



60163 TORNADO
New Steam for the Main Line



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



3403 HIGHLANDER
Recreating Gresley's last design

THE COMMUNICATION CORD

No. 73 Autumn 2024



Hayden Sheppard

Back in traffic! Tornado makes a start from Wansford Station on the Nene Valley Railway working one of a series of popular driving course trains.

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EDITORIAL by Graham Langer



As usual, TCC covering the autumn period appears just before the festive season and I'd like to take the opportunity to wish all our friends and supporters a Happy Christmas and a peaceful New Year. The last twelve months have been a roller-coaster of highs and lows and Tornado's overhaul has continued to throw up challenges that no-one saw coming. However, throughout the process Rob Morland's doughty team have forged on with the fitment of the ETCS equipment to the engine and tender and have

progressed through to testing it at the Great Central Railway and on the Nene Valley Railway. We cannot praise them highly enough, the whole project has been immensely complicated, and they have successfully navigated the maze of wiring, hardware, software and regulatory issues with aplomb. The result will be the first steam locomotive capable of running on 21st Century railways which dovetails with the Trust's mantra, "New steam for the main line". To paraphrase John F. Kennedy, "We choose to this and the other things, not because they are easy, but because they are hard".

2024 has also been a year of team changes, Poppy Warwick and Alysha Wilkes joined Jacqui in the office but, alas, Janet has decided to retire although she has announced that she will remain an active volunteer. Huw Parker stood down as a Trustee after several years of solid service but continues to help manage Tornado, overseeing the overhaul and her preparation for the main line, and Wayne Kyte has bravely filled Paul Bruce's shoes by taking on the property brief in Darlington. At the Convention we are also able to introduce Martin Welsh who is getting to grips with Chris Walker's portfolio, a transition that will take the best part of a year, so we are not losing Chris just yet!



Janet Preshous



Huw Parker

Any of you who have visited DLW2 recently cannot have failed to have been impressed by the rapidly growing trackwork. Although this has been something of a distraction from our core aims it is a critical component in our move into the new works and will provide us with two essential ingredients that were missing at DLW1, a reasonable length of track to run locomotives on and store stock and, even more importantly, a main line connection that will allow our locomotives to visit their home shed without recourse to road haulage. We are so grateful to those of you who so willingly stumped up the cash to facilitate this and hope our supporters will keep the ballast flowing until the job is done! Once this work is complete, we can resume "normal service" and focus on running Tornado and building Prince of Wales! **tcc**



Photographed some years ago whilst working in North Wales, Tornado is captured by a billboard that echoes the sentiments held by those who built her, "Here today. Here tomorrow."

Julie Byth

FROM THE CHAIR by Steve Davies



At last! It gives me the greatest pleasure formally to announce – what I'm sure you all know already! – that Tornado's overhaul is virtually complete. Final turns and tweaks at the Great Central Railway and Nene Valley Railways (including attending to a problem with the regulator and a distorted grate section) are nearly complete and we are now preparing for the main line test runs. It has been a long old journey, but it has certainly been worth it and judging by the reaction of the many people who have flocked to see and ride behind her, Tornado will again become a very popular choice of motive power both on the National network and on heritage lines.

As has been well documented, the overhaul has not been without its issues, and the integration of European Train Control System into the hostile environment of a steam locomotive has certainly exercised the ingenuity and imagination of the Boffins! We now

look forward to a sustained period of 'normality' (however that might be defined in railway heritage!) and certainly an opportunity to actually enjoy the locomotive. I often reflect that I have been the Chairman for approaching five years now and for well over half of that time we have been without an operational engine – time for all that to change. We could not have done this, or indeed sustained ourselves as a team, without the unstinting support of you all, and I am most grateful to you all for keeping the faith, indeed for being increasingly generous. As I write, we are making amazing progress with the tracklaying, and 32 Engineer Regiment based at Catterick are currently working extremely hard on site, demonstrating an outstanding ability to assemble track panels in as militarily efficient a way as you would expect, and providing valuable to support to our own intrepid volunteer team.

You will read elsewhere of our future plans for the P2 but suffice to say now that the AI is virtually complete we can now turn our energy more fully to getting Prince of Wales on the move. One

of the key lessons from the last few years has been the need fully to review our structures and of how we conduct our business, and a thorough analysis of the lessons learned from the overhaul and of how we conduct business in the future will feature large in our Board's deliberations. In summary, we have emerged from a challenging period in good shape (but we could do with more cash!!!) and I look forward to starting 2025, the year of the bicentenary of the Stockton & Darlington Railway, in positive and impressive fashion. Take care, and I wish you all a very happy Christmas and a peaceful and prosperous New Year..

tcc



The Army moves in again. Troops of 32 Regiment making a significant contribution to the laying of track at DLW2.



Tornado in the GCR's running shed.

Russel Newman



The statutory group photograph in the new works building.

This year's Convention followed a less usual pattern than normal since the Trust was able to host it in the Exhibition Hall in the Carriage Works, formerly the home of The A1 Steam Locomotive Trust! Since we moved out of the south end of the original Stockton & Darlington Railway building, it has been transformed as part of the overall Hopetown project which incorporates North Road Station, the S&D good shed, the carriage works, Whessoe Road engine shed and, of course the Trust's new works building. The carriage works building has been completely stripped out and the workshop store, office and lavatories have gone, the central tower completely re-worked and the north end repurposed as 'The Stores' to house the museum's collections of objects and artefacts relating to the development and operation of railways in North East England.

The office team had set up a welcome desk in the hall and greeted Covenantors as they arrived and registered. The exhibition hall is fully accessible and had been set up with rows of chairs and a big screen for projections. Chairman Steve Davies opened proceedings, welcoming the assembled throng and making some observations about the significance of the building in which everyone was seated. Steve called for a minute's silence to pay



Jacqui briefs the audience on arrangements for the day.

tribute to the memory of David Elliott, who spent so many thousands of hours toiling in the building. Steve appraised our audience of plans for David's ashes, to be added to *Tornado's* fire as the locomotive tackled Stoke Bank, at the point where *Mallard* achieved its world record for steam, a fitting and appropriate way to honour David's own wishes. The Chairman then moved on to the plan for the day, promising plenty of positive news after some difficult times for the Trust with a focus on the fitting of the European Train Control System (ETCS) to *Tornado*, the engineering challenges that had to be overcome in the process, the tremendous progress being made laying track at the Whessoe Road site and the opportunities still to come.

Commercial Manager, Graeme Bunker-

James took over from Steve to review the current status of the overhaul and running-in programme which at this time had included accruing some 600 miles on the Great Central Railway before *Tornado* moved to the Nene Valley Railway. Graeme mentioned some of the last stage challenges that faced the engineering team, the inaccuracy of the original A1 drawings that led to errors machining the rubbing blocks on the bogie, a foreign body in the injector, bowed firebars, an issue with the turbogen over-speeding, some additional stay replacement and anomalies in the regulator drawings. Rob Morland chipped in at this juncture with an introduction to the cab signalling system and a review of the experience of operating the system on the Cambrian Coast route since 2010.



Almost hard to recognise! The 'Carriage Works' auditorium, formerly the home of the AISLT!



Covenantors arriving and having refreshments.

There are currently only two pilot heritage projects underway, ours and that fitting ETCS to a 'Deltic', the Black 5 having been withdrawn from the list. For full details of much of Rob covered, see his article on page eight. Steve Davies paid tribute to Rob and the electricals team for the extraordinary work they have undertaken and the success of the system.

Richard Courtney-Harris, P2 Project Director, then offered a brief resume of progress with the P2, paying tribute to David Elliott's vision for the locomotive and noting the delivery of the tender frames to DLW. The 'ripple effect' on a small team of the A1 Overhaul, the move from Hopetown Lane, a very unpredictable financial landscape, the need to fulfil contractual obligations with trackwork at DLW and the drain on reserves had all had an impact on progress. Richard stressed that the rate of progress depended entirely on the funds coming in and that a certain amount of catching up was required to complete the funding of some of the critical components that had, in effect, been bought forward because of advantageous conditions in terms of cost or delivery schedule. Richard also dealt with the important questions of strengthening the core team and the staffing of the works.

At this juncture, Graeme Bunker-James outlined some of the plans for the rest of the year, with the ambition of testing No. 60163 before Christmas and planning next year's tour programme which is likely to include a visit to the Swanage Railway in the Spring. Clearly the AISLT will be "front & centre" in the S&D 200 celebrations in Darlington next year so completing the track at the Works is

essential if we are to get *Tornado* on site!

Wayne Kyte, Property Supervisor, took over from Graeme. Wayne has assumed responsibility for personnel and property at the Trust and introduced Martin Welsh who will be taking over from Chris Walker as our financial administrator; he also recorded the arrival of Alysha and Poppy in the office and sadly noted that the ever-popular Janet will be leaving the office before Christmas (although she will remain a volunteer!). Wayne also paid tribute to Richard Pearson who has moved on to pastures new. Wayne now introduced Terry Graham, P2 Project Manager.

Terry showed a series of slides covering the work of various gangs of volunteers and the Army in preparing the site and laying track and turnouts between DLW2 and the Whessoe Road engine shed. This is a massive undertaking which has been marvellously well supported by our Covenantors who have stumped up an amazing sum to buy ballast, a process which must continue if we are to meet our deadline to get the main line connection in place early next year. This major programme of work is valued at about £5m, the Ballast Appeal has raised £70k to date with the track materials sourced at minimal cost. The volunteers led by Terry Graham, included James Hodge and Richard Snowden, supplemented by Army work visits.

Graeme Bunker-James and Liz Gibson, Events Director, dealt with the matter of fundraising, detailing the new regional structure being put in place to ensure that the Trust has the necessary geographical spread to support talks and events throughout the UK.



Trust volunteers at DLW2.



Poppy Warwick and Alysha Wilkes selling merchandise.

Steve Davies resumed the floor making some closing remarks and opening up a lively and interesting Q&A session, among which the following topics were covered, would ETCS affect the driver of a steam locomotive (there will be many positive benefits, including making the job safer and offering the possibility of better locomotive management), do we aim to run the two engines (A1 and P2) together (not impossible, given that LNER locomotives are generally easy to manage, but probably not often), will there be a continuing supply of steam drivers (all the TOCs are training new drivers), will ETCS permit higher top speeds (nothing in the design will stop us going faster), what is the future of 'The Aberdonian' (despite Locomotive Services entering the market we will return to Scotland), how much more money does the P2 need (about £1.25m), is there going to be an A1/A2/A3/A4 meeting in 2025 (we'll be there, the rest depends on finance) and coal supplies (not a problem)?

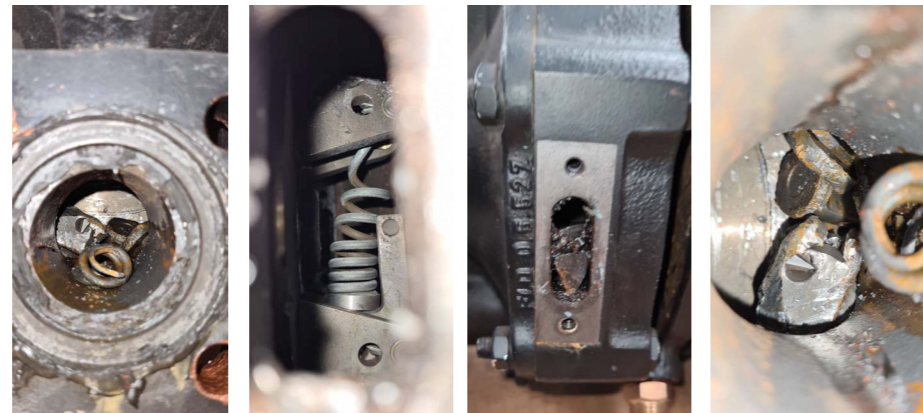
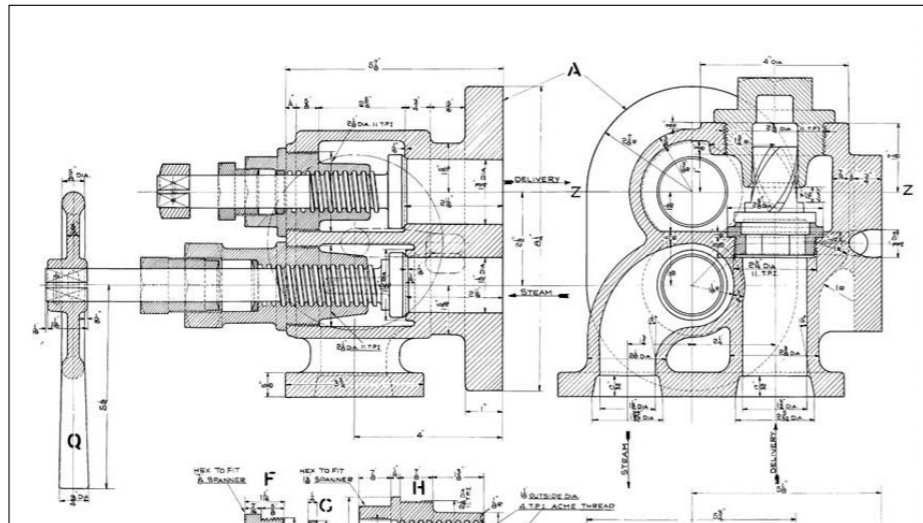
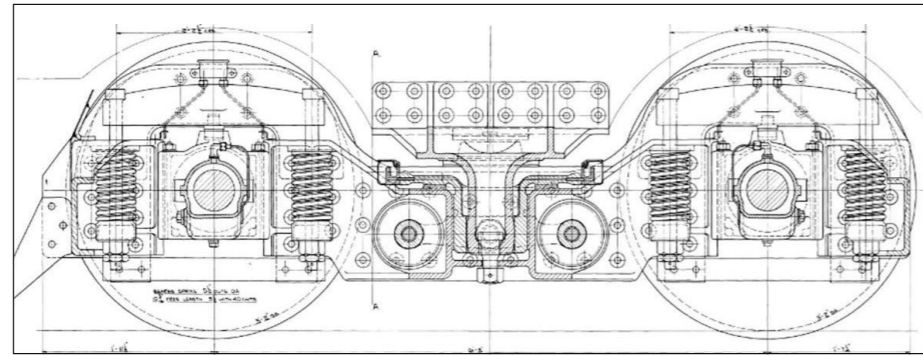
With that we adjourned for lunch before moving to the new works building to view progress on the P2, accessing the building via the newly installed footbridge over the tracks at North Road Station. As ever, Covenantors had the opportunity to wander round the shop floor and talk to members of the team about the P2, a fair number signed up for Clubs new and old and the afternoon was certainly a positive one for our cashflow. By teatime the crowd had dispersed, some to wend their way home, others to the Hall Garth Hotel for the traditional post-Convention dinner and entertainment, this year provided by Phil Cox & Tony Stowers. **TCC**

AI OVERHAUL *by Ben McDonald*

Picking up from the report in *TCC* 72, whilst the locomotive was still at the Great Central Railway (GCR) in August, LMS finished weighing the locomotive but when checking the ride heights identified that the bogie was sitting too low. First attempts to correct this by moving weight to the loco did not resolve the issue. After some investigation it appears that there was a drawing error in the original LNER drawings for the bolster cups on the bogie. The part drawing used to manufacture the new components during the overhaul shows a thicker dimension [+3/8"] than the bogie assembly drawing. To cure this the front of the locomotive was jacked up, the existing parts removed and replaced with a solid steel shim matching the assembly drawing dimension. This corrected the ride height issue and LMS machined 3/8" off the bottom of the bolsters so that they could be re-fitted, and the weights re-checked before moving onto the weighing the tender.

Andy Morgan re-fitted the tender shovelling plate and the weighing gear was re-positioned for the tender, followed by weighing and adjustment of it. By mid-August the locomotive was complete enough to allow a warming fire to be lit and the boiler slowly brought up to pressure allowing a series of static tests to be undertaken. During this process one of the turbogenerators incurred damage on start-up one morning. It is likely that this was due to governor failure resulting in an overspeed event. The turbogen was removed and replaced with a spare and the damaged unit returned to DB Meiningen for investigation and rectification. As if there hadn't been sufficient challenges during the overhaul, a further problem arose with the live steam injector. Dismantling revealed that a foreign object, probably the end of a bolt, had lodged itself in the body of the injector!

By the end of the month *Tornado* had passed a loaded test run and was able to start operating service trains on the GCR. Unfortunately testing of the JRU (the new data recorder) highlighted an error in the calibration for a number of the signals. This required a software update to the unit to correct the issue. This update uses the output from fresh testing and it took two weeks to prepare and get the data downloaded onto the locomotive before the retest to confirm it had resolved the issue. Further testing



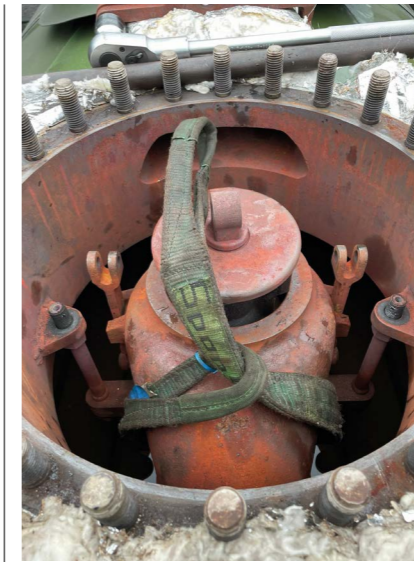
Damaged turbogen components.



The foreign object found in the injector.

delays were caused by the need to rectify a number of items (AWS Sunflower, EP valves & JRU).

During the initial running-in the regulator was noted to be extremely tight. This was initially left to see if it would bed in, but following no improvement it was removed for investigation. Inspection at LMS revealed that there was only two thou. clearance in the bushes instead of the 30-50 thou. Unfortunately, while having to drive out the pivots, the casting cracked. The regulator was sent to have welded repair in the UK and, as insurance, the spare was requested from DB Meiningen, the latter arriving before the repaired item was fit for use. With this fitted, the locomotive could be



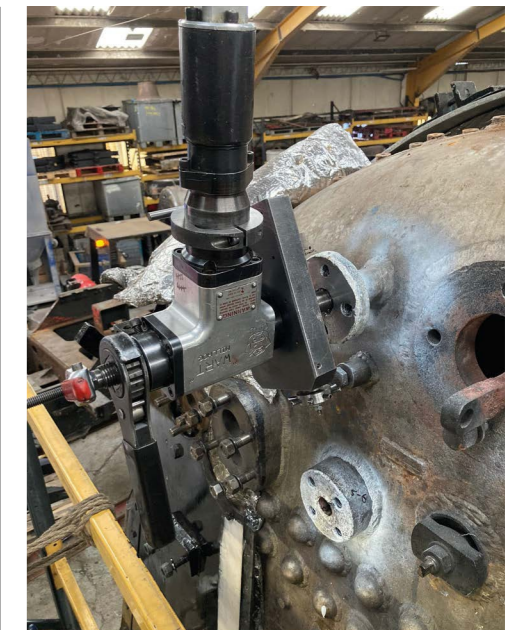
The challenge of accessing the regulator.



The broken casting.



Some idea of the complexity of electrical conduit and air pipes in the cab can be gathered from this photo, taken before the overhaul was completed.



The set up for honing the face of the gauge glass frame supports.



A sight to gladden the heart! A fire in *Tornado's* firebox for the first time in a long time!

moved to the Nene Valley Railway (NVR) in mid-October, somewhat later than had been hoped for.

The locomotive has accumulated 600 miles already and the aim is for further mileage accumulation during running at the NVR. This will be followed a light engine test run from the NVR to Tyseley, after that there will be a run with the locomotive, support coach plus diesel (as a failsafe) to prove sustained 50mph running with limited load. In the new year *Tornado* will complete a loaded test run with the target to cover more than 300 miles including at least two sections of sustained 70mph running plus a challenging climb, all to replicate a railtour itinerary. Testing the ETCS equipment on the Cambrian Coast Line will then follow. **TCC**

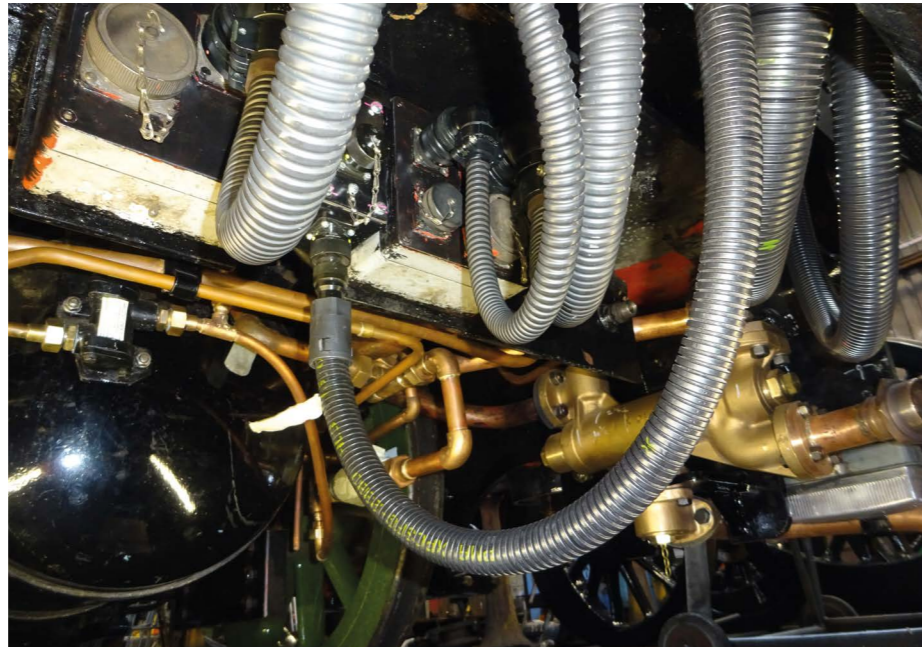
ETCS UPDATE by Rob Morland

With the engine's arrival at the Great Central Railway (GCR) it was possible to couple the engine and tender together for the first time following the overhaul. This allowed us to connect all the existing and new electrical 'umbilicals'. We now have six of these. Two are new versions of our original Essential Services (ES) and Auxiliary Services (AS) connections. One new one carries the turbogen supply to the ETCS and three others connect all the ETCS equipment on engine and tender together. We were pleased when all the existing and new systems powered-up correctly, proving that all the connections were correctly made.

Our new two-turbogen setup was tested on steam at the end of August. A set of tests under various loads proved both turbogens and all the existing wiring to the AS and ES I/O Panels and their loads. We also successfully tested the new Steel Wire Armoured (SWA) cable which connects the turbogens to the ETCS I/O Panel and batteries. We were very pleased when, for the first time, we had a turbogen directly charging a set of batteries on the A1. Our existing supplies route the turbogen output via our DC-DC converter chargers. This wasn't possible for the ETCS supply as we wanted to avoid the power loss of the converters.

Tests showed that the fireman's side turbogen (T1) will deliver an output of 407W at 22V into our new ETCS Load Bank whilst also putting about 2.5A into the batteries. This was an excellent result. The new driver's side turbogen (T2) does even better. It is almost entirely wired using the new 2 x 6mm² SWA cable and therefore suffers significantly lower voltage drop on its route from the front of the engine to the rear of the tender. T2 will deliver 568W with about 4A still going into the batteries. At this point it is delivering about 31A, which is close to Meiningen's absolute maximum specified output of 32A for the Fabeg-design turbogens. This showed that the alternator regulator in a turbogen, when used directly to charge batteries, successfully controls the delivered current to maximise its output without stalling the turbine.

The results confirmed that we have a comfortable operating margin from both turbogens over the expected ETCS power demand. This is good news and confirms that our design does what we intended. Either turbogen can comfortably supply the ETCS demand, with the margin being greater for T2 due to its lower round trip wiring resistance.



All six engine-tender electrical umbilicals installed for the first time.



Above left: Rebuilt underframe lighting strips and bulkhead fitting beside the middle engine.



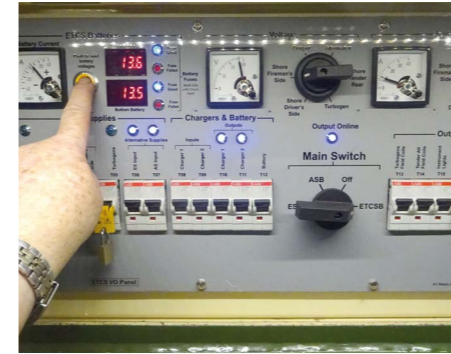
Above right: Newly-installed front buffer beam lighting under test.



Right: New lighting strip under the front of the tender, with the air system strainer below.

Photos: Rob Morland

Once all the electrical systems were confirmed as working, visits from the Hitachi ETCS team progressively tested all the new ETCS equipment, together with the Mk 4 TPWS and Hasler Juridical Recording Unit (JRU). These tests included checks of the Balise antennas under the engine and tender when towed over test Eurobalise transponders fitted to the track. All the systems worked as designed.



ETCS I/O Panel under test on shore power, showing battery voltage meter in operation.

We have also carried out tests providing power to the ETCS from our existing two locomotive power supplies. We could do this in the event of a complete failure of the ETCS battery and chargers. This showed that both the Auxiliary and Essential Services supplies have the capacity to power the ETCS if required. If we did have a failure of the ETCS battery system we would prefer to use the Auxiliary supply as backup, as there are few loads on this supply that are important to operation of the locomotive.

A full set of tests were performed on the cab and instrument lighting in the dark. These showed, as expected, that the new TPWS panel on the roof, and the ETCS DMI (when in place) mask the light to the lower driver controls and gauges from the existing light box, which had to be moved to accommodate the new panel. So a small new light box was built and, following trials in various positions, was placed just below the new panel. The LEDs in the new box were set up, and those in the original box were re-pointed, so that together they provide good light everywhere. Some final adjustments may be needed following any feedback from drivers. All our light boxes have individual dimmers, so drivers can set them to provide optimum illumination whilst preserving their night vision.

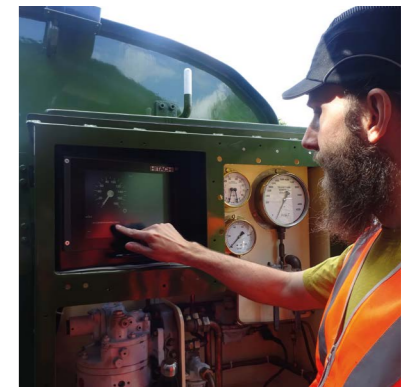
An initial set of tests of the new ADA were carried out during the loco's first short trip to Quorn and back at the end of August. The ADA worked very well, providing charge to the ETCS batteries via the two DC-DC converters in the ETCS Battery Box. Tests with our ETCS Load



ETCS Eurobalise transponders in position for towed testing.



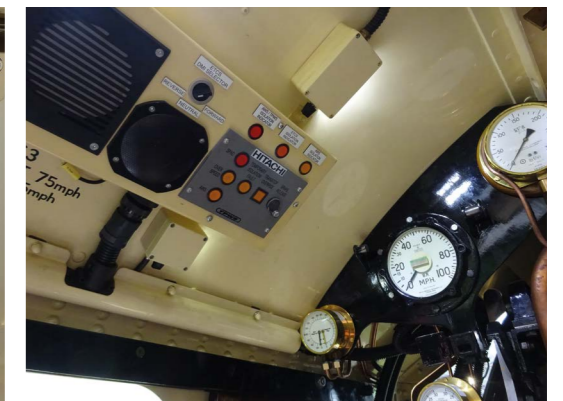
Arther Bull of Hitachi inputting data to the forward ETCS DMI prior to towed system testing.



Raymond Sturton of Hitachi inputting data to the rear ETCS DMI.



Above left: New driver's side instrument lighting box under test.



Above right: Original (relocated) driver's side lighting box above and new lighting box below under test.

Bank set to maximum showed that it would deliver 34A, which is as much as it is asked to provide into the converters and load. So, as expected, it has no issue with capacity. Testing did show that, when the loco slows past the point where the ADA stops generating, the DC-DC converters switch on and off as the voltage fluctuates. We have experienced exactly the same characteristics with the turbogen outputs, so a simple tachometer circuit driving an HCR relay was designed and fitted. This detects when the Locomotivespeed is greater than about 22mph and switches in the loads, providing a clean pickup and closedown as the vehicle speed changes. The tachometer circuit was built, installed and successfully tested on the Nene Valley Railway (NVR). All our safety systems passed our annual tests by Steven Greeno of DC RailTech on 24th October. These included the tests for the new Mk4 TPWS and JRU.

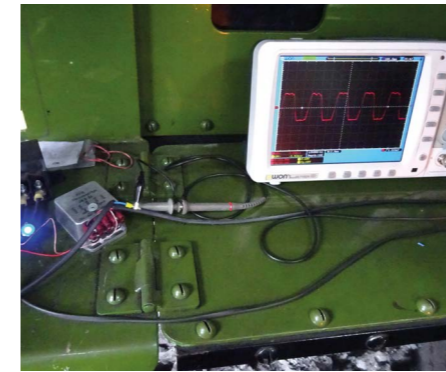
Monitoring of all our electrical systems will continue through the running-in on the NVR and onto the main line test runs. The ADAs will be further evaluated during the 2,000 mile 'In-service experience trial' which we are running with our certification body, Ricardo. The trial will verify that the ADAs under the coach and tender perform correctly under all service conditions. Ricardo will scrutinise the



The new Turbogen Switch Box showing two turbogens operating together for the first time.



New Meiningen T2 turbogen under test, providing over 30A, including power to Load Bank and batteries.



Tachometer circuit successfully detecting ADA speed and triggering a relay (indicated by blue LED), the oscilloscope shows the waveform from the ADA tacho output.



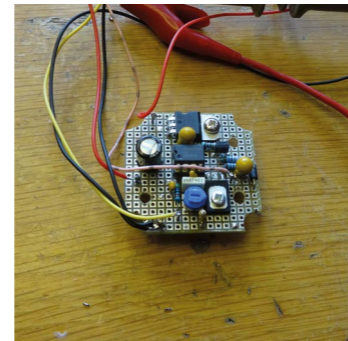
Engine-tender interface with all electrical, air, vacuum, water and steam connections in place.



HCR relay (lower left) and tacho circuit (lower right) installed and ready for test.



AS Control Panel showing turbogen and alternator both online and delivering power.



New ADA tachometer circuit under test.

results of the trial and, if they are satisfied, they will issue Attestation Statements covering both our Mk1 ADA (on the coach) and Mk2 ADA (on the loco). These Statements will allow us to run both ADAs on the main line, and to build and fit further new ADAs to support coaches and locomotives in the future.

We are currently completing the big job of finishing all the documentation and writing-up our test results. These will all go off shortly to Ricardo for their final scrutiny. After this we just need to look after all the systems in service! **TCC**



Above: Load Bank taking 24A from the ADA.



Above right: On-the-road test of the ADA with the tacho circuit operating, delivering 34A to batteries and Load Bank.



ETCS Load Bank taking 24A from the T2 turbogen supply.



First test of the new ADA, supplying 34A, operating the two chargers and supplying the Load Bank.



After the first successful light engine move and ADA test – the engineering team of Rob Morland, Andy Morgan, Ian Greenan and David Wright.



The sight that many of us have waited so long to see again, Tornado in steam, here on shed at Wansford, Nene Valley Railway.

NEW BUILD A1 CLASS

100mph steam locomotive
star of Top Gear and Paddington 2

No. 60163 TORNADO



GET ON BOARD WITH TORNADO!

Since the locomotive first steamed in 2008, *Tornado* has delighted passengers nationwide, covering almost 150,000 miles! For a nostalgic steam train journey to remember, book your tickets to travel with this superstar of the rails at 21stcenturysteam.co.uk

Both the build and subsequent maintenance of *Tornado* has been funded by public donation. Most supporters donate the equivalent of a pint of beer a week to the project. Regular donations from just £10 a month help to secure the future of steam on the British main line railway. Support us at a1steam.com/donation

WWW.A1STEAM.COM

Follow us on   

The A1 Steam Locomotive Trust, Darlington Locomotive Works, Bonomi Way, Darlington, DL3 0PY.

THE TORNADO TEAM by Jacqui Nicholson


Tornado Team Day 26th of October 2024

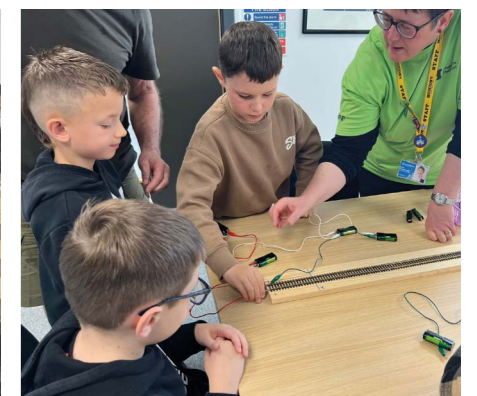
Budding railway engineers joined us at Darlington Locomotive Works for a busy day that was educational as well as fun. Their enthusiasm for steam locomotives and their knowledge was awe-inspiring. These young people are the future for steam heritage. They asked some very insightful questions testing the adults' knowledge. The Railway and Electricity session was very well received and showed the relevance of *Tornado* and the Trust's mission to create steam engines for the 21st Century.

The Tornado Team is a Club for young steam enthusiasts aged 5 to 15 years old. It is our aim to build their knowledge and to expand on their interest in steam locomotives in an exciting and educational way.

Engaging young people and children with steam locomotives is important for several reasons:

1. **Historical Education:** Steam locomotives played a crucial role in the Industrial Revolution and the development of modern transportation. Learning about them helps children understand significant historical events and technological advancements.
2. **STEM Learning:** Steam locomotives are a great way to introduce concepts of science, technology, engineering, and mathematics (STEM). Understanding how steam engines work can spark interest in these subjects and inspire future careers in engineering and technology.
3. **Cultural Heritage:** Steam locomotives are a part of cultural heritage, especially in the UK where the railway system was pivotal in shaping society. Engaging with these machines helps preserve this heritage and instils a sense of pride and connection to the past.
4. **Hands-On Learning:** Interacting with steam locomotives and the hands-on experience, is engaging and memorable for children.

As we start to gear up for the Stockton and Darlington Railway 200 year celebration in 2025 the A1 Steam Locomotive Trust is committed to engaging with younger enthusiasts to ensure the future of steam on the mainline. If you know a young person who would like to join the Tornado Team please follow this link <https://www.a1steam.com/tornadoteam> 



Above: Tornado Team members enjoying activities at DLW2.

LEGACY GIVING

Leave a Living Legacy

A further way in which you can help to keep No. 60163 *Tornado* on the main line or build No. 2007 *Prince of Wales* is by establishing a Legacy.

Instead of choosing to leave a legacy in their Will, many people prefer to make a large donation to causes close to their heart whilst they can enjoy seeing the impact that their generosity has made. Top Link provides a route for establishing these 'living legacies'. Unlike gifts in your Will, living legacies also allow us to claim gift aid, increasing the value of your donation by 25% at no additional cost to yourself. Furthermore, such donations to charity can reduce the total amount of inheritance tax due on your estate.

Leaving a Legacy in your Will

Leaving a legacy in your Will to the Trust can make a huge difference to our future.

There are three main types of gift you can leave in your Will:

- A residuary legacy: a part or the whole of your estate after all pecuniary legacies and specific bequests have been made, and after deducting any tax and expenses.

- A pecuniary legacy: a gift of a specific sum of money. This may devalue with inflation unless you ask your solicitor to index-link your gift.
- A specific bequest: a gift of specific items for example, property, land, art, or shares etc

Your donation can be hypothecated to an individual locomotive, or you may choose to donate to the A1 Steam Locomotive Trust as a whole. Large donations such as legacies and living legacies are not intended for the day to day running of the Trust, but help us to

make larger purchases and investments to further the great work of the Trust. Leaving a legacy to the Trust not only helps to ensure that future generations can enjoy steam on the UK main line, but it may also reduce the rate of Inheritance Tax across your estate from 40% to 36%.

To register a legacy please email enquiries@a1steam.com, call **01325 460163** or visit www.a1steam.com for more information. **TCC**



Settle & Carlisle Railway.

Martin Birchall

• SHED NOTICES •

JIM MEADS

It is with sadness that we record the death of Jim Meads, the renowned photographer of all things equine and hunting, in July. He passed away following an illness just short of his 94th birthday.

Born in Hertfordshire, he started his career with his father, a *Country Life* staff photographer and former de Havilland works photographer. He had access to film during and immediately after WW2 when it was hard to obtain and spent a lot of time beside the East Coast Main Line, capturing trains at speed.

He was married to his wife Pauline for over 60 years and was *Horse and Hound's* in-house photographer. His most famous non hunting related photograph was taken in 1962 when walking with his children near the airfield where he lived. An EE Lightning suffered engine failure but luckily the pilot, a friend of Jim's, ejected, sustaining two broken legs as he landed in a glasshouse. The *Daily Mail* declined the photo as a fake but it was published by the *Mirror*.

Few of you will know of the connection between Jim and the Trust but he very kindly offered to allow the Trust publish his photos and all those of Peppercorn A1s have subsequently appeared in *TCC* or on the website. Graham Langer spent a day going through his glass and film negatives, selecting those that were suitable for scanning and recording them in the Trust's archive.



One of Jim's photos of A1s near Hatfield on the ECML, No. 60156 *Great Central* on a fitted freight.



Merry Christmas

FROM THE A1 TRUST
SHOP OUR NEW RANGE AT
WWW.A1STEAM.COM/SHOP
FOR THE PERFECT CHRISTMAS GIFT



Whilst *Tornado* was at the Great Central Railway it seems that their shed cat took quite a shine to her.



Whilst paying tribute to David Elliott in the last edition, we were tempted to publish this photo of the man doing missionary work at Didcot, in the heart of copper-capped country!



"Catching a train, Sir?!", an angler concentrates on his line, oblivious to *Tornado's* departure from Wansford Station on the Nene Valley Railway.

AI PROFILE – No. 60144 KING'S COURIER by Phil Champion

Appearing in March 1949, No. 60144 was one of a trio of AIs to be completed that month, two from Darlington and one from Doncaster. Construction was now half-way through the class. It was Darlington Works No. 2063 carrying boiler No. 3945 and coupled to tender 764. Livery was apple green with black and white lining and old gold numerals and letters. 'BRITISH RAILWAYS' was on the tender sides. It was entered service from Doncaster shed (DON) on 3rd March. Its first recorded sightings were at Ferryhill, Co. Durham on 2nd April, on Copley Hill shed on 8th May but the first train logged was the 10:05hrs ex-King's Cross. Generally, it worked between the capital and Newcastle, being seen at Heaton on 13th August and New England on 11th September. When photographed on 29th April 1949 on the 17:15hrs Leeds Central-King's Cross express passenger train it had 'Doncaster' painted on the front bufferbeam.



In early emblem guise, No. 60144 is seen at Doncaster Carr Loco.

That December it went to Copley Hill (COP) to join four other AIs. In June 1950 it moved to its third shed when it was transferred to King's Cross (34A) along with Nos. 60128 and 60148. The locomotive was noted in West Hartlepool on the Durham coast line on 8th July 1950. It was one of the later AIs to be painted BR express passenger blue with black and white lining in January 1951 following a heavy intermediate overhaul at Doncaster, also leaving sporting newly fitted *King's Courier* nameplates. Already 42 were in blue and No. 60144 was one of four to be repainted in January. It was named after a racehorse which won the 1900 Doncaster Cup. It was one of thirteen AIs named after racehorses and one of a quartet named that month after 32 had already been named.

From July 1951 No. 60144 was shedded at Copley Hill (now 37B) but moved to Ardsley (37A) in September. No.



At about the same time, the locomotive is seen receiving attention at Doncaster.

60144 was one of the earlier BR green AIs with orange and black lining when repainted in October 1951 following its first general overhaul and boiler change

(boiler No. 29854 fitted). Six had already had a repaint and No. 60144 was one of four more to go into green that month. It worked the 18:33hrs Leeds-King's Cross

on 30th January 1953 and until February 1953 it was seen mainly on King's Cross-Leeds workings. It moved to Grantham (35B) in February 1953 with more regular workings to York reported. During 1953 it was pictured heading through Durham with the 'Flying Scotsman' headboard to denote its train. Of note was the 09:20hrs Newcastle-Hornsey ECS on 21st March when *King's Courier* had A3 No. 60086 *Gainsborough* making a double-header between West Hartlepool and York. On 25th April it hauled a rugby special into King's Cross before spending May at Doncaster undergoing another 'General', leaving with boiler No. 29810. Perhaps more typical trains at this time were the 18:45hrs King's Cross-Grantham of 21st July then on the 22nd bringing in a train from Newcastle into the capital at 15:23hrs only to leave on the 17:35hrs train back to Newcastle.

The locomotive called at Doncaster for another general overhaul during February and March 1955, bearing boiler No. 29873 when it left. A number of times between May 1954 and April 1956 No. 60144 was seen bringing in the down 'Flying Scotsman' into Newcastle but on 9th July 1955 it was heading back south with 'The Heart of Midlothian'. It took the down 'Flying Scotsman' to Grantham on 21st October 1954 where classmate No. 60149 took over the train. Other trains of note were a race special between Grantham and King's Cross on 7th September, 'The Aberdonian' of 4th January 1956 (when it failed at Woolmer Green) and the down 'Aberdonian' from King's Cross on 20th September 1956 (when it worked more successfully). Some 60 observations at King's Cross between September 1956 and January 1957 show *King's Courier* departing regularly on the 18:45hrs to Grantham, the 10:20hrs to Leeds with the 11:45hrs to Newcastle on the same diagram, the 15:10hrs and 17:35hrs to Newcastle plus the 20:20hrs to Edinburgh. Other trains included a couple of afternoon ones for Leeds.

Following a return call at 'The Plant' during March 1957 (boiler No. 29861 fitted) the peripatetic nature of its career continued, and *King's Courier* was one of a quartet reallocated to King's Cross on 15th September that year. On the 19th it worked the up 'Fair Maid' then on the 26th hauled that train's down working between King's Cross and Newcastle. In November it was moved back to Doncaster (now 36A). The later BR crest was applied to the tender in September 1958 following an unclassified repair at Doncaster and it returned there for another general repair in April 1959, leaving carrying boiler No. 29820. While



King's Courier exiting Gasworks Tunnel on 1st September 1959.



King's Courier in final condition at Doncaster .

most sightings were in the capital it brought the down mail into Newcastle at 15:20hrs on 10th April 1960 and then was noted later that evening at Doncaster and on 14th May No. 60144 took a rugby special from Hull forward from Doncaster to King's Cross, before concluding the year with its last visit to Doncaster for a general overhaul and the fitting of its last boiler, No. 29814. The locomotive was seen passing Hatfield on 9th September 1961 with the 20:20hrs Royal Mail express from King's Cross. Examples of 1962 workings were the up 'Night Scotsman' from Doncaster-King's Cross on 1st March, a King's Cross-Leeds train on 23rd April and bringing in a train from King's Cross into Newcastle on 2nd June.

Its last logged runs in 1963 featured a mix of work, typical of the class by now. It brought trains from King's Cross into Newcastle on 4th January and 23rd February. On mid-morning 3rd April, No. 60144 was on the up BP tanks at Newcastle. The final

workings noted were on from 11th April with *King's Courier* seen on a up Class F goods at 13:40hrs then on a down Class E goods there at 20:24hrs. The locomotive was seen on Heaton shed on 20th April. Through its service life No. 60144 had been allocated to no less than eight sheds. It had carried seven boilers, all to diagram 118 and was the seventh AI to be withdrawn, this happened on 30th April 1963. It had lasted 14 years 1 month, over a year less than the class average. It went into Doncaster Works for scrapping on 9th May 1963.

This history was compiled by Phil Champion based on the RCTS book "Locomotives of the LNER Part 2A", a database supplied by Tommy Knox of the Gresley Society, "The Glory and the Steam" by John Gilroy, "The Power of the AIs" by Gavin Morrison and various published photographs. Revised and updated by Graham Langer, July 2020. TCC

MEMORIES OF OUR ORIGINAL DARLINGTON LOCOMOTIVE

WORKS by David Champion

Wasn't it weird to sit in our old Works at the 2024 Convention? Of course it has been turned into a super conference location, but it felt strange without the row of machinery along the north wall, the inspection pit and a large locomotive dominating the space. My mind went back to events leading up to when I first saw the building and what subsequently happened to make it into a Locomotive Works.....

The Trust in its early days had been working with the Council of another town with LNER heritage who had promised to find a suitable place to erect *Tornado*. However, after several years of warm words but zero progress, we began to have doubts as to whether it would ever happen and the matter became more urgent as manufacture of key parts such as driving wheels and cylinder patterns were making progress.

Doubts increased when, along with Ian Storey, I travelled to the still operational Railway Works in that town, hoping to persuade the management to cut *Tornado's* frames on the still extant machinery that had in times past cut LNER Pacific framelates. As we sat in the Manager's office to discuss the proposal he gave us the unwelcome news that the frame cutting plant had been scrapped the day before and had left the Works in pieces. Ian subsequently arranged for the frame plates to be cut at BSD Leeds. From there the frame plates were transported to the ever-helpful Bob Meanley's Tyseley Locomotive Works to be erected.

We started to look for viable alternatives for a base if the first option continued to vacillate. While Andrew Dow (Trustee) was asked to look for a potential base in York, on Friday November 4th, 1994, Barry Wilson (Trustee) called me at my office to say he had just been on an East Coast train and the onboard magazine had an advertisement saying effectively that Darlington would welcome proposals from bodies interested in bringing innovation and manufacturing to the town.

That afternoon I got in my car to scout the area around Darlington Railway Museum. It was getting dark when I got there and chatted to the gentleman on the museum reception desk, (the late Terry Stacey who we later got to know well and was a great supporter). I told him about the Trust and our quest for a home. He was very receptive to the idea of building a new A1, having earlier in his career worked at 'Stivvies' – Robert Stephenson and Hawthorn Locomotive Works in Darlington. In the gathering gloom of the early dusk, he pointed to a long building on the other side of the green, explaining it was empty but was the former Stockton and Darlington Carriage Works, he suggested it would be a very appropriate place to erect the next A1.

Arriving home I phoned fellow Trustee Stuart Palmer, a Newcastle Lawyer and told him about the visit to Darlington. That Sunday Stuart went down to Darlington and looked at the site, coming back to say that he thought the old Carriage Works may suit us very well. On Monday I contacted the person named in the magazine advert, Peter Chapman, Darlington's Economic Development Officer. As I explained the A1 Project, he became very interested and I invited him to my office to describe our project more fully.

He arrived at my office in Newcastle, together with Norman Maltby, (Head of Leisure Services). I explained the vision of the Trust, the calibre of its Management Team, the ongoing technical and financial development and use of new and emerging technologies. They thought it would fit very well into the profile they were developing for Darlington and in strict confidence undertook to start the process of Council approval for the Trust to come to Darlington and using the Carriage Works as our base



The Trust team assembles outside DLW for the very first time.

for building *Tornado*.

Early in December Stuart and I were invited to a meeting in the evening in at North Road Station Museum with representatives of Darlington Council, Clive Owen, (Chief Executive) Ray Sunman Peter Chapman and Steven Dyke. Stephen, who was then Head of North Road Station Museum, remembers with amusement, "Clive, presumably expecting to meet a bunch of railway buffs (anoraks optional!) had dressed down and I think was somewhat embarrassed to find them attired in smart business suits!" Shortly afterwards Clive Owen invited Stuart and myself to lunch at Hardwick Hall Hotel where he emphasised how seriously he was taking the Trust and that it fitted perfectly with their policy of making the most of their Railway Heritage while showing it is in the lead on new manufacturing technology.

On 20th December I called my brother Philip and bounced off him a 're-branding' name I was thinking of if we were lucky enough to get the Carriage Works – I thought that 'Darlington Locomotive Works' had a nice ring to it and connected Darlington's past with the new-build future. Very shortly after New Year's Eve on January 5th we had, with Bob Meanley's help, organised a ceremony at Tyseley to 'christen' the locomotive frames which Bob now had erected on stands, the frameplates temporarily held apart by threaded rods pending the stretchers being manufactured.

The ceremony was quite an occasion – a bottle of black sheep ale was cracked across the frames – ship launch style, we had a host of guests there including Sir William McAlpine and the *Tornado* pilots from the Tri-national *Tornado* Training station (who presented us with *Tornado's* nameplates painted by the RAF in air force blue and bearing their motto 'We rise to our obstacles' which I thought pretty much applied to us too). At that time *Flying Scotsman* was at Tyseley, then owned jointly by Sir William McAlpine and Pete Waterman. Bob was a friend of Pete and arranged for our potential sponsors at the event to have a go at driving the loco on Tyseley's demons

As the negotiations with Darlington were still highly confidential I had secretly invited Peter Chapman and Norman Maltby from Darlington to the event. They took me aside at one point in the afternoon and quietly said, "The Carriage Works is yours. It's gone through council approval". We were all on a high and to round a superb day off after the guests had gone home all the A1 team had a go at driving *Scotsman*! (To be continued) **TCC**

'OVER THE FORTH' by John Brownlie

COMMEMORATIVE PRINT OF No. 60009 RAISING FUNDS FOR THE P2 PROJECT

In December 1992, as the project to build A1 Class No. 60163 *Tornado* was just getting underway, a young man at school in Edinburgh named John C Brownlie was starting to get some of his railway photography published.



John Cameron, John Brownlie and Union of South Africa.

Inspired by the vintage railway art of Cuneo, he captured a spectacular photograph - from the footplate of A4 Class No. 60009 *Union of South Africa* as they thundered over the iconic Forth Bridge on the East Coast Main Line. That set of 35mm Kodak negatives remained archived until 2023, when a series of events set this project in motion.



The reality! No. 2001 thunders across the Forth Bridge.



John Brownlie, Steve Davies and Prince of Wales.

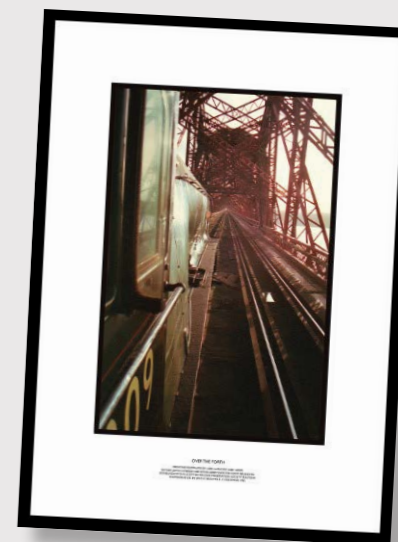
You can now own this timeless fine art print commemorating the retirement of Gresley's famous Number Nine. Ten percent of proceeds from every sale, will be supporting the build of our new Gresley P2 Class, No. 2007 *Prince of Wales*.

The print is available in A3, A2 and A1 sizes. Picture shows 'Over The Forth' in A1 size, framed.

The 35mm negative has been digitised in high resolution, retaining the warmth and grain of the original film stock, whilst revealing previously unseen detail, to create a breathtaking gallery-standard fine art print. All materials and equipment used in production, including the latest Giclee digital printing technology, meet Fine Art Trade Guild Standards.

Ten percent of the proceeds from each sale go towards our P2 build project. Purchase today from:

www.johncharlesmedia.com/shop/over-the-forth



'Over the Forth' – the print.

•WORKSHOP NOTES•

ORIGINAL STONES LAMP

We were delighted to welcome Geoff Holland to the Darlington Locomotive Works today. Geoff kindly donated an original Stones lamp for the rear of No. 2007's tender. Received with thanks from Steve Wood and now safely in the stores under his care. Although *Prince of Wales* will be fitted with multi-function headlamps on the front buffer plank, the tender will follow the same design as *Tornado's* with the Stones lamp bodies housing Rob Morland's ingenious LED internals. Needless to say, if anyone else has any of these lamps we'd love to hear from you!



Geoff Holland presents the lamp to Steve Wood



The Stones marker lamp



Geoff holds the lamp adjacent to its final position on the tender back.

WINDLE PASSES

Geoff Pethick kindly wrote to us as follows, "My great-uncle Edward 'Teddy' Windle was one of the team that went to Vitry in France with *Cock of the North* in 1935. After his death I was given two passes he was given by French Railways for use on the trip. Would you like them?"

Needless to say we were more than happy to find a home for the passes and they are now framed and on display at DLW2. From 1935 Edward Windle was one of Gresley's Chief Draughtsmen which Tom Coleman, the LMS's talented CD, later referred to as Chief Designers, and this seems a far more accurate description of the work they did. More often than not, they took some very broad ideas and developed them to the point at which an advanced fully working locomotive was built. Responsible for work on Gresley's superb Pacifics, he was also credited with the design work on the V2 monobloc. He accompanied Oliver Bulleid to France with the P2 and was brought back as CD to Arthur Peppercorn and did much of the design on the latter's Class A1 4-6-2s, allegedly covering up the drawings whenever Edward Thompson was in the room!

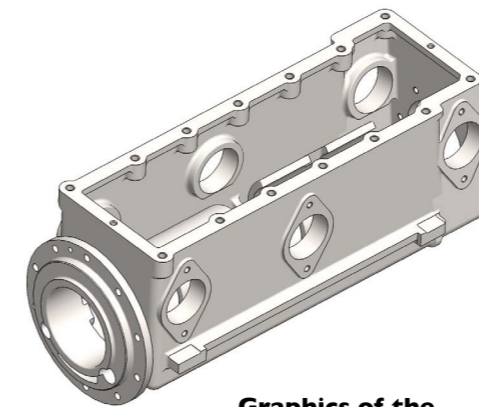
Above: The two passes issued to Teddy Windle by the SNCF when he travelled to France with *Cock o' the North*.



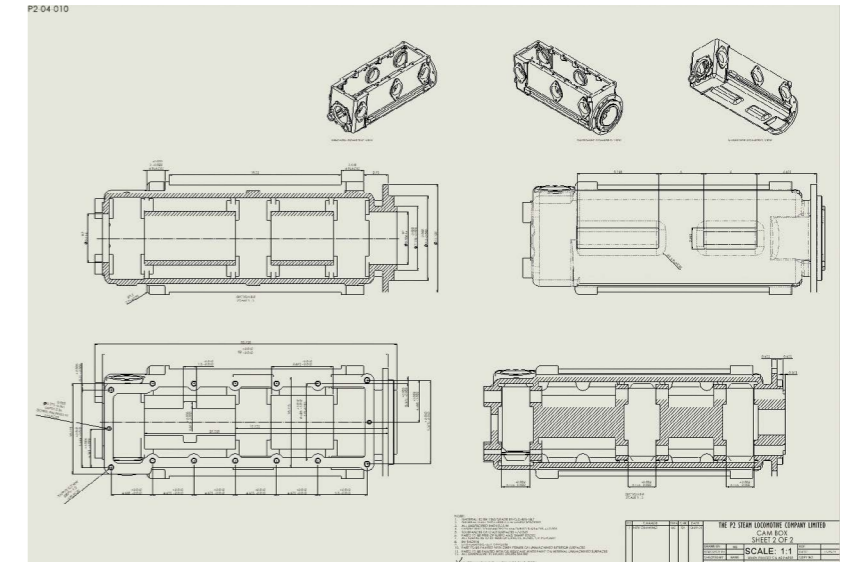
P2 ENGINEERING UPDATE by Alan Parkin & Terry Graham

Valve gear

All drawings for the cambox are complete and the initial review is complete, amendments are ongoing. A design FMEA (failure modes effects analysis) has been started. This document will detail individual potential failure modes, the chance of it happening and the severity of the failure to calculate a score. Then list what countermeasures are in place to reduce the score. Any high scores will need additional countermeasures. This document will be used to detail what testing required and so specify the test rig. Regular design reviews have been established to review the drawing and FMEA status.



Graphics of the cambox.



Pony truck

A detailed dimensional analysis of the pony truck cannon box has shown that it is distorted and dimensions cannot be recovered by additional machining. The distortion is a result of removal of the cracked manganese liners and welding on replacements. It has therefore been decided to get new castings from WM Cooks. It is hoped that these can be ordered at the same time as identical casting for B17 front bogie cannon boxes to gain some economies of scale. Also, the cannon box pattern will be improved by incorporating some lessons learned from the previous castings to make a better casting. This will require minor modifications to drawings and the pattern. **TCC**

P2 DEDICATED DONATIONS UPDATE by Liz Gibson



December seems to have crept up rather sneakily this year, I think largely due to the unseasonably warm Autumn. However, the weather is certainly turning quickly, and thoughts have followed suit. If you're already stumped for Christmas gift ideas, a Dedicated Donation for the steam enthusiast in your life (even if it's just yourself!) might be the way forward. Not only will it be a truly unique present, but it also helps push this project towards completion. I'm fortunate to live in an area where fires are still reasonably common, and so with the chilly air filled with the wonderful smell of wood and coal fires, here's a little selection of parts which can be sponsored from the smokebox.

- Keeping the smoke from the driver's eyes, the rear closure panel for the smoke lifting sheet is £350
- The machining of that fabulous Kylchap chimney could be covered for £900
- The cross bar and brackets can be sponsored for £1,200
- For anyone able to part with a little more this Christmas, the chimney pattern can be provided for £2,400!

As always, there are many more parts available and every part sponsored makes a wonderful and generous gift. If you're keener on process than function then how about narrowing things down by looking at a type of manufacturing method? Parts for the engine can be:

- Forged
- Welded
- Cast
- Laser cut
- Machined
- Rolled

...and all then expertly fitted together at the Works in Darlington. Now the new building is open for visitors, why not come along and see how all the wonderful contributions, sponsorship and donations come together to build an engine? Whatever the cost, size, placement or function, every sponsored item gets us one step closer to bringing this incredible locomotive to life. If you're interested in finding out more, please email Liz Gibson at :

dedicated.donations@alsteam.com and ask for more information about the parts available.

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@alsteam.com.

TCC

WORKING No. 2001 COCK O' THE NORTH by Norman McKillop

Stephen Potter very kindly sent us this article from the 1956 Trains Annual, relating the experiences of LNER driver Norman McKillop working No. 2001 Cock o' the North. Fascinating stuff!



A fine portrait of Cock o' the North when she was working in Scotland.

Everybody knew, even when I was a senior spare driver, that I was a bit daft about the Gresley Pacifics. That is possibly why I got the job of going to Doncaster to bring the *Cock o' the North* to Scotland, and run her (if a "Cock" can be called "her"?) for a week, on the sinuous ups-and-downs of the sixty miles between Edinburgh and Dundee. The senior spare link at my home depot of Haymarket did almost as much train running the regular train drivers, with the difference that the senior spare men, like the products of Heinz, have a bigger variety. Before 1934 I had handled on regular main line trains all that Gresley had so far produced, but there were whispers of something even better to follow. John Hutchinson, my "gaffer", invited me into his office and gave me the "gen" on "the biggest express passenger engine so far built in Britain", I almost fell on his bosom when he concluded, "and you're going to Doncaster on Monday to bring her north".

So it was that one lovely summer

morning I got my first look at the first British Mikado type express engine, built to take unheard-of loads up gradients of 1 in 70 and even more at speed. As I first saw the 'Cock', she looked impressive. Actually some four feet longer than a Pacific in her immaculate splendour, she looked a good deal more than even that.

Slowly I walked the 74-odd feet of her length, checking over the detail differences to which I was accustomed. The flat round of the poppet valve gear-box, and the valve gearing which looked so flimsy, were my chief interest. I stood back and took her all in, as most of us do. There and then I ticked off what I did not like. I did not like, and never have liked, a pony truck for express work. The four coupled 'drivers' were too close together for some of those curves I knew so well; I could almost hear the squeals as that semi-rigid did a spot of cavorting round the acute bends. I did not like the small 6ft. 2in. driving wheels and the short connecting rods. I have tried since to look at a picture of the 'Cock' and disabuse my mind of this

initial impression but it still persists.

The whole of Doncaster shed turned out to see us off. On the road, when I blew the (chime) whistle, it acted like the Pied Piper; people came running across fields, popped their heads out of windows, or stopped in the streets to look at this massive stranger wending her way north. And we were able to travel at speed, too. For you must know that during the Gresley regime every express engine which left Doncaster for a running shed needed no further 'running in'. Those were the days when Albert Gregson did the running-in on the Doncaster-London stretches – and Albert was very thorough.

It was arranged that I should work the engine on the 4.05am from Edinburgh to Aberdeen the following morning. I was to take the train to Dundee, 60 miles nonstop, then work the engine to Dundee depot for examination before returning. "Now remember, Norman, none of your high speed tricks", said John Hutchinson the me, "No more than 70. That's the top limit for her". But he

needn't have worried. I had already made up my mind about that. One look at the *Cock o' the North* had told me that she wouldn't be in the Gresley Pacific class for "tip-toeing through the tulips". I said nothing to a soul, but inside me I knew that this was a Gresley "near miss" and I was disappointed. The truth was that Gresley's engines had become to me something in the nature of an answer to every high speed driver's prayers.

The first trip was sufficient to verify all my fears. We left Edinburgh complete with fourteen coaches and a technical 'wallah' in the cab. I never allowed the 'Cock' to touch anything higher than 65mph on the short straight stretches. Round the curves I nursed her like a granny with her daughter's first-born but about two-thirds of the way to Dundee I was smelling *heat*. My technical companion said, "Better come off!" but I thought otherwise, "It's nothing serious", I assured him, for there is a difference between one 'heat smell' and another. So, we timed the train to Dundee, there to find three of the coupling rod bushes 'cutting' to such an extent that there was a broad line of 'gold' from the nave of the wheel to the rim, where the brass and oil had run from the bush.

That first run was the start of a series of tests I made with the 'Cock'. After

each run I reported on her – and reported plenty. All the bushes had to be 'eased' on big ends and coupling rods but what could not be eased was her terrific appetite for coal. *Cock o' the North* became something of a star attraction to all, except the lads who had to fire her, so it was natural that she should head the parade at a big railway exhibition in Fife. It was perhaps also natural that a rather reluctant me should go with her. I answered all the usual questions from the usual interested laymen, with all the discretion I could muster, until one gentleman, with a retinue of followers, put the fatal one I'd been dreading.

Gentleman: "Have you driven this engine on a train, driver?"

Me: "Yes."

Gentleman: "They tell me she is excessively heavy on coal. Is that the case?"

Me (blushing furiously): "Are you a railway official?" (Smiles from the retinue)

Gentleman: "Yes."

Me: "Then I'm sorry, it's not for me to tell you that. You'll possibly be able to get the figure from official sources." (More smiles from the retinue)

Gentleman: Well, I'll see you again, my lad. I'm the new General Manager for the Scottish Area."

And so he did, and at his request I told him how the 'Cock' could haul any two trains if you cared to tie them together; haul them up any known gradient on any railway in Britain, but no matter how a driver tried to economise, she swallowed a hundredweight of coal to the mile, where a Gresley Pacific was doing her job on anything from 28 to 35 pounds on the same road with a slightly smaller train. Every time I drove the 'Cock' I tried all I knew to cut down her coal consumption. With her poppet valves there was no need to "coast with steam in her face". I ran her normally at 12% cut-off. I tried every trick in the pack – it was no use. The fireman almost needed a square-mouthed shovel to keep the fire going.

The gentleman knew the language all right. I tried to answer his questions with a simple "yes" or "no". As the driver it wasn't my place to suggest what was wrong, but his questions were real posers, and I've often pondered over how much bearing that conversation had on the decision to scrap the monobloc casting and poppet valves which formed the 'fore-end' of the 'Cock' in favour of orthodox piston valves, as was done subsequently. For that was where I diagnosed that the trouble came from.

TCC



No. 2001 takes a train out of Waverley Station, Edinburgh.

VOLUNTEERS *by Jacqui Nicholson*

CELEBRATING THE HEART OF THE A1 STEAM LOCOMOTIVE TRUST: OUR VOLUNTEERS

At the A1 Steam Locomotive Trust, we are incredibly fortunate to have a dedicated team of volunteers who are the backbone of our organisation. Their unwavering commitment and passion for preserving the legacy of steam locomotives are truly inspiring. As we reflect on our achievements, it is clear that none of this would be possible without the tireless efforts of our volunteers.

The Lifeblood of Our Operations

Volunteers at the A1 Steam Locomotive Trust come from all walks of life, bringing a diverse range of skills and experiences. Whether they are working on the building and maintenance of our beloved locomotives, assisting with administrative tasks, or engaging with the public at events, their contributions are invaluable. Each volunteer plays a crucial role in ensuring that our projects run smoothly and that steam heritage is preserved for future generations.

A Community of Passionate Individuals

What sets our volunteers apart is their shared passion for steam locomotives and railway heritage. This passion fosters a strong sense of community and camaraderie among our team. Volunteers often form lasting friendships, united by their common goal of keeping the spirit of steam alive. Their enthusiasm is contagious, inspiring others to join our cause and support our mission.

Making a Tangible Impact

The impact of our volunteers' work is evident in every aspect

of the Trust's operations. From the hard work of laying track to the meticulous record keeping for engineering and inspection administration, their efforts have a direct and positive effect on our progress. Volunteers also play a key role in educating the public during our Open Days and at events across the UK, helping to raise awareness and garner support for our projects.

A Heartfelt Thank You

As we celebrate our milestones and look forward to future endeavours, we want to extend our deepest gratitude to each and every volunteer. Your dedication, hard work, and passion are the driving force behind the A1 Steam Locomotive Trust. We are immensely proud of what we achieve together and are excited about what the future holds.

To our volunteers

Thank you for your unwavering support and for being the heart of the Trust. Your contributions make a world of difference, and we are honoured to have you as part of our team.

Thank you also to Teesside Foundation and the Ballinger Trust who support our volunteer programme with grants providing safety wear, brew kits and refreshments.

Join us

Our Volunteer Programme includes online and in person training modules to ensure everyone is kept safe when engaging with the Trust. If you are interested in joining the team please contact volunteer@a1steam.com or call on (01325) 460163 **TCC**



Some of the team in Darlington.

P2 FUNDRAISING *by Richard Courteney-Harris*

Thanks to our supporters we have had a successful year of fundraising. It is encouraging to report that in the last 12 months we have received over £650,000 of donations in total across the Trust, not including Gift Aid. This is an uplift from £600,000 in the year preceding the 2023 convention. This does not include any legacies.

Whilst over 50% of our income is directed towards the P2, there has been a need to consolidate financially as our Club initiatives have not reached 100% funding on each item. For example, 'The Tender Club' has raised £273,000 of a needed £450,000, even though all the major elements have now arrived. This consolidation has been effective and means we can now move forward with recruitment of a Project Engineering Manager to lead the build of the locomotive with focus on the pony truck completion, wheeling the tender and fitting the monobloc alongside the R&D work on the valve gear.

Valve Gear Progress

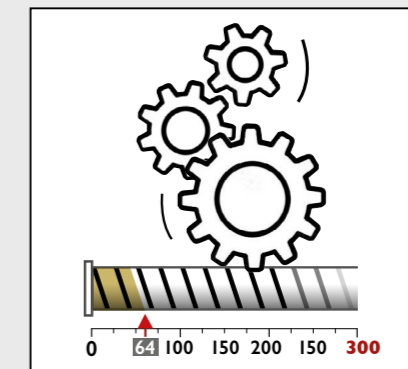
Following the initial £50,000 raised for the Valve Gear, work on this aspect of the build restarted in earnest in August. Since then, the team have consolidated work to date and now look to move towards the manufacture of a prototype.

The first set of drawings to produce the first cambox (minus the camshaft) have now been checked and have gone back for any required changes before final check and sign off.

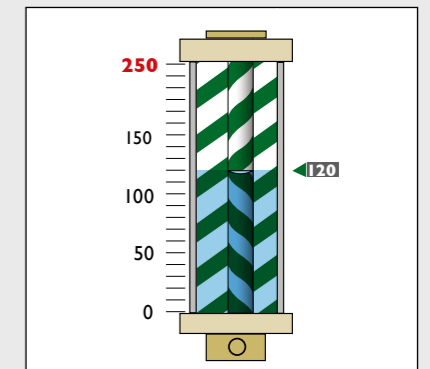
The team have scoured through old files to locate as much of the design and background information collected over the years by David Elliott on cams, cam boxes, valve gear etc. It has been put it in a central location that the team can all access as needed as a reference as the valve gear progresses.

They are now in the process of conducting an FMEA on the design of the camboxes, valve gear and drive to them as whole to allow us to identify the high-risk areas and to make sure we have the correct mitigations and controls in place for them.

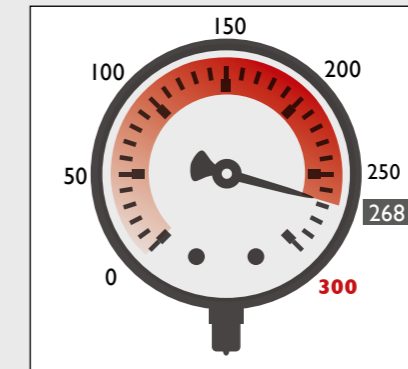
The valve gear is key to the power output of the locomotive and will bring Gresley's original design to the 21st Century. Support this aspect of the project at a1steam.com/p2valvegear



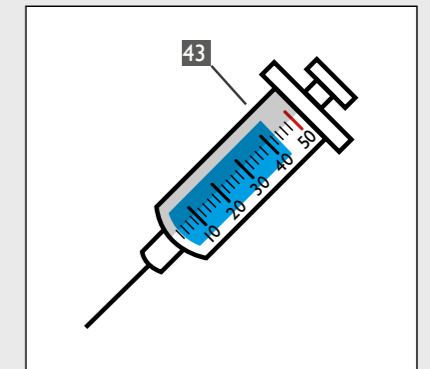
Valve Gear Club - 64 members.



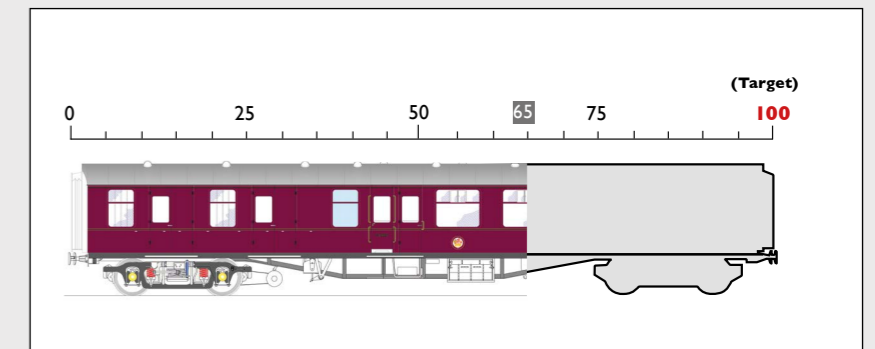
Tender Club Gauge - 120 members.



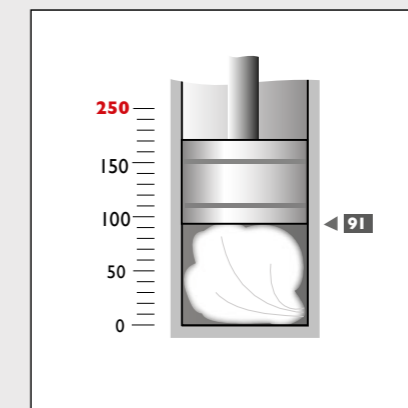
Boiler Club Gauge - 268 members.



Injectors Club - 43 members.



The P2 Coach Appeal - 65 supporters.



Monobloc Club - 91 members.

DLW Open Days - Open Days at the new site (Darlington Locomotive Works, Bonomi Way), are held on the first and third Saturdays of each month, 10:00hrs to 15:00hrs.

Covenantors - From as little as £10 per month, your regular donation makes a huge difference. If you haven't already done so, please consider joining us today and become a part of something special. Visit our website at <https://www.p2steam.com/support/regular-donations> for more information. **TCC**

DLW2 UPDATE by Terry Graham

In July two turnouts from the sidings at Darlington Bank Top station were removed as part of the track changes at the station where a new platform for eastbound trains is being installed. Corners Transport were contracted to do the heavy lifting and deliver the components to DLW. By late August two new, plastic (!) waybeams had been delivered for installation on the Otley Terrace bridge and the business of clearing vegetation and work on the turnout adjacent to A1 shed continued, jacking the track to the correct height then packing it with ballast. The vast assortment of rail that had been collected on site was laid out for measuring and cutting to length but progress was slowed by the torrential rainfall of September and October, requiring a drain to be dug next to the formation (at a gradient of 1:110 at that point) to carry the water away. Despite this, 260 tons of ballast have been delivered to the headshunt, ready for grading and tracklaying.

In summary, by November both tracks out of the A1 building had been laid and connected to the turnout. In total three turnouts have been assembled and are in position, over 110m of plain line has been laid by the 1861 shed, Otley Terrace bridge has been cleared and the way beams delivered and 80% of bottom ballast for headshunt. The next steps were to get bottom ballast delivered for plain line and turnouts, define the location for individual rails, cut to length (£15 per disc per cut!) and prepare for an Army visit in mid-November for four weeks for training on constructing permanent way.

The team made good progress during the first weeks in November. All the bottom ballast was delivered to the headshunt and we have built up a stockpile for top ballast for the plain line, to date 1700 tons have been delivered, including 400 tons sourced in 2023. All the rails north of the network rail turnout to Honeypot Lane bridge are in location alongside the rolling mills and cut to length making 13 panels in total. The stacks of rails stored lineside up the headshunt have been moved to create access to allow sleepers to be moved into position. Once the ballast is levelled and rolled by the Army they can get straight onto building the track.

Track near Eaglescliffe station is being replaced and we had the opportunity to help ourselves to the unwanted components, thanks to James Hodge. So, on Friday 15th November, with the help of a Hiab, we loaded an artic with



The new waybeams are delivered to DLW2.



Above: The waybeams being unloaded and right, the heavy rain in October necessitated the provision of a trackside culvert to clear the water from the trackbed.



Above: Water flowing freely along the newly formed ditch and on the right more base ballast is run out along the headshunt.



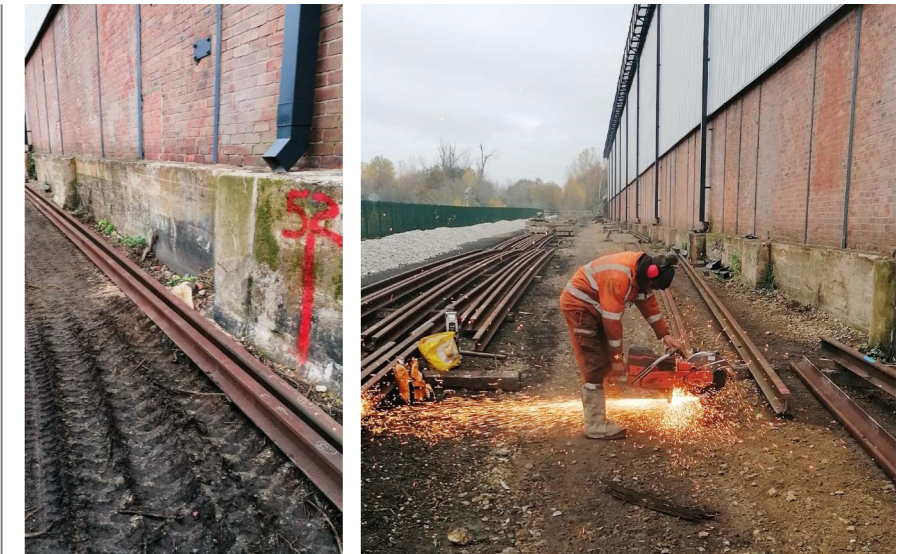
Bottom ballast run out along the headshunt.

good quality wooden sleepers and bearers and the Hiab lorry and trailer with rails and crossings. These were offloaded on our turntable site and comprise most of a turnout, all for the price of the transport, £800.00.

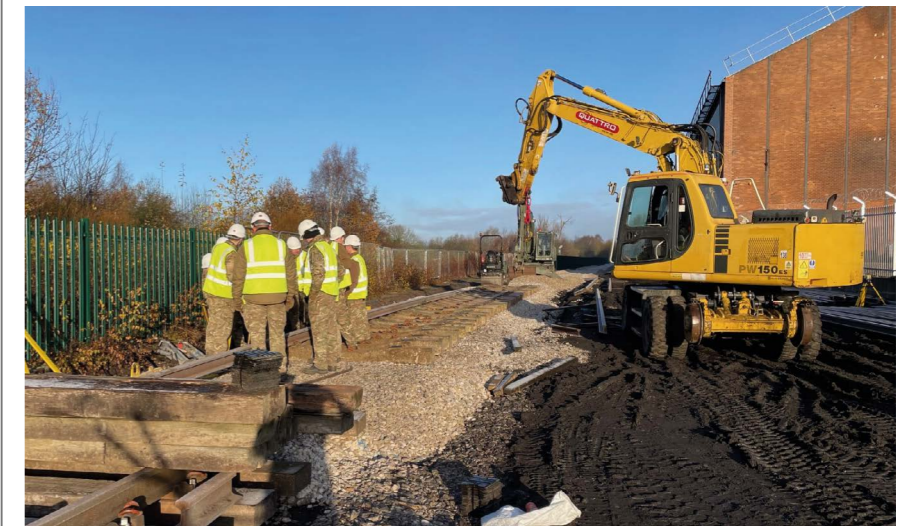
32 Regiment moved on site on Monday 18th and made great progress. We gave them a detailed introduction and site tour then demonstrated what we need them to do. By Monday afternoon they were jacking the track and moving sleepers. By Tuesday afternoon they had finished the work done by 507s in June and were laying new track. At the time of going to press they have laid four panels (approximately 70m of track) and have started to level the ballast on the headshunt. We are ahead of the plan on tracklaying and now could do with more ballast ordered to maximise the work the 32 Regiment can do for us. We are ever grateful to our supporters and their generosity has allowed rapid progress this year. Please support the Track Gang appeal and help us fund the balance of this work.

Building a railway requires a team so we must thank our supporters for the generous donations to the Ballast and P-Way Gang funds and give special thanks to all the volunteers from the A1 Trust, DRPS, the Army and our track mentor James Hodge.

TCC



Above: Rails laid out alongside the rolling mill building and then being cut to length, each cut consumes a disc!



Above and left: Soldiers from 32 Regiment get stuck in laying track and spreading ballast at DLW2.

OUTREACH – REGIONAL AMBASSADORS by Liz Gibson

Anyone fortunate enough to have been at the Convention's morning session will have heard me introduce our new initiative for a network of Regional Ambassadors. It was heartening to hear several positive responses afterwards, but I'm also mindful that the devil is in the detail. If you are interested and this has piqued your interest, please read on!

The simple premise is this: We would like to grow a team of volunteers, spread nationwide, to spearhead our outreach efforts in a co-ordinated and structured way.

There are some obvious benefits to this: The majority of the UK has no idea that we exist, and that's a pity; not only because it means we're missing out on the support of many people who would be supporters if they were given the chance, but conversely they're missing out on the joy of being part of this wonderful journey! In addition, having a wider-reaching outreach network means there's more chance people with skills suited to some hard-to-fill niches would learn of us and be tempted to lend their expertise, and we hope that it will also encourage greater engagement from our supporters, with an easier route for communications.

We have tentatively divided up the country into regions, based purely on what feels like manageable, not-too-onerous travel distances.

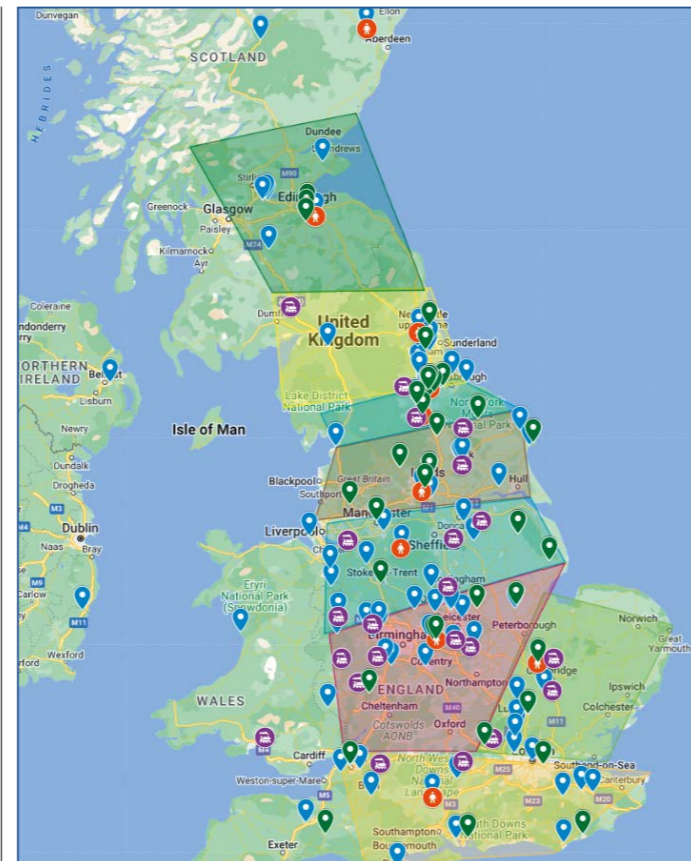
- Orange pins represent existing people who are already practiced at outreach and who we hope may volunteer to be Regional Leads
- Green pins are Events Volunteers with experience
- Blue pins are volunteers who have ticked to include events on their sign-up sheet.

As you can see we have a good smattering of people, but there are swathes of the UK looking rather sparse! Wales is all but bald, Ireland and Scotland look equally neglected. If the area you live in looks relatively busy please don't let this dissuade you – it really is "the more the merrier".

Each region will have a Regional Lead, and as many volunteers as come forward! Each region will have the freedom to operate relatively autonomously; leading on fundraising initiatives, attending local events, developing and managing awareness campaigns and similar things; making use of the resources and opportunities available to each region.

There are several types of event that volunteers could cover, examples such as:

- Model railway/engineering shows
 - Airshows/car shows
 - Local fetes
 - Steam Galas and Vintage Weekends
 - Local talks (Round Table, WI, etc.)
 - School/College talks
 - Stands at Preserved lines, especially if *Tornado* is making an appearance
- ... and many more – please make suggestions! But the key point is that volunteers will be engaging first-hand with the public, and



Outreach map (see key in text opposite)

often with people who have never heard of the Trust, or new build steam.

If you feel you could spare a little time – weekly, monthly, annually even – and would be comfortable introducing the Trust to those less familiar with what we do, please do get in touch with the following details:

Name

Basic location(s) you'd be happy covering

Availability

Event type preference

Any other relevant info (things you've done before, ideas for events etc.)

You will, of course, be fully supported in this – training and messaging will be co-ordinated, and we'll have get-togethers as necessary, either in person or remotely – we'll flex arrangements to suit the majority. Indicating interest is not a binding contract so please don't be worried that putting your hand up will be taken as a firm commitment, if you feel it's not right for you at the end of the day then that's fine.

As volunteers come forward the regional structures should begin to crystallise, and with your help we'll be able to start making this a real thing in 2025! **TCC**



FROM THE ARCHIVES by Graham Langer

Autumn 2004 – The coupling rods had been fitted to the locomotive by the end of 2004. Each of the four 7ft 6in rods weighs around two hundredweight and after forging, extensive machining and heat treatment, the four cost around £22,000 to manufacture. These rods were vital additions to the £150,000 valve gear and motion assemblies, which were now the focus of work on *Tornado* at the Trust's Darlington Locomotive Works. The Trust had also started work on the fitting of the rest of the outside motion. The bushes for the connecting rods were machined at Ian Howitt Ltd and one side of the locomotive had been fitted with a mock-up of parts of its valve gear.

Autumn 2009 – *Tornado* continued to break new ground, travelling to Plymouth in August, appearing at Didcot, home of the Great Western Society in September, breasting Shap for the first time in October before heading to Barrow Hill for an open day and visiting the Severn Valley Railway. *Tornado* was also the star of GMTV as she was prepared for runs over the Settle to Carlisle line with 'The Waverley' during the weekend of 3rd and 4th October. Otherwise, the locomotive continued to operate 'The Cathedrals Express' on behalf of Steam Dreams,

Autumn 2014 – Wearing British Railways' express passenger blue livery, *Tornado* made her first visit to, appropriately, the Bluebell Railway. *Tornado* moved to the Nene Valley Railway at the beginning of October in order to take part in that railway's Autumn Gala. In addition to working 'Le Train Bleu', No. 60163 was also available for driver experience courses. *Tornado* moved from the Nene Valley Railway to Barrow Hill Roundhouse, initially for 'Barrow Hill Live' and then the 2014 Convention. No sooner than the convention was over, the process of stripping the locomotive for her intermediate

overhaul commenced with the boiler being sent to Meiningen and the frames to Darlington. At Darlington an impressive pile of components was gathering for the new P2, *Prince of Wales*.

Autumn 2019 – The autumn edition of *The Communication Cord* carried the news that the Trust had appointed a new Trustee in the shape of Steve Davies who, in due course, became the Trust Chairman. *Tornado* completed a busy year of tours with, alas, a promising diary lined up for 2020, later blown astray by Covid 19. In other news work was progressing rapidly on the P2's tender at various locations. The pre-fitting of the tender tank baseplate to the tender frames was completed at Ian Howitt's works at Crofton near Wakefield where a total of 96 blind nuts had been welded to the baseplate. The baseplate then returned to North View Engineering Solutions in Darlington where the erection of the tender tank was proceeding rapidly. **TCC**



Tornado with blue livery in 2014.

Geoff Griffiths



No. 2007's tender taking shape at North View Engineering Solutions.

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

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* All information correct at the time of going to press late November 2024. For up-to-date information and dates please check the website www.a1steam.com.

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Darlington Locomotive Works is normally open to the public on the first and third Saturday each month (10am – 3pm).

Access to the works is in association with 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.

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