

THE MIKADO MESSENGER



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



The tender tank in green undercoat - A1SLT

Welcome to edition No. 70 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*.

As you will read elsewhere in this issue of *The Mikado Messenger*, significant progress is being made on all current areas of activity including both of our new boilers where assembly of the first boiler is imminent and both the tender tank and frame.

Due to the ongoing COVID-19 situation, our staff are still working from home or at Darlington Locomotive Works (DLW) where they are taking all the necessary precautions. The Works remain closed to volunteers, non-essential staff and visitors. We hope you understand that these circumstances are beyond our control and the restrictions are very necessary at this challenging time. We are reviewing all our activities on a frequent basis to protect everyone involved with the Trust and to secure our long-term future. Please keep an eye on our website and Facebook pages for updates or call 01325 460163 or email enquiries@p2steam.com if you have any questions.

FUNDRAISING UPDATE

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. 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 Boiler Club has reached 200 members, leaving just 100 spaces available - hitting the two-thirds milestone. As substantial progress is now being made on our boilers, 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 2021. More information about The Boiler Club can be found [here](#).

The Tender Club is still filling up rather slowly, with 78 places taken. In order to keep on schedule to complete No. 2007 within three years, we need to complete the manufacture of the tender frames. Our target for The Tender Club is 250 members, contributing £1,500, so if you would like to contribute towards the tender more information can be found [here](#).

We launched **The Turbogen Club** in July and the fundraising campaign has already 'generated' 14 members. Our target for The Turbogen Club is 40 members, contributing £1,000, so if you would like to contribute towards the turbo-generator more information can be found [here](#).

Our newest fundraising campaign, **The P2 Support Coach Appeal**, was launched earlier this month to acquire, overhaul and convert BR Mark 1 BSK E34547 into the support coach for No. 2007. Our target is to raise £100,000 from 100 supporters each donating £1,000. We have already recruited seven supporters and if you would like to contribute towards this appeal more information can be found [here](#).

The Motion Club has now reached our initial 175 members target. As you will see below, the machining of the four coupling rods is underway. You can find more information about The Motion Club [here](#) - help us to fund the manufacture of No. 2007's motion!

The Pony (Truck) Club, has attracted substantial interest and has galloped past its initial target. You can find more information about The Pony (Truck) Club [here](#) - help us to fund the manufacture and certification of No. 2007's pony truck.

You can sponsor components of No. 2007 *Prince of Wales* from as little as £30, ranging up to £15,000! The **Dedicated Donations** scheme has already raised over £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, £2.5m has been spent and £3.0m raised of the required £5m to complete No. 2007 *Prince of Wales* within the next three years.

If there are any surplus funds left when our fundraising clubs have fulfilled their nominated purpose, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have.

ENGINE FRAMES UPDATE



Countersinking holes for the driven bolts which attach the motion brackets to the frames - *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: with the tender tank undercoating complete it has been possible to remove the wheelsets from under the engine frames. This has permitted fitting of the remaining driven bolts and cold turned rivets in the outside motion brackets and the spring hangers.

Next steps: the final significant work on the frames is to make and fit the shelf that is located between the outer rear frames under the cab. The detailed design of this has been held back pending the final decisions on the type and location of injectors to be fitted which influences details of the shelf. The shelf also supports electrical trunking and terminal boxes for the umbilical cables between the engine and tender - the design of this is being finalised to enable a profile to be ordered.

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.

PONY TRUCK UPDATE



Daniela Filová inspecting the pony truck frame at NVES - A1SLT

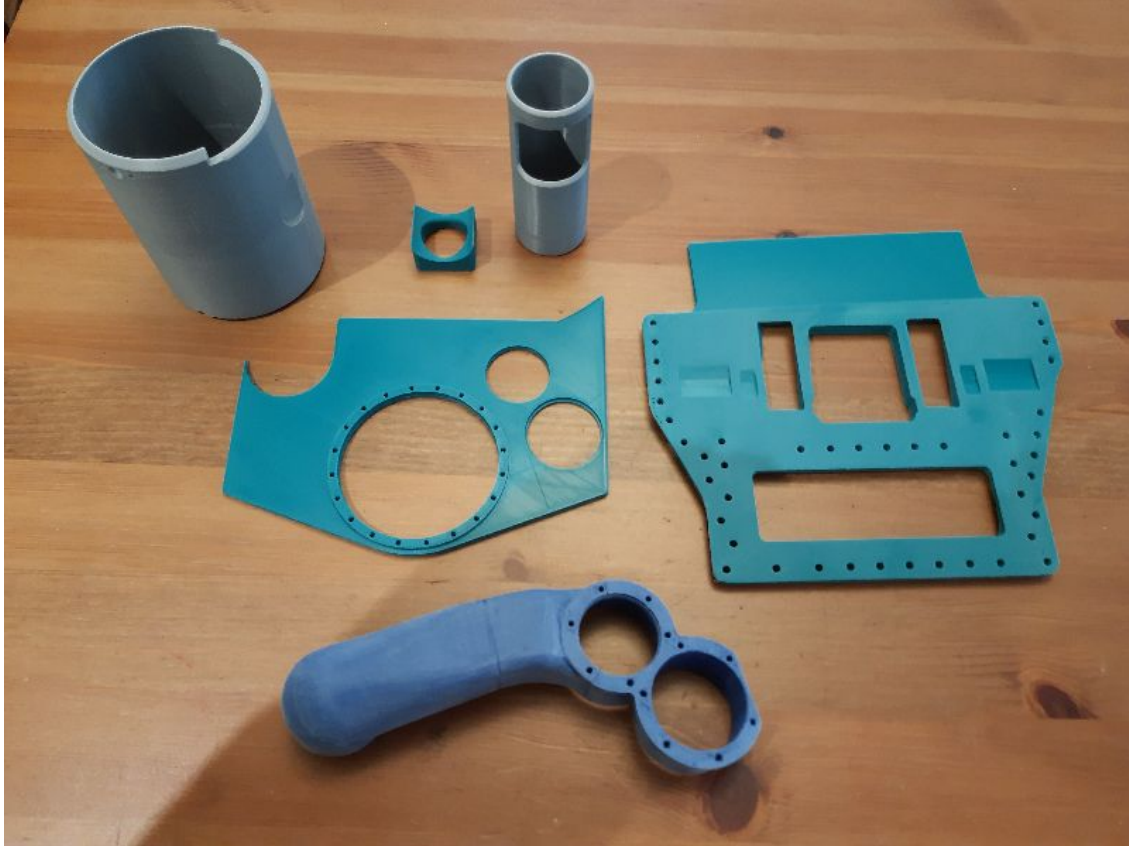
Summary: redesign of the pony truck, using side control springs, has been completed; order for pony truck frame fabrication placed with North View Engineering Solutions (NVES) in Darlington; pony truck wheelset and cannonbox delivered.

Progress update: NVES has completed fabrication and preliminary machining of the three primary components for the pony truck.

Next steps: stress relieving, grit blasting and priming of the pony truck frame followed by machining; manufacture of spring gear details; final assembly of the cannonbox onto the wheelset; machining of the spring planks, support and progress on the design verification study.

Fundraising: in April 2020, we launched a £20,000 appeal - The Pony (Truck) Club - to fund the construction of the leading pony truck for No. 2007 *Prince of Wales*. We set a minimum target of 20 generous supporters willing to donate £1,000 plus Gift Aid (in up to four payments of £250) but this mini-club has galloped away and already passed its initial target. We have therefore decided to extend the club by a few members to cover the considerable certification costs associated with the modified pony truck design. Please consider joining The Pony (Truck) Club in advance of the frame's delivery to DLW. For further information click [here](#).

CYLINDERS UPDATE



3D printed parts of the 1:8 scale cylinder block model - A1SLT

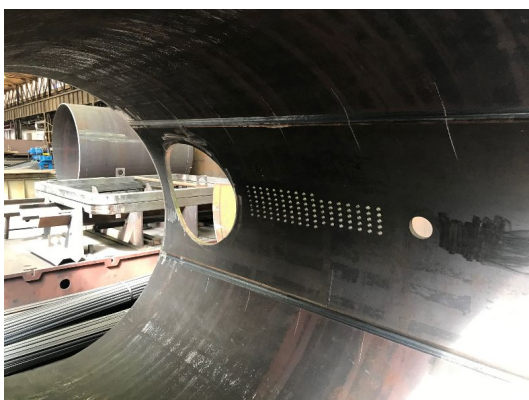
Summary: design studies into cylinder block manufacture and selection of valve gear complete; 3D CAD design of the cylinder block and valve gear substantially complete; further progress has been made in applying the weld details to the cylinder block inside exhaust passages with particular attention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

Progress update: further work on the 1:8 scale 3D model of cylinder block.

Next steps: continuation of detailed 2D manufacturing drawings for the cylinder block; further research into optimising steel grades for the tubes used for the cylinders, valve chests and for cast steam ports.

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





Boiler components at DBM - clockwise from top left: dome & steam collector holes for banjo dome; foundation rings; a close up of the front tube plate; machined manhole ring & main steam pipe joints - A15LT

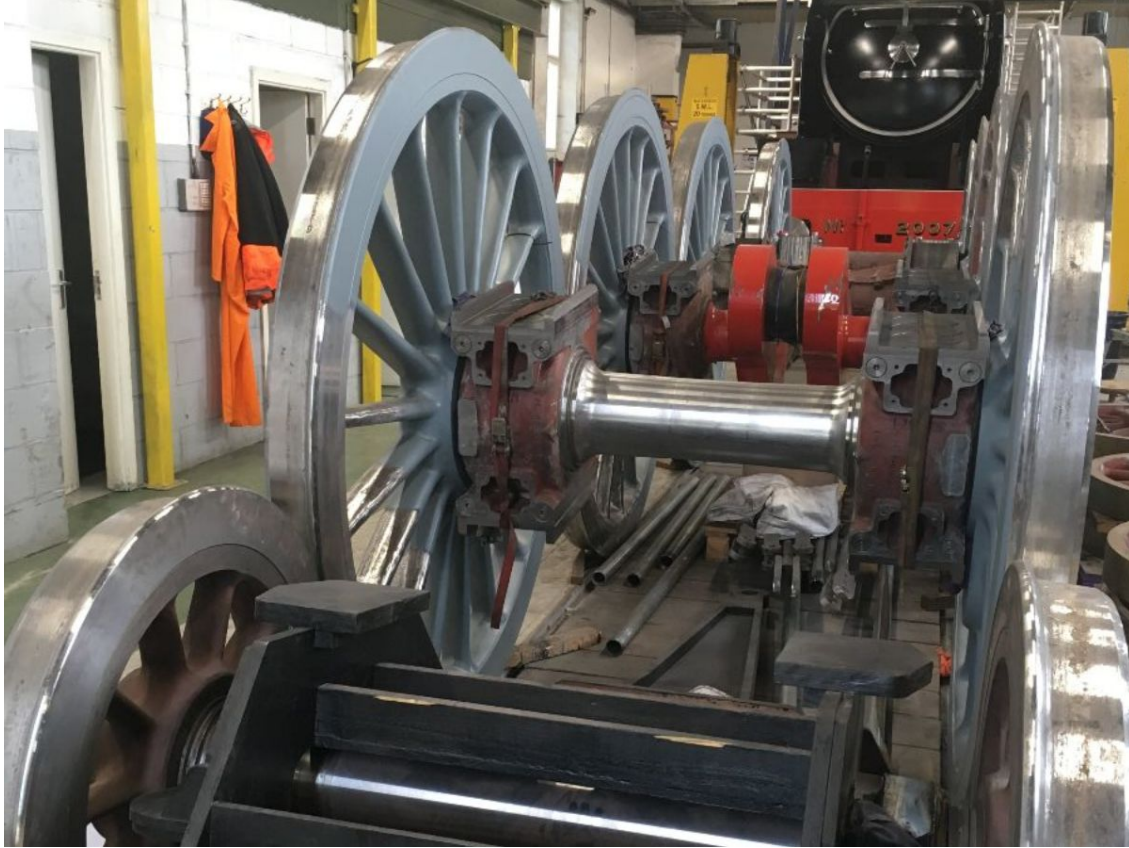
Summary: boiler design study completed, revised design approved by TÜV Sud notified body and sent to UK authorities for information and comment; forged foundation ring corners manufactured and machined; regulator castings delivered; superheater header cast and machined; boiler cladding manufactured, trial fitted to frames and now in storage; boiler order placed with DB Meiningen (DBM) for delivery in 2021; foundation ring forgings and regulator castings despatched to DBM; minor re-design of the banjo dome to suit the P2 cladding completed by DBM; major progress on manufacture of the boiler and its components.

Progress update: notwithstanding COVID-19 issues, progress with the boiler is good and the work done to date of a high standard. Most of the detail components have been made and assembly of the first boiler is imminent. The blanks plugging connections to the boiler, which are required for hydraulic testing, have been extracted from the stores at DLW and sent to DBM.

Next steps: assembly of boiler barrels and firebox shells.

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 200 members who have generously donated over £450,000. For further information click [here](#) - we must reach our 300 members target in 2021.

WHEELSETS UPDATE



The engine wheelsets - A1SLT

Summary: study into ride and 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; cannon boxes ready for final fitment to intermediate and trailing coupled wheelsets.

Progress update: Ian Matthews has completed the additional machining of the lower coupled cannonbox halves to enable the spring links to be fitted - the castings being slightly oversize in this area have required additional machining.

Next steps: assembly of the intermediate and trailing cannonboxes onto their wheelsets.

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



Further progress with machining a middle coupling rod; coupling rod oil boxes machined (at Stephenson (Engineering) Ltd) - *Robert Stephenson/A1SLT*

Summary: all heavy motion ordered from Stephenson (Engineering) Ltd of Atherton; work started on machining the four coupling rods with first delivery due in autumn; updated poppet valve gear design almost complete with first components in manufacture.

Progress update: Stephenson continues to make progress with machining the first pair of coupling rods and have machined the oil boxes on the first pair of coupling rods; a video of the machining of one of the coupling rod can be seen [here](#).

Next steps: machining the rear coupling rods and forging the leading coupling rods; production of drawings for the coupling and connecting rod bushes.

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 reached the initial target of 175 members, who have generously donated over £200,000. For further information on how to become a member click [here](#).

TENDER UPDATE



Tender brake stay fabrication; machining a hornblock; a handbrake screw lever - all at I D Howitt, Crofton - A1SLT

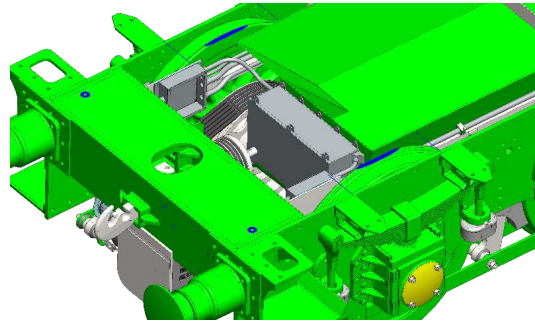
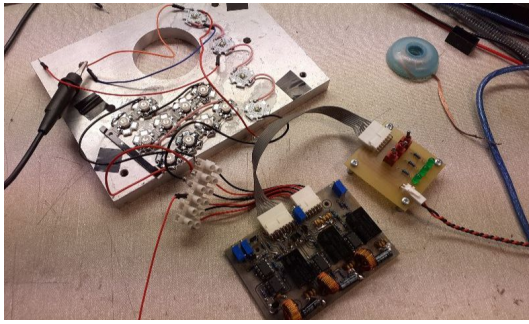
Summary: axlebox and other tender castings produced by William Cook Cast Products; frames being assembled by I D Howitt; tank construction complete, painted in green undercoat by Ian Matthews and now stored outside under a tarpaulin to create more space inside DLW; tender wheelsets at DLW, having been have been assembled South Devon Railway Engineering and painted by Ian Matthews.

Progress update: work on modelling and adding brake components in 3D CAD so that other parts can be made to fit around them; I D Howitt continues to make detailed parts including for brakes and hornblocks.

Next steps: continue 3D CAD work on tender; completion of the frames.

Fundraising: The Tender Club was launched in April 2019 to fund the construction of 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 so far only attracted 78 members who have generously donated over £130,000 - we still have a long way to go to fund the tender's construction. For further information on how to become a member click [here](#).

ELECTRICALS UPDATE



Clockwise from top left: Completed prototype LED drive electronics PCB; CAD image of the tender alternator battery box and trunking; structured trunking junction box kits; new combined head/tail/marker lamp luminaries - *Rob Morland/Alan Parkin/A1SLT*

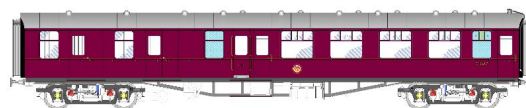
Summary: further good progress on the design of the electrical system; essential and auxiliary electrical system design approaching completion; engine wiring looms defined, wiring idents allocated and connector pinouts defined; work has commenced on the first design change submission documents describing the system design.

Progress update: work on the detailed design of the auxiliary services system is now substantially complete; all the engine wiring looms have been designed and every wire net has been allocated its unique identity code; connectors have been specified for each of the new electrical manifold connections between cab and frames, and for the umbilicals between engine and tender; Roger Millington has finalised the optical and mechanical design of the new combined head/tail/marker lamp luminaries and is ready to commence optical testing and alignment; Alan Green has designed and manufactured the first prototype PBC containing the LED drive electronics for all three lamp aspects; further 3D CAD work to the trunking and tender alternator at the read of the tender frames; 2D manufacturing drawings continue to be produced for the trunking system on the engine as work begins on the manufacture; kits have been assembled for all the engine electrical junction/routing boxes ready for customising.

Next steps: work continues on the tender conduit system; once this is complete the tender elements of the essential and auxiliary systems will be mapped onto the conduit runs and the wiring looms will be specified.

Fundraising: We launched The Turbogen Club in July and the fundraising campaign has already 'generated' 14 members - over a third of our target. Our target for The Turbogen Club is 40 members, contributing £1,000, so if you would like to contribute towards the turbo-generator more information can be found [here](#).

P2 SUPPORT COACH UPDATE



BR Mark 1 BSK E35457 and an image of the proposed finish of the support coach - *Gordon Best/A1SLT*

A unique opportunity has arisen for The A1 Steam Locomotive Trust to acquire BR Mark 1 BSK E35457 for eventual use as the support coach for No. 2007 *Prince of Wales*. Brake Corridor Second (BSK) E35457 was built at Wolverton in 1963, is fitted with Commonwealth bogies and was most recently used as the support coach for BR standard class 4 No. 76084. In surprisingly excellent condition, E35457 will require minimal work other than the reinstatement of its dual-brakes and the addition of a similar electrical system to that fitted to E21249, No. 60163 *Tornado's* support coach.

Fundraising: The P2 Support Coach Appeal was founded in August to fund the acquisition and overhaul of a support coach for No. 2007 *Prince of Wales* with a target of raising £100,000 from 100 supporters, each donating £1,000 in up to eight payments of £125. As of today, The P2 Support Coach Appeal has attracted seven members. For further information on how to become a member click [here](#).

MISCELLANEOUS FITTINGS



Part of the contract with DBM for the boiler included fitting the regulator and its control rods and levers, this includes the regulator stuffing box and cross shaft. The manufacture of the regulator cross shaft and detailed part for the stuffing boxes are underway at DLW; the stuffing box castings are almost ready for delivery to DLW.



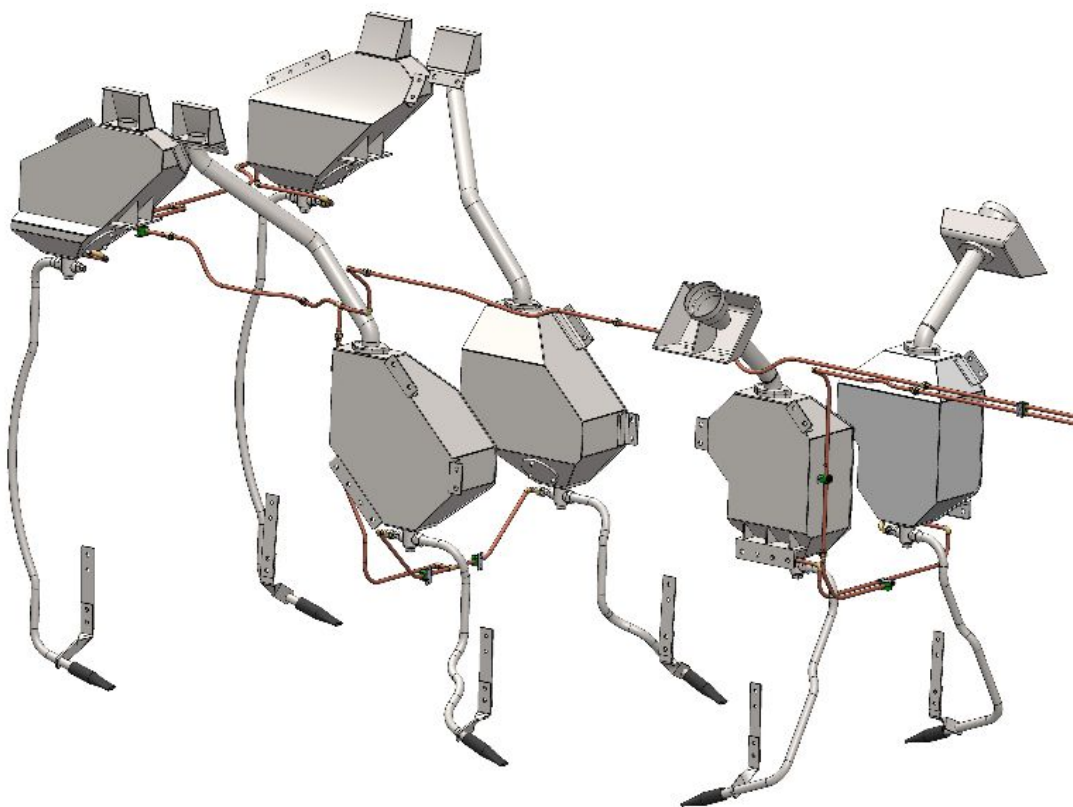
Engine rear brake hangers before fitting bushes - A1SLT

Running Gear

Summary: Brake gear fully designed and mostly manufactured, drain cock linkage (based on A1 design) drawn; linkage components made.

Progress update: the two brake cross shafts have been delivered from I D Howitt; rear brake hangers almost complete.

Next steps: now the wheelsets have been removed from the frames, the brake cross shaft bearing bushes can be completed and the brake shafts installed; cylinder drain cock linkage to be installed between the frames.



Sand boxes and pipework - *Alan Parkin/A1SLT*

Pipework

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

Progress update: Alan Parkin has continued drawing the pipework through the tender.

Next steps: continuation of design of pipework details; ordering of long lead items.

Fundraising

The Dedicated Donations scheme was founded to fund numerous components including the non-ferrous fittings and has raised over £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

TRAVEL WITH *TORNADO*



No. 60163 *Tornado* at Copy Pit - Mick Roger/A1SLT

We are very much looking forward to getting back on the rails with *Tornado* in September. Our first train will now be the '[Queen of Scots](#)' on 12th September followed a week later by the '[Ticket to Ride](#)'.

Towards the end of the year the locomotive will be operating across the network from London to Edinburgh, Bristol and Chester. We are also readying our plans for 2021, including confirming dates for tours postponed due to the pandemic, and will announce those just as soon as possible. Please see our

[website](#) for the 2020 Tour Diary.

Bookings for our tours can be made through our [website](#) or by calling 01325 488215.

THE A1 STEAM LOCOMOTIVE TRUST ANNUAL CONVENTION 2020

In what is The A1 Steam Locomotive Trust's 30th Anniversary we had hoped to make this year's Annual Convention a special celebration of what this amazing organisation has achieved. Sadly, the continued impact of COVID-19 has scuppered our plans for this year and we will have to revisit them at a later date once the world has returned to some semblance of normality.

However, we do intend to go ahead with our Annual Convention on Saturday 26th September 2020, albeit in an on-line format. This year's Virtual Convention will run from 10:30hrs to 12:00hrs on The A1 Steam locomotive Trust's YouTube channel. This is the link for the channel -

<https://www.youtube.com/channel/UCIqGYIL2vDP7cJuidkfSqwQ>. It will then be available for viewing via www.a1steam.com after the event.

As usual, the presentations will look at the Trust's achievements since the last Convention including *Tornado's* unfortunately limited main line operations and look forward into the 2021 programme.

It will also provide a progress update on the construction of *Prince of Wales* and the opportunity to 'virtually' view the current state-of-play with the locomotive at Darlington Locomotive Works. If you have any questions that you would like addressing, please submit them via enquiries@a1steam.com. There will also be an opportunity to submit further questions following the presentations.



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