane or skate shunting, we have made use of the turnout that was built into the trackwork outside the works when *Tornado* was approaching completion to install a short siding. This will facilitate swapping over the vehicles from time to time.



Track at DLW - Leigh Taylor/A1SLT

PROGRESS TO DATE

- Frame plates for engine and tender rolled and profiled; engine's frames erected at Darlington Locomotive Works; all major engine frame stays, brackets, horn blocks, axleboxes and buffers cast (44 in total); over 1,000 fitted and driven bolts ordered and delivered, approximately 800 now fitted to the frames
- All 20 wheels for engine and tender cast and proof machined; engine wheelset assembly complete, balance weights manufactured and fitted, tender axles delivered
- Preliminary discussions held with boiler manufacturers and forged foundation ring corners manufactured and machined; start made on boiler fittings with castings for combined injector steam and delivery valves; order placed with DB Dampflokwerk Meiningen to update the design to incorporate modifications and improvements fitted to *Tornado's* boiler over the last 10 years
- Study into ride and suspension completed using rail industry standard Vampire® software; Finite Element Analysis completed on re-designed crank axle to ensure it complies with modern standards; assessment and notified body appointed to oversee certification - first site visit made
- Cab erected and cab side window frames fitted; engine footplating and splasher kits delivered and permanently fitted to frames
- Smokebox door pressed, details made and door completed; door frame manufactured, smokebox delivered and erected; chimney cast and fitted
- Crosshead castings delivered; connecting and coupling rods ordered and manufacture started
- Boiler cladding assembly jig built, cladding crinolines and hoops rolled and fitted to jig, cladding sheets made and trial fitted to the engine's frame
- Tender frame construction under way, axleboxes and other tender castings delivered from William Cook Cast Products; tender tank procurement process underway
- Nameplates and chime whistle delivered
- Over £2m spent, £2.5m donated and over £3.1m pledged.



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

FUNDRAISING

'P2 FOR THE PRICE OF A PINT OF BEER A WEEK' - In the first three weeks of December, we have welcomed an additional 10 new P2 Covenantors on-board. If you haven't yet signed up to our monthly donation scheme we would encourage you to get on board - you can find more information [here](#).

THE MOTION CLUB - The Motion Club has now welcomed almost 110 members, with only 65 members remaining of our 175 member target. With the order placed for the coupling and connecting rods, these should start to arrive at Darlington in quarter one of 2019.

THE BOILER CLUB - The Boiler Club is now approaching the 170 member mark, leaving just over 130 spaces available. With a decision being made on the boiler manufacturer towards the end of 2019, 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, meaning it is vital to increase the donations towards the boiler so we can place the order with confidence.

DEDICATED DONATIONS - A number of supporters have given the gift of steam this Christmas, sponsoring components for their loved ones. You can sponsor components on No. 2007 *Prince of Wales* from as little as £25.00 ranging up to £15,000! This scheme has already raised in excess of £265,000. 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.

For more information on how you can help to build Britain's most powerful steam locomotive visit www.p2steam.com, email enquiries@p2steam.com or call 01325 460163.

AN AUDIENCE WITH THE *PRINCE OF WALES*

Following on from the success of our 2018 Roadshow programme, we will be continuing the Roadshows in 2019. We will be holding 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 presentation 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:

NEW 2019 ROADSHOW PROGRAMME:

- Saturday 12th January 2019 - Great Northern Hotel, Peterborough
- Saturday 9th February 2019 - London Transport Museum, London
- Saturday 2nd March 2019 - Darlington Locomotive Works, Darlington
- Saturday 6th April 2019 - Principal Hotel, York
- **AMENDED DATE** Saturday 1st June 2019 - Dundee Heritage Trust, Dundee
- Saturday 8th June 2019 - Royal Station Hotel, Newcastle
- Saturday 6th July 2019 - Darlington Locomotive Works, Darlington
- Saturday 14th September 2019 - Leeds - venue to be confirmed
- Saturday 2nd November 2019 - Darlington Locomotive Works, Darlington
- Saturday 7th December 2019 - Pendulum Hotel (Manchester Conference Centre), Manchester.

For more information on the P2 Roadshows visit www.p2steam.com, email enquiries@p2steam.com or call 01325 460163.

PRESENTATIONS

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

EASYFUNDRAISING

Now is the time of year when many people start thinking about Christmas shopping. Why not help the Trust at the same time by doing your online searches through EasyFundRaising, painlessly raising cash for The A1 Steam Locomotive Trust every time you spend online? You can find details of how to do this [here](#).

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. If you have a passion for raising money or engineering please do get in contact. For more information, please [email us](#).

TRAVEL WITH *TORNADO*

For more information on *Tornado's* tours and where you can see her, click [here](#).

The Trust respectfully requests that anyone wanting to see *Tornado* follows the rules of the railway and only goes where permitted.

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



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