



60163 TORNADO
New Western Locomotive Main Line



2007 PRINCE OF WALES
Darlington Locomotive Works' Most Powerful Steam Locomotive



3403 ANON
Recreating Gresley's last design

THE COMMUNICATION CORD

No. 57 Spring 2020



Daniela Floyd

'The Flying Mikado' - Prince of Wales being lifted for wheeling during March.

KEEP CALM AND CARRY ON BUILDING LOCOMOTIVES!

by Graham Langer

The original, "Keep calm and carry on" WW2 poster was never issued during the war but a copy turned up at Barter Books in Alnwick and the rest is history - David Champion, AI Trust President, is a director of Barter Books!

Time to emphasize the positive! Despite all that is happening in the UK, great progress continues to be made assembling No. 2007 *Prince of Wales*. Darlington Locomotive Works is still busy, albeit with social distancing in place, and some adjustment has been

made to the order of work but with the locomotive back on its wheels many of the smaller jobs can be completed and a start can be made on the byzantine piping, plumbing and conduit work that took up so much of the last year of *Tornado's* construction. The tender tank

has been delivered and is being filled and prepared for finishing by Ian Matthews, the tender frames are still coming together at Ian Howitt's engineering works and Meiningen is progressing the fabrication of the first of two Diagram 118a boilers for us. **TCC**

CONTENTS

PAGE 1	Keep calm and carry on building locomotives!
PAGE 2	Contents Editorial
PAGE 3	From the Chair AI Engineering report
PAGE 9	Keeping Tornado on the tracks Railtours Tornado Tour Diary 2020
PAGE 10	Tornado moves to York for storage
PAGE 12	First V4 electrical components
PAGE 13	Trust volunteers ‘crew’ HMS Prince of Wales
PAGE 14	The big picture
PAGE 16	AI Profile - No. 60128 Bongrace
PAGE 18	P2 engineering update
PAGE 24	The Pony (Truck) Club Whessoe Road update
PAGE 25	P2 Dedicated Donations update The Tender Club steadily filling up
PAGE 26	The tender tank is delivered
PAGE 28	P2 Fundraising
PAGE 30	The Boiler Club
PAGE 31	The race is on to get up steam! Workshop notes
PAGE 32	Come on, come on, do the loco-motion with me!
PAGE 33	Covenantors' Diary P2 Roadshows Club Badges
PAGE 34	Profile- Richard Pearson
PAGE 35	From the archives
PAGE 36	Sponsors and contact information

EDITORIAL by Graham Langer



Well, my opening comments in the editorial of TCC 56 proved to be a slight understatement! Just when you think the challenges facing main line steam are mounting, along comes Covid-19 to top them all. As you will read elsewhere in this edition of The Communication Cord, the Trust has felt the impact of this grim virus in much the same way as many other businesses and *Tornado* has been mothballed until the situation for railtours improves. With some staff furloughed and others working from home we have tried to ensure the safety of our team

members whilst continuing as best we can but there is no doubt that the railtour side of the business will take a big hit. Many preserved lines have already launched successful emergency appeals to cover their predicted shortfalls but our bedrock is our covenanted income and hence our covenantors; alas ‘anno domini’ is beginning to make inroads in to their number and Covid-19 is not helping either. In order to arrest this process it is essential to keep adding new recruits to the cause and here you can help by signing up a friend or family member. Another way to help is to increase your “AI for the price of a pint of beer a week” Covenant, a few people are still subscribing at £1.25 per week – the price of a pint of beer in the North East has been considerably more than that for quite a while!

The good news (for there is some!) is that work on *Prince of Wales* has not been halted. As you will read further on, great strides continue to be made with the erection of No. 2007. The tender tank has been delivered, the boiler is getting built in Germany and in distant Crofton the tender frames are coming along. The first components for the pony truck have been delivered to Darlington Locomotive Works and the recent launch of our first ‘mini club’, The Pony (Truck) Club immediately raised a staggering £25,000 and is now complete! The Motion Club is nearly complete, The Boiler Club is two thirds full and The Tender Club is starting to gain ground. It would be terrific to push The Motion Club over the finishing line since the first components have already been forged and we now need to meet the substantial cost of machining them.

Sadly Covid-19 claimed one of the Trust’s friends, John Farrow of UK Railtours, succumbed with the virus at the Royal Free Hospital in London on 19th April. Some of us had known John since his Hertfordshire Railtours days and members of the Trust had worked with him for a number of years as head of UK Railtours.

I am sure I speak for all at the Trust in hoping that you stay safe and well and that you and your families manage to avoid this unpleasant virus. We look forward to welcoming you back on one of our trains in due course, at a roadshow or Darlington Locomotive Works once we have re-opened to the public.. **TCC**



Pony (Truck) Club now full.



The tender tank is delivered.

Daniela Flord

From the chair by Steve Davies



These are undoubtedly interesting and challenging times to be assuming the Chairman’s role, but I have never been one for a quiet life. We have great plans for the future but the catastrophic events our Country and the rest of the world are facing are undoubtedly having a major and very negative impact on railway heritage in its broadest sense, and

our Trust is not immune from that. Frustratingly, *Tornado* is currently mothballed at the National Railway Museum in York having emerged from its winter maintenance programme – undertaken at Leeming Bar courtesy of our friends at the Wensleydale Railway – unable to do what she does so well: acting as the best possible roving ambassador not just for herself but also for the P2 and in due course the V4. It is the drama and excitement of seeing the AI speeding along on the main line that helps to attract supporters and, critically, their hard-earned money, as do the regularly published reports and images of progress with *Prince of Wales*. Moreover, the series of P2 Roadshows have had to be suspended, denying us another route to accessing and inspiring the supporters of the future. The combined effect of all this disruption will inevitably result in a downturn in regular income, so we will be watching the monthly bank statements like hawks for signs of the scale of that reduction – please stay loyal at this challenging time to what I fervently believe to be one of UK railway heritage’s most professional, eye-catching and inspirational projects.

I and my Council colleagues are making it our top priority to ensure we get through these present difficulties and emerge in a strong but sustainable position to operate the AI, finish the P2 and start the V4. Given what I said earlier, it

will come as no surprise that we as a Council are therefore supremely focused on our financial situation, and I have made it my first priority as Chairman to satisfy myself that we have in place processes and procedures that reduce or, preferably, eliminate risk whilst ensuring that we continue to drive forward the projects our supporters have charged us with delivering. The slow return to revenue earning traffic of *Tornado* after its unfortunate failure on the main line undoubtedly cost us money, and the resultant financial void that the incident created is still partially felt today, hence why we manage every single penny with great care. By contrast we have some excellent news to shout about, including the construction of our new boilers in Meiningen, the recent delivery of the P2’s tender body and tank, production of the P2’s motion and a whole host of other important parts and components. We are also enjoying an especially positive relationship with Darlington Borough Council both through our active support to their objective of retaining Locomotion No.1 at the Head of Steam Museum, and in the development of the Heritage Quarter which will see us benefit from a major new construction and maintenance facility fit for the 21st Century.

Remarkably this is our 30th anniversary year – where has time gone? – and to mark this historic milestone it is our intention to launch an anniversary appeal later in the year to help underpin the quite wonderfully generous contributions so many have made – and continue to make. We can be proud of what has been achieved in building and operating *Tornado* and equally proud of our ambition and determination to bring other long-lost steam locomotive classes back to life. We truly represent steam’s best hope of being on the main line in 30 years’ time, and I and my colleagues will continue to play our part in converting the dreams that we all share into reality. My very best wishes to you all, and please stay safe.

TCC

AI ENGINEERING REPORT by Richard Pearson

In the last edition of *The Communication Cord*, Huw Parker left us in mid-overhaul. Richard Pearson now picks up the story to cover the conclusion of *Tornado*’s very thorough winter maintenance. All photos by Richard Pearson.

During its overhaul at Darlington Locomotive Works (DLW) the exhaust injector was completely stripped. The water valve, water control valve piston, and the overflow clack received attention, as well as the cones from within the main injector. The combining cone has a sacrificial tip, which is renewable – the old tip showed slight signs of wear, so this was replaced, the first picture shows the old and new tip. The second picture shows the new tip in position inside the combining cone.

The exhaust steam cone was removed for cleaning (this is the cone that moves when you adjust the water feed handle in the cab). During the cleaning process, the ‘O’ rings both split showing signs of age as they had become brittle. New ‘O’ rings were ordered to finally finish the work on the injector.



Above: The split ‘O’ rings.



Refitting of the cylinder cover.

Adrian Wood and Terry Newman.

Both of the outside pistons had new piston rings fitted, then it was the turn of the inside piston. This job however presented many more challenges as we first struggled to remove the inside gudgeon pin, and then the cross-head cotter. We did eventually achieve our goal and here we see Ian Greenan and Alex Jude refitting the cylinder cover.

In new year the team was bolstered by the presence of long-time Trust supporter Terry Newman. Terry conducted an inspection of the engine's lubrication systems, cleaning oil pots, and making and fitting new trimmings as required. Here we see Terry working on the left-hand little end oil pot and new volunteer Adrian Wood can also be seen cleaning the centre cylinder cover. Terry was one of our first Responsible Officers when *Tornado* first entered traffic on the main line.

A task which wasn't planned for and took considerable time was the removal of the old and the replacement of the safety valve studs. After several days of blood sweat and sometimes tears, we did eventually manage to remove the old studs and fitted the new studs. The photo shows the new studs in position, gaskets and blanks having been fitted in preparation for the boiler hydraulic test.



Above: New studs.



Left: Safety valves.

The safety valves were both sent to LMS for annual inspection and overhaul.

Another challenge was the removal of the boiler bottom belly door. This was needed to allow the welding of a new washout door aperture into the belly door. There are 20 large nuts which hold the belly door onto the bottom of the boiler, and the door is under the engine in a very difficult to reach position. They were all very tight and all required heating to 'cherry red' before then using a large spanner and a large hammer to remove them. Due to their position it was only physically possible to remove three or four an hour, so removal of the door took a couple of days. The first picture shows the door in position on the boiler and the second shows the door after removal, the old aperture which will be replaced can be seen in the centre of the door, the third the renewed door.



Boiler bottom belly door in position.



Door after removal.



The renewed Door.



Exhaust injector.



Ian Greenan and Nik Proctor.

With the arrival of the new 'O' rings the work on the exhaust injector was completed. The first picture shows it back in one piece and on the bench at DLW. The second picture shows Ian Greenan and Nik Proctor fitting the injector. Access to the injector is not the best – one man needs to work in the pit under the engine while the other works from outside. Lifting/jacking the injector up into position was made a little easier as the engine and tender were not coupled together. And we all now know why the BR Standards have the injectors on the outside!



Oceaneering International Services Ltd visited again, this time to MPI the boiler repairs. The picture shows the weld being tested on the right-hand rear corner new boiler washout door aperture. No defects were found.



In preparation for reassembling the engine, all the copper pipes were annealed, and have all been polished. Nik Proctor has put many hours into polishing the pipes, but here we see James Percy polishing one of the injector steam pipes.



James Percy.

The team then drained out the old oil and cleaned and examined the cylinder mechanical lubricator. The lubricator itself was fine, but we did find a fault with slack in the drive mechanism. The slack was allowing around three inches of movement of the main drive before giving drive through the ratchet to the lubricator, therefore reducing the stroke and the amount of oil being delivered to the cylinders. The fault was traced to a loose key in the main drive shaft, the key was badly worn and was rolling in its slot (see the second photograph). A new key was manufactured and fitted, and the drive to the pump improved. Our oil consumption should now increase back to normal levels! The sight glasses have also been cleaned and a letter 'F' added to the scale which now provides an indication of when the lubricator is full. This should hopefully prevent overfilling.



Above: Worn drive shaft key.

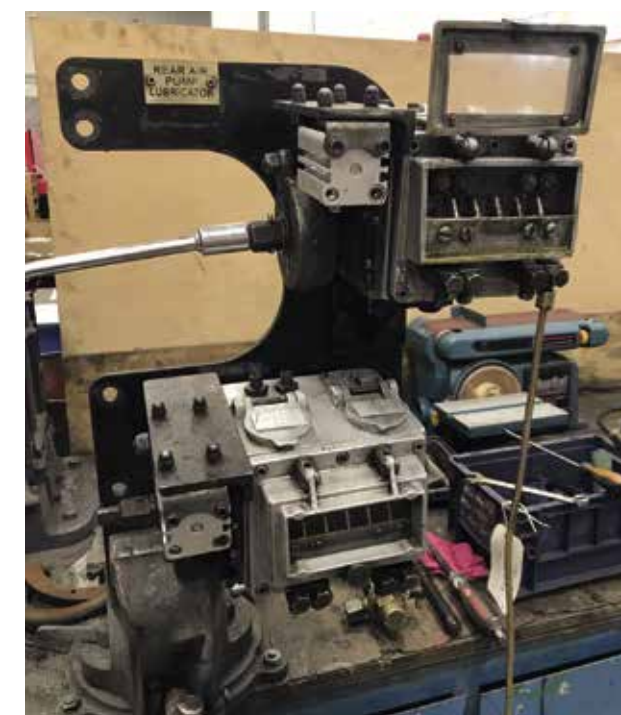
Left: cylinder mechanical lubricator.



The pneumatic greaser being used to grease the driving wheel axle boxes.



The covers were removed from the Cartazzi axle boxes for visual examination, all was found to be well.



The front and rear air pump lubricators under test after overhaul at DLW.



The boiler passed a hydraulic test in front of Andy Wright, the boiler inspector from British Engineering Services. Andy reports that he is very happy with the boiler and following the hydraulic test he agreed to sign the boiler off until 2025, subject to successful annual inspections. Andy returned on 27th February to carry out a final in-steam inspection. The pictures show the fire grate being refitted – prior to the work to refit the lagging cladding and pipework. Steam tests then followed!



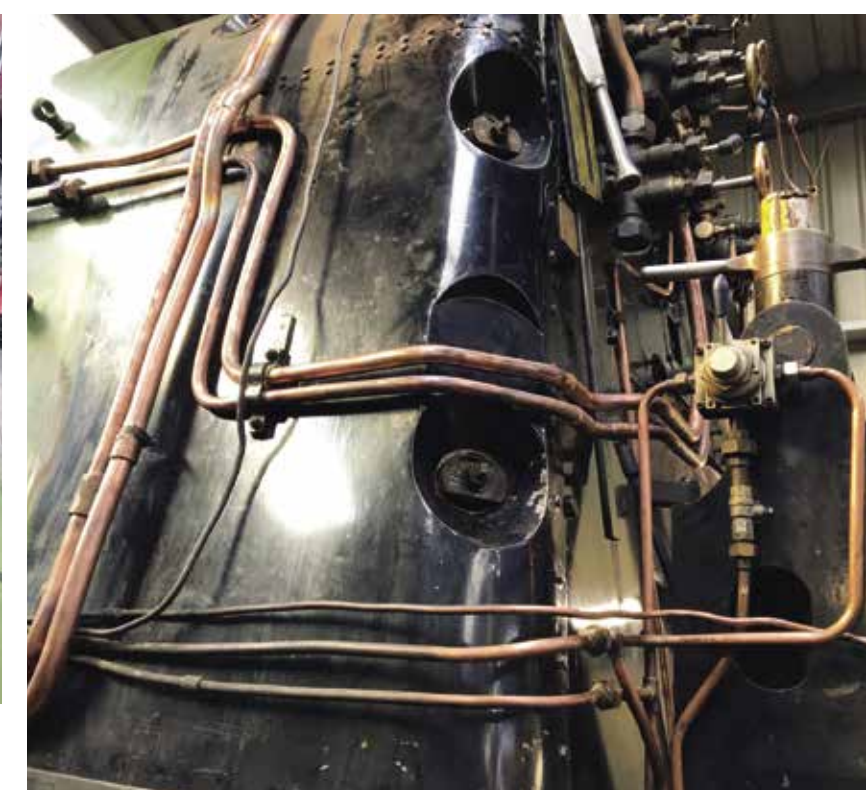
David Wright and Nik Proctor refitting the backhead cladding.



The new firehole door mouthpiece is set up ready for welding.



The safety valves were returned from LMS, where they had been undergoing their annual inspection and overhaul were re-fitted to the boiler.



Seemingly miles of pipework were refitted.



All photos by Richard Pearson.

The cab was then finally replaced.



Success! *Tornado* is fired up and passes her steam test. **TCC**



He must be missing her! DB Cargo Traction Inspector Jim Smith visited *Tornado* during her winter maintenance at the WR.

KEEPING TORNADO ON THE TRACKS *by Mark Allatt*

Keeping No. 60163 *Tornado* in tip-top working order is an expensive business as we are constantly being reminded! The profit from operating our programme of main line tours and *Tornado's* hire fees from heritage railways and working for other rail tour promoters normally covers her day-to-day and year-to-year maintenance costs. However, not only do they do not at present generate a sufficient surplus to fund her five and ten year overhauls, conservatively estimated at around £500,000 each, with *Tornado* in hibernation at the National Railway Museum she isn't able to generate these fees or be the greatest advert for becoming an 'A1 for the price of a pint of beer' (£2.50 per week) Covenantor. Therefore, it is vital for us to continue to maintain (and hopefully grow) *Tornado's* on-going Covenant income.

The last few months before we were impacted by the coronavirus

saw our net number of Covenantors grow a little – with the new supporters coming on board just about managing to replace those leaving us – mostly for their final shed allocation.

However, without the positive profile generated by our planned 2020 railtours programme and the opportunity to meet new potential supporters on our trains and at the lineside who are captivated by *Tornado's* main line magic, our number of A1 Covenantors has started to gradually decline once more. I would therefore urge all our existing A1 Covenantors to help us to recruit new supporters and for P2 Covenantors (around two-thirds of whom are not also A1 covenantors) to come on-board if they are able to and perhaps each of our existing Covenantors could pledge to recruit a friend or colleague?

TCC

For more information on how you can help to keep Britain's only new-build main line steam locomotive on the tracks visit www.a1steam.com, email enquiries@a1steam.com or call 01325 460163.

RAILTOURS *by Sophie Bunker-James*

It is an unusual time, with steam locomotives across the country silent. *Tornado* is safely stabled at York ready for the call to the main line once again.

Like everyone around the country we are following the Government's regular updates on the lockdown restrictions carefully. Hopefully the positive trends will continue and we can run trains again in the summer. We will follow the guidance and be back running just as soon as safely possible.

Anyone with a booking, or looking to make one, should be reassured that all fares are held in a reserve account until such time as a train has run. We will also do all we can to avoid cancellations and where necessary will seek to re-date any trains that have had to be postponed.

As always you can contact us on 01325 488215 or railtours@a1steam.com **TCC**

TORNADO TOUR DIARY - 2020

Below are the future operations *Tornado* is confirmed to be involved in. More details will be published on www.a1steam.com as trains are finalised. Contact details for tour companies are below.

- **Saturday 30th May** – 'The Buxton Spa Express' – Ealing Broadway to Buxton and return – **POSTPONED until later in 2020** bookings through The Railway Touring Company
- **Saturday 6th June** – 'The Pennine Explorer' – Leicester to Carlisle and return – bookings through Tornado Railtours **POSTPONED until later in 2020**
- **Saturday 27th June** – 'The Cheshireman' – London Euston to Chester and return – bookings through The Railway Touring Company
- **Saturday 18th July** – 'The Caledonian' – Birmingham to Glasgow and return – bookings through Tornado Railtours
- **Thursday 23rd July** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Thursday 30th July** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Sunday 9th August (AM)** – 'The Forth Circle' – Linlithgow and return via Forth Bridge, Fife, Clackmannan & Stirling – S.R.P.S. Railtours **To be confirmed**
- **Sunday 9th August (PM)** – 'The Forth Circle' – Dalmeny and return via Forth Bridge, Fife, Clackmannan & Stirling – S.R.P.S. Railtours **To be confirmed**

- **Thursday 13th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Sunday 16th August** – 'SRPS Special' – Linlithgow to Aviemore and Inverness and return – S.R.P.S. Railtours **To be confirmed**
- **Thursday 20th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Sunday 23rd August (AM & PM)** – 'The Fife Circle' – Edinburgh and Fife Circle route – S.R.P.S. Railtours **To be confirmed**
- **Thursday 3rd September** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Thursday 10th September** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Saturday 12th September** – 'The Queen of Scots' – York to Edinburgh and Stirling and return – bookings through Tornado Railtours
- **Saturday 19th September** – 'The Ticket to Ride' – Darlington to Liverpool and return – bookings through Tornado Railtours
- **Saturday 3rd October** – 'The Easterling' – London King's Cross to Lowestoft – bookings through The Railway Touring Company

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

Tornado Railtours
01325 488215
a1steam.com/railtours

The Railway Touring Company
01553 661 500
railwaytouring.net

The Scottish Railway Preservation Society
0131 202 1033
srps.org.uk/railtours

TORNADO MOVES TO YORK FOR STORAGE *by Richard Pearson*

Following a period of running-in and working service trains on the Wensleydale Railway, the hard decision was taken to side-line Tornado until the Coronavirus pandemic had abated. The National Railway Museum kindly offered to stable No. 60163 in the preparation bay at the museum, providing the locomotive with secure, covered accommodation for the duration. All photos by Richard Pearson.



No. 60163 operates a timetabled WR train.

On 17th March, our insurance company issued the new annual boiler insurance certificates, this then enabled Ricardo to renew the engineering acceptance of No. 60163, and with the tour to Edinburgh already cancelled we set about making plans to prepare the engine to move to York for storage.

The engine and support coach passed S-Exam and No.1 exams on 18th March before also passing the West Coast Railway FTR examinations on the morning of 19th March. The locomotive and coach moved from Leeming Bar through to Castle Hill Junction at Northallerton on the afternoon of 19th March and the engine was then cleaned in the late evening sunshine as seen in the photograph.

On Friday 20th March, after an 04:00hrs start to bring the fire round and complete the oiling up, the West Coast crew arrived at 05:30hrs and, after a quick brew, *Tornado* departed the Wensleydale Railway and headed for York. On arrival at York the engine was examined and parked inside the preparation bay at the NRM, and the engine will stay there until main line tours resume.



Tornado's boiler is blown down at the Wensleydale Railway.



The locomotive prepares to leave the WR.



Time for a final clean round before the main line light engine move from Northallerton.



Once at York, the motion was thoroughly cleaned...



...and then greased.



A squatter! And the reason we don't want anymore!

Ian Greenan and Richard Pearson returned to York to complete some essential tasks to prevent damage and deterioration of the locomotive whilst it is in store, including:

- Greasing/oiling piston rods and slidebars to prevent damage.
- Withdrawing gland trimmings to prevent build-up of moisture and damage to gland and rods.
- Dosing the boiler with treatment and completely filling the boiler to remove air to help prevent deterioration.
- Emptying and cleaning out the ashpan and firebox to prevent corrosion.
- Sheeting over to protect paintwork from pigeon damage.
- Isolating the support coach electrical equipment.

One of York's resident pigeons had found its way into the smoke box and the team also found another two sitting inside the chimney on top of the Kylchap Exhaust pipes! The paintwork on the boiler was then cleaned and the engine sheeted over. The chimney has also been covered to prevent any further pigeon access, and the smokebox door has been wedged open slightly to allow air circulation. They also cleaned the motion to remove all the old oil and dirt, and then fully greased all the polished metal to provide a layer of protection. We are very grateful to the National Railway Museum for housing *Tornado* during the current crisis. **TCC**



The locomotive was sheeted over...



...and then parked in the preparation bay for the duration.

FIRST V4 ELECTRICAL COMPONENTS by Rob Morland

During the 2019-20 Winter Maintenance on *Tornado*, we needed to refurbish the Steam Chest Temperature Gauge meter on the fireman's side of the cab. It had suffered from water ingress and needed a thorough clean and a new scale. Fortunately the meter movement itself was still serviceable, and the gauge is now re-installed and awaiting *Tornado's* next duty. The meter was purchased from Anders Electronics back in 2014 as a custom variant to their standard CS80 meter.

When we were specifying this gauge for the P2 last year we found that Anders no longer manufactures this particular meter. We therefore sourced an alternative meter for the P2. This is a different size and also rather more expensive. It would require rework of the meter panel to fit the P2 style of meter to the A1.

Knowing that we don't have a drop-in replacement for the A1 meter when it does eventually require replacement, we decided in March to speak to Anders to find out if there was any way that they could custom-make a small number of meters to this original specification, to give us some spares. Andre Ju-Pierre, Anders' Internal Sales Coordinator, was most helpful and suggested a possible solution. Unfortunately they can no longer make the CS80 meters, but she said they happen to have in their stores four CS80 meters with different scales and designed for 4-20mA operation, rather than our specification of 0-10V. She offered these very last CS80 meters to us at an attractive price, if we could modify them to meet our requirements.

We purchased one meter and Rob Morland was able to recalibrate it to 0-10V operation without too much difficulty. He also designed and made a new scale, which we need to read 0-500 degrees C. The advantage of our own scale is that it is easy to personalise it to the A1 too. Having proven that the solution works we ordered the remaining three meters from Andrea. Since we now have five meters the Trust decided that two spares for the A1 would be sufficient to last a long time, so what should we do with the other two? As we have already have a different meter for the P2 the obvious decision was to allocate the other two meters to the V4. Rob has therefore made personalised V4 scales for these meters – they now represent the very first electrical components for the new V4.

We are most grateful to Anders Electronics for searching their stores, locating these final four CS80 meters and offering them to us at an attractive price. They will help crews on both the A1 and (when complete) the V4 to keep a check on steam chest pressure for many years to come. **TCC**



The original gauges as supplied.



The meters dismantled.



Above: The new scales, customised for both No. 60163 and No. 3403.



Image above and below - the re-worked meters under test.



All photos: Rob Morland

TRUST VOLUNTEERS 'CREW' HMS PRINCE OF WALES by Graham Langer



HMS Prince of Wales alongside in Liverpool.

Over the weekend of 29th February to the 2nd March the AISLT was in the fortunate position of being aboard Britain's newest warship, the super-carrier HMS Prince of Wales. With the ship berthed in Liverpool for the first time at the end of February, the Navy decided to hold an open weekend, the first time either of the new carriers have opened their doors to the public. Tickets were free and all 20,000 were allotted in 50 minutes of being offered online! The public began embarking on the £3.1 billion vessel on Saturday morning and continued to come on the Sunday. Visitors were taken inside the aircraft hangar and had the chance to chat to serving personnel, as well as take a look at some of the weapons and kit used. A number of the ship's affiliates had been invited to attend with stands, hence the presence of the AISLT, as builders of No. 2007, *Prince of Wales*.

Manned by Trust volunteers including Trustees Graeme Bunker-James and Huw



The P2SLC stand in place on the ship's hangar deck.

Graham Langer

Parker and engineering apprentice Edward Laxton, the P2SLC stand was 'decorated' with various components destined for No. 2007 *Prince of Wales* including the body of the live steam injector, parts of the exhaust injector, a complete Kylchap cowl, a regulator handle, a draw hook and, of course, a locomotive nameplate! In addition, the Trust's publications director, Graham Langer, ran a live steam, Gauge 1 model of *Tornado* on a rolling road. It was helpful having a model in steam to show how a Stephenson type locomotive works and to illustrate where the various parts from the full-size locomotive went, even if the team did have to describe the inner workings of an injector dozens of times!

The Monday was a STEM day. STEM Learning is the largest provider of education and careers support in science, technology, engineering and mathematics (STEM), working with schools, colleges and others working with young people across the UK. As such, the ship was filled with secondary school pupils and undergraduates. In consequence the stand was re-arranged so that David Elliott, Director of Engineering, and Alan Parkin, our electrical and CAD designer, could demonstrate their skills on a large VDU to one side of the stand, while on the other side the 1:32 Scale A1 continued clock up miles on the 'home trainer', having run for up to five hours each day without fault. Groups of teenagers congregated at the stand all day, proving that, even in



Graham Langer, Graham Nicholas, Edward Laxton, David Elliott and Alan Parkin.

these days of electronic marvels, steam can still hold sway. The team was delighted with some of the questions that were asked which proved to be thoughtful and perceptive so perhaps there is still hope for steam in the 21st Century!



Support in science, technology, engineering and mathematics (STEM).

The Trust would like to express its gratitude to the crew of HMS Prince of Wales for the cooperation and hospitality shown towards Trust members over the weekend. Trust volunteers helping included Andrew Taylor, David Reed, Chris Shields, Neil Lawford, Jorge Gorman and Keith Crabtree. **TCC**

Edward Laxton

Graham Langer



The future of mainline steam, new locomotives and young volunteers. *Tornado* accelerates after crossing the Victoria Bridge on the Severn Valley Railway last November.

AI PROFILE - No. 60128 BONGRACE by Phil Champion



Nigel Kendall

No. 60128 is seen at King's Cross, 20th March 1962.

To a schoolboy locospotter, the name Bongrace had a fine ring to it though he didn't realise its origin; the first syllable reminding him of the French for "good" and the other speaking for itself. *Locomotives Illustrated* No. 71 shows how fine No. 60128 looked under York's curving train shed or swinging off the High Level Bridge at Gateshead. It began as part of Engine Order No. 383 for Nos. 60124-9 issued in November 1945 four years before the metal was cut. By 24th April 1949 the frames and boiler (No. 9674) were noted at Doncaster Works.

As Works No. 2045, it entered service on 19th May. Numerically it was the 15th AI and Doncaster's 15th, but, as Darlington had already delivered Nos. 60130-47, it was the 33rd AI to enter service and one of four completed that month, two from each works. No doubt they were welcomed by sheds as their predecessors had been. The unnamed locomotive with plain chimney must have made quite a sight in post-war Copley Hill, being the third of 13 AIs to appear brand new in blue express livery. It had broad black and narrow white lining plus vertical double narrow white lines at each end of the outside cylinders. Instead of the owner's (BR) name appearing in full on the tender there was now the early BR emblem: the lion straddling the wheel. Like the rest of the Nos. 60114-29 batch, (Engine Order Nos 382 and 383), No. 60128 was fitted with a Flaman speed recorder from new.

As one of Copley Hill's original quintet, No. 60128 was soon on West Yorkshire-King's Cross (KX) trains. The 15:50hrs KX-Leeds on 30th May, 1949 was our first recorded run followed by the 14 coach 23:55hrs from Leeds entering the capital on 4th June. Tyneside was reached by 13th June when it was seen at Heaton Junction. Between late June and early August it hauled the 'West Riding' in both directions a number of times, including 4th, 9th and 17th July, although it visited Doncaster for an unclassified overhaul on 15th August and again on 22nd September. Like a



Robin Gibson

No. 60128 Bongrace on an up express at Hatfield on New Year's Day 1957.

number of classmates it was fitted with the Hudd system of Automatic Train Control in 1950. That November, following a works visit commenced on 27th October, No. 60128 took the name of the winner of the 1926 Doncaster Cup - about half of the class had already been named. Bongrace was re-allocated to 'Top Shed' at King's Cross (34A) on 4th June 1950 and, following a 'heavy intermediate' at Doncaster from 30th October that year, examples of its work thereafter were the Up 'Tees Tyne Pullman' on 11th April 1951, arriving at Darlington at 14:15hrs on 13th June



Richard Greenwood

Freshly outshopped from 'The Plant' in September 1962, No. 60128 takes part in a Doncaster Works Open Day.

with a 13 coach KX-Aberdeen train, a Down passenger seen at Werrington on 28th July and an up express Leeds-KX on 28th August.

A major reallocation on 9th September 1951 (when shorter out and back turns replaced a lot of through engine workings) saw No. 60128 move to Grantham (35B) where it became one of ten AIs shared by two crews each. One of the first sightings then was on the 30th September when it was seen at Stockton at 20:16hrs with an 11 coach KX-Newcastle passenger although on 5th January 1952 it was taken to Doncaster for general repairs including the fitting of boiler No. 29871. For the next six years Bongrace powered up and down the East Coast Main Line (ECML) with trains like an XP York-KX on 4th November 1951, the Up 'Aberdonian' into the capital on 16th May 1952, an Up parcels into KX on 9th September 1953 plus a number of Down 'Flying Scotsman' runs hauled into Newcastle between May 1954 and April 1955. An example of the diagramming comes from 26th July 1955 when it hauled the Fred Olsen Line boat train to Newcastle then left with the Up 'Heart of Midlothian'. Two unusual runs came in 1955, on 20th May No. 60128 ran from Grantham light engine to and from Cleethorpes to test a new turntable and on 25th September it hauled two Grantham-Peterborough brake test runs with a load of 462.5 tons including dynamometer car. The regular driver 'Curly' Royce boasted to the testers he would show what it could do -and did! After a 1 in 200 climb up Stoke bank Bongrace reached 90 mph by Corby. This period saw No. 60128 visit the Doncaster 'Plant' for attention on 6th May 1952, a 'general' on 16th December 1953 which included fitting boiler No. 9669, 'light casuals' in February and June of that year, a 'general' from 24th August 1954 which saw boiler No. 29877 fitted, further visits in November 1955 and January 1956 before a 'general' on 1st May 1957 during which it was equipped with boiler No. 29805.

A move to King's Cross shed (34A) came on 15th September 1957 for work on the East Coast Main Line as far as Edinburgh. Two high speed return trips for a 'special' were run on 1st May 1958 between York-Darlington. It hauled the Down 'Talisman' from the English capital on the 25th. On 21st June No. 60128 left Newcastle with the 11:10hrs to Edinburgh but by 25th August the locomotive was back at 'The Plant' for a 'general' which saw it leave carrying boiler No. 29858. With the coming of more diesels most AIs lost their mainly express duties and so Bongrace went back to Doncaster shed on 5th April 1959, visiting the works on 14th March the following year for another 'general' and a change of boiler for No. 9661. Recorded on the 14:00hrs King's Cross to Newcastle service on 2nd July 1960 operations between Tyneside, Yorkshire and the capital still show a range of passenger worked like hauling the Up 'White Rose' on 27th June 1961 and entering Newcastle with the down 'Anglo-Scottish Car Carrier' on 7th January 1962 and it was recorded 'light engine' at Doncaster

on 26th March. 7th November saw it bring 'The Norseman' into Newcastle then work back south with the important 3E22 Aberdeen-KX fish train. More prestigious were a KX-Harrogate Pullman special on 11th January 1963 and the Up 'Yorkshire Pullman' on 30th March. On 20th April it headed south from York with new electric stock. By contrast, No. 60128 pulled the up BP tanks into Newcastle mid-morning on 14th May. During this period No. 60128 visited Doncaster for 'light casuals' in March and August 1961 and a 'general' on 8th August 1962 to leave carrying its final boiler, No. 29868.

Increasing dieselisation and the closure of Top Shed in June 1963 put the AIs onto a mix of goods, parcels and substitutes for diesels, indicative of this was Bongrace on the KX-York parcels on 19th September although it was recorded on a Liverpool- Newcastle train at York on 3rd August. The summer of 1964 brought a variety of workings. 4th July found No. 60128 passing through Newcastle on a Class C goods and noted with it two hours later at Beal. Travels north of the border beckoned a fortnight later. 17th July saw it take the 09:25hrs York-Glasgow forward from Newcastle to Edinburgh and the next day it worked the 10:30hrs Edinburgh-Aberdeen returning on the 19th with the 18:00hrs Aberdeen-Glasgow as far as Dundee. On the 20th Bongrace pulled a Dundee-Aberdeen goods then returned with the 12:30hrs Aberdeen-KX. 19th September found No. 60128 taking over from Royal Scot class No. 46155 *The Lancer* at Peterborough on an LCGB railtour.

On 10th January 1965 No. 60128 was withdrawn (having had eight Diagram 118 boilers in its life). It was one of three to go that month, 23 having already gone. A fortnight later it was still lying at Doncaster Works before a move to Draper's yard in Hull for scrapping. Even after a good working life of fifteen and a half years, surely Bongrace could have served the railways for much longer?



Dick Manton

30th August 1964 finds Bongrace at Doncaster Carr Loco.



Rev. J. David Benson

Criminal waste... Bongrace gets the 'coup de grace' at Draper's yard.

This history was compiled by Phil Champion based on a database compiled by Tommy Knox and with reference to the RCTS book 'Locomotives of the LNER Part 2A' as background. Revised and updated by Graham Langer April 2020. TCC

P2 ENGINEERING UPDATE *by David Elliott*

General

Good progress has been made over the last three months, however we are now affected by the Covid-19 lockdown. Work is continuing at Darlington Locomotive Works (DLW) although at a reduced pace. In order to ensure social distancing for our full-time staff, our volunteers have been asked not to attend and visits to the workshop have been suspended.

The Government requirements for working from home have been implemented as far as practicable, with Daniela, Leigh and myself working from home where possible. However, construction of the UK's largest express passenger steam locomotive is beyond the capacity of the average home workshop. Consequently, Ian Matthews and Ed Laxton are working at DLW under the part-time supervision of Daniela. The size of DLW enables them to work a long way apart and use of the mess room is one-at-a-time. David Elliott's age and health condition has resulted in him being placed in amongst the vulnerable group, so his occasional visits to DLW for inspection are carried out after working hours wearing neoprene gloves and a face mask. Fortunately, the bulk of David's design work is done from home in any case.

Luckily Skype and Zoom enable us to keep in regular communication and Daniela is doing a good job in continuing to supervise and maintain the quality of work done at DLW.

Frames

Trial fitting of the spring hangers has been completed and Covid-19 permitting, the driven bolts and cold turned rivets should be manufactured in the near future.

With the trial fit of the Cartazzi spring planks, measurements of clearances of the spring planks and axleboxes have been made and have indicated that the clearances of the axleboxes are somewhat bigger than they should be. The solution will be to replace the manganese steel face liners on the leading hornblocks with slightly thicker ones which can be machined to achieve the correct clearance.



The Cartazzi axlebox and slides in place.

Pony Truck

North View Engineering Solutions in Darlington are making progress with the pony truck fabrication, although this has been slowed by the Covid-19 issue. In the meantime the pony truck cannonbox has been temporarily assembled on the wheelset bearings using a set of trial fit adjustment rings (originally made for when the similar process was carried out on *Tornado's* bogie wheelsets). Daniela has measured the end float of the cannonbox which enables us to calculate the required thickness of the permanent adjustment rings to provide the Timken recommended end float and to ensure that the cannonbox is centred on the wheelset.



Left: Pony truck crosshead guide fabrication.

Right: Pony truck side frames with doublers tacked on.



Pony truck steering arm fabrication.



Dial indicator setup for measuring pony truck cannonbox bearing axial clearance.



Pony truck wheelset on its end for measuring the cannonbox end float.

Wheelsets

Ian Matthews has riveted the final balance weight plates to the intermediate coupled wheels.

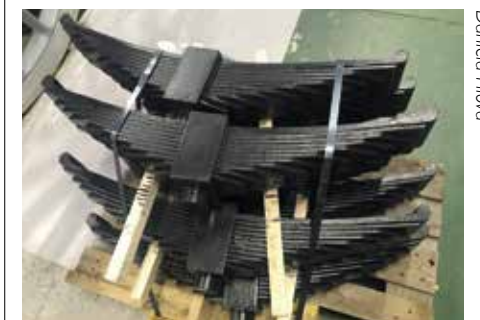


Ian Matthews tidies up the balance weights.

Spring gear

The eight tender springs originally supplied without the "nib and slot" feature designed to keep the spring leaves in line have now been corrected and returned to DLW. Ian Howitt has supplied the coupled wheel spring bolts and will shortly be delivering the spring links that connect the springs to the cannon/axleboxes.

With completion of the modified pony truck design, Ed Laxton is manufacturing the spring bolts for the pony truck springs at DLW. The attempt to order profiles for the pony truck spring beams has been frustrated by our regular supplier of steel profiles, S M Thompson at Middlesbrough, being shut down due to Covid-19 restrictions.



The tender springs at Darlington Locomotive Works.

Boiler

The updated boiler design has now been approved by Damflokwerk Meiningen's Notified Body (NoBo) TÜV Sud which clears the way for the full manufacture of the P2 boiler and the spare for both *Prince of Wales* and *Tornado*.

Meanwhile Meiningen has made good progress with components including:

- Inner and outer firebox backplate pressings
- CNC machined safety valve seating blocks
- Smokebox tube plate rings
- Flanges for firebox backhead fittings and the blow down valve
- Machining of the regulator valve castings supplied by ourselves

The Covid-19 problem has prompted discussions with Meiningen on delivery dates for the boilers due to three changes in circumstances:

- 1) Meiningen may well suffer production delays arising from Covid-19
- 2) The decision to postpone *Tornado's* overhaul for 12 months following carrying out rather more work than planned on the existing boiler whilst the cab was off during the last annual maintenance
- 3) The anticipated completion date for *Prince of Wales* is now unlikely to be before the end of 2022

We now do not need either boiler on the originally agreed delivery dates. The 'spare' boiler is now scheduled for December 2020 and the *Prince of Wales* boiler for December 2021.



Pressed boiler platework at Meiningen.



Tubeplate rings.

All boiler photos: Christopher Wörfel

Motion

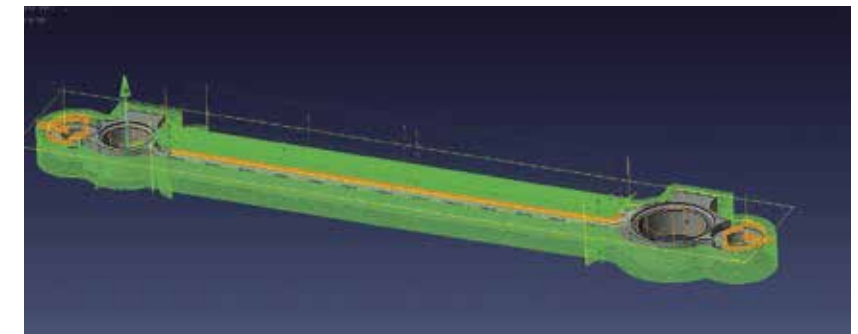
Following heat treatment and successful mechanical properties tests, four coupling rods are being prepared for machining at Arthur Stephenson Engineering at Atherton.



Above, above centre: Coupling rod forgings at Stephenson (Engineering) Ltd.



The speedometer drive crank.



A still from the CAD video simulation of the machining of the intermediate coupling rod.

Leigh Taylor

Daniela Flaviá



Above: Superheater components.

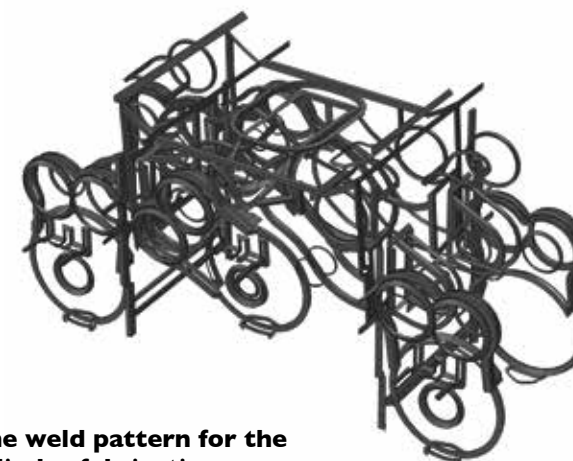


Various boiler flanges including the safety valve double-flange.

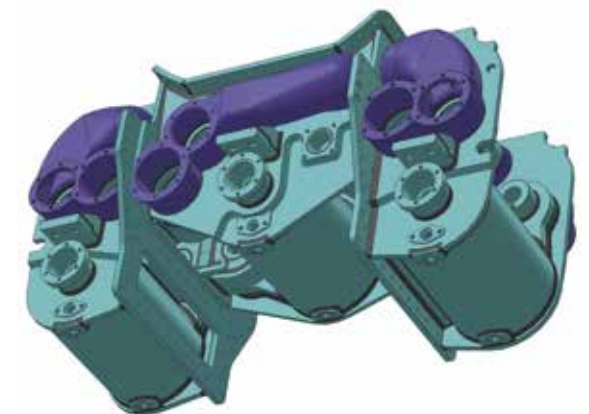
Cylinders and valves

With completion of the welded 3D model of the cylinder block, Alan Parkin has started producing 2D manufacturing drawings. In the mean-time David Elliott is continuing to develop the valve gear design details.

David reconstructed the model from being a very large part made of over 170 components to an assembly by converting the components into parts. Alan Parkin has since taken this and cleaned up the parts which means instead of taking over two minutes to open the file it now does so in 17 seconds. David is presently completing renaming the parts so that they can be readily identified whence Alan can make progress with the manufacturing drawings. As a matter of interest, the finished block is expected to weigh around 5.75 tons including just under a quarter of a ton of weld!



The weld pattern for the cylinder fabrication.



The latest CAD for the cylinder design.



Cylinder front middle combined inlet exhaust casting.

CAD Drawings: David Elliott

Brake rigging

Ian Howitt is now turning his attention to the brake hangers.

Cylinder drain cock gear

Ian Matthews and Ed Laxton have converted steel profiles, bar and pipe into recognisable cylinder drain cock operating components. The bearings and anchor points are starting to be fitted to the frames.

For those unfamiliar with these, the drain cocks overcome an inherent problem with steam locomotives, that of water condensing in the cylinders themselves. Since water doesn't compress well, starting a piston-valve or poppet fitted locomotive with water in the cylinders can result in significant damage. To allow this water to escape steam locomotives are fitted with manual (sometimes steam operated) drain valves, three per cylinder, actuated from the cab by the locomotive crew. The drains are normally left open when the locomotive is standing and for the first few revolutions when it starts moving, allowing egress of any condensed water, hence the clouds of steam in front of British locomotives when they initially start moving (US and European locomotives often have the valves aimed outwards from the cylinder). In addition, the cylinder ends are usually fitted with a pressure relief valve but this is designed to release excess steam rather than water. To operate all three sets of drain valves simultaneously, cross shafts and a linkage back to the cab are required, all of which have to be fitted between the locomotive's frames or along some other route from the front of the engine to the lever in the cab, in this case on the fireman's side.



Leigh Taylor



Leigh Taylor

Above: Ed Laxton machining drain cock components.



Above: Cylinder drain cock linkage and close up.



Cylinder drain cock linkage in-out bracket.



Cylinder drain cock linkage rod ends.



Cylinder drain cock linkage - Rocker bracket.

Tender

The tender frames continue progress at Ian Howitt's works at Crofton. The big event has been the completion and delivery of the tender tank to DLV from North View Engineering Solutions following a successful water test. Ian Matthews is making excellent progress in filling and priming the exterior of the tank.



Tender brake rod levers being made at Ian Howitt Engineering.



The tender tank being filled and primed.



Daniela Filová

John Taylor

Daniela Filová



Progress on priming the tender tank.



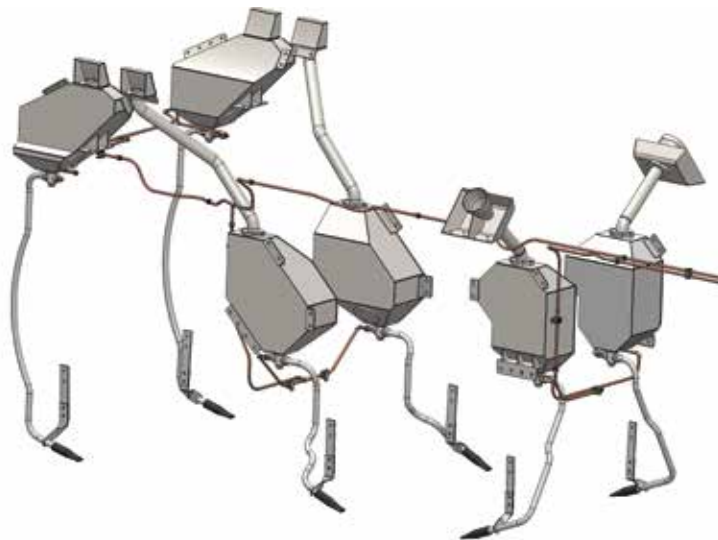
The tender tank base being painted.

Ian Matthews

Ian Matthews

Pipework

Alan Parkin has largely completed the 3D models of pipework and has listed the copper pipe and fittings required. He is now producing individual 2D pipe drawings to enable these to be made at DLV. Materials are being procured to enable Ed Laxton to start manufacture of the LNER standard fittings for steam and water pipework **TCC**



The CAD design for the sanding gear.

Alan Parkin

STEERING NO. 2007 PRINCE OF WALES TO COMPLETION WITH THE PONY (TRUCK) CLUB

by Mark Allatt

In April 2020 we launched a new £20,000 appeal – The Pony (Truck) Club – to fund the construction of the leading pony truck for No. 2007 *Prince of Wales*.

We are setting the fences a little lower with the first of our smaller – or bite-sized – fundraising clubs designed to sit between a Dedicated Donation and a fully-fledged fundraising club. If this new format is a success, we will be launching a number of similarly sized clubs to fund specific areas of construction that are beyond the reach of most people to support as a Dedicated Donation.

The pony truck is a single-axle bogie which pivots towards the centre of a steam locomotive to enable it to negotiate curves more easily. The construction of the pony truck has made significant progress over the past few months at several sites across the UK. The wheelsets were assembled – using two 3ft 2in wheels cast by the Trust's principal sponsor William Cook Cast Products Ltd of Sheffield – by South Devon Railway Engineering at Buckfastleigh and delivered to Darlington Locomotive Works in September 2018. Since their arrival, the wheels have been filled, painted and polished in preparation for the fitting the cannon box.

No. 2007 will incorporate a modified leading pony truck to avoid the issues that afflicted the original P2s in this area. The LNER solved a similar problem with the Gresley class V2s using its experience from building Stanier 8F 2-8-0s at Doncaster Works during WWII. The Trust therefore commissioned DeltaRail to use Vampire® software to construct a 'virtual' P2 and analyse the performance of the original Gresley swing link suspension design and modified pony truck using side control springs. Our design team then used the results of the Vampire® modelling and the revised class V2 arrangement to redesign the pony truck for our new class P2 using side control springs and incorporating roller bearings.

In order to keep on schedule to complete No. 2007 within the next three years, we need to have the redesigned pony truck frame delivered to Darlington Locomotive Works by the summer. Given the generosity of our supporters, we confidently placed the order for the manufacture of the pony truck frame with North View Engineering Solutions in Darlington and as you will read elsewhere work is already underway.

It is our desire to leave No. 2007 debt free and therefore



Daniela Filová

our aim is to raise £20,000 with The Pony (Truck) Club from 20 supporters each donating £1,000 plus Gift Aid (in up to four payments of £250). Members receive the following special benefits:

- Exclusive Pony (Truck) Club rosette
- Opportunity to buy ticket (seat already reserved) on one of the first trains hauled by No. 2007 *Prince of Wales*
- Reasonable access to No. 2007 at all times (DLW is currently closed to visitors due to the coronavirus)
- First choice of components to sponsor as a Dedicated Donations
- Gymkhana Special supporters' day with *Tornado*
- Exclusive Pony Truck Frame engineering drawing signed by David Elliott and Daniela Filová, the design team
- Invitation to witness the fitting of the pony truck to the engine.

This club has already cleared its first fences and within days two supporters had signed up. Please do consider joining The Pony (Truck) Club and help us to get a clear round in line with the frame's delivery to DLW.

To become a member of The Pony (Truck) Club, email enquiries@p2steam.com, call **01325 460163** or visit www.p2steam.com for more information.

PS The A1 Steam Locomotive Trust is raising funds for the manufacture of the pony truck for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the manufacture of the pony truck, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have. **TCC**

WHESOE ROAD UPDATE

by Paul Bruce

The future for our operations in Darlington is looking really positive as part of the Railway Heritage Quarter (RHQ). This major development centred around North Road is being developed by Darlington Borough Council for the 200th anniversary of the Stockton & Darlington Railway in 2025. We have previously reported that £20m had been allocated to this ambitious world class scheme and the Trust is proud to be working with the Council, contractors and their newly appointed architects to work up the scheme including a new Locomotive Works. Regular readers will be aware that the detail of our new home has developed and evolved over the years since its original announcement but it is

now fast becoming a reality. Working with Network Rail to release the land required, we anticipate having combined new build/overhaul & running shed facilities within one new build depot. Subject to design and planning consents and overall funding, 'Darlington Locomotive Works 2' would have at least four times the capacity of our existing operation and is still expected to be on the Bonomi Way/Whessoe Road side of the Bishop Auckland line. It will be connected to the national rail network at the north end up by the old steel rolling mills on Whessoe Road as this is the most cost-effective route for providing national connectivity. As a result, we would have over 1km of track and the new facility is

intended to have provision for a turntable to be built in the future which will both simplify operations as well as providing real visitor interest. As part of the wider RHQ we expect to have public viewing facilities for visitors to understand what goes on at the Trust on a daily basis and to be able to see 'live' engineering in progress. We expect that this would supplement our existing open days where visitors can periodically get onto the workshop floor at Hopetown Lane. Notwithstanding the challenges we all face at the moment, we are managing to continue to work closely with the Council and look forward to the initial designs being available later in the year. **TCC**

P2 DEDICATED DONATIONS UPDATE

by Mandy Grant

The period 5th February to 24th April has seen a steady increase in component sponsorship, with six individual components being sponsored, raising a further £5,950.00 before gift aid. This brings the total number of components now sponsored to 606! These include one of the four distinctive locomotive headlamps. Please email Mandy at dedicated.donations@p2steam.com for more information.

We are most grateful to all of our supporters who have responded to the Dedicated Donations campaign so far!

Looking for an unusual gift? With prices ranging from one of over 1,000 driven bolts & nuts for £25, to the complete exhaust steam injector for £15,000. Why not treat the rail enthusiast in your family to something different and help us to complete this iconic locomotive!

- Components sponsored during this period include:
- Headlamp No. 1 - Including all Design Work, 3D CAD Drawings, Manufacture of Lamp Housing, Optics, Testing and Certification
 - Brake Hanger Bracket. one left-hand Casting
 - 2" Barrel Nipple 5.237" long
 - One Left-hand Piston Crosshead Oilbox
 - Two Left-Hand Brake Hanger Brackets - Machining
 - One Hose Cock Adapter for Engine buffer Beam Bracket

We have recently released another batch of Brand New Components which are available to sponsor now! These include the four distinctive locomotive headlamps. Please email Mandy at dedicated.donations@p2steam.com for more information.

If you know of a business owner or company who may be interested in sponsoring an item on No. 2007 *Prince of Wales*, please contact dedicated.donations@p2steam.com **TCC**

THE TENDER CLUB STEADILY FILLING UP

by Mark Allatt

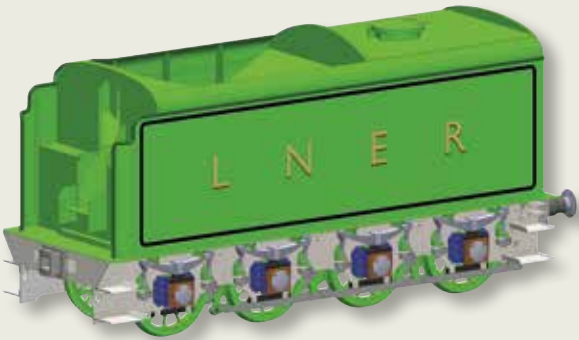
At the Trust's annual convention in October, we were delighted to be able to announce that substantial progress has been made on the tender with the erection of the tender frames by ID Howitt of Crofton (now over two-thirds complete), the construction of the tender tank by North View Engineering Solutions Ltd of Darlington (now almost complete and delivered to DLW in March) and the assembly of the four tender wheelsets at South Devon Railway Engineering Ltd in Buckfastleigh (now complete and in DLW where they have been filled and painted and await balancing). In return for supporting this appeal, special benefits for members of The Tender Club include:

- Opportunity to buy ticket (seat already reserved) on one of the first trains hauled by No. 2007 *Prince of Wales*
- Reasonable access to No. 2007 at all times
- Opportunity to buy exclusive Tender Club badge
- Opportunity to join one of the teams building No. 2007
- First choice of other components to sponsor
- Special supporters' day with *Tornado*
- Special limited-edition print of Stephen Bainbridge's 'Locomotives of the future' painting.

The tender for No. 2007 *Prince of Wales* is based closely on the tender built for A1 class No. 60163 *Tornado*. The original P2 tenders were to the 1930s non-corridor design built for the new A3 'Pacifics' being built at that time.

The water capacity of the original design was 5,000 gallons, which at a typical consumption of 45 gallons per mile would provide a range between water stops of 80 miles (with as safety margin). The tender for *Tornado* was re-designed to increase the water capacity to 6,250 gallons which increases the range to about 110 miles. The additional water capacity is at the expense of a reduction in coal capacity from 9 tons to 7½ tons.

The tender tank is a fully welded structure made from weathering steel (as used on motorway bridges and the Angel



David Elliott

of the North) to provide improved resistance to corrosion. The main visible differences with the new tender when compared to that of *Tornado* is the curving inwards of the side sheets at the front to match the shape of the cab sides, and the extensive use of half round beading along the front and top of the sides and the top of the back of the tank.

We now need the fundraising for the tender to keep pace with its construction if we are to remain on-track for completion of No. 2007 within the next three years. By the end of April, The Tender Club had recruited 63 members of its 250 members target meaning that almost £120,000 (including Gift Aid) of the required £450,000 has already been pledged – that still leaves us with a lot of work to do!

To become a member of The Tender Club, email enquiries@p2steam.com, call **01325 460163** or visit www.p2steam.com for more information.

PS The A1 Steam Locomotive Trust is raising funds for the manufacture of the tender for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the manufacture of the tender, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have. **TCC**

THE TENDER TANK IS DELIVERED by Daniela Filová

On Monday 23rd March the newly grit-blasted tender tank was delivered to Darlington Locomotive Works, unloaded onto the Matterson jack spreader beams and duly mounted on the recently acquired and re-furbished accommodation bogies. All photos by Daniela Filová



The tender tank is hydraulically tested at North View Engineering Solutions Ltd.



MIS North East Ltd, Peterlee completed the grit blasting of the tank.



The arrival and unloading of the tender tank.



The spreader beams were positioned, the trailer with the tender backed into the workshop and the beams located under the tank.



With the beams in place, the tank was raised using the Matterson jacks, the trailer removed and the accommodation bogies run under it. The process was then reversed, lowering the tender tank onto the bogies.

KEEPING CALM AND CARRYING ON! by Mark Allatt

To-date, almost £2.5m has been spent, almost £3.0m raised and almost £3.7m pledged of the required £5m to complete No. 2007 Prince of Wales within the next three years.



Gresley class P2 No. 2007 Prince of Wales at Darlington Locomotive Works under construction.

As you will have read elsewhere in this edition of TCC, even in these difficult times our project to build Gresley class P2 No. 2007 Prince of Wales continues to make solid progress on all fronts. It's difficult to ascertain at the time of writing what the impact of the coronavirus will be on our fundraising efforts, but we are carefully monitoring our financial position and building as much flexibility into our project plan as possible. As we know, our fundraising works as a virtuous circle, with donations generating progress which encourages supporters new and existing to support the next phases of construction. A huge thank you to all our supporters who continue to give most generously to the project. At this time we are still on target to complete the new locomotive within three years provided we can turn up the wick on our income growth.

Pledges towards building No. 2007 Prince of Wales passed £3.5m just over five years after assembly officially started at Darlington Locomotive Works. Public interest in seeing a new Gresley class P2 become a reality sooner rather than later remains high and over 930 people have already signed up to the 'P2 for the price of a pint of beer per week' (£2.50 per week or more) Covenant scheme since its launch in March 2014. The average monthly donation is now over £15 per Covenantor (excluding Gift Aid) and the projected annual income for our P2 project from the monthly Covenant scheme now well in excess of £200,000pa – a remarkable achievement in such a short period of time and all thanks to the generosity of our supporters. However, due to the coronavirus we have had to

suspend our programme of Works Open Days and P2 Roadshows and so are not getting the face time with potential new supporters. Whilst we are doing what we can do raise our profile digitally and in the print media, I would encourage all of our existing supporters to try to recruit a friend to come on board and a covenantor or if possible, consider increasing your Covenant.

In addition to this core scheme, funds have been raised through The Founders Club with over 360 members donated £1,000 each plus Gift Aid – target 100 people, now closed; The Mikado Club, launched in March 2016 with an initial target of 160 members to wheel the engine and extended in May 2017 to 200 members to also wheel the tender - now fully subscribed with 200 supporters

pledging £1,000 each plus Gift Aid and therefore potentially raising £250,000; and The Cylinder Club, only launched at our Convention in October 2017, is now also fully subscribed with 100 people having already pledged £1,000 each plus Gift Aid and therefore potentially raising £125,000. The Gresley Society Trust has sponsored the locomotive's distinctive front-end for which we are most grateful. You can read elsewhere in this issue of TCC where these funds have already been put to good use.

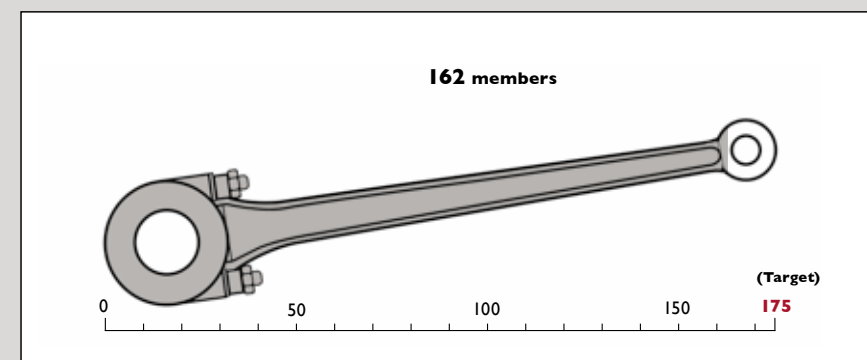
Our order in June 2019 for two new boilers – an heir and a spare – from DB Meiningen makes it more important than even that we reach our 300 members target for The Boiler Club as soon as possible. We have already recruited 190 people to The Boiler Club, each

of whom have pledged £2,000 each to fund the boiler meaning that £380,000 of the £600,000 target (excluding Gift Aid) is now pledged. With the delivery of the boiler for No. 2007 scheduled for December 2021 – and the spare boiler for both of our locomotives expected to be delivered in December 2020 – we need an average of six new members a month – please do consider becoming a member of The Boiler Club if you are able. If you are already a member of The Boiler Club, please do consider joining a number of Club members who have taken out a second membership to fund No. 2007's share of the spare boiler.

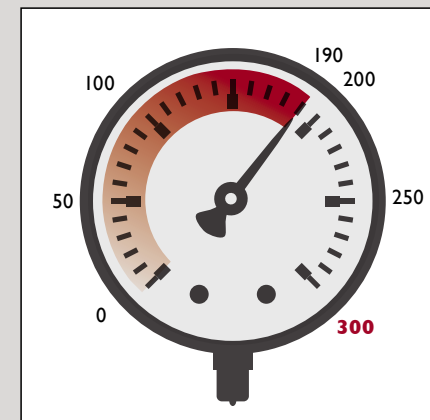
April 2018 saw the launch of The Motion Club, established to fund the manufacture of the heavy motion for No. 2007, where we have set ourselves the challenge of raising £210,000 from 175 supporters each donating £1,000 plus Gift Aid. In just ten days we had already signed up 24 members of The Motion Club, potentially worth £30,000 including Gift Aid – a remarkable achievement thanks to the generosity of our supporters. As of the end of April 2020, we had recruited 162 members to The Motion Club, with £162,000 pledged excluding Gift Aid. Although somewhat delayed, through no fault of our supplier, you can read elsewhere in TCC where work now underway on the heavy motion and the first motion forging was available for inspection by supporters at this year's convention. We now have four forged coupling rods ready for machining. Let's get this Club over the line by the time the four completed coupling rods are delivered in the summer!

We launched The Tender Club in April 2019 to raise the funds to manufacture No. 2007's tender. We set ourselves the challenge of raising £450,000 through The Tender Club from 250 supporters each donating £1,500 (plus Gift Aid) to the project in up to 15 payments of £100 by standing order. The Tender Club got off to a rather slow start, but progress has been steady, and we have now recruited 65 people as of the end of April which is still in stark contrast to the tender tank's construction! As you can read in David Elliott's engineering update, work has progressed rapidly on the tender tank since the last edition of TCC. We still have a long way to go to be able to fully fund the tender and will therefore need to more closely align its pace of construction with the availability of funds over the coming months. Please help us to close the gap and get on board The Tender Club.

Our Dedicated Donations initiative continues to generate substantial income



Motion Club gauge - 162 Members.

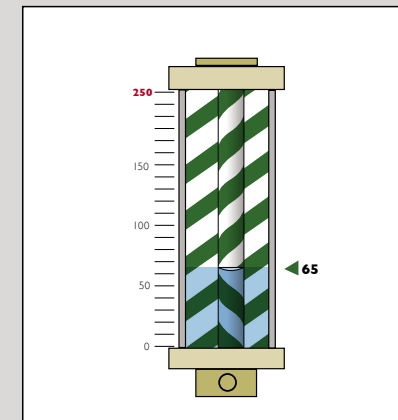


Boiler Club gauge - 190 Members.

for the project, with over £400,000 to-date from existing supporters sponsoring a variety of components. There are still a considerable number of wheeling-related Dedicated Donations still available for sponsorship, ranging from a driving wheel spoke at £600 (or from £25 per month for 24 months) to a Cartazzi axlebox casting at £1,300 (or from £50 per month for 26 months) to and driving wheel casting & proof machining at £12,000 (or from £200 per month for 60 months).

As you will read elsewhere in TCC, in April we launched our first smaller – or bite-sized – fundraising club to provide the funds required to complete the pony truck. With The Pony (Truck) Club – apologies for the pun – and were seeking to raise the necessary £20,000 (plus Gift Aid) from 20 supporters each donating £1,000. This club got off to quite a canter and within days two supporters had signed up. Given the success of this club we, we will be launching a number of similarly sized clubs to fund areas of construction that sit between a Dedicated Donation and a fully-fledged fundraising club. The Pony (Truck) Club is now closed, having raised and amazing £25,000 in just a month.

We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has



Tender Club Gauge - 65 Members.

received since its launch. This means over £2.1m (over 40% of the total required) converted into metal, over £2.7m (54%) raised and over £3.5m (over 70%) pledged.

We now have a rolling chassis and we remain on-track for completion of the new locomotive within three years. However, to maintain this rate of progress we need to raise more than £700,000 per year, which given the nature of the regular donation scheme becomes more challenging as each year passes. Last financial year we didn't quite achieve our budget of £500,000 and so we will have to work harder this year to maintain our momentum. We would encourage all our supporters who haven't yet contributed to this exciting project to help us to meet these deadlines by becoming a monthly 'P2 for the price of a pint of beer a week' Covenantor; joining The Boiler Club, subscribing to The Motion Club, becoming a member of The Tender Club or taking out a Dedicated Donation. It's time to get on-board!

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. TCC

Help Britain's most powerful steam locomotive to build a head of steam

**Join The Boiler Club today and help us to complete
No. 2007 Prince of Wales in record time!**

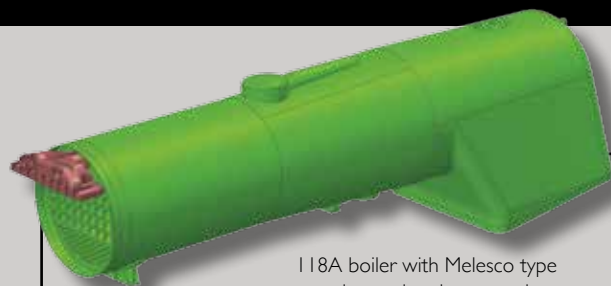


The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion in 2021, we need to place the order for the boiler in 2019 for delivery in January 2021. We have established The Boiler Club to fund the construction of *Prince of Wales*' boiler. It is our desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore our aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 40 payments of £50 by standing order) – we are over half way there, having raised £475,000 so far!

Special benefits for members of The Boiler Club:

- Opportunity to buy ticket (seat already reserved) on one of No. 2007's first main line trips
- Reasonable access to No. 2007 at all times
- Opportunity to buy exclusive Boiler Club badge
- Opportunity to join one of the teams building No. 2007
- First choice of other components to sponsor
- Special limited edition version (signed/numbered) of the first official painting of No. 2007 *Prince of Wales* with No. 60163 *Tornado*
- Special supporters' day with *Tornado*.

**Together we can build this remarkable
locomotive - join The Boiler Club today!**



118A boiler with Melesco type
superheater header as used on
Tornado

No. 2007's boiler in detail

- Use of diagram 118A *Tornado* boiler with detailed modifications to improve overhaul life
- Interchangeable with *Tornado* boiler
- *Tornado* boiler is 17in shorter than P2 boiler – No. 2007's smoke box will be extended within the cladding
- 250psi of No. 60163's boiler will be retained to improve economy and increase maximum power.



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

For further information please visit www.p2steam.com email enquiries@p2steam.com call 01325 460163 or write to The Boiler Club, P2 Construction Fund, Darlington Locomotive Works, FREEPOST RTJS-XECR-XARL, The A1 Steam Locomotive Trust, Hoptown Lane, Darlington DL3 6RQ

THE RACE IS ON TO GET UP STEAM! by Mark Allatt

In June 2019 the starting gun was fired with the order of two new boilers from DB Meiningen – and we now have just 20 months to raise all of the funds necessary to pay for No. 2007's boiler – that's more than one new member recruited to The Boiler Club every week! By the end of April 2020, The Boiler Club fundraising campaign had recruited almost two-thirds of its target membership with pledges of over £470,000 including Gift Aid. Launched in October 2014 to raise the £600,000 needed pay for the manufacture of the boiler, The Boiler Club now has over 189 members who have each donated or pledged £2,000 (plus Gift Aid).

Following the success of The Founders Club, which was designed to get to the P2 Project to the point of cutting No.2007's frames, the Trust established The Boiler Club to fund the construction of *Prince of Wales*' boiler. It is the Trust's desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore its aim

is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 40 payments of £50 by standing order). In return for this commitment, members of The Boiler Club receive these special benefits:

- Opportunity to buy ticket (seat already reserved) on No. 2007's first main line train
- Reasonable access to No. 2007 at all times
- Opportunity to buy exclusive Boiler Club badge
- Opportunity to join one of the teams building No. 2007
- First choice of other components to sponsor
- Special limited-edition version (signed/numbered) of the first official painting of No. 2007 *Prince of Wales* with No. 60163 *Tornado* – 'Dream Team' by renowned railway artist Chris Ludlow
- Special supporters' day with *Tornado*.

Reaching the two-thirds point in the funding of No. 2007 *Prince of Wales*' boiler through The Boiler Club marks a significant milestone in the project to build Britain's most powerful steam locomotive. The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion within three years we need to take delivery of the new boiler in 2021.

To become a member of The Boiler Club, email enquiries@p2steam.com, call 01325 460163 or visit www.p2steam.com for more information.

The A1 Steam Locomotive Trust is raising funds for the manufacture of the boilers for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the manufacture of the boilers, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have. **TCC**

•WORKSHOP NOTES•

Daniela once again proved how adept she is by helping to survey the site for a new storage container at Darlington Locomotive Works. The growing collection of components for the V4 and patterns for all our locomotives necessitated the preparation for, and delivery of, a 20ft container.



**Above: Daniela surveys the proposed
location for the container.**



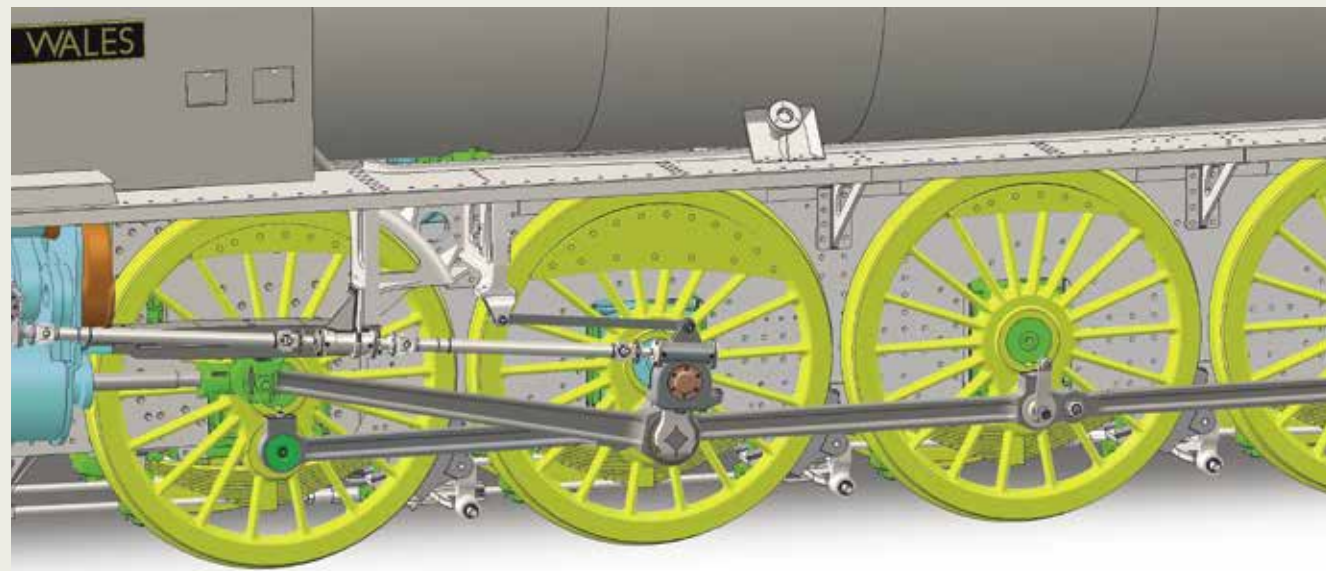
The site is then levelled.



The container delivered on site.

COME ON, COME ON, DO THE LOCO-MOTION WITH ME!

by Mark Allatt



David Elliott / A1SLT

3D diagram of No. 2007's outside motion.

In April 2018, The A1 Steam Locomotive Trust launched a new appeal to raise the funds to manufacture the motion for new Gresley class P2 No. 2007 *Prince of Wales*. The Motion Club was established with the aim of raising £210,000 from 175 supporters each donating £1,000 (plus Gift Aid) to the project in up to eight payments of £125 by standing order. In just seven weeks the appeal had already reached over a quarter of its £210,000 target and by the end of April 2020 we had recruited 162 members to The Motion Club, with just over £200,000 pledged including Gift Aid.

In May 2018 we were delighted to announce that we had placed a £181,000 order with Stephenson Engineering Ltd of Atherton, Manchester for the heavy motion for No. 2007 *Prince of Wales*. The order included the forging, machining and heat treatment of the nine heavy motion rods - intermediate coupling rod LH/RH, trailing coupling rod LH/RH, leading couple rod LH/RH, outside connecting rod LH/RH and the inside connecting rod assembly (including strap, gluts and strap nuts and washers) - and the combined piston and rod. Following a delay due to lack of resources at our supplier, the first heavy motion forgings - the two middle coupling rods - were completed in October and one was exhibited at Darlington Locomotive Works during last year's Convention. These were joined by two more coupling rod forgings and all four are being machined over next few months. Orders are to follow for the motion include rod bushes, oil box covers and miscellaneous components.

In return for supporting this appeal, special benefits for members of The Motion Club include:

- Opportunity to buy ticket (seat already reserved) on one of the first trains hauled by No. 2007 *Prince of Wales*
- Reasonable access to No. 2007 at all times
- Opportunity to buy exclusive Motion Club badge
- Opportunity to join one of the teams building No. 2007
- First choice of other components to sponsor
- Special supporters' day with *Tornado*

- Special limited-edition version (signed/numbered) of Stuart Black's drawing of No. 2007 *Prince of Wales*. The work involved in designing and manufacturing the motion includes:
- Redesign of coupling and connecting rods to use modern material (pre-war nickel chrome steel alloy proved prone to fracture)
- Incorporation of late-pattern BR-type continuous white metal lined crank pin bearing bushes
- Use of the late-A1 design of inside connecting rod which overcame the tendency for the original design of inside connecting rods on LNER 'Pacifics' to big-end failure
- Open die forging of six coupling rods, two outside connecting rods and the inside connecting rod and strap
- CNC machining of all rods
- Manufacture of oil box lids, coupling rod knuckle pins, nuts and washers and bearing bush keys
- Casting of leaded gunmetal and phosphor bronze castings of crank pin bearing bushes
- Machining and white metalling of bearing bushes
- Fitting oil box tops
- Assembly of bearing bushes to rods
- Polishing rods.

With just 13 places still remaining in The Motion Club, now is the time to come on-board and help No. 2007 to locomote! To become a member of The Motion Club, email enquiries@p2steam.com, call 01325 460163 or visit www.p2steam.com for more information.

PS The A1 Steam Locomotive Trust is raising funds for the manufacture of the motion for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the manufacture of the motion, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have. **TCC**

Covenantors' Diary by Leigh Taylor



Thank you to those who have already returned the data collection forms that we sent with your Supporters' card. Some of your gift aid records are also quite old; it would be helpful if those who haven't yet could return your forms as well so that we can up-date your details and preferences.

The closing date for the Summer Draw (raffle) is the 29th May so there is still time to send in your stubs and payment. Many thanks and good luck to all those who have entered so far.

We are following Government guidelines with regards to the coronavirus, and whilst our office-based staff are now working from home, our workshop staff are continuing to work at Darlington Locomotive Works where they are taking all necessary precautions. However, as many of our supporters and volunteers are from vulnerable groups, the Works is currently closed to non-essential staff.

Unfortunately, the Nene Valley Railway has had to cancel all their events until the end of May 2020 so this means we can no longer hold the P2 Roadshow on Saturday 23rd May 2020 and the Supporters' and Tornado Team day on Sunday 24th May 2020. We are sorry to have to make these changes. We hope you understand that the circumstances are beyond our control and the restrictions are very necessary at this challenging time.

As a small charity we value your continued support and hope that, in the not too distant future, you will be able to spend time to travel behind *Tornado* and visit DLW to view progress with *Prince of Wales*. We will of course be 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@a1steam.co.uk if you have any questions. **TCC**

P2 ROADSHOWS, DARLINGTON LOCOMOTIVE WORKS OPEN DAYS AND PRESENTATIONS by Mark Allatt

In the light of Government advice to prevent the spread of the coronavirus, we have suspended our P2 Roadshow programme, Open Days at Darlington Locomotive Works (usually held on the first and third Saturday of the month) and ad-hoc Presentations to external groups.

We will be reviewing whether or not to go ahead with each planned future roadshow and are also investigating an on-line substitute - please keep an eye on our website for the latest updates. We hope to be able to restart the programmes as soon as it is safely possible - thank you in advance for your patience and understanding.

When they re-start, the presentations in 2020 will feature key team members including Mark Allatt and/or David Elliott and cover the background to the project to build new Gresley class P2 No. 2007 *Prince of Wales*, progress to-date, future plans and details of how to get involved.

We would encourage you to attend 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 and is open to existing supporters and interested members of the public: At the moment the following P2 Roadshows remain in the diary:

- **4th July** - Darlington Locomotive Works
- **22nd August** - Darlington Locomotive Works
- **3rd October** - Darlington Locomotive Works
- **10th October** - Great Northern Hotel, Peterborough
- **21st November** - Darlington Locomotive Works

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

Attention all Club Members! - Exclusive badges are available to purchase -



The Boiler Club, The Mikado Club, The Cylinder Club, The Motion Club, The Tender Club - All Club Badges £5.00 each (Badges shown actual size)

To purchase your badge please send a cheque for the relevant amount made payable to 'The P2 Steam Locomotive Company' and send to The A1 Steam Locomotive Trust, Darlington Locomotive Works, Hopetown Lane, Darlington DL3 6RQ.

PROFILE – RICHARD PEARSON by Graham Langer

Richard Pearson has had a passion for railways for as long as he can remember. One of Richard's earliest memories is of attending the Rail 150 Cavalcade at Shildon in 1975 on a family day out, and this definitely played a key part in sparking his interest in the world of steam railways.

Growing up in Redcar, throughout his childhood Richard regularly visited the North Yorkshire Moors Railway with his family and he has many happy memories of enjoying long walks in the beautiful countryside and watching the trains go by. After leaving school, Richard started an apprenticeship at ICI Wilton on Teesside. At the time, the North Eastern Locomotive Preservation Society (NELPG) had use of a workshop on the ICI Wilton site, and aged 16, Richard joined the NELPG team as a volunteer, alongside his dad. Richard soon became a regular at NELPG weekly working parties at both ICI Wilton and Grosmont on the North Yorkshire Moors Railway.

Initially, Richard was able to get involved in the restoration of NELPG's NER class T3 No. 901 at Grosmont as well as the overhaul as Peppercorn Class A2 No. 60532 *Blue Peter* at ICI Wilton, and he quickly became captivated by the engineering challenges of bringing a powerful steam locomotive back to life. Richard recalls one of his first mainline footplate rides on an LNER Pacific was in 1988 on Gresley class A4 No. 4464 *Bittern*. The locomotive had been restored by NELPG volunteers and ICI trainees as A4 No. 2509 *Silver Link*, and Richard was on board as it was towed from ICI Wilton to the National Railway Museum at York for display. In 1988 Richard established himself as a regular member of the support crew on Peppercorn class K1 No. 62005 at Fort William working the steam hauled services from Fort William to Mallaig, and he continued this right up until a few years ago.

After serving his time as an apprentice maintenance electrician, Richard spent the next 15 years working as maintenance technician in industry in Teesside and in the North Sea offshore gas and oil industry. He was able to balance working shifts with continuing to volunteer for NELPG, often organising working parties around his shift pattern. When the overhaul of *Blue Peter* was finished in 1991, Richard became a regular member of the locomotive's support crew, participating on rail tours across the country until the locomotive's boiler ticket expired ten years later. Richard's children are especially proud of the fact that he was part of the team when No. 60532 worked the *Blue Peter* 40th Anniversary special for the BBC TV show from Edinburgh to King's Cross, which was filmed for the programme – and yes, he does have a *Blue Peter* badge! Richard was also present during the infamous Durham incident – but we don't talk about that! Over the years, Richard has worked on all of NELPG's locomotives, and at various times held engineering responsibility for each individual locomotive. He joined the NELPG board in 2000 and continues to serve as a Board member today.

In 2008, Richard was invited by The A1 Steam Locomotive Trust to ride behind *Tornado* at the Great Central Railway. He became a regular member of the AISLT support crew on rail tours across the UK, including the occasion *Tornado* hauled the Royal Train to the Museum of Science & Industry in Manchester in 2010, and the famous 'Race to the North' from London to Edinburgh for BBC Top Gear in 2009. In 2009, Richard made a career move to join the National Railway



Richard Pearson

Richard in the cab of Class A4 No. 60009, *Union of South Africa*.

Museum as Workshop & Rail Operations Manager at Locomotion in Shildon, County Durham. He remained in this position until moving to work for the AISLT. During his time at Locomotion, Richard led on the restoration of some iconic locomotives from the National Collection, including Horwich 'Crab' No. 13000, Deltic No. D9002 *King's Own Yorkshire Light Infantry*, No. 4489 *Dominion of Canada* and many other smaller but still significant vehicles.

Richard visited the USA and Canada as part of the NRM team working to bring No. 60010 *Dominion of Canada* and No. 60008 *Dwight D. Eisenhower* to the UK for the 75th anniversary celebrations of *Mallard's* world steam speed record, and then led the cosmetic restoration of No. 4489 (aka No. 60010), bringing the locomotive back to its former glory for the 'Mallard 75 Great Gathering' events programme. As part of his responsibilities, Richard co-ordinated all rail operations at Locomotion, including vehicle movements to and from the museum as part of a changing display programme, and arranging vehicle displays and train services for the museum's busy events schedule; highlights during his time at Locomotion include 'The Great Goodbye' in 2013, which brought together the six remaining A4 locomotives for the last time, and 'Flying Scotsman & The Shildon Shed Bash' in 2016 as part of the celebrations around the A3's return to steam. Richard also synchronised the rail movements for *Tornado's* visits to Locomotion, including a Peppercorn themed event which also featured K1 No. 62005.

Due to work and family commitments, Richard dipped out of volunteering for the AISLT for a while, but he was delighted to take up a position with the AISLT in December 2018. Richard is a qualified steam driver and fireman, as well as a Class 03 and 08 diesel driver. He also holds a competence to drive the NRM's replica Rocket. He is one of the lucky few to have driven an A1, A2, A3 and A4 Class steam locomotive. He continues to volunteer as part of the rail operations team at Locomotion, and also now volunteers as a steam driver and conductor at the Wensleydale Railway.

Now with responsibility for co-ordinating maintenance for the AISLT's vehicles, Richard is committed to ensuring the reliable running of No. 60163. He is excited at the prospect of bringing P2 No. 2007 *Prince of Wales* into operation, and also hopes to one day take the AISLT's V4 over the West Highland main line to Fort William where he has spent many years working on the K1. **TCC**

FROM THE ARCHIVES by Graham Langer



Graham Nicholas

Planet and Tornado at MOSI.

Spring 2000 – By April the major motion components, including the three connecting rods, were forged. The forgings were formed from foot square, cast steel billets weighing a total of 5 tons and were forged into shape using a one ton air hammer by John Hesketh & Son at Bury. The total cost of the three sets of motion (including valve gear) was estimated at around £130,000. The smokebox was removed from the locomotive following its trial fit. This was to enable further work to be done including welding the stiffening plates into the bottom of the box, fitting the blast pipe and steam pipe extensions, fitting the chimney and liner assembly and tidying up the remaining platerwork.

Spring 2005 – Wasting no time since signing the contract, Dampflokwerk Meiningen had started work on the new Diagram 118 boiler. The boiler was funded by a £500,000 bond issue and by this time over £300,000 had been raised. At DLW work continued to make and fit new sections of the front footplating over the valve gear whilst Ufone Engineering completed machining of the radius link components and the union links which then went to Holt Bros, Halifax for case hardening. A start on the tender had been made with the manufacture of patterns for the hornblocks and spring guard brackets.

Spring 2010 – Emerging from hibernation at the NRM, *Tornado* returned to main line duties and immediately started to make the headlines again. On 4th February No. 60163 worked the Royal Train to MOSI, the Manchester Museum of Science and Industry, conveying TRH The Prince of Wales and The Duchess of Cornwall. There followed a Valentine's special on 14th of the same month and trips to Wales and



David Elliott/AISLT

Steve Davies, then retiring as head of MOSI, presents Mark Allatt with a framed print.

Cumbria. In its 20th Anniversary year the Trust announced a formal feasibility study into the construction of a Gresley Class P2, the aim of the study being to answer the question as to whether it was possible to successfully and commercially build, certify and operate a P2.

Spring 2015 – After a protracted winter overhaul at Darlington Locomotive Works (which had seen No. 2007's frames skated to one side of the workshop) apple green paint was being applied to the big Pacific prior to her return to the main line. Meanwhile progress on *Prince of Wales* continued, with quotes being sought for the manufacture of the smokebox door and frame ring: It had to be decided how the door might be made, as a hot pressing or by hand forging over a cast iron former, or possibly by machining out of solid 8" thick plate using a large CNC vertical milling machine (the first option was chosen). **TCC**

The A1 Steam Locomotive Trust is pleased to display the logos of organisations giving us their ongoing support. Their contribution is gratefully acknowledged.



THE A1 STEAM LOCOMOTIVE TRUST CONTACTS

President **David Champion** (david.champion@a1steam.com)

Vice Presidents **Peter Townend** (peter.townend@a1steam.com),

Ben Godfrey (ben.godfrey@a1steam.com)

Board of Trustees

Mark Allatt Head of PR, Marketing and Fundraising (mark.allatt@a1steam.com)

Paul Bruce Property Director (paul.bruce@a1steam.com)

Graeme Bunker-James Commercial Director (graeme.bunker-james@a1steam.com)

Steve Davies Chairman (steve.davies@a1steam.com)

David Elliott Director of Engineering (david.elliott@a1steam.com)

Graham Langer Publications (graham.langer@a1steam.com)

Huw Parker Operations Director (huw.parker@a1steam.com)

Chris Walker Finance (chris.walker@a1steam.com)

Advisers to the Board

Mandy Grant Dedicated Donations and Social Media Team (mandy.grant@a1steam.com)

Mark Grant Volunteer Coordinator (mark.grant@a1steam.com)

Andy Hardy Archivist (andy.hardy@a1steam.com)

Rob Morland Electrical (rob.morland@a1steam.com)

Graham Nicholas Professional Head of Engineering (graham.nicholas@a1steam.com)

Richard Peck Commercial (richard.peck@a1steam.com)

Engineering

Daniela Filová Assistant Mechanical Engineer & Works Manager (daniela.filova@a1steam.com)

Alan Parkin Electrical Design (alan.parkin@a1steam.com)

Richard Pearson Locomotive Manager (richard.pearson@a1steam.com)

Administration

Leigh Taylor Office Manager (leigh.taylor@a1steam.com)

Amelia Smith Administration Assistant (amelia.smith@a1steam.com)

Railtours

Sophie Bunker-James Railtours Marketing Manager (sophie.bunker-james@a1steam.com)

Lauren George Railtours Booking Office Manager (lauren.george@a1steam.com)

Editor

Graham Langer (graham.langer@a1steam.com)

Picture Editor

Tony Watson (tony.watson@a1steam.com)

Design

Kevin Lumb (kevin@limegroveprintanddesign.co.uk)

* All information correct at the time of going to press mid May 2020. For up-to-date information and dates please check the website www.a1steam.com.

● The A1 Steam Locomotive Trust, Darlington Locomotive Works, Hopetown Lane, Darlington DL3 6RQ

● e-mail: enquiries@a1steam.com ● website: www.a1steam.com ● tel: 01325 460163

Darlington Locomotive Works is normally open to the public on the first and third Saturday each month (11am – 4pm).

Access to the works is via Head of Steam: Darlington Railway Museum where Covenantors are entitled to free entry (with Covenantor card). Charity registration No. 1022834.

The Trust respectfully requests that anyone wanting to see *Tornado's* main line passenger trains follows the rules of the railway and only goes where permitted.

© 2020 The A1 Steam Locomotive Trust except where shown. Views of contributors are not necessarily those of The A1 Steam Locomotive Trust.