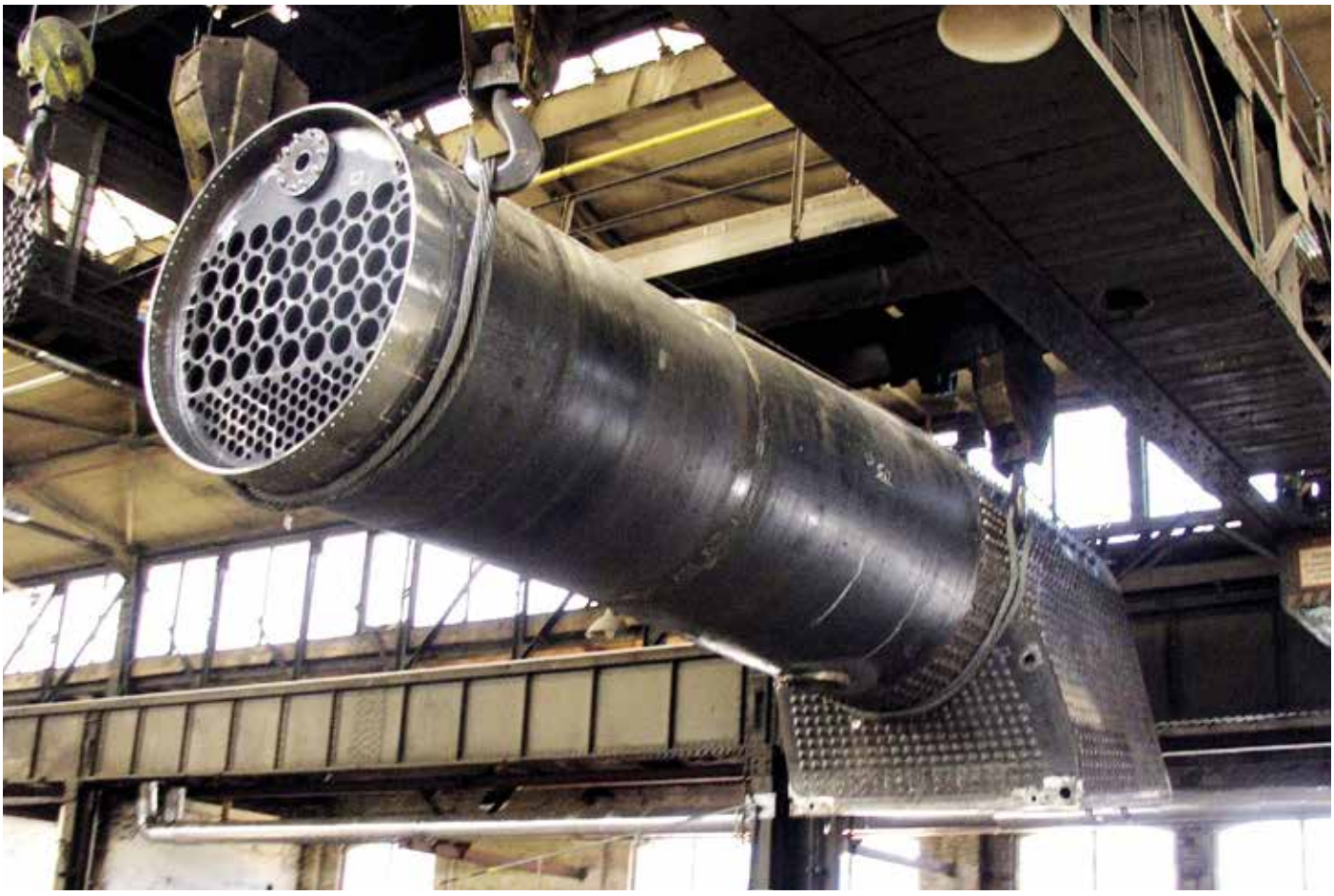
60163 TORNADO
New Steam for the Main Line

2007 PRINCE OF WALES
Rebuilding Bulleid's Most Powerful Express Locomotive

3403 ANON
Recreating Gresley's last design

THE COMMUNICATION CORD

No. 53 Spring 2019



David Elliott

BOILERS - AN HEIR AND A SPARE!

The A1 Steam Locomotive Trust places million-pound order for two new boilers

We are pleased to announce that we have placed a £1m order with Dampflokwerk Meiningen (Steam Locomotive Works Meiningen) for two new Diagram 118a boilers for our two new steam locomotives. The order is to supply the boiler for new Gresley class P2 No. *2007 Prince of Wales* and a 'spare' boiler for use on both No. 2007 and No. 60163 *Tornado*, which has just completed its first decade of operations since completion in 2008. This order will enable the Trust to rotate the three identical boilers on its two locomotives, with two boilers operational and one 'spare' undergoing overhaul at any one time. DB Meiningen delivered *Tornado's* original boiler in July 2006.

This strategic move by the Trust will reduce the time out of traffic for each locomotive by around four months, increase the potential revenue earned by both locomotive during each operational cycle and reduce the cost of their overhauls. By ordering both boilers at once and leveraging the purchasing power of the supporters of both locomotives, the Trust has saved a six-figure sum that would ➤

CONTENTS

have otherwise been required if the two boilers had been procured separately. The first new boiler, to be fitted to *Tornado* during her next overhaul, will be delivered in September 2020 with the second, to be fitted to *Prince of Wales*, scheduled to be delivered in July 2021.

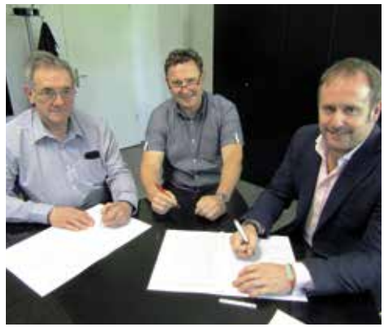
The A1 Steam Locomotive Trust ran a competitive tender process for the procurement of the two new boilers, contacting eight companies from across the UK, Europe and the USA; some of the potential suppliers excluded themselves due to the size and scale of the project to provide just one diagram 118a boiler. Others were not taken forward by the Trust based upon considerations which included their capability, capacity, track record, cost and ability to deliver on schedule. The shortlisted companies were then invited to cost the project before submitting best-and-final-offers.

The Trust is using a variety of funding methods to support the procurement

***Tornado's* first boiler is craned into her frames, June 2007.**

of the two new boilers in line with its policy of hypothecating the funding of each locomotive in place of the Bearer Bond which was used to fund the 2006 purchase of *Tornado's* original boiler from DB Meiningen. The funding of the boiler for *Prince of Wales* and its contribution to the 'spare' boiler is coming from The Boiler Club which was launched in October 2016 to raise £600,000 plus Gift Aid from 300 supporters each donating £2,000 in up to 40 payments – so far over 175 supporters have subscribed to The Boiler Club pledging around £440,000 including Gift Aid. The funding of *Tornado's* contribution to the 'spare' boiler will come from extending its 'I ♥ 60163' fundraising campaign - 100 supporters donating £601.63 in up to six payments - beyond the 100-supporter target. Additional funding for the 'spare' boiler will also come from recent legacies to the Trust.

Graeme Bunker-James, Commercial Director, The A1 Steam Locomotive Trust, commented, "The decision to procure two new boilers, one for the 'heir', *Prince of Wales*, and the second a 'spare' for both



David Elliott, Thomas Beyer and Graeme Bunker-James signing the contracts at DB Meiningen.

No. 2007 and *Tornado*, is a major strategic move by The A1 Steam Locomotive Trust and fulfils a long-held desire to have three boilers for our two locomotives in order to reduce their time out of traffic during overhauls and act as an insurance policy. This decision secures the future of both of our locomotives on the main line not just for now, but for future generations. Having a 'spare' boiler will greatly assist with the delivery of regular itinerary tours and ensure that we are a reliable provider of locomotives to our customers as well as our direct passengers. We know that interest in No. 60163 *Tornado* dips significantly when the locomotive is not operational on the main line and heritage railways.

"The ordering of the boiler for No. 2007 *Prince of Wales* is the next major milestone in the project to build Britain's most powerful steam locomotive and its delivery in July 2021 keeps the project on-track for completion in the next three years. The Trust is only able to make such a bold move due to the loyalty and generosity of its supporters of both locomotives and it is the intention to leave No. 2007 debt free upon completion. We urge those not yet on-board to join us as covenantors to both locomotives, a member of The Boiler Club for *Prince of Wales* and a subscriber to the 'I ♥ 60163' campaign for *Tornado*."

Marcel Scholz, Works Manager, Dampflokwerk Meiningen, commented, "The DB Meiningen Steam Locomotive Works feels very honoured to have been awarded the design and construction order of two new boilers for A1 and P2 steam locomotive classes by The A1 Steam Locomotive Trust for the second time. The formidable projects of this organisation to build new steam locomotives are outstanding and are in Europe, if not in the rest of the world, unique with regards to their success. The professional skills of the members of The A1 Steam Locomotive Trust are of a very high order and it is always a pleasure to work with them." TCC

EDITORIAL *by Graham Langer*

Midnight oil – a finite resource? For those members of the Trust at the 'sharp end' of main line operations it must be somewhat galling to read unsubstantiated speculation and unjustified criticism on social media regarding plans for tours or routes chosen. When you read further through this edition of TCC you will quickly realise the Herculean struggles that had to be made to ensure *Tornado* hauled her appointed trains recently - although a couple of cracked stays and a minor steam leak may sound trivial they were potential show-stoppers for 'The Ynys Mon' and 'The Mad Hatter'. As it was, our engineering team worked some very uncivilised hours and burned a lot of midnight oil to ensure that repairs were made and the locomotive presented for its FTR exams in good order. The thing that needs stressing is that we are sometimes unable to share every last piece of information with passengers for good commercial reasons but customers must rest assured that we will always do our best to keep them informed when we are sure of the news we have to disseminate.

Running *Tornado* on the main line requires a very high calibre of volunteer and we need a pool of support crew members who have the necessary skills and are willing and able to sacrifice the time to do so. In addition we rely on Responsible Officers to coordinate the support crew and liaise with the main line drivers and firemen and all of these people burn significant amounts of midnight oil doing what is often a thankless task and so different to running on a preserved line; we sincerely hope that supplies of this rare commodity never run out!

Apart from our volunteers the Trust requires a small core of paid staff and we are sorry to be losing one of these. Gemma Maughan (Braithwaite until her recent marriage to Richard) is leaving us after over four years as office manager; in that time it is fair to say she has made an indelible impression on the Trust. Mandy Grant paid this fulsome tribute to her, "Gemma joined The Trust in September 2014 and as many of you know, has worked tirelessly in her fundraising efforts and in keeping the office at Darlington (and everyone who ventured within its four walls) highly organised! It will be a huge loss to The Trust and to those of you who have come to know the sometimes cheeky, high spirited and familiar friendly voice on the end of the phone! In fact if you had a spare pound or two, you could almost guarantee that Gemma would always be there to relieve you of it!" We would like to thank Gemma for all of her hard work and wish her well in her future ventures.

Leigh Taylor is now stepping up to the role of Office Manager, joined by Siobhan Osborne in the role of Railtour Administrator and we'd like to welcome Sophie Bunker-James back to the role of Railtour Marketing Manager after period of maternity leave; we are still looking to fill the roles of machinist and the two fitter positions.

After many years' service to the Trust in its imaging team, Chris Woodcock has opted to step down from the day-to-day administration of the photographic archive. Improvements to the digital recording and licensing of images sent to the Trust mean that his role can now be shared among other members of the team. I, for one, am extremely grateful to Chris for all the help he has provided digging out images for the website and *The Communication Cord*.

In this edition we carry a piece written by Georgie Alice Read and another in which young Mason Ritchie also encountered steam for the first time. I mention this because both are an outstanding record of how a person can become smitten with steam. In this hectic and cynical world I suspect some of us have forgotten our first encounter with a steam locomotive, real or model; many of us were probably too young to be able to log the entire experience but I am sure we are all aware of the long-term effect it had on our lives. Georgie is a remarkable person who has managed to condense the excitement I am sure we

Chris Woodcock.

Leigh Taylor

Gemma on her wedding day with Daniela and Leigh.

all once felt when we first met a living, breathing locomotive and her article is a reminder that it is sometimes worth taking a pull to step back and reflect on what a grand passion this is, even when things go wrong and we end up struggling with cold, uncaring metal! Mason has penned a piece on his early encounters with *Tornado* and a splendid day with the Tornado Team at the Wensleydale Railway – if you are, or know, a young person who would like to become more closely involved with steam, the Tornado Team is a great way to do it!

Meanwhile, despite keeping the team busy between tours, *Tornado* has operated some remarkable trains, making a record-breaking run over Shap and covering an incredible itinerary with 'The Mad Hatter' – who says the A1SLT doesn't know how to run an enthusiast's train? At Darlington progress on building *Prince of Wales* forges ahead (literally in the case of the valve gear!) and many of the smaller pieces of the construction jigsaw are being put together; outside contractors are also occupied building the tender and we hope to be able to share a full progress report on this in TCC 54. Further advances continue to be made with the new Whessoe Road site and the release of £20m by the Tees Valley Authority towards marking the bicentenary of the Stockton & Darlington Railway may well prove opportune – watch this space!

If you are a Covenantor or supporter of the Trust we would ask you to travel on one of our own railtours, in particular 'The Aberdonian' or 'North Briton' series or, if you prefer, to support the construction of *Prince of Wales* by buying a Dedicated Donation or joining one of the clubs that are still open – together we can keep main line steam alive throughout the 21st Century. TCC

A1 ENGINEERING UPDATE *by David Elliott*

***Tornado* has successfully re-entered traffic on the main line having performed very well on the tours run this year. However, the locomotive is reminding us that it is not new anymore and has thrown us a few curved balls from a maintenance point of view.**

Mechanically it is working well, however, the boiler has now been in service for four years since the last overhaul and much of it is older still. It has started to remind us of this as we head towards the overhaul at the end of 2020.

Tornado's boiler heavy maintenance is based on a nominal five-year period as required by our insurers, this being less than the seven-year period for boiler overhauls for locomotives operating on Network Rail and is based on our (by heritage standards) intensive operating programme. It also fits in with recent practice of running boilers for ten years on the main line by renewing the small tubes.

In practice, previous experience has shown that the boiler would not realistically go for much beyond five years without some maintenance. The insurance company will permit an extension of time if the boiler is an acceptable condition and indeed allowed us an extra year the last time round. The principal requirement is for a "thorough internal inspection" which requires removal of some or all of the tubes. The external inspection also requires removal of all the cladding. For this reason we are programming a boiler overhaul for the end of 2020 – the opportunity will be taken to do some of the more difficult jobs on the frames and tender at the same time. The end of the fifth year is May 2020, but we have reasonable grounds for anticipation of an extension to December 2020.

In the meantime, the boiler has started "talking" to us. After 'The Auld Reekie' tour on 3rd March a stay in the extreme RH side bottom row of the throat plate was seen to be leaking from the tell-tale hole in the firebox. In accordance with our maintenance procedures, it was plugged by opening out the tell-tale hole, tapping a thread and fitting an M8 machine screw with a copper washer. The maintenance instructions require that a plugged stay is replaced during the first scheduled maintenance period which was planned to be an A exam and boiler washout at Crewe Heritage Centre during the first week in April. Whilst this exam was being undertaken, the two stays in the front corner were replaced. One aspect of steel boilers of the style on our locomotive is the flexing that occurs in the rear corners. This is an area we monitor at each washout. During inspection of the firebox water side, the RH rear foundation ring corner was showing signs of wear and therefore an agreed repair procedure was undertaken. This involves the grinding of the affected area to remove any grooving in the area followed by welding the affected area. This removes the problem and should see us through to the end of 2020. It is gratifying that we can undertake this repair with the boiler in situ, an advantage of the steel construction.

David Elliott

The completed repair, the affected area repaired with weld.

During the repairs above two further stays were identified as requiring replacement. One in the front right (fireman's side) corner and the other about 18in. forward of the back plate and about 12in. up from the bottom. As the boiler was already "boxed up" and we needed it back into steam to complete the A exam for 'The Border Raider' train the following Saturday, the leaking stays were plugged and the engine put back into traffic.

As we had just completed and A exam, and the next one was not due until June, once the boiler had cooled down after 'The Border Raider' the stays were replaced (along with the immediately surrounding stays). The one in the front RH corner was straightforward, however the one on the RH side involved removing the cab! Fortunately, we designed the cab with periodic removal in mind and it is "quick release" – about five hours to get it off and the same to re-fit it. Crewe Heritage Centre came up trumps and allowed us to use the workshop area. Their Tele-handler was able to lift the cab, and whilst there was a potential issue with availability of drivers for both the Tele-handler and the class 03 Shunter, our new man Richard Pearson is passed out on both machines enabling us to continue when Heritage Centre staff were not available. The locomotive was reassembled and tested in time for the 'Ynys Mon' train on 4th May.

The plan was then for an Engine and Coach move to Tyne Yard on 6th May in readiness for 'The Mad Hatter' train from Darlington to Chester. Part of the Fitness to Run (FTR) exam involves pressurising the cylinders (with the engine in mid gear and the brake on) to check for steam leaks in the smokebox. This was satisfactory, however steam was seen to be emerging from around the footplating in front of the smokebox. With the footplating removed a small crack was found in the middle cylinder block where the steam passage from the smokebox joins the steam chest. This is an area that sees high stresses through the large temperature variation that occurs very quickly, especially at the start of service. It is a known weakness on Peppercorn engines and class A2 *Blue Peter*, which is having a new cylinder from our pattern, had a major crack in the same area and across the front of the casting.

This caused the FTR to be failed. After a quick bit of research

David Elliott

Repaired stays.

David Elliott

Cab off! The advantages of the 'quick release' cab are demonstrated.

into repairing cast iron, the decision was taken to bring in Metalock Engineering to effect a repair using the metal stitching process. They have a lot of experience having worked on main line engines such as Black Fives, *Scots Guardsman*, various standard classes and class V2 *Green Arrow*. The hope is that this will last until the overhaul when a permanent welded repair can more easily be made. After running two main line trips and the Wensleydale Railway programme all appears well with the repair.

Thanks to the immediate response from Metalock, and some quick re-scheduling by DB Cargo, *Tornado* was able to move north to Tyne Yard on Thursday 9th May to haul a very successful 'Mad Hatter' from Darlington to Chester and back to York on Saturday 11th May.

We live in interesting times! It shows that *Tornado* is now 11 years old and requires more management as we head towards the overhaul. TCC

TORNADO TEAM DAY AND COVENANTORS DAY OUT

by Leigh Taylor

Leigh Taylor

On the 29th May it was lovely to welcome so many Covenantors, Supporters and their guests to the Covenantors' Day at Wensleydale Railway. We also welcomed our younger supporters, the Tornado Team and their adults, for a morning of activities with *Tornado* and her crew. The highlight of the afternoon for us all was a ride from Leeming Bar to Redmire and back. Thank you for all the appreciative comments, calls and emails we received to say how enjoyable the day was and how delighted you were to see *Tornado* in steam. TCC

Left: The Tornado Team pictured here at Wensleydale Railway on the 29th May.

THE A1 STEAM LOCOMOTIVE TRUST IS YOUR LEGACY-

by Mark Allatt

You can ensure that Peppercorn class No. 60163 *Tornado*, Gresley class P2 No. 2007 *Prince of Wales*, our yet-to-be-named Gresley class V4 No. 3403 or any other on-going project at the Trust, has a secure future for generations to come by leaving a legacy to The A1 Steam Locomotive Trust in your Will. When writing your Will, if your wish is for the legacy to go to a specific initiative of the Trust, please specify this and we will of course respect your wishes.

Donations via legacies during the almost 30 years that The A1 Steam Locomotive Trust has been in existence have been relatively limited when compared to other types of donation – although the Trust has always been extremely grateful for any gifts received. If legacy donations to the Trust were to reach the same level as those for the top UK based charities – where it represents around 40% of fundraising income – the Trust would raise an additional £80,000 per year. This would go a long way towards funding a five-year overhaul for *Tornado* or *Prince of Wales*.

Many of the Trustees have already made provision for No. 60163 *Tornado* and No. 2007 *Prince of Wales* in our Wills by leaving a legacy to The A1 Steam Locomotive Trust. If you would also like to support the Trust through a legacy, then please take a look at www.a1steam.com or contact our Legacy Coordinator who will talk you through the process on legacy.coordinator@a1steam.com or 01325 460163.

How has Legacy funding been used by the Trust? - Legacies helped the Trust during the construction of No. 60163 *Tornado* by funding specific components and equipment in Darlington Locomotive Works. Since completion, generous gifts have helped fund the conversion of BR Mk 1 E21249 into *Tornado's* support coach and contributed towards the repayment of loans and the £500,000 bearer bond.

What will my Legacy go towards? - A bequest left in your Will, will not be used for the general day to day expenses of running No. 60163 *Tornado* or No. 2007 *Prince of Wales* on the Network Rail main line and heritage railways. If you do not state a specific use, we will devote your gift towards the funding of *Tornado's* next major overhaul. If, however you would like your legacy to be used for something more specific, you will need to talk to our Legacy Coordinator in order to realise your contribution and by doing this we will be certain that your gift will be used for a specific purpose.

Bob Hughes

Newly painted in apple green, *Tornado* outside Darlington Locomotive Works, 2015.

To whom do I make my bequest? - If the value of your estate is above a nil rate band threshold value then it will be liable for inheritance tax (IHT). Any gifts made to UK registered charities are exempt from IHT and further tax savings can be made if you gift more than 10% of your net estate to charity as the IHT tax rate reduces to 36%. A gift to The A1 Steam Locomotive Trust would be classed as a charitable gift and, therefore, attracts the favourable tax rules. If your estate is chargeable to IHT, specialist advice should be sought. The A1 Steam Locomotive Trust is the organisation that holds the funds for fundraising projects and has trustees that can accept bequests for any purpose linked to it. The Trust is governed by a Council and its Trustees will ensure your wish is fulfilled.

How do I make a Will? - You could simply fill out a form from a major stationer or online but if your affairs are a little more complex it would be much better to take advice from a solicitor. It costs between £150 and £200 to make a Will.

Can I update my existing Will? - Yes, you will need to produce a document called a codicil; it is not that complicated and suitable forms are available from www.a1steam.com or from our Legacy Coordinator.

What wording do I use? - It depends on how you wish to divide up your estate. Details are available on www.a1steam.com or from our Legacy Coordinator.

So, please remember The A1 Steam Locomotive Trust in your Will and you too can help to ensure that No. 60163 *Tornado*, No. 2007 *Prince of Wales*, No. 3403 and our subsequent locomotives have a secure future on the main line for generations to come. TCC

TORNADO TOUR DIARY - 2019

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 6th July** – 'The Dart & Torbay Express' – Birmingham to Kingswear and return – Pathfinder Tours
- **Sunday 14th July** – 'The Pembroke Coast Express' – Bristol to Tenby and return – Pathfinder Tours
- **Saturday 20th July** – 'The North Briton' – London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return – bookings through Tornado Railtours
- **Thursday 1st August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Thursday 8th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Saturday 31st August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through Tornado Railtours
- **Saturday 7th September** – 'The Aberdonian', Edinburgh to Aberdeen and return, bookings through Tornado Railtours
- **Saturday 28th September** – 'The North Briton' – London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return (re-scheduled from 17th August) – bookings through Tornado Railtours
- **Saturday 5th October** – 'The Pennine Explorer' London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return – bookings through Tornado Railtours
- **Saturday 23rd November** – Gloucester to Ludlow and Shrewsbury and return – bookings through Pathfinder Tours
- **Saturday 14th December** – 'The Tynesider' – London to Newcastle and return (*Tornado* from London to York and return, *Union of South Africa* from York to Newcastle and return) – 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
www.a1steam.com/railtours

Pathfinder Tours
01453 835414
www.pathfindertours.co.uk

The Railway Touring Company
01553 661 500
www.railwaytouring.net

KEEPING *TORNADO* ON THE TRACKS *by Mark Allatt*

Keeping No. 60163 *Tornado* in tip-top working order is an expensive business as we are being reminded following the locomotive's failure on 'The Ebor Flyer' on Saturday 14th April 2018. Whilst 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 currently covers her day-to-day and year-to-year maintenance costs, they do not at present generate a sufficient surplus to fund her five and ten year overhauls, conservatively estimated at around £500,000 each. Therefore, it is vital for us to continue to maintain (and hopefully grow) *Tornado's* on-going Covenant income.

The last few months have seen our net number of Covenantors continue to grow a little. A silver lining to the unfortunate events of Saturday 14th April is the number of people who have decided to become Covenantors following the publicity surrounding the breakdown. Hopefully the more positive profile generated by the 'I ♥ S&C' Plandampf, 100mph test run, PADDINGTON 2 movie and our 2019 railtours programme will continue to help to grow this number. 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

Gareth Griffiths

***Tornado* tears past Arksey with 'The Talisman'.**

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**.

TORNADO ON TOUR *by Andy Hardy*

'THE BORDER RAIDER'

Mick Rogers

The classic Settle & Carlisle Railway location, Ribblehead Viaduct.

Alan Weaver

***Tornado* bursts out of Blea Moor Tunnel.**

Steve Armitage

Right: Climbing hard, clearly the fireman is busy at Stainforth.

On the 13th April the North West once again became a Mecca for steam with four steam-hauled railtours operating. However, without a doubt, the best run on that day fell to *Tornado* on 'The Border Raider' from Crewe to Carlisle and return with the outbound run taking the train across the beautiful Settle and Carlisle line. With the engine prepared and spotlessly clean thanks to the dedication of the support crew, *Tornado* was in fine form leaving Carlisle. Until Wigan the running was steady with Pete Sheridan letting the engine settle into its stride but the climb up Boars Head passing Wigan gave the first hint that the engine was ready for a good day out. Unfortunately, the run as far as the water stop was beset with signal checks, however some prompt running allowed the train to arrive on time. With the water replenished it was time to join the S&C. A good run over the line allowed an arrival at Carlisle 17 minutes early before the train was taken to London Road sidings for servicing.

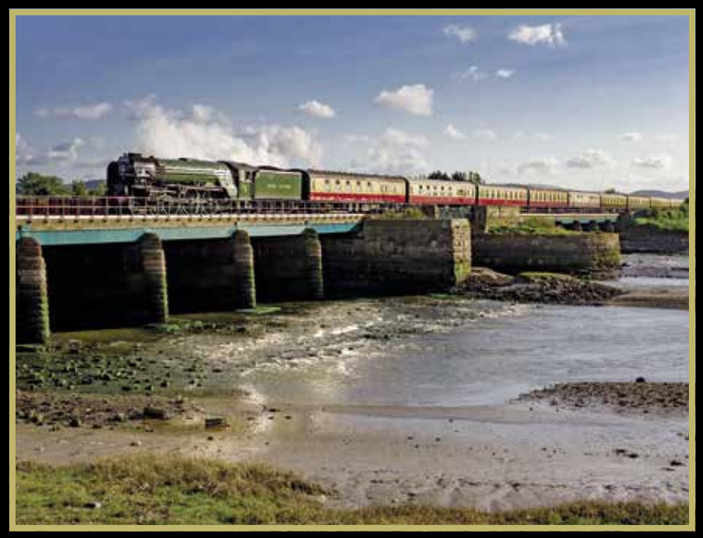
The return run took a different route, down the WCML over Shap. Leaving Carlisle the train immediately starts the thirty one and a half mile climb to Shap Summit. The engine took to the challenge immediately with the evening crew of Tony Jones at the helm with Andy Denton on the shovel. With the 11 coach train clear of the platform and the engine steaming against the exhaust injector, *Tornado* accelerated the train up to 74mph passing Penrith station before hitting the steepest part of the climb for the last 10 miles. With the pressure never falling more than 25psi below the red line the engine passed Shap summit at 62mph, taking 34.5 mins for the 31.5 miles – a new preservation record for a Southbound run.

Once over the summit the train dropped down to Preston for water and with the tender once again full the engine set off to Crewe. Some more spirited running gave the passengers another opportunity to see what the engine can do with some prolonged high-speed running allowing a slightly early arrival back at Crewe. All-in-all a superb performance from the engine and its crews showing once again what the locomotive was capable of delivering.

TORNADO ON TOUR *by Huw Parker*

'THE YNYS MÔN EXPRESS'

On Saturday 4th May, *Tornado* stood ready to depart Crewe Heritage Centre to redeem herself with a train from Leicester bound for Holyhead. Let's just say that on the last occasion we ran to Holyhead, the trip ended in ignominious failure at Rhyl with air pump issues! We were determined that would not be the case on this occasion. The locomotive had been subject to some routine boiler repairs during the few days prior to the trip, so the warming fire and functional tests were completed by Thursday night well in advance of the Fitness to Run exam on Friday. All went well and the Support Crew were able to attend to cleaning the locomotive without any last minute hinderance. The Crewe Heritage Centre staff were very accommodating and by Friday afternoon, the locomotive was coaled and shunted onto the Support Coach ready for the train on Saturday.



Alan Weaver

'The Ynys Mon Express' is seen at Rhyl.

In good time, *Tornado* and the Support Coach were sat in the middle road at Crewe waiting for the arrival of the train from Leicester. Replacing the Class 67 diesel on the front of the train, 'The Ynys Môn Express' left Platform 12 right time and headed for the Cheshire countryside. Some good running over the easy road though Chester, brought us to Llandudno Junction, where a large party left the train for coach transport to Blaenau Ffestiniog for the Ffestiniog and Welsh Highland Railways or to enjoy the town's Victorian Extravaganza. After taking water, the train carried on to Bangor dropping those who wished to visit Caernarfon before finally arriving at Holyhead.

At Holyhead, *Tornado* ran round the train before propelling it into the carriage sidings and returning the Support Coach to the head of the train ready for the return journey. Turning the locomotive was achieved via the triangle alongside RAF Valley and the loco was then coaled, watered and serviced on Holyhead Depot.
Departing Holyhead on time, we lost no time in collecting those that had left the train to travel to Blaenau and Caernarfon – well most of them. One unfortunate couple eventually re-joined the train just in time whilst we paused for water again at Llandudno Junction. On the footplate, it was fingers crossed as we passed through Rhyl without a backwards glance!

Huw Parker

Job done! *Tornado* rests back at Crewe Heritage Centre.

After a good run to Chester, we were held to time before completing the final 20 miles to Crewe, handing over the train to the Class 67 for the run back to Leicester. We were not quite finished though, and after leaving the train in platform 12, *Tornado* and her support coach ran to turn via Gresty Lane, before running back through the station to stable once more on Crewe Heritage Centre.

TORNADO ON TOUR *by Huw Parker*

'THE MAD HATTER'

After some maintenance and routine repairs, *Tornado* ran slightly later than planned to Tyne Yard ahead of 'The Mad Hatter' on Saturday 11th May from Darlington to Chester and return. And why was the train named 'The Mad Hatter'? Tornado Railtours explained, "Travelling between Darlington and Chester, the train name reflects the Alice in Wonderland author's connection to both Cheshire, where Lewis Carroll was born, and the North East, where he lived for part of his childhood. That, and the fact that one must be a little bonkers to undertake the building of a steam locomotive – let alone do it twice! "

Richard Pearson

Never mind the name, this trip turned out to be something extraordinary, covering some interesting sections of railway - some that see steam infrequently and others not for some years. This was, as one observer remarked "a most exciting tour of secondary routes and freight lines from Darlington North Road to Chester and return via 49 railway junctions" perhaps setting an unintended record. Whatever the case, it has to be said that the locomotive was in excellent form and in the competent hands of our DB crews, produced several fine displays. Without doubt the most memorable was the ascent of Copy Pit, with the locomotive storming the bank with some ease. We look forward to some of the official timekeeping logs from friends and colleagues on board giving some of the more detailed observations.

Arriving at Chester for the second time in a week, *Tornado* was quickly serviced by the team and prepared for the return trip, this time over the Hope Valley Line and through the splendid scenery of the Peak District. Leaving the train at York, *Tornado* stabled overnight at the Railway Museum, before heading North to Northallerton and across to Leeming Bar for several days working trains over the Wensleydale Railway. TCC

Alan Weaver

'The Mad Hatter' crosses Lydgate Viaduct, Todmorden.

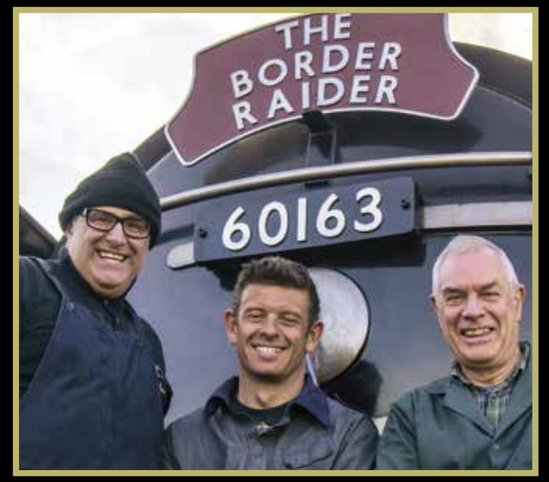
'THE BORDER RAIDER' CREW *by Mandy Grant*

All photos: Mandy Grant

DB Cargo Crew at Carlisle Station Tim Stedman Fireman, Pete Sheriden Driver and Bob Hart TI.

Above: Jim Gosney and Bob Hart during the water stop at Long Preston.

Right: Tim Stedman, DBC.



All photos: Mandy Grant

Above: A1 SLT Support Crew, Nik Procter, Tom Benson and Richard Peck.

Left: A1 SLT Support Crew at Crewe Heritage Centre prior to 'The Border Raider' From top left - Nik Procter, Tom Benson, Richard Peck, Andy Hardy RO. From bottom left - Chris Ardy, Jim Gosney, Alex Robinson, David Burgess

A1 SLT RO Andy Hardy chats to Bob Hart prior to departure from Crewe.

Jim Gosney, Alex Robinson and Andy Hardy on the platform at Long Preston during a scheduled water stop.

David Burgess, rostered chef provides hot bacon and sausage sandwiches for the support crew.

Andy Hardy RO, in the support coach after *Tornado's* cracking ascent of Shap Summit!

Tony Jones and Jim Smith at the end of the night. It was Tony's first main line run as a passed out Driver and what a superb performance it was too!

MAKING DREAMS COME TRUE *by Georgie Alice Read*

I first met No. 60163 *Tornado* at Walton on the Naze station after learning from a Facebook event that she would attend for the 150th Anniversary celebration. I had never seen a Steam Locomotive before, and so I booked my train tickets. and there I first set eyes on *Tornado*. The sounds, the smell of her, I had never seen something so extraordinary. I knew nothing about Steam Locomotives, so I had no idea of her background.

Since that day, I threw myself into research on *Tornado*, after I saw the plaque on her cab, that read 'Darlington 2008'. I then discovered the A1 Steam Locomotive Trust, learning of her history and the efforts that went into building her. I managed to get some funds together and booked my first main line trip behind a steam locomotive on 'The Ebor Flyer'.

I was so excited that I had a shirt printed with a photo of *Tornado* and her BR number on the back of the shirt. I made my way to King's Cross and had my photo taken with her. As we made our way towards Peterborough, just before Sandy we suddenly came to a stop and I was worried. Then I learned of the news that I didn't want to hear; *Tornado* had broken down. I heard a diesel was coming from Peterborough to rescue us. We arrived at Peterborough very late, and I still re-watch footage on Youtube of the Diesel dragging the train to Peterborough which breaks me every time. I decided to stay on the train to York, and so as we left Peterborough behind another diesel, I recorded Tornado giving a whistle salute as we departed, but my heart broke for her.

Since *Tornado* was taken to Wansford on the Nene Valley Railway, I kept myself updated on her, speaking to railway staff on Facebook, posting on the A1 Trust Facebook page, and having met Mandy Grant on 'The Ebor Flyer', I wanted to keep updated with *Tornado* and how she was doing. When I read the full report in the next *Steam Railway* magazine, all I kept feeling was hurt and sadness. I visited *Tornado* on five different occasions at the Nene Valley railway, all the time, I would just sit nearby and talk to her, like she could hear me and talk back; I kept reassuring her she would come back stronger than ever, and do what she was designed for. I even visited *Tornado* on her 10th Birthday, August 1st, and a kind worker let me in the shed up close and onto her footplate. That day I found out something upsetting; 'The Canterbury Tale' that I had booked on, hoping *Tornado* would be back in service, was unlikely to go ahead. I got the confirmation that I dreaded, that the rescheduled trip was cancelled. I was so down, wondering if I would ever get another chance with *Tornado*. I even went home that day and I drew a digital piece of artwork of *Tornado*.

My chance came, when learning about the rescheduled *Tornado* 10th birthday event on the Nene Valley railway, and I instantly booked my tickets for the trip, with every hope and prayer she would make it. I was overjoyed and bouncing with excitement seeing her move for the first time, under her own steam, at Wansford. On 22nd September, I rushed down to the Nene Valley railway, and as soon as I saw her pull into Peterborough, I cried tears of joy. I instantly climbed onboard, making sure I was right at the front right next to her smokebox as she was travelling tender first to Wansford, and I stayed with her the whole day travelling back and forth up the line for about five runs.

Mandy Grant

Mandy Grant and Georgie on *Tornado's* footplate.

I kept following updates on *Tornado*, up until the announcement that she would be leaving Nene Valley railway for her test runs up to Doncaster. I felt saddened again knowing a bit of repair was needed from her tests, and I prayed so much hoping for no more setbacks and to see her come back. When I heard about her first trip back in service, and when I saw the photos from the start to finish, all I felt was relief.

I came across the Wensleydale Railway after reading about the RAF fly past and how *Tornado* was photographed with the RAF Tornados, and learning she would go back to the Railway in June, I bought a ticket for the 1st June 14:15 run. I learned Mandy would be there on the same day. I booked my train tickets in the hope of catching her first trip that day but arrived late and missed it. I met Mandy Grant from The Trust for the second time, and she was such a lovely lady to speak with. I couldn't contain my excitement knowing I would see *Tornado* again, and as soon as the A1 Pacific pulled into Leeming bar, I could've cried so much. Seeing her in all her glory, she was a beautiful sight to bring joy to anyone. As *Tornado* was running around her train and coupling up, I spoke with a few workers and volunteers and kept taking photographs of *Tornado*. I was then informed of a surprise for me, to be allowed on the footplate for a ride. My reaction was captured on camera, my heart swelled and I was so full of joy, and wiping a few tears away. I am just an ordinary steam enthusiast and to be given this amazing experience and offered this token of appreciation from The A1 Steam Locomotive Trust and Wensleydale Railway for all the misery I have suffered and the bad luck with cancellations, I would've been happy just seeing *Tornado* and riding behind her, but for a footplate ride, it was beyond my dreams.

Mandy Grant

Georgie sees what it is really all about.

We made it to Redmire station at the end of the railway, and so I boarded the footplate at the next station at platform level, and that was it, I couldn't stop smiling. It was a dream come true and I think I was still trying to take in that information that I was actually standing on *Tornado's* footplate. We departed and headed back to Leeming bar, and I watched the driver pulling her whistles, the fireman filling her up with coal, all I could do was smile and hold on tight as the ride was bumpy. The views from *Tornado's* cab were fantastic and I was so happy for the arrangements made for this surprise for me. I had my photo taken on the footplate, and at the end of the run, I got a special piece of coal from her tender as a keepsake memory of this special day, and I was so overjoyed. A few people on the railway and other members from the A1 Trust came up to me and they knew my name, I felt really special.

Tornado didn't just start my passion for being a Steam Enthusiast, she has a special place in my heart, and I feel pride seeing her wherever she goes. I certainly signed up straight away to be a Convenator, and to help donate towards *Tornado's* upkeep, and to be a part of her next 10 years. I don't think I can answer the question on where I would be today without *Tornado* in my life, as over the last two years, for Birthdays and Christmas all I received was *Tornado* gifts and I have taken photographs every time I have seen *Tornado*. She is definitely a 'People's Engine' and I hope for many more generations she will continue to wow many people. To anyone wishing to see *Tornado*, she certainly is worth the visit; I will keep up my support for *Tornado* now that I've signed up as a regular supporter.

Mandy Grant, The A1 Steam Locomotive Trust adds: "During conversations that I'd had with Georgie, she had told me about her autism, and seeing first hand her genuine distress following Tornado's failure on 'The Ebor Flyer', and her disappointment after subsequent cancelled trips that she had been booked on, I had spent some time communicating with her and reassuring her that Tornado would be back out in traffic, once repairs had been completed successfully. We wanted to do something special for her, just to say thank you for continuing to support Tornado and The Trust. With help from The Wensleydale Railway and A1 SLT Operations, we were able to make this a truly memorable day for Georgie and seeing the genuine joy and appreciation that this small gesture brought, will stay with myself and those involved for a long time to come". TCC

MAKING DREAMS COME TRUE – PART 2 *by Mason Ritchie*

Mason is six (seven in September) and the family lives in Torquay. He enjoys locomotives, brazilian jiu-jitsu (having just won a medal at the Devon Open), swimming and gymnastics. They go to see the locomotives at the South Devon Railway whenever they can. Mason is in year one at school and really enjoys learning. When not in school uniform Mason wears a boiler suit and a grease top cap. He has his own workshop in the garden and a lot of tools to work on his own inventions. In his own words, here is Mason's story.

"I became interested in steam locomotives from the age of one and started with *Thomas the Tank Engine*. After spending time at the South Devon Railway and on the Paignton to Kingswear line every chance I got my interest grew and I wanted to know more about steam engines. I heard about *Flying Scotsman* and read books and watched videos to learn more; this led me to *Tornado*. I watched a program called 'Absolutely Chuffed' and learned about the A1 trust and the amazing work they do creating new steam engines from scratch. This inspired me to want to be an engineer and build my own engines. My favourite book at the moment is the *Tornado* Haynes manual, but I also enjoy reading 'Gresley's P2'.

As a Christmas present, my auntie and uncle gave me a year's membership of the Tornado Team. I was very excited because this also meant a trip to see *Tornado*! I couldn't wait for the day to come. I last saw *Tornado* when I was four. We had a family trip from Potters Bar to Great Yarmouth on a sunny day in August and I loved every minute and got to go on the footplate.

We travelled up from South Devon to Northallerton for two nights stay in a hotel. On the big day we arrived a bit early and looked up and down Leeming Bar station until we found *Tornado* hiding behind some coaches. Luckily I got to see her being loaded up with coal ready for the afternoon journey. There were many other like-minded young train enthusiasts and we were split into groups for the day's activities. I got to go on the footplate and talk to the driver and fireman. I also got to shovel some coal into the fire! After that, there was cleaning and polishing to do. I found a friend and together we worked on polishing the brass plate on the side of the engine; next we had drawing and 'I spy'. I drew a P2.

Peter Ritchie

Mason with *Tornado* and some of the key players at the Wensleydale Railway.

In the afternoon we all got to go for a ride on the Wensleydale Railway pulled by *Tornado*. I had a great time with my new-found *Tornado* Team friends. When we arrived back at Leeming Bar station I heard a voice that I recognised from the *Tornado* documentary I had watched and when I turned around I saw it was David Elliot (chief engineer for the A1 trust). This made my day, I was able to speak to him and had a photo taken (for my memory book) of David, the driver and fireman which I will treasure. My dad told David that I thought he was famous and he said he tries to avoid the fame!

I want to thank Leigh Taylor, Sheila Seabrook and all of the other A1 Trust staff for an amazing day. Leigh also arranged for me to go to Darlington works to see the *Prince of Wales*. I got to look around the engine and even go under it to look at the progress so far. I would love to work for the A1 trust one day and am currently working on ideas to help raise funds so that I can see *Prince of Wales* up and chuffing as soon as possible! TCC

I ♥ 60163: *TORNADO'S* 10TH BIRTHDAY APPEAL *by Mark Allatt*

It's hard to believe that No. 60163 *Tornado* has now been in traffic for over 10 years – and what a decade it has been! Throughout these years we have had many highs and a few unfortunate lows; we have travelled the length and breadth of Great Britain, hauling main line charters and Royal Trains, visiting dozens of heritage railways & centres and making countless appearances in the press, on TV and even in a movie! The nation – and indeed people way beyond our shores – seem to have taken *Tornado* to their heart.

Unfortunately, *Tornado's* 10th Birthday year didn't quite work out as planned and was a challenging year for The A1 Steam Locomotive Trust following No. 60163's failure on 14th April 2018 hauling her first 90mph train, 'The Ebor Flyer'. Although much of the repair costs and loss of earnings have been covered by our insurance, unfortunately not all those costs could be recovered.

The repairs to *Tornado* have included:

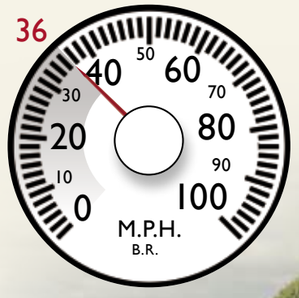
- Reboring the outside valve liners
- Manufacturing and fitting of new valve heads
- Remetalling and machining of outside valve spindle crossheads
- Rebushing of the outside valve chest covers
- Renewing the left hand outside union link and pins
- Boring of, and replacement of pins in the inside reversing gear
- Exchanging and overhauling the front air pump Replacing the blow down valves
- Overhauling the mechanical lubricator and atomisers
- Replacing some of the lubrication pipework
- Fitting of three-pawl ratchet mechanism to lubricator in order to improve reliability
- Following recent tyre turning, acquisition of a replacement set of coupled wheel tyres.

Now *Tornado* is back in steam – although yet to haul her first revenue earning main line train - we would like to take the opportunity again to thank our supporters for their patience and continued support. In response to the many offers of help we have received, we have decided to establish the 'I ♥ 60163' appeal to help close the funding gap and raise £60,163 from 100 people each donating £601.63 in up to six payments.

- By donating £601.63 to our 'I ♥ 60163' appeal, you will receive:
- An exclusive 'I ♥ 60163' car sticker
- Access to view *Tornado* at all reasonable times
- The Trust's newsletters on a regular basis
- Annual Supporters Card
- The opportunity to attend the Trust's Annual Convention
- A special 'I ♥ 60163' day with No. 60163 *Tornado*
- Your name inscribed on the Roll of Honour at Darlington Locomotive Works.

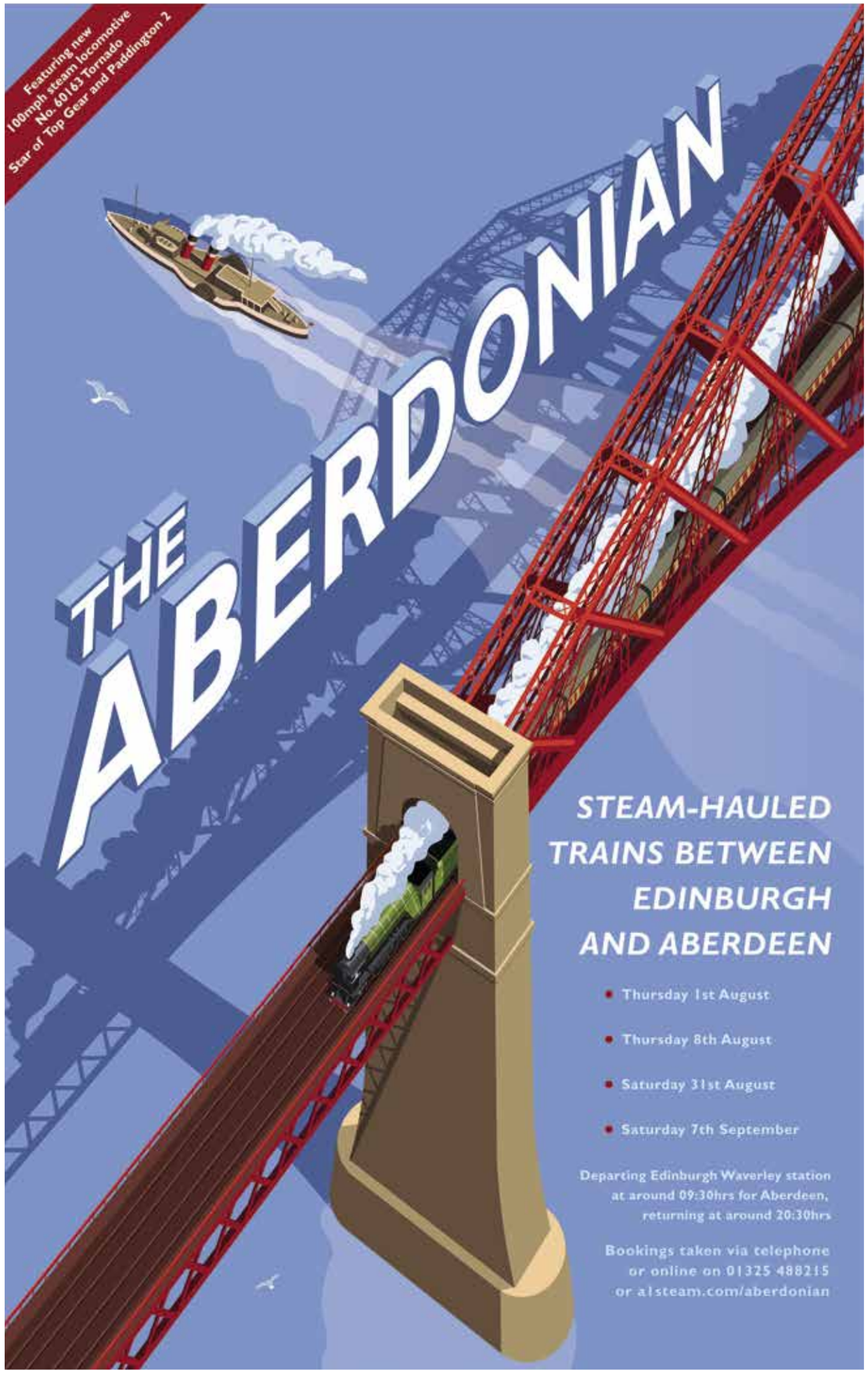
Since our 'I ♥ 60163' appeal was launched at our 25th Annual Convention on Saturday 13th October 2018, 36 supporters have generously donated to the fund. With the recent 10th anniversary of *Tornado's* legendry appearance on *BBC Top Gear's* 'Race to the North', we would encourage those who have yet to support this appeal to consider coming on board.

For more information, please visit **www.a1steam.com**, email **enquiries@a1steam.com** or call **01325 460163**.



Let's shift the speed from a sedate 36mph to *Tornado's* historic 100mph!

Jack Boskett



Stephen Millership

BUILDING THE NEW GRESLEY CLASS V4 MAKES PROGRESS

by Mark Allatt

3403 ANON

Recreating Gresley's last design

In March 2019, The A1 Steam Locomotive Trust was delighted to announce a further partnership with The Gresley Society Trust which funded the smokebox for No. 2007 *Prince of Wales* as part of the fulfilment of a legacy request. The two organisations will work together to manufacture the shared 5ft8in driving wheel pattern for the new Gresley class V4 No. 3403 and the Gresley Society's Great Northern Railway Gresley class N2 No. 1744. The class N2, which is 100 years old in 2021, is currently under overhaul and requires two replacement driving wheels. The production of the pattern will be project managed by A1SLT and funded by the Gresley Society, with its first use being for No. 1744.

As previously announced, in January 2018 along with tyres, chimney and speedometer drive generators, A1SLT acquired over 500 original Gresley class V4 drawings from Malcolm Barlow, a Doncaster scrap dealer who launched the now defunct Gresley V4 Society in 1994 to build a new example of the class. Since then Graham Nicholas has made significant progress reviewing and cataloguing these drawings in advance of their scanning into the Trust's CAD system.

Mark Allatt commented, "We are in the pre-launch phase of the project to build our third new main line steam locomotive, with the detailed review and cataloguing of over 500 acquired drawings, the production of the fundraising strategy and the decision on the high-level specification of No. 3403.

"We want to be ready to start assembling our new Gresley class V4 as soon as our new class P2 is completed. We anticipate the project costing around £3m and taking around five years subject to the pace of fundraising. Our new Gresley class V4 is an ideal locomotive for regional main line tours, repeat main line itineraries and the longer, main line connected heritage railways.

"Unlike with our class P2, where we have had to do a considerable amount of development work to complete the job that Sir Nigel Gresley started in 1934, there will be very little redesign work needed as there were no known problems with the Gresley class V4s. In addition, we are delighted to be working with The Gresley Society Trust to produce the 5ft8in driving wheel pattern shared by the class V4s and N2s.

"Although there is no specific appeal open for No. 3403 yet, any donations made towards it will be ring-fenced for the project. The next steps will be to launch a website for the project and The Founder's Club to fund the early stages of the project. More announcements will be made during 2019 as the project builds up steam."

Philip Benham, Chairman, The Gresley Society Trust, added, "We have worked with The A1 Steam Locomotive Trust before on their new build projects and are delighted to be doing so once again to produce a new 5ft8in driving wheel pattern for the Gresley V4 and our Gresley class N2. Currently under overhaul, No. 1744 celebrates her 100th birthday in 2021 and we anticipate she will require two replacement driving wheels either as part of the overhaul or within the foreseeable future. It's very appropriate that the overhaul of the oldest surviving locomotive designed by Sir Nigel Gresley should also benefit the building of a further example of his final design."

For more information on how to help, visit **www.v4steam.com**, email **enquiries@v4steam.com** or call **01325 460163**. TCC

The London and North Eastern Railway (LNER) class V4 was a class of 2-6-2 steam locomotive designed by Sir Nigel Gresley for mixed-traffic use. It was Gresley's last design for the LNER before he died in 1941. The class V4s had similarities in their appearance and mechanical layout to the class V2s of which pioneer No. 4771 *Green Arrow* is preserved as a part of the National Collection. The class V2s, introduced in 1936, had limited route availability and the class V4 was a lightweight alternative, suitable for use over the whole of the LNER network.

Two locomotives were built at the LNER's Doncaster Works in 1941. The first locomotive, No. 3401 *Bantam Cock*, had a scaled-down version of the Gresley Pacific boiler with a grate area of 27½ sq ft. Its tractive effort of 27,000 lbs was produced by boiler pressure of 250 psi and three cylinders of 15in diameter. The second locomotive, No. 3402, incorporated a fully welded steel firebox and a single thermic syphon for water circulation. It was not named but was known unofficially as *Bantam Hen*. The class was tried on the Great Eastern section of the LNER, and was well received, with more power than the existing Gresley class B17 4-6-0s and better riding qualities. It was anticipated that many more would be produced, but after the sudden death of Gresley in April 1941 and his succession by Edward Thompson, no more were built. Instead, the simpler two-cylinder Thompson class B1 4-6-0 was adopted as the LNER's standard mixed-traffic locomotive and 410 were built between 1942 and 1952. The two locomotives were sent to Scotland for use on the West Highland Line, although their wheel arrangement was not particularly suitable for the line's steep gradients. The two class V4s were renumbered Nos. 1700/1 in 1946 and later became British Railways Nos. 61700/1. Both locomotives were scrapped in 1957 when their boilers became due for renewal.

E.R. Wethersett.

An original LNER press photo, September 1941.

• SHED NOTICES •

GREAT CENTRAL AT GREAT CENTRAL AUCTIONS.

Great Central turns up at Great Central Auctions! A nameplate from No. 60156 *Great Central* went under the hammer at Great Central Auctions on 1st June, realising £28,500. No. 60156 was completed at Doncaster in October 1949, one of four Peppercorn A1s named after pre-grouping constituents of the L&NER and scrapped in May 1965.

Peter Townend

CHRIS LUDLOW'S LATEST PAINTING *by David Hurst*

David Hurst recently commissioned Chris Ludlow to paint a portrait of Tornado, here he explains the brief.

I love engineering – looking rather than doing - and my life has been airports, airlines and aircraft. However, I am hugely impressed by the team that built the A1 Peppercorn locomotive *Tornado*. They have produced a beautiful creation.

I have looked through many, many different photographs and paintings, talked to some steam photographers and have come to the conclusion that no-one has quite captured what I envisaged. There are pictures three-quarters front and three-quarters rear. There are pictures of the train going through the countryside, loads of landscape and a tiny train across the centre. There are pictures trying to include every carriage which leaves the locomotive looking tiny. There are pictures spoilt by trackside telegraph poles, wires or fences.

What I sought was the eye of an artist who can play with position, perspective, background and light to get the right impression. I want a painting of *Tornado* in early British Rail green livery that was carried in 2015. I wanted more of a side view than that usually displayed, showing the engine and tender close-up; it needn't be 90 degrees if 60 or 100 creates a better impression. There could be the suggestion of a carriage but that wasn't vital. I wanted to see the detail of the engine and tender. My vision saw the engine stationary but that was open to discussion, probably in a yard or a siding or maybe at the platform opposite (but visible to the tracks). The background didn't necessarily have to be accurate and could be impressionistic. Maybe the eye-level might be lower rather than higher to enhance the size. The viewpoint doesn't have to be somewhere that the public has access to. Probably in daylight and in sunshine.

The locomotive should fill the eye. I wanted to see the latent power of the beast, coiled and waiting, exuding strength, held in check but ready and wanting to go. It should gleam with the care devoted to it. Steam and smoke could be used to add atmosphere. But not too much so it hides engine details. There could be maintenance or footplate staff but they should be to scale and not more than two or three. The locomotive is important, not the people. I was open to ideas.

Following these guidelines, Chris produced the painting illustrated here. There can be little doubt that the artist has more than met the brief, showing Tornado in a running shed setting with one of the massive 'cenotaph' coaling towers in the background. TCC

A portrait of *Tornado*, by Chris Ludlow.

A1 PROFILE - No. 60124 *Kenilworth* *by Phil Champion*

Bill Reed

An undated photo of *Kenilworth* taken at Edinburgh Haymarket shed.

The first of the second order for Peppercorn A1s, engine order No. 383 issued in November 1945 and for six locomotives, was Doncaster works No. 2041. Numbered 60124 by British Railways, it was the 11th A1 from 'The Plant'. As it entered service from Gateshead shed (52A) on 23rd March 1949 along with Darlington–built No. 60145 it marked the start on the second half of the class as they were its 26th and 27th members.

Apple green with black and white lining was the livery with the nationalised railways name in white block capitals on the tender. A plain chimney was fitted. The Durham coast route was clearly used in these early days. The first sighting of No. 60124 was at west Hartlepool on the 26th March while in the following day it was noted entering Stockton at 17:19hrs with a Bristol-Newcastle train formed of 11 LMR coaches. North Eastern Region A1s worked regularly to Edinburgh on East Coast Main Line expresses; No. 60124 were seen there on 28th April. Its first named train on record was the up 'Tees-Tyne Pullman' on 30th June 1949.

Naming of No. 60124 came in August 1950 whilst it was in Doncaster works for general repairs. At the same time it was repainted into BR express passenger blue. It was one of a pair named that month, 21 having already been dealt with. Five A1s were painted blue in August following sixteen done earlier. *Kenilworth* was one of a number A1 names from the novels of Sir Walter Scott, this one taken from a romantic novel first published in 1821. Work continued as before long the main line or around the Durham coast route. The down 'Northumbrian' with 12 coaches was hauled into Newcastle on 7th October. Twenty days later No. 60124 departed from Stockton at 13:26hrs with a six coach Newcastle-York train. A lipped chimney was fitted around this period and the Flaman speed recorder removed. While most works attention was at Doncaster there were visits elsewhere: such as casual light repairs on 19th/20th March and 24th/26th September 1951 at Gateshead. *Kenilworth* was one of the earlier A1s repainted into BR green with 13 treated earlier, and three others painted that December.

Detailed notes from the mid-1950s show that No. 60124 was used a lot on East Coast expresses, including a number of named trains. An up express was hauled from Edinburgh on 16th June 1954. A York-Edinburgh train was pulled from Newcastle at 12:30hrs on 19th February 1955. The up 'Flying Scotsman' was observed behind *Kenilworth* either arriving at or leaving Newcastle a number of times between February that year or January 1956. Also hauled from the Tyneside city during this period was the down 'North Briton' on 23rd April and 3rd December and No. 60124 was recorded departing Newcastle with the up 'Heart of Midlothian'. Between November and early December 1956 *Kenilworth* was noted 12 times leaving King's Cross with the 23:00hrs 'Night Scotsman' and on trains just as far as Newcastle including the 12:00hrs on 10th December and the 15:10hrs on the 27th. A departure from normal working was the 15:40hrs King's Cross-Leeds each day from the 11th to the 15th. In May 1958 No. 60124's tender received the later BR crest, one of the last ones to be applied to A1s.

Cedric Clayson

No. 60124 at Doncaster Works on 17th September 1961.

A transfer of a few miles away to Heaton shed (52B) came in September 1960. By the 23rd it had travelled far as it hauled the up West Coast Postal from Aberdeen. In this year a Smith-Stone speedometer was fitted to one of the rear driving wheels. Other workings like working King's Cross to York on 23rd March and the 16:55hrs Edinburgh-King's Cross taken from Newcastle on 3rd April 1961 were probably more typical. On 10th September *Kenilworth* was relocated again, this time to York (50A) and trains from Leeds also started to feature; the down 'Queen of Scots' as far as Newcastle on 27th January 1962 and a train to King's Cross on 22nd April. The main line was still important; No.60124 covered a diesel failure on York-King's Cross run on 2nd February and pulled King's Cross-Glasgow relief into Newcastle on 24th April.

With increasing dieselisation *Kenilworth*, like other Pacifics, saw some change in rostering with more of a mix of goods and passenger trains. First of the former was the Forth-Dringhouses freight of 3rd May. Other traffic included an up BP tank train on 25th September and 7S02 Gainsborough-Uphall cement the next day. The 3G34 York-Newcastle parcels was noted several times between then and the following January. Passenger workings included the 1A14 10:45hrs King's Cross-Newcastle relief hauled from the capital back on 13th September 1962 and the 1N19 Edinburgh-York as far as Newcastle on 17th October. Quite a contrast was the mid-afternoon down pigeon train on 14th June 1963 following servicing on Gateshead shed. Instead of works attention at Doncaster it visited Darlington for general light repairs in May 1964, leaving on the 13th.

Bill Reed

No. 60124 is seen at York, without nameplates, at the end of her career.

Alan Sharp

***Kenilworth* at York Station in immaculate condition in September 1965.**

As steam's use receded further, *Kenilworth* was moved to Darlington shed (51A) on 23rd November to serve mainly as a stand-by loco. Main line work therefore still featured prominently. The down 'North Briton' was brought into Newcastle on 19th February 1965. On 15th April 1F15 Richmond – Edinburgh was also seen entering Newcastle Central and noted on shed at Darlington on Easter Sunday 18th April 1965. On 6th June No. 60124 worked throughout from Darlington to Newcastle, on 8th June and a down express on 15th July when it entered the Tyneside city towing English electric type 4 No. D180. Observed at Darlington shed on Sunday 1st August (without nameplates by this time), the works was again used in August (for weighing on the 20th) and in December for casual light repairs.

Towards the end of 1965 there were only two A1s left on the North Eastern Region, Nos. 60124 and 60145, both on standby duties with the former at Darlington and the latter at York, each of them acquiring a degree of celebrity status. On Christmas Eve *Kenilworth* was coupled inside 'Deltic' No. D9017 on the 10:15hrs Newcastle-King's Cross and worked like this to Peterborough. The final workings for No. 60124 came in March 1966, taking forward the 09:00hrs Liverpool- Newcastle from Darlington on the 10th and hauling down 'Heart of Midlothian' over the same stretch of line the next day.

Withdrawal came on March 27th. In May it was sold for scrap to Drapers of Hull but was seen lying withdrawn at York shed on the 21st and again on 7th July but this time minus a chimney. In its time No. 60124 carried eight different boilers. *Kenilworth* had worked primarily on the middle and northern sections of the East Coast Main Line. It was in service, for 17 years, just a few months short of the A1 average. TCC

P2 ENGINEERING UPDATE *by David Elliott*

General

We have reached that period in the project where there is a lot of essential but relatively unspectacular work going on including pipework and electrics, brake gear details and fittings. Having said that, the tender tank has been ordered and we are on the cusp of ordering the boiler.

Frames

We have at last received the first of the two outside motion brackets and following inspection, these will be fitted to the frames.

The last of the frame components in the form of the remaining 10 spring hanger brackets have been ordered from North View Engineering Solutions. The original designs used steel castings, however as they are all handed and are mostly different from one another, the pattern costs would be considerable. On first look they are similar to those on *Tornado*, but on closer examination and resulting in part from the difference in coupled wheel sizes, they are longer from top to bottom than the A1 type, preventing use of the *Tornado* patterns. They have all been redesigned as welded fabrications and the two pairs which are joined together across the frames – on the P2 by bolting a heavy section angle irons between them, have been replaced by the significantly stronger one-piece design employed on the A1 class.

Two of the spring brackets have bearing housings attached to the back of them to support the brake lever shaft for the rear pair of coupled wheels. As we have modified the design of the brake lever from vacuum to air operation which has slightly altered the distribution of forces in the brake lever shaft, the spring hanger brackets with brake shaft bearings have been subjected to Finite Element Analysis (FEA) by Daniela, which after a subtle improvement to some weld profiles, have been shown to have an adequate margin of strength and fatigue resistanceThe fitting of the motion brackets and spring hangers will complete the engine frame structure.

Cylinders

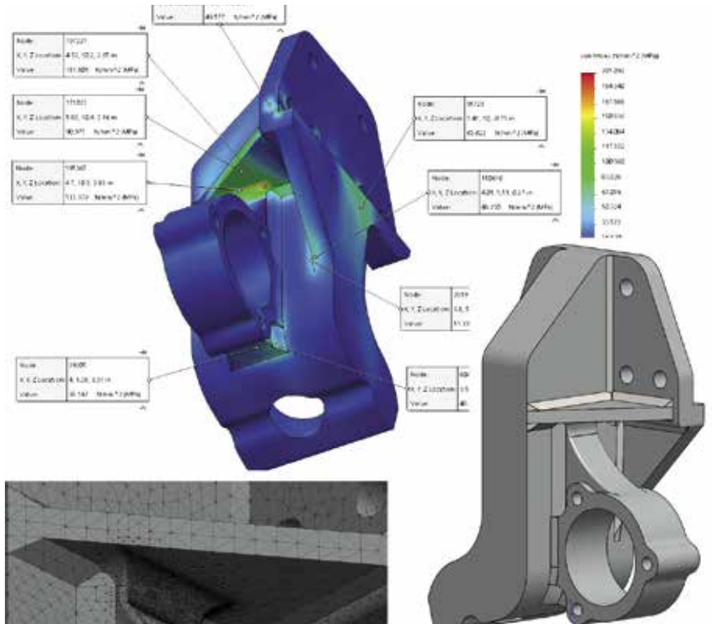
Further detailed design work has been done on the cylinder block and valve gear in anticipation of commencement of manufacture. In the meantime Alan Parkin has produced drawings and quotations for valve cover patterns have been sought.

David Elliott

Right hand motion bracket trial fit.

Original braced spring hanger assembly.

Fabricated combined spring brackets (A1 design) for P2.



Graphic - Daniela Filová

Spring Hanger Bracket.

Wheelsets

After further protracted delays, the pony truck cannonbox is back with Timson Engineering at Kettering for final machining following replacement of some of the manganese steel wear plates. Delivery to Darlington is eagerly anticipated.

Our volunteers are making good progress with polishing the tyre rims. The speedo drive return crank (which doubles as the crank pin nut on the LH trailing coupled wheel) has been delivered and is presently being fettled and polished by our volunteers.

The speedo drive return crank.

Boiler

Full boiler update on pages 1 and 2

Major boiler fittings

Preparations are being made to carry out the hydraulic test on the superheater header (including finding the 86 rubber dog balls required to block the superheater element connection holes).

Photos: David Elliott

Terry Graham polishing the tyre rims.

Tender

The order for the tender tank has been placed with North View Engineering Solutions. Delivery of the base plate to Ian Howitt at Crofton is scheduled for pre-fitting to the frames during June, with the completed tank delivered to Darlington Locomotive Works in September, by which time we expect to have the frames on site. Ian Howitt continues to make good progress with the tender frames with the spring hanger and tank brackets attached to the frame plates. Major components have been made including the drag boxes. We are still awaiting delivery of the remaining tender axle, with a current promise for mid-June. At that stage the four axles will be dispatched along with the wheels to South Devon Railway Engineering.

Balls! Or, more to the point, dog balls to seal the superheater header.

Ian Matthews

Cab Seat Cubicles.

Cab

With Daniela having completed the drawings, material has been delivered and cab seats and cab seat cubicles are under construction.

Brake rigging

Four fabricated brake cross stays (similar to those made for *Tornado*) have been delivered by North View Engineering Solutions.

The front and rear short brake links have been completed, the latter being a complicated offset design which have been machined from solid at Darlington Locomotive Works. Brake blocks have been ordered and all the brake pins made. We are expecting delivery of the two brake lever shafts from I D Howitt at Crofton shortly.

Electrical

The casing for the new belt driven alternator prototype has been fabricated by North Bay Railway Engineering in Darlington and has been christened 'Noo Noo' due to its similarity in appearance to the vacuum cleaner in the Teletubbies! Meanwhile Alan is seeking quotes for the remaining detail components and has made very good progress with routing the stainless steel electrical trunking and conduits through the frames. He has also worked up a design for a slightly enlarged battery box which will permit fitting of batteries of greater capacity than those on *Tornado* to provide greater margins for when the ERTMS cab signaling system eventually has to be fitted to the locomotive. The new battery boxes look very similar to the BR AWS (Automatic Warning System) battery boxes fitted to *Tornado* which is somewhat anomalous as P2s were never fitted with AWS! However, we do not have enough space to locate the batteries anywhere else so have adopted the same location as *Tornado*. The BR design is not very conspicuous and had the P2s survived into original form into the 1950s, they would have been fitted with AWS.

One change we are making from *Tornado* design is the means of disconnecting cables between the cab and frame so that the cab can be removed from the engine – which is often needed for firebox repairs. On *Tornado*, the cables from the frames pass through holes in the footplate and the bottom of the brake equipment cubicle in the cab floor and plug directly into the equipment in the under-seat cubicles. The process of disconnecting these requires great care and leaves the cables with their connectors hanging from the trunking above the battery boxes where they are vulnerable. The chosen solution is to set military standard plug sockets in recessed boxes in the underside of the cab base which enable short cables to be plugged in directly. When the cab is removed, the plug sockets have dummy covers fitted and the cables and plugs (which are much shorter) can be coiled up and stowed in the trunking above the battery boxes.

Ian Matthews

Close up of Cab Seat.

David Elliott

Brake cross stays.

David Elliott

'Noo Noo'! The alternator casing.

A further electrical design review has been conducted with Rob Morland, Alan Parkin and David Elliott to assess the design work to date and decide if any changes were needed. Fortunately, very little alteration was felt to be required, and Alan is clear to proceed under Rob's direction to complete the detail design of the trunking installation.

Fittings

Our first attempt to appoint a machinist was not successful, so we have re-advertised the job. In mean time urgent fittings and machining work is being subcontracted out.

Efforts are being made to secure the loan of patterns from the 71000 *Duke of Gloucester* team for the Davies and Metcalfe class K exhaust injector. Manufacturers are also being sought for the grease separator which is located in the exhaust steam pipe to prevent oil and grease from the exhaust steam being injected into the boiler.

Pipework

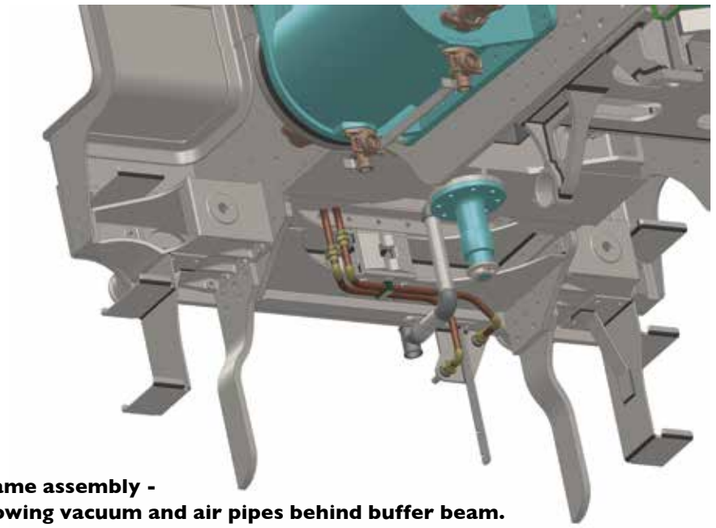
The critical path on project plan is pipework, so effort has been concentrated on design and installation of the major pipe runs.

The first to have been made is the exhaust steam injector exhaust steam pipe - a 4in bore pipe which carries exhaust steam from the cylinder block all the way back to the exhaust steam injector under the cab; being the largest pipe we have to accommodate it was routed and made first with Ian Matthews fabricating it. It has been trial installed but each of the sections will require hydraulic testing before permanent installation. This pipe also serves as the exhaust pipe for the two air pumps.

The next pipe run will be the 2in vacuum pipe including the DV2 air/ vacuum proportional valve.

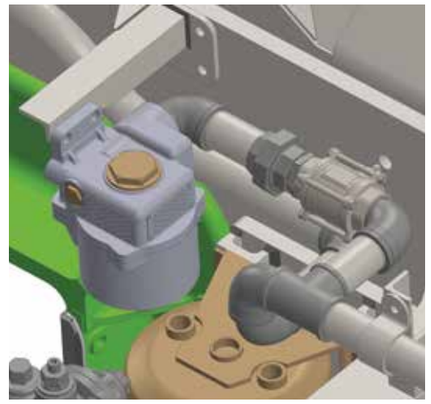
Design is well in hand for the air brake and air reservoir pipes which also run the full length of the frames. TCC

Graphics - Daniela Filová

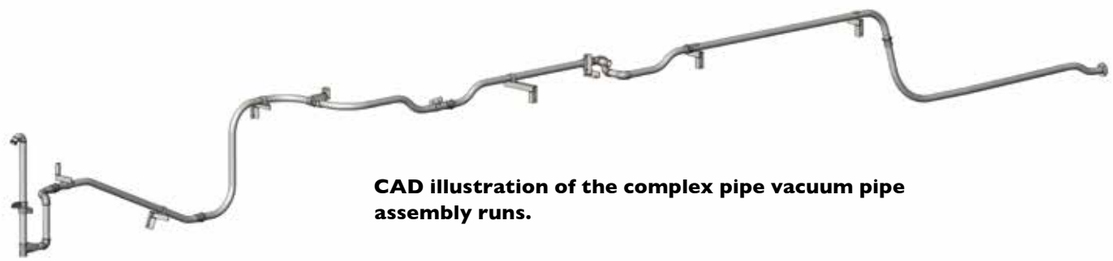


Frame assembly - showing vacuum and air pipes behind buffer beam.

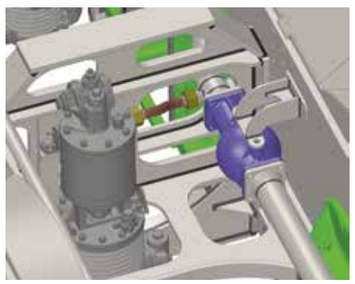
Pipework inside the engine.



Vacuum pipework and DV2 valve installation.



CAD illustration of the complex pipe vacuum pipe assembly runs.



Pump exhaust and grease seperator.

David Elliott

Vacuum pipe brackets.

P2 ELECTRICAL UPDATE *by Alan Parkin*

In review: the design progress of the structured trunking for the P2. The structured trunking is the name given to physical hardware that holds the electrical systems to the engine and protects them from damage. *Tornado* also has structured trunking, but the P2 is a different beast, so along with improvements we would like to make, a new design is being done.

Starting at the rear of the engine on the right-hand side, *Figure 1* shows the main battery box and there is another on the left-hand side, which is the mirror image of it.

It is necessary to make some changes to the battery box from those used on the A1. The biggest is that the P2 requires larger batteries, as it has a greater electrical load. Therefore, the dimensions of the main battery box have to change to accommodate this, while being as sympathetic to the original look of the battery box as possible. You may notice an area above the battery box that is also 'boxed in'. This is a key junction for the electrical systems as there are a number of them all in one small area. These include the connections to and from the battery box, the connections that go across the rear of the engine for connection to the tender, the connections that go upwards into the cab and those that go forwards to the rest of the engine. Please be aware that this design is still very much a work in progress and may well change before being fitted to the engine!

The connections that go forwards from here are in flexible trunking, attached under the footplate over the trailing wheels and upwards towards the trailing driving wheels.

Figure 2 shows one of the flexible trunks, of which there are two on each side of the engine. The footplate brackets have to be modified from their original designs in order for trunking to pass through. The rear bracket has two pieces of thick wall tube welded in, so that the trunking can pass through but the bracket retains its strength. The front bracket is a little different as the top of it is part of the upward sweep of the footplate angle; So, material has been removed from the rear to give room for the trunking, but with a gentle curve left behind and a triangular gusset added, again to help it retain strength.

In *Figure 3* the flexible trunking enters an access box on the left. It

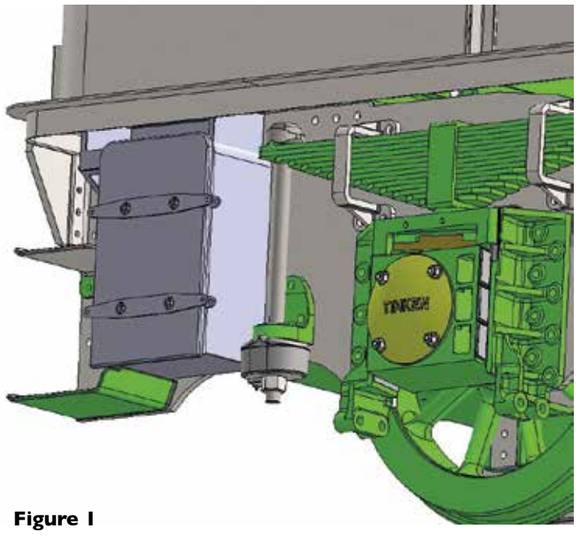


Figure 1

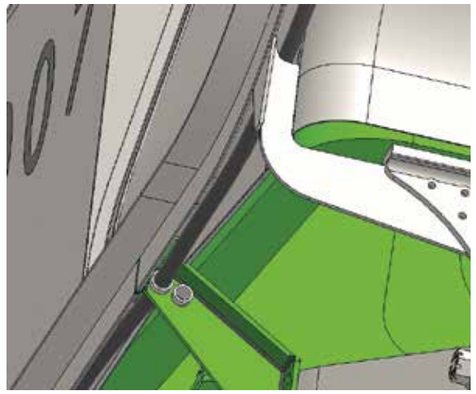


Figure 2

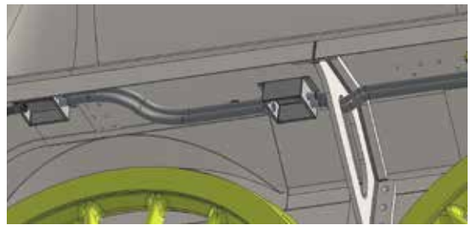


Figure 3

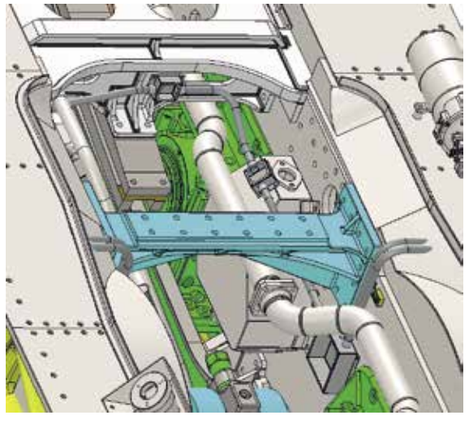


Figure 4

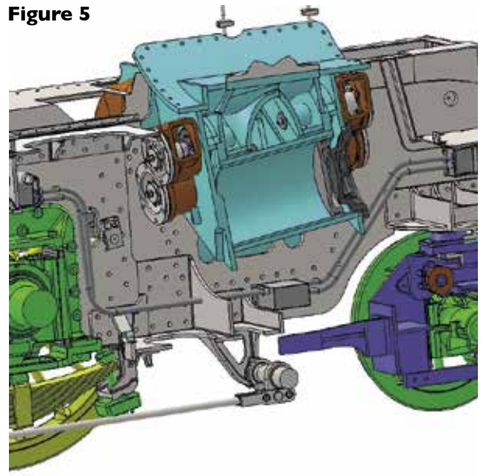
then exits on the right in rigid stainless-steel trunking and sweeps to the rear of the footplate before passing through another access box. From here it curves downwards, then back upwards as it goes through a footplate bracket and continues in this manner until it reaches the slide bar brackets, where it then turns and disappears inside the frames of the engine. There are a number of access boxes throughout the structured trunking which serve two important functions. The first is to allow access to the cables inside for installation/inspection/service, and the second is to allow connections in and out of the structured trunking. For example, a box such as those in *Figure 3* may have connections for the underframe lighting, while another may have connections for the turbogens.

Figure 4 is a look from above between the engine frames, with the boiler and smokebox assembly removed for visibility. It shows where the trunking is brought inside the frames, goes over a sand box and then crosses from the right-hand side to the left-hand side on the boiler support bracket. The left-hand side trunking has largely been a mirror up to this point. However, from here, as we move towards the front of the engine, there are fewer connections in and out of the trunking, so only a single pair of trunks needs to be carried forwards. As you can see, the area inside the frames gets very crowded with various different elements. The large pipe for example carries the exhaust injector steam and gets hot, so the trunking has to keep clear distance from it.

Figure 5 shows the remaining pair of trunks on the inside of the left-hand frame. The view is sectioned down the centre of the engine for visibility. The trunking swoops down in front of the leading driving wheels in order to pass underneath the cylinders. You may notice where it currently passes through the leading brake stay fabrication. This will have thick walled tubes welded into it to allow the trunking to pass though, just like the footplate bracket from earlier. Forward of the cylinders, the trunking rises back upwards over the pony truck and to the front of the engine, where remaining connections, such as the headlights are made.

Finally, *Figure 6* shows a very early design of some structured trunking in the cab of the P2. There are only a few elements shown, but we have had one very important question to answer. On the A1, we have trunking that rises at the side of the both the driver's seat and the fireman's seat and goes upwards to the roof mounted control boxes. Space is tight, but the trunking fits. On the P2 there is an additional challenge whereby the rear edge of the cab structure has a cut out, which brings it very close to the window frame. This creates a very small gap to try and squeeze two pieces of trunking through. Thankfully, by using a bit of room to the rear of the window from, the trunks will fit, just! TCC

Figure 5



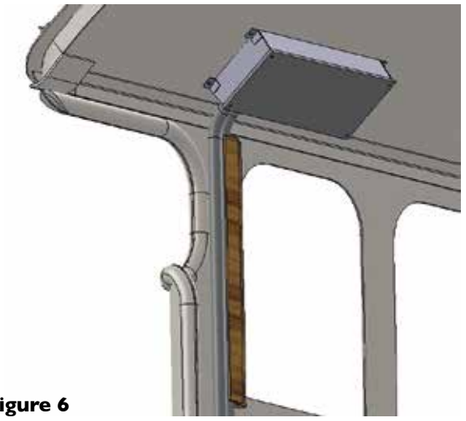


Figure 6

THE BOILER CLUB STEAMS PAST 60% *by Mark Allatt*

By the end of May 2019, The Boiler Club fundraising campaign had recruited 60% of its target membership with pledges of almost £440,000. Launched in October 2014 to raise the £600,000 needed pay for the manufacture of the boiler, The Boiler Club now has over 175 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 Boiler Club day with *Tornado*.

Reaching the 60% 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 before the end of 2021 we need to place the order for the boiler in June 2019 for delivery in July 2021.

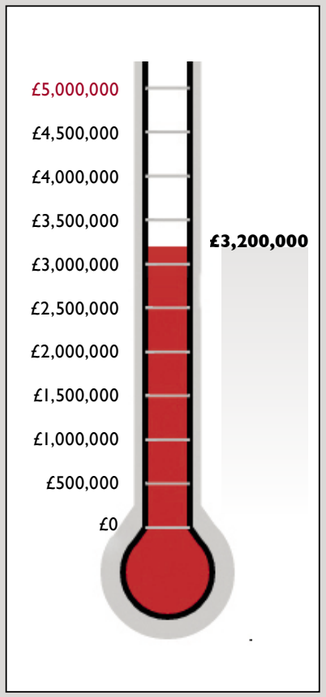
To become a member of The Boiler Club, email **enquiries@p2steam.com**, call **01325 460163** or visit **www.p2steam.com** for more information. TCC

FUNDRAISING FOR No. 2007 *PRINCE OF WALES* by Mark Allatt

Over £3.2m pledged, £2.5m donated and £2m spent of £5m target

Bob Hughes

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



Our project to build Gresley class P2 No. 2007 *Prince of Wales* continues to make solid progress on all fronts and we are still on target to complete the new locomotive by the end of 2021 provided we can keep up the current pace of income growth. A huge thank you to all our supporters who continue to give most generously to the project.

Pledges towards building No. 2007 *Prince of Wales* have passed £3.2m just over five years after the frames were profiled at British Steel's plant in Scunthorpe. Public interest in seeing a new Gresley class P2 become a reality sooner rather than later remains high and over 920 people have already signed up to the 'P2 for the price of a pint of beer per week' (£10 per month or more) Covenant scheme since its launch in March 2014. The average monthly donation is now over £17 per Covenantor (including Gift Aid) and the projected monthly income for our P2 project from the monthly Covenant scheme is now running at around 120% of that of *Tornado* – a remarkable achievement in such a short period of time and all thanks to the generosity of our supporters. What is even more striking is that only around 30% of A1 Covenantors (36% of P2 Covenantors) are regular donors to both locomotives, meaning that the overwhelming majority of the funds are being given by new supporters of the Trust.

In addition to this core scheme, funds have been raised through The Founders Club with over 360 Founders donating £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; 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 Boiler Club, over 175 people have pledged £2,000 each to fund the boiler - target of 300 people – meaning 70% of the £600,000 target is now pledged; The Motion Club, over 135 people (target 175 people) have pledged £1,000 each plus Gift Aid to purchase the heavy motion; the newly launched Tender Club has already recruited 24 people, pledging £1,500 each – target 250 people; and Dedicated Donations, with around £345,000 from existing supporters sponsoring a variety of components. The Gresley Society Trust has also sponsored the locomotive's distinctive front-end for which we are most grateful.

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).

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 end May 2019, we had recruited over 135 members to The Motion Club, with over £168,000 pledged. Let's get this Club over the line by the summer!

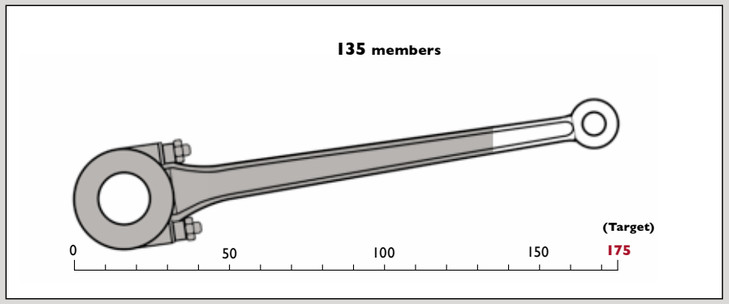
We launched The Tender Club on 8th April 2019 to raise the funds to manufacture No. 2007's tender. We set ourselves the challenge of raising £450,000 through The Tender Club from 250 supporters each donating £1,500 (plus Gift Aid) to the project in up to 15 payments of £100 by standing order. At the same time, we announced that the order to manufacture the tender tank had been placed with North View Engineering Solutions of Darlington and of course the tender frames are currently under construction by I D Howitt of Crofton, Wakefield. As of the end of May 2019 The Tender Club had recruited 24 members raising around £45,000 including GAD.

We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has received since its launch. This means over £2m (over 40% of the total required) converted into metal, over £2.5m (over 50%) raised and £3.2m (almost two-thirds) pledged.

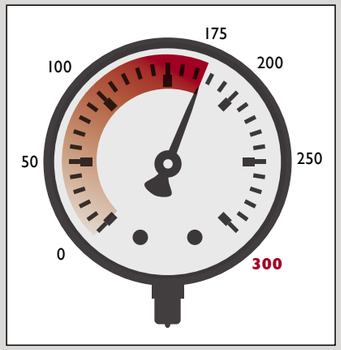
We now have a rolling chassis and we remain on-track for completion of the new locomotive around the end of 2021. However, to maintain this rate of progress we need to raise more than £700,000 per year, which given the nature of the regular donation scheme becomes more challenging as each year passes. Last financial year we didn't quite achieve our budget of £500,000 and so we will have to work hard 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!

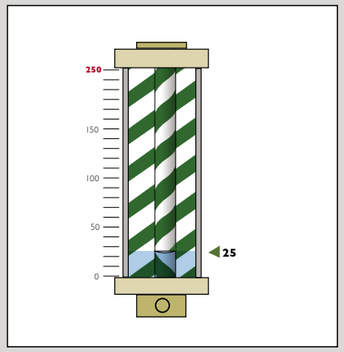
For more information on how you can help to build Britain's most powerful steam locomotive visit **www.p2steam.com**, email **enquiries@p2steam.com** or call **01325 460163**. TCC



Motion Club gauge - 135 Members.



Boiler Club gauge - 175 Members.



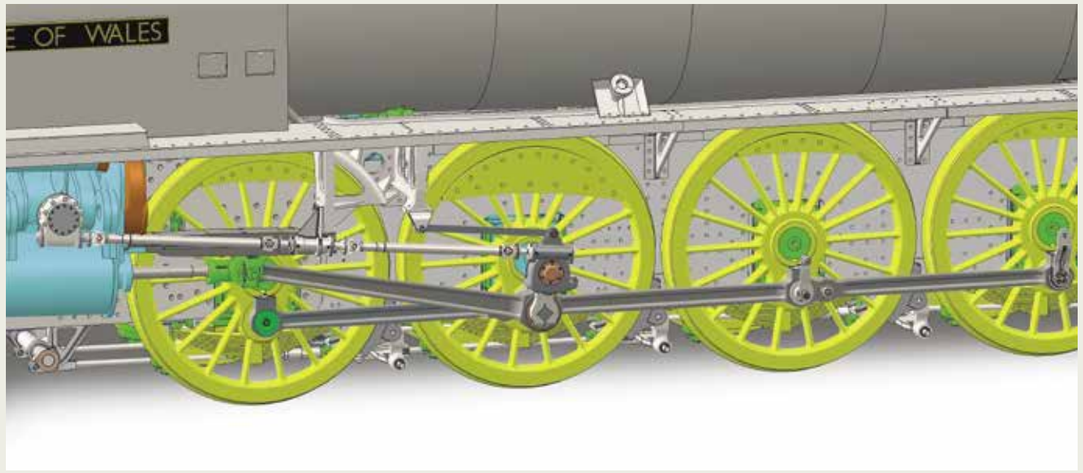
Tender Club Gauge - 25 Members.

How No. 2007 *Prince of Wales* will look on completion. Altered from an official portrait of No. 2001 *Cock o' the North*.

The Gresley Society Trust

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 May 2019 we had recruited over 135 members to The Motion Club, with over £168,000 pledged.

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 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 our supplier, the motion is expected to be delivered in batches between July and December 2019, with the first item, the intermediate coupling rods, expected to be delivered towards the end of July. 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 Motion Club 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.

We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has received since its launch. Thanks to our supporters' continued generosity, over £3.2m has now been donated or pledged. We now need to turn our attention to the motion which is our next major manufacturing challenge. Given the level of support The Motion Club has received in just 12 months, we are confident we can raise the additional £42,000 needed to pay for the heavy motion, and remain on-track for completion of new Gresley class P2 locomotive, No. 2007 *Prince of Wales* around the end of 2021.

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

P2 ROADSHOWS *by Mark Allatt*

Following on from the success of our 2018 Roadshow programme, we will be continuing the Roadshows in 2019. We will be holding a series of presentations on the project to build new Gresley class P2 No. 2007 *Prince of Wales*.

Each presentation will feature key team members including Mark Allatt and/or David Elliott and will cover the background to the project, progress to-date, future plans and details of how to get involved. We would encourage you to attend one of these Roadshows and bring along some friends and family members who would be interested in hearing about the project. The two hour presentation will start promptly at 11:00hrs and run until 13:00hrs on each of the days listed below and are open to existing supporters and interested members of the public:

NEW 2019 ROADSHOW PROGRAMME:

- **Saturday 6th July 2019** – Darlington Locomotive Works, Darlington
- **Saturday 14th September 2019** – Hilton Hotel, Leeds
- **Saturday 2nd November 2019** – Darlington Locomotive Works, Darlington
- **Saturday 7th December 2019** – Pendulum Hotel (Manchester Conference Centre), Manchester.

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

P2 DEDICATED DONATIONS UPDATE *by Mandy Grant*

April to June has seen a steady increase in component sponsorship, with 13 individual components being sponsored, raising a further £2,130.00 before gift aid. This brings the total number of components sponsored to 531! Components sponsored include;

- 3x Brake Lever Pins
- 3x Brake Equalising Levers inc bushes
- 1x Lower outer slide bar RH (forging)
- 2x 1" BSW Driven Bolts and Slotted Nuts
- 3/4" BSW driven bolt and nut
- 1x Washout Door Escutcheon
- RH & Centre Cylinder Covers

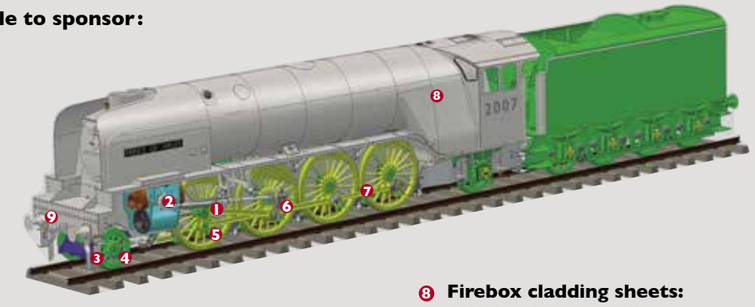
We are most grateful to all of our supporters who have responded to the Dedicated Donations campaign so far!

If you haven't yet sponsored a component, now is the perfect time, with prices ranging in price from one of over 1,000 driven bolts & nuts for £25, to the complete exhaust steam injector for £15,000. Why not treat yourself or a loved one to something different and help us to complete this iconic locomotive by 2021!

If you would like to sponsor a component on No. 2007 *Prince of Wales*, please contact us at **dedicated.donations@p2steam.com**

Some of the components available to sponsor:

1 1 inch BSW driven bolts and nuts: £25 each as a one-off donation.



2 Various valve tappets on the cylinder block: £150 (each) as a one-off donation.

3 Pony truck side control spring - front: £300 as a one-off donation or £12.50 per month for 24 months.

4 Pony truck axle: £4,440 as a one-off donation or £70 per month for 60 months.

5 Leading coupled horn block left-hand casting: £1,800 as a one-off donation or £75 per month for 24 months.

6 Driving coupled wheel spoke: £600 (each) as a one-off donation or £25 for 24 months.

7 Various brake lever pins: £55 (each) as a one-off donation.

8 Firebox cladding sheets: £500 (each) as a one-off donation or £20 per month for 25 months.

9 Spring casing for double buffer right-hand casting: £1,200 as a one-off donation or £50 per month for 24 months.

P2 REVIEW – FIVE YEARS SINCE THE FRAMES WERE LAID

by Graham Langer

It is hard to believe that just five years ago the frames for No. 2007 *Prince of Wales* were rolled, profiled, machined and erected. In a process that saw sheet steel being rolled at Tata Steel, Scunthorpe, coinciding with St George's Day; the rolling of the 21 ton steel frames for a locomotive which will eventually weigh around 170 tons was a significant step in the construction of *Prince of Wales*. Subsequently on Wednesday, 21st May, the frames were then cut at Tata Steel Scunthorpe. Ben and Tim Godfrey, grandsons of Sir Nigel Gresley, started the machine that began to steadily profile the 21 tons of 30mm steel sheet into the shape required for main frames, tender frames, Cartazzi frames and numerous other parts required.

The frames were then delivered to Boro' Foundry at Stourbridge for milling and drilling. The main frames were set up on the large Elga Mill and the top surfaces machined first. The table is big enough to accommodate the 11.2m length of the main frames and was long enough to machine all the horn slots in one setting which to ensure that their positions relative to one another were accurate which will make eventual setting of axle centres easier than with *Tornado*.

In early July 2014 the fully machined frame plates were delivered to Darlington, the Cartazzi frames bent to shape and, with the stretchers available, erected on stands at Darlington Locomotive Works. Elsewhere further frame stretchers were being produced and the first driving wheels had been cast by William Cook Cast Products. TCC

Left: The frames set up at Darlington Locomotive Works.

Below: The frames being profiled.

David Elliott

P2 PROGRESS TO DATE

Progress building Britain's most powerful steam locomotive continues at Darlington Locomotive Works and includes:

- Engine's frames erected; all major engine frame stays, brackets, horn blocks, axle boxes and buffers cast; around 1,000 driven bolts fitted to the frames
- All engine wheelsets complete; materials for tender wheelsets delivered
- Boiler design study commissioned, and forged foundation ring corners manufactured and machined; start made on boiler fittings with castings for combined injector steam and delivery valves; regulator castings delivered; superheater header cast and machined; boiler cladding manufactured and trial fitted to frames; boiler order imminent
- Study into ride and suspension completed using rail industry standard Vampire® software; finite Element Analysis completed on re designed crank axle to ensure locomotive complies with modern standards
- Cab erected and cab side and spectacle window frames fitted; engine footplating and splasher kits delivered and permanently fitted to frames
- Smokebox assembled and fitted to the frames; chimney cast and fitted
- Tender tank and frames construction under way, axlebox and other tender castings ordered from William Cook Cast Products
- Nameplates and chime whistle delivered
- Significant progress on design and manufacture of pipework and electrical system
- Over £2m spent, £2.6m raised and £3.3m pledged of the required £5m. TCC

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

The Mikado Club (£5),
The Boiler Club (£5),
The Cylinder Club (£5)
The Motion Club (£6).

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.

THE TENDER CLUB GETS OFF TO A FLYING START *by Mark Allatt*

On 8th April 2019, the project to build Britain's most powerful express passenger steam locomotive announced a new £450,000 appeal to fund the manufacture the tender for new Gresley class P2 No. 2007 *Prince of Wales*.

The A1 Steam Locomotive Trust has set itself 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 Trust was also pleased to announce that the order to manufacture the tender tank has been placed with North View Engineering Solutions of Darlington. The tender frames are already under construction by I D Howitt of Crofton, Wakefield.

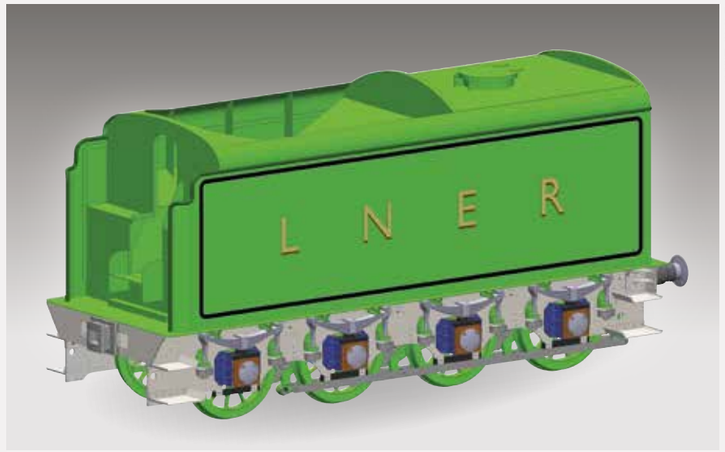
If the project is to remain on schedule to complete No. 2007 by 2021, the Trust needs to take delivery of the tender frames and tank in autumn 2019. Following the success of The Founders Club (to get the project to the point of cutting the frames), The Boiler Club (to fund the construction of the boiler), The Mikado Club (to wheel the locomotive), The Cylinder Club (to make the cylinder block), The Motion Club (to fund the heavy motion) and the Dedicated Donations scheme the Trust has decided to establish The Tender Club to raise an estimated £450,000 required to manufacture No. 2007's tender.

- 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 Tender Club 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.



David Elliott

3D illustration of P2 tender.

The tender tank will be a fully welded structure made from weathering steel (as used on motorway bridges and the Angel of the North) to provide improved resistance to corrosion. The main visible differences with the new tender when compared to that of *Tornado* will be 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.

Mark Allatt commented, "We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has received since its launch. Thanks to our supporters' continued generosity, over £3.2m has now been donated or pledged.

"We now want to turn our attention to the tender which is our next major manufacturing challenge. We have now placed the order for the tender tank with North View Engineering Solutions of Darlington and the tender frames are well underway by I D Howitt of Crofton, we now need to raise £450,000 through The Tender Club over the next few months. This will allow us to remain on-track for completion of the new locomotive around the end of 2021.

"I would encourage all steam enthusiasts who haven't yet contributed to this exciting project to help us to meet these deadlines by becoming a member of The Tender Club or a monthly 'P2 for the price of a pint of beer a week' Covenantor. It's time to get on board! This year will see further major announcements as the construction of new Gresley class P2 No. 2007 *Prince of Wales* gathers pace."

Pictured here at Darlington, *Tornado*'s newly painted tender.

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

•WORKSHOP NOTES•

GOOD LUCK GEMMA!

A1SLT

A1SLT

Above: Ian Matthews, David Elliott, Leigh Taylor, Gemma Maughan and Paul Bruce.

The Trustees and Works' staff made much of Gemma on her last day, presenting her with assorted gifts including a spa day and champagne.

Left: Gemma with the locomotive she did so much to raise funds for, No. 2007 *Prince of Wales*.

MANY HANDS ...
How many people does it take to tighten a bolt?

THE HEYWOOD SOCIETY VISIT


Leigh Taylor

The Heywood Society, through David Humphrey of North Bay Engineering, visited Darlington Locomotive Works on 17th May. They 'willingly' posed for this photo!

PROFILE – MARK GRANT *by Graham Langer*

Mark's first recollection of steam was waving his grandma off from Leeds Central in the 60s! Alas, a station that is no more. As a young lad, he had the usual train set, albeit a Hornby 3-rail system with proper metal wheels which always sounded more realistic, metal level crossing and semaphore signals.

Mark's parents also had interest in trains and as a family they regularly visited heritage railways. He remembers Keighley & Worth Valley, Embsay and of course North Yorkshire Moors Railway. On holiday they very often went on a train trip somewhere and they (for 16 years on the trot) stayed in Colwyn Bay. The hotel was slap bang next to the North Wales Coast main line. He (and his brother) would spend ages watching the trains go by. Trips in Wales involved most of the narrow guage railways - all good fun.

After leaving school Mark went to Technical College in Leeds and gained qualifications in Electronics Servicing and Electrical Craft. Mark's professional career started with Hotpoint at the beginning of 1980. An apprentice workshop engineer learning the trade from the ground up (washing floors and making tea). Learning the technical side of domestic appliances before becoming a fully fledged Field Service Engineer. His role has changed significantly over the years and he was seconded into the role of Customer Care Manager for a couple of years (a skill which he carries over to The Trust) - he is still employed by the same company (over 39 years) and is now at the top of his trade, looking after a team of engineers and being regulary involved in new projects - the latest being a completely new field based computer system.

Mark Grant - (the Trust's Volunteer Coordinator and Train Manager).

Mark Grant, enjoying Helmsley Steam Fair in 2011.

Mark met his wife Mandy 34 years ago (would you believe on the CB Radio) They have just celebrated their Pearl Wedding Anniversary. They realised that they had a mutual interest in steam when Mandy's dad arranged for them all to visit The Nene Valley Railway. However, it was not until much later on when their two boys were old enough to do their own thing, that Mark and Mandy went to see *Tornado* at Crewe (following her failure at Rhyl with Air Pump issues). They got talking to Jan Hill on the merchandise stand who suggested that they applied to become volunteers. So an email was sent to Gill Lord and as they say, 'the rest is history'. Both of them help man our merchandise stands and also steward our trains. Mark also helped lead the original P2 Roadshows, and still helps out with some of the current ones. Along with Mandy, he helps out with support crew duties at heritage railways.

Mark is The Trust's Volunteer Coordinator. He is responsible for maintaining the volunteer database and rostering our tours and events using an online system. Once announced, the tours and events are listed within the system and volunteers register their interest. Mark then rosters accordingly and sorts out the logistics - not always straight forward. Any potential new volunteers are forwarded to Mark and he takes it from there.

Mark has recently become one of our Train Managers (the person who is responsible for the stewarding team. It encompasses communicating with the passengers, catering team, responsible officer and guard to ensure that the 'onboard' duties are carried out) Mark hasn't had an easy start to this as the first couple of trips presented him with obstacles to overcome! However, he managed to sort out the issues and it has been a great learning curve. He thoroughly enjoys all aspects of what he does and looks forward to both the P2 and V4 locomotives coming into traffic in the future.

Mark and Mandy are now grandparents, and so inevitably time is spent with their granddaughter, including looking after her for a day each week. Charlotte is apparently already showing quite an interest in trains (not that she had much choice with them as grandparents) and after all, we need to preserve the wonderful world of steam for future generations to enjoy and hopefully one day, to take care of it themselves! TCC

FROM THE ARCHIVES *by Graham Langer*

James Hamilton

***Tornado* crosses Digswell Viaduct with 'The Yorkshire Pullman' on 18th April 2009.**

Spring 1999 – Early 1999 found the Trust making novel use of rape seed oil from Tesco's. The oil, more usually found in the average kitchen, was being used by the Trust's contractor, Ian Riley of Riley & Son (Electromech) Ltd of Bury to enable *Tornado's* six 6ft 8in driving wheels, four 3ft 2in front bogie wheels and two 3ft 8in Cartazzi (trailing) wheels to be pressed onto their axles. Due to the roller bearings having to be fitted to *Tornado's* axles before the wheels, the Trust reverted to the traditional method of pressing on the wheels to avoid the hot wheel damaging the bearing. In other news the Trust was still considering the construction of a second tender and announced that it would be looking into 90mph running once the locomotive had been completed.

Spring 2004 – A bond issue was launched with a view to raising finance for the boiler purchase, by Spring 2004 over £100,000 had already been pledged and funds were still coming in. With the slidebars fitted, work on the locomotive continued to concentrate on the motion, the middle connecting rod had been delivered and Ufone had been contracted to machine most of the remaining components. The team at DLW had finished the parts for the cylinder drain cocks and a BBC film crew had recorded further footage at the works; other visitors to DLW included the Rt. Hon. Alan Milburn, then MP for Darlington.

Spring 2009 – Following the excitement of the Royal naming in February, *Tornado* settled into traffic, hauling trains from York to Edinburgh then back to York, York to Newcastle before her first train with the historic VSOE stock heading 'The Yorkshire Pullman' from King's Cross to York in April of that year. In other news, on the 24th March East Midlands Trains named one of its Class 222 Meridian trains (222003) after *Tornado*. The dedication ceremony took place at Sheffield station and was carried out by Tim Shoveller, Managing Director or East Midlands Trains and Andrew Cook, Chairman of William Cook Cast Products. East Midlands Trains named Meridian vehicle number 60163 (which is part of Meridian set number 222003) which shares the number 60163 with *Tornado*, alongside to mark the occasion.

Spring 2014 – Following winter maintenance at Barrow Hill Roundhouse, *Tornado* moved to Didcot. In a preservation first Didcot Railway Centre hosted three British Railways blue steam locomotives together in one place. No. 60163 *Tornado*, ex-GWR 'King' No. 6023 *King Edward II* and Gresley class A4 No. 60007 *Sir Nigel Gresley* in an all blue line up at Didcot on Saturday 5th and Sunday 6th April. Elsewhere No. 2007's frames were being erected at Darlington Locomotive Works (see separate news piece) and the project to build the new P2 had attracted 280 founder members. TCC

A J S L T

***Tornado's* middle connecting rod is delivered to Darlington spring 2004.**

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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Head of Steam Darlington Railway Museum

* All information correct at the time of going to press June 2019. 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.