



**60163 TORNADO**  
New Steam for the Main Line



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



**3403 ANON**  
Recreating Gresley's last design

# THE COMMUNICATION CORD

No. 64 Winter 2022



Neil Whittaker

**Semaphores, steam and sunshine! *Tornado* blasts away from Loughborough on the Great Central Railway during her short stay there in January.**

# CONTENTS

PAGE 1

**Tornado at GCR**

PAGE 2

**Contents  
Editorial**

PAGE 4

**From the Chair**

PAGE 5

**Railtours  
Tornado Tour Diary 2022**

PAGE 6 - 11

**Tornado on Tour**

PAGE 12

**AI overhaul report**

PAGE 14

**AI overhaul - latest news!**

PAGE 15

**ETCS update**

PAGE 16

**The big picture**

PAGE 18

**Shed notices  
Covenantors' Diary**

PAGE 19

**The AI Steam Locomotive  
Trust is your legacy**

PAGE 20

**AI profile - No. 60135 Madge  
Wildfire**

PAGE 22

**AI Engineering report**

PAGE 24

**Club Badges**

PAGE 25

**The Boiler Club**

PAGE 26

**P2 Fundraising update**

PAGE 28

**A test run with Cock o' the  
North**

PAGE 30

**DLW2 update  
P2 Dedicated Donations  
update**

PAGE 39

**From the archives**

PAGE 40

**Sponsors and contact  
information**

## EDITORIAL by Graham Langer



2021 certainly proved to be a challenging year for The AI Steam Locomotive Trust. Covid-19 continued to cause problems both in terms of running rail tours and the construction of *Prince of Wales*. It is of great credit to our Railtours team that we were able to run as many trips as we did in 2021, their determination and flexibility ensured that *Tornado* had a very busy year, picking up some 'Northern Belle' duties as a bonus. It was a shame that the flats on the tyres acquired running 'The Cheshireman' in November meant No. 60163 could not complete her booked mainline trips although it is some

consolation that none of these were Tornado Railtours and the organisers were able to find substitute locomotives.

*Tornado* is now in the middle of an extensive overhaul, in fact the speed with which the locomotive was stripped to its basic components has been extremely impressive! As covered elsewhere in this edition of *TCC* it has been necessary to "shuffle the deck" of boilers due to the struggle Meiningen has been having with Covid-19 and the regime of restrictions the German government has put in place in consequence. A rapid re-think should ensure that *Tornado's* overhaul is completed in a timely fashion and *Prince of Wales* gets a new boiler later this year.

As this edition of *TCC* was going to press David Elliott and the team at DLW had managed to jack No. 2007 up and get the rollers under it, enabling the coupled wheels to be fully rotated for the first time and we are thrilled to say that they turned as smooth as silk! You can find video footage of this on the P2 YouTube channel. We also received the news that *Tornado's* boiler had safely arrived in Meiningen and work on it had already commenced. As if all this was not exciting enough the first sod was due to be cut at DLW2 on 3<sup>rd</sup> March!

### ARRIVALS...

The Trustees have continued to reinforce the 'top team' both in paid positions and volunteers. Leigh Taylor left us after the Convention and her place as Office Manager has been taken by Dawn Phillips. Dawn came to us with an impressive and varied business background having worked in the construction industry and finance and has had an immediate impact on the organisation of the office at Darlington Locomotive Works. Dawn is supported by Lauren George. Many of you will have



**Dawn Phillips.**



**Lauren George.**

interacted with Lauren since she is often the first point of contact in the Railtours office – you can read more about these two in the Covenantors' Diary.

Nick Keegan has joined the Trust team as a professional fundraiser with a brief to galvanise donors and Covenantors and ensure that the flow of funds matches our ambitions. Nick has long experience of overseas projects, charitable fundraising and business management and is also involved in the Wensleydale Railway.



**Nick Keegan.**

Gary Hughes has been a Trust volunteer for a while as our Council & Board Business Coordinator, keeping the Trustees whipped-in for Board meetings and covering a lot of the administration involved in this important task. Gary came from a career in the construction industry whose passions include railways and ballroom dancing!



**Gary Hughes.**



**Liz Gibson.**

Liz Gibson has recently been recruited as a useful addition to the Trust's marketing team. Liz is a Laboratory Manager in Cambridge with a background in biochemistry and genetics and is passionate about all forms of steam power and aircraft. She will be helping with Trust presentations and open days including exploring the possibility of taking the Trust to air shows since we know that there is a high degree of cross-over between our supporters and aircraft enthusiasts.

### ... AND DEPARTURES

Unfortunately, for a variety of reasons, we are losing some of our team members who have been part of the Trust machinery for a long while.

Mark Allatt was a central pivot in the Trust for over thirty years and has now decided to take a break, stepping down as a Trustee.

For many years Mark was the powerhouse behind the Trust's fundraising, part of the successful team that saw *Tornado* through to fruition and launched the P2 build. Mark remains a Covenantor



**Mark Allatt.**

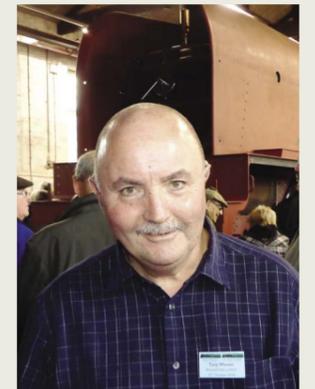
and supporter and will continue to give Trust presentations around the country. Steve Davies pays fulsome tribute to him in his column.

Mandy Grant has been a very active volunteer within the Trust and for a long time headed up the Dedicated Donations department, raising huge sums of money 'selling' components for the P2. She also had a nose for P2 memorabilia and amassed a marvellous collection of LNER publicity material relating to the class. Her husband, Mark, remains the Trust's Volunteer Coordinator. Mandy is taking a break from her duties for a while but knows that she has an 'Open Return' ticket and we look forward to welcoming her back someday.



**Mandy Grant.**

Tony Watson has been a volunteer for many years, both in the workshop, out on the road with *Tornado* and, most importantly, with Chris Woodhead's assistance, running the Trust's photographic archive, a vital but largely unseen part of our increasingly large database. Without Tony's input neither the websites nor *TCC* would have been as image rich as they are.



**Tony Watson.**

Daniela Filová joined David Elliott's engineering team as a result of our quest for a Workshop Manager and Assistant Mechanical Engineer at Darlington Locomotive Works. Moving here from the Czech Republic and establishing herself in Darlington, she rapidly showed herself to be more than adept at the role she filled, taking on the challenge of building the P2 with gusto and becoming a very able workshop manager in the process. However, we not letting her escape completely since she is setting up her own engineering business in Shildon and will only be "semi-detached"! **TCC**



**Daniela Filová.**



My time as Chairman has coincided almost entirely with the Covid-19 pandemic, and a monotonous but predictable element of my contributions

to TCC has been reference to this international scourge, and of our efforts as a Trust to endure the human, financial and operational difficulties it has thrown at us. But there now seems cause for optimism as the infection rates, although still significant, are heading in the right direction, the Government appears poised to lift most, if not all, of the restrictions placed on our lives, and a degree of normality (however that might be defined in the future) is returning, with considerable benefits for the Trust, particularly in the field of rail tours and other operations. We have an exciting programme lined up for later in the year, and we look forward to *Tornado* emerging from her major overhaul which at the time of writing was already in full swing. The base for *Tornado's* overhaul is at the works of Locomotive Maintenance Services (LMS!) in Loughborough, with a combined workforce of Trust and LMS staff working collaboratively to get her ready. It is a major piece of work, including the fitting of new tyres on the driving wheels, a full mechanical and electrical overhaul, and the preparation of the engine to receive the new in-cab signalling system, the European Train Control System (ETCS). However, the overhaul programme has already been subject to one major change of plan.

Covid-19 has had a significant impact on the workforce at Dampflokwerk Meiningen, and as a consequence we were alerted in January to a six-month delay in delivery of the first of our two new boilers, with the initial one now expected in August this year. Our Board took the view that this delay would compromise our ability to get *Tornado* operational this year, with potential reputational as well as economic repercussions. We have therefore decided that the current boiler fitted to *Tornado* will be returned

to Germany for a programme of work including selected stay replacement, replacement of some rigid stays with the flexible variety, a complete re-tube and the fitting of new foundation ring corners. The boiler should be in Meiningen by the time this edition drops onto your door mat or pings into your inbox. Ironically, this will actually help us to get maximum value out of the boiler as it still has three years left on a five-year boiler ticket. The Meiningen team forecast the return of the boiler to UK in mid-late April, and it will immediately be placed back on the frames. In these uncertain times these problems are sent to try us, but I am confident that our Board has identified and implemented a suitably pragmatic solution.

You will be aware via other sources of the retirement of long-standing Trustee Mark Allatt and I would wish to record here both my thanks to him for all of his hard work over the years, and to reinforce what an influential powerhouse he has been. Mark was alerted to the formation of the Trust in 1990 soon after it was formed, and attended his first meeting in 1991, immediately volunteering to work on marketing, PR and fundraising. He has been at the centre of many of the key moments of the Trust over the last 30-odd years, and was the major influencing factor on many,

many occasions. Once *Tornado* was completed and operational, he then initiated and promoted the fresh project to build a new Gresley P2, now only a couple of years away from completion. Mark can be justifiably proud of the major contribution he has made to the Trust's fortunes, across multiple fronts, and I know I speak for you all in wishing him the very best for the future. We look forward to seeing him when *Prince of Wales* turns its wheels for the first time in steam!

And finally, a date for your diary. We have decided to hold this year's Convention and Dinner a little later than usual, on Saturday 22<sup>nd</sup> October, to take advantage of what we hope will be significant progress in a number of areas, so that you, our valued supporters, can enjoy a veritable concentration of great developments and, more importantly, see for yourselves where your contributions are being focused. We will also be changing to a different venue. The Blackwell Grange Hotel is about half a mile from Darlington Town Centre and will, we believe, deliver the quality we believe you deserve. Further details will be circulated soon by our Head Office team. I really hope to see as many of you there as possible. In the meantime, my very best wishes to you all from myself and the whole of the team here at the Trust. **TCC**



**Mark Allatt with Their Royal Highnesses The Prince of Wales and The Duchess of Cornwall at *Tornado's* naming in 2009.**

Neil Whittaker

This year's railtours programme will begin in the summer to accommodate the overhaul. Whilst she will be missed from the mainline this spring, the silver lining is that *Tornado* will be in top condition with paintwork and metals gleaming when our first tour sets off in July.

We kick off with a long-awaited tour across the ever-popular Settle & Carlisle. If 'The Fen and Fells Flyer' is a tour that you have been considering, please do make your booking quickly to avoid disappointment as there are only a handful of Tourist Class tickets remaining. A particular highlight this summer is *Tornado* working the British Pullman, a

Belmond Train, from King's Cross to Harrogate and York. 'The Yorkshire Pullman' is arguably the most luxurious day trip by rail available this year, with the added excitement of No. 60163 visiting Harrogate for the first time. The on-board experience is unrivalled as passengers take their seats in the opulent vintage carriages from the golden age of travel. One for ticking off the bucket list for sure! Our now perennial summer programme in Scotland is set to delight once more with nine tours between July and September. We encourage those who have not yet made the journey to Aberdeen with *Tornado* to join us as we

travel along this breathtakingly beautiful coastal route. There are tours starting in Edinburgh, Glasgow and Stirling; ideal if you live nearby, but also offering a great addition to any short break in Scotland.

We are working hard to finalise our autumn programme, which should see a further visit to the Settle & Carlisle railway, the East Coast Main Line and operations in the Midlands and North Wales. For those who enjoy seeing *Tornado* in the West Country, we will be visiting in 2023. With a shorter annual programme it is impossible to visit all of the areas we wish to this year, but watch this space for new tours announcements as they are confirmed! **TCC**



**Many of you will have seen this photo (left) reproduced in the railway press or the Saturday Telegraph. Taken by Jack Boskett during the Great Central Railway's January gala, it shows *Tornado* beside Swithland Reservoir. Jack has kindly shared a portfolio of photographs taken at the same railway (pages 10 & 11) and we are aiming to carry a more detailed profile of this talented young man in the next edition of TCC. **TCC****

**TORNADO TOUR DIARY - 2022**

**Below are the future operations *Tornado* is confirmed to be involved in. Further railtours will be added as dates are confirmed and will be published on [www.a1steam.com](http://www.a1steam.com) as trains are finalised.**

- **Saturday 2<sup>nd</sup> July** – 'The Fen & Fells Flyer' – Cambridge to Carlisle via York and return – Tornado Railtours
- **Saturday 9<sup>th</sup> July** – 'The Yorkshire Pullman' – London King's Cross to York & Harrogate and return – Tornado Railtours
- **Thursday 21<sup>st</sup> July 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Thursday 28<sup>th</sup> July 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Saturday 30<sup>th</sup> July 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Saturday 13<sup>th</sup> August 2022** – 'The Clyde Aberdonian' – Glasgow to Aberdeen and return – Tornado Railtours
- **Saturday 20<sup>th</sup> August 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Thursday 1<sup>st</sup> September 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Thursday 8<sup>th</sup> September 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours
- **Thursday 15<sup>th</sup> September 2022** – 'The Clyde Aberdonian' – Glasgow to Aberdeen and return – Tornado Railtours
- **Saturday 17<sup>th</sup> September 2022** – 'The Aberdonian' – Edinburgh to Aberdeen and return – Tornado Railtours

*Tornado* operates on the national network with West Coast Railways and DB Cargo and the Trust respectfully requests that anyone wanting to see *Tornado* follows the rules of the railway and only goes where permitted.

**For more information about Tornado Railtours visit [www.a1steam.com/railtours](http://www.a1steam.com/railtours) or call our office on 01325 488215.**

## TORNADO ON TOUR *by Huw Parker*

Amidst the pleasure and excitement of seeing a gleaming locomotive smartly turned out at the head of a trainload of happy passengers is the far less glamorous side of maintaining the locomotive. In addition to the daily maintenance and safety checks, every 21 steaming days we conduct a periodic A Exam, including a boiler washout. This ensures that all the locomotive systems are thoroughly checked and serviced, including some areas normally less accessible when the engine is hot and in steam almost continuously. Greasing of roller bearings and a proper examination of oil trimmings that feed oil to bearings and motion, alongside checks that atomisers and check valves on the mechanical lubricators are working correctly and closer inspection of the air pumps and their lubricators are just part of a long list of items to be checked.

We rely on our full-time engineering staff Richard Pearson and Ian Greenan, supported by our Support Crew volunteers. Without them all, the A exam periods would take longer, resulting in the locomotive being out of traffic for an extended period.

### 'THE NORTHERN BELLE' – SATURDAY 23<sup>RD</sup> OCTOBER

By the beginning of October, *Tornado* and her crews had become very familiar with Settle and Carlisle country after several trips at the beginning of the 'Aberdonian' Programme. October would see no fewer than eight more runs through the Cumbrian scenery. The selection of photographs capture some of the atmosphere of the first few trips in charge of West Coast Railway's 'Northern Belle'.

Right: *Tornado* tears through Oxenholme with 'The Northern Belle'.

Below: *Tornado* and her train are dwarfed by Ais Gill rising in the background.



Bill Lewis



Andrew Allen

### TORNADO & FLYING SCOTSMAN – WEDNESDAY 27<sup>TH</sup> OCTOBER



Declan Hargreaves

No. 60163 passes Applegarth Bridge having brought the train from Middlesborough heading to Carlisle.

### FLYING SCOTSMAN & TORNADO – THURSDAY 28<sup>TH</sup> OCTOBER



David Robinson

*Tornado* arrives at Hellifield after hauling her leg after *Flying Scotsman* had failed and been unable to run.

# TORNADO ON TOUR

## LIGHT ENGINE MOVEMENT TO BRISTOL – 12<sup>TH</sup> NOVEMBER

*Tornado* and her support coach left the Railway Museum on 12<sup>th</sup> November and after turning on the turntable in York headed south to stable overnight at Bristol ahead of the Railway Touring Company's 'Cheshireman' on 13<sup>th</sup> November from Bristol to Chester via Newport and the Welsh Marches.

No. 60163 runs 'engine & van' to Bristol, seen here at Beighton.



Alan Weaver

## 'THE CHESHIREMAN' - SATURDAY 13<sup>TH</sup> NOVEMBER

After an early start from Bristol Temple Meads and a passenger pick up at Filton Abbey Wood, *Tornado* made good time down through the Severn Tunnel and into Wales. Dispensing with the planned stop at Magor, we were running early for the next stop at Cwmbran, where unfortunately we were held to time and eventually arrived at the Hereford water stop just short of ten minutes behind schedule. Here *Tornado* detached from the train in the Up Relief and ran to take water in the bay platform; having taken water the locomotive was back on the train and preparing to depart when sadly news came through of a fatality at a foot crossing ahead of us. After considering using potential diversionary routes and discussions with the train operator and tour promoter these options were (eventually) not required as the line was reopened to traffic almost two hours later. After a scheduled water stop at Chirk, we arrived at Chester over two hours later than planned.

Despite completing the servicing at Chester as quickly as we were able and turning the whole train to save time, the return journey left an hour and ten minutes late and although we made some time up by the first water stop, fate was to deal us a poor hand and add further delays. On arriving at Craven Arms late due to a very slow fill, we were forced to clear the mainline for the first of several times to allow scheduled services to pass without incurring any delay and we departed

well over two hours late. Despite some lively running and an unscheduled brake application that brought the train to a stand before Abergavenny, we finally reached Bristol just after midnight. As if things could not get any worse, on examining the locomotive the next day ahead of a move to Southall to meet a schedule of trains leading up to Christmas, we found several faults with the locomotive that meant our engineers could not pass it fit for traffic and we remained at St. Phillips Marsh Depot.

Our examination identified an issue with one of the piston valves in the cylinder block, which was blowing badly and accounted for the slightly off-beat exhaust that had been detected several times the day. Worst of all, close examination revealed that some wheel flats initially identified at Hereford and Chester were confirmed as being beyond tolerance and requiring attention. Unfortunately, the locomotive's driving tyres were close to minimum size and were due to be replaced during the planned overhaul (taking place now). The wheel flats on the tender proved to be the final issue as the tender tyres were already at the minimum diameter and even though we were parked next to a ground wheel lathe at St. Phillips Marsh that could quickly remove the problem, it was not to be, and the decision was made to stop the locomotive and withdraw it from mainline service earlier than planned.



Mick Rogers

Seen across the Llangollen Canal, *Tornado* crosses Chirk Viaduct.



Mick Rogers

Another location, another viaduct! This time it is Cefn Mawr Viaduct.

# TORNADO ON TOUR

## A MOVE TO THE GREAT CENTRAL RAILWAY

Once the sensible decision to stop the locomotive was made, arrangements were made to move to the Great Central Railway ahead of the heavy overhaul planned to start in the New Year. In the last week of November, Allelys Heavy Haulage were able to load the locomotive, tender and support coach late one evening in Bristol and by tea-time the next day all three vehicles had been off-loaded at Quorn on the Great Central Railway (GCR) and were moved down to the Loughborough locomotive shed.

Early in the New Year we made the locomotive available for the trial fitting of European Train Control System (ETCS) footplate equipment. In recognition of their help, *Tornado* operated a weekend of service trains on the GCR and took part in a miniature East Coast themed gala ahead of the main Winter Gala held at the end of January.

Whilst at the GCR, *Tornado* was also used on a number of photographic charters and we are delighted to feature the work of professional photographer Jack Boskett. The images were taken on a frosty and foggy morning and are hard to date, they could be from the 1960s! No. 60163 was running with the GCR's rake of restored vans, recreating some of the fast freights the AIs handled in their twilight years. We will be hearing more from Jack in TCC 65. [TCC](#)



Tornado is loaded by Allelys at Bristol.

Huw Parker



Photos Jack Boskett



Jack Boskett



# AI OVERHAUL REPORT *by Ben McDonald*

Regular followers of *Tornado* will be aware that we took the sensible decision to withdraw her early from mainline operations in November last year following the discovery of wheel flats on the locomotive driving and tender wheels. Since then, we have operated some service trains at the Great Central Railway (GCR) in recognition of them hosting us at very short notice until we were able to start the planned overhaul.

Immediately after the GCR East Coast mini-gala 15<sup>th</sup> & 16<sup>th</sup> January, the locomotive and tender were split and the tender was taken to Locomotive Maintenance Services Ltd (LMS) by Allelys. Within three days the tender tank had been removed, the brake gear and air receivers stripped and the wheelsets prepared for removal. The following week saw the tender wheelsets transported to South Devon Railway Engineering (SDRE), who have made a start removing the old tyres and preparing to fit new. The tender frames were stripped further, removing pipework and corroded conduit and have been sent for shot-blasting prior to reassembly.

**Centre left: The tender is delivered to LMS.**

**Centre right: The tender tank is removed from frames.**

**Below: Tender frames ready for shot-blasting.**



**Tornado is moved by a pair of shunters to the loading ramp at the GCR.**



**Above: The tender frames being shot-blasted and primed.**

All photos - Richard Pearson



**Following the separation of the tender from its frames, Tornado was delivered to LMS as well.**

Back at the GCR, work started on the locomotive. First the boiler was washed out and the brick arch removed from the firebox. The locomotive running gear and frames were steam cleaned as much as possible before Allelys returned to move it to LMS works on 25<sup>th</sup> January. Once inside, work has continued to prepare the boiler to be lifted from the frames, removing pipework and associated fittings to permit the removal of the cab.

Some components have already been transported to Darlington for overhaul by our volunteers and construction of a temporary workshop shelter using two 20' shipping containers has also been completed. The locomotive motion and brake gear is being removed next and following the boiler lift, the frames will be lifted from the wheels, which will then go to SDR(E) for the driving wheels to be retired and the bogie and Cartazzi wheelsets to be reprofiled.



**Tornado's new driving wheel tyres are loaded at DLW for transport to SDR(E).**



**Thumbs up! Nik Proctor breaking out concrete in the smokebox.**



**Removing the smokebox furniture and superheater elements.**



**Tornado with her cab removed.**



**The locomotive, stripped of her boiler cladding, ready for the boiler lift.**

All photos - Richard Pearson



**Above: The team with the newly removed superheater elements.**

On Friday 11<sup>th</sup> February two high-capacity cranes arrived at LMS and *Tornado* was wheeled out. Using slings, the boiler was lifted clear of the frames which were then returned to the workshop and the boiler lowered onto a low-loader for the trip to Meiningen.

A fantastic start to the overhaul, and we think you will agree an excellent achievement by the team in less than three weeks! You can help too – join the Overhaul Club today! **TCC**



**Up she comes! *Tornado's* boiler is separated from her frames.**



**The suspended boiler awaits the low-loader.**



**The boiler, loaded and ready to go.**

## AI OVERHAUL - LATEST NEWS! *by Huw Parker*

A temporary workshop has been established and is now complete, bar a few final touches and the lighting and shelving are finished with items already in undercover storage, freeing up space in the main workshop. The tender frames were inspected and have been primed and returned to LMS where Adam the welder has started making the necessary amendments to the brackets to carry the new ADA and battery boxes. Painting the frames is due to start with undercoat on Monday 14<sup>th</sup> February. Work is progressing on the tender wheelsets at SDR(E) and we expect them to be returned at the end of March ready to be painted and reunited with the frames.

The DLW overhaul workshop has been quickly established and volunteers have begun to work with Richard Pearson to overhaul and repair items before returning them to LMS for refitting. So far, an industrious production line has started on tender spring hangers and air brake cylinders and the grate sections are



**Tender spring hangers after stripping.**

***Tornado's* frames, already comprehensively stripped, waiting to be lifted off the wheelsets.**

Photos: Huw Parker



**Tender axleboxes awaiting refurbishment.**

also ready to be tackled next. A steady flow of small (and some not so small!) components is expected to and from Darlington over the next few weeks.

Meanwhile, at Loughborough, work continued to prepare the boiler to be removed from the frames and the rear air pump has also been removed. The boiler lift was achieved without any issues on Friday 11<sup>th</sup> February and boiler sent on its way to DB Meiningen. There has been some delay to ensure the correct paperwork and import/export process is followed to ensure a smooth move to Germany and, more importantly back after refurbishment! On Saturday 12<sup>th</sup> February, the outside motion was taken down, less the radius rods and combination levers and the cylinder cocks and operating rods were removed ready for cleaning and refurbishment. The next stage will see the boiler delivered to Germany and further work to prepare to lift the frames to release the bogie, driving wheels and Cartazzi wheelset. There is still much work to clean the locomotive frames and remaining equipment to allow easy access to other components. Once the wheels are removed, we can remove the front buffer beam to allow access to the cylinder and valve bores for boring.

On the support coach front, tools and essential items for the overhaul have been moved to the temporary workshop while the coach remains at the GCR to be available for volunteer accommodation in the short term.

You can support this work by joining The Overhaul Club - details on the AI website. **TCC**



**Rocking grate components at DLW for renovation.**



**Vacuum brake cylinders in the queue for cleaning.**



**Back 'home'! *Tornado's* boiler is moved by the traversing crane at DB Meiningen.**

DB Meiningen

## ETCS UPDATE *by Rob Morland*

Electrical work during the overhaul includes a complete re-wiring of the tender, the fitting of a second turbogen and Phase 1 of the project to prepare the locomotive for the fitting of the European Train Control System (ETCS) as part of the East Coast Digital Programme (ECDP). The Trust is working in partnership with Network Rail, Thales and SNC-Lavalin on the design of ETCS for the heritage fleet, including the first installation on *Tornado*. This includes fitting of a new power supply to meet the electrical demand of the system, together with modifications to the tender to fit the new equipment. In the cab, new driver interfaces are required for ETCS, and the current TPWS and OTMR systems will be upgraded. We are taking advantage of the heavy overhaul to complete most of the required work on the tender, leaving the engine cab modifications to be carried out immediately prior to the installation of the ETCS equipment, currently planned for late 2022. **TCC**



During her time at the GCR during the winter, *Tornado* crosses Swithland reservoir.

• SHED NOTICES •

# SILURIAN

GW Railwayana Auctions recently sold a nameplate from No. 60121 *Silurian*. The Peppercorn A1 was built at Doncaster in 1948. Allocated to 50A York North for most of its working life and withdrawn from there in October 1965 - it was scrapped by T.W.Ward, Killamarsh.

For those with a horse-racing bent it might have been an idea to have a flutter on Tornado Flyer in the King George VI Chase at Kempton Park on Boxing Day. The 28-1 runner stormed home to win the race. Ridden by Danny Mullins and trained by his uncle, Willie, it was the latter's first win in this race for 20 years. Congratulations to the Mullins family!



**Tornado Flyer clears the last to win the King George VI Chase.**



**Little & Large 1** – George Headworth has scratch-built a superb 5" gauge model of *Tornado* and took the opportunity to pose the model at Cwmbran Station as No. 60163 stormed through with 'The Cheshireman'



**Little & Large 2** - Andrew Hardy (not our archivist!) has assembled an impressive Lego model of *Tornado* and used No. 60163's recent visit to the GCR to capture this image at Leicester North Station. It is interesting to note that both models carry the works grey livery.

## Covenantors' Diary by Dawn Phillips



As Steve Davies has referenced in his notes 'From the Chair', we are really excited to be holding this year's Annual Convention at the Blackwell Grange Hotel on Saturday 22<sup>nd</sup> October. This also feels like an appropriate stage to introduce myself as Office Manager.

Both myself and Lauren George, Tornado Railtours Booking Office Manager, will be working closely with Blackwell Grange to ensure we provide you have a superb experience. Please watch this space for further details.

**Open Days** - I'm happy to report that the year has started off well with many people coming through the door to see the progress on *Prince of Wales*. Open Days take place on the 1<sup>st</sup> and the 3<sup>rd</sup> Saturday of the month between 11:00hrs and 16:00hrs. We welcome all people with an interest in steam locomotives and would love to see you on one of these Open Days. Please look at our website for any changes or updates to the event.

**A bit about me and Lauren** - I joined the Trust the end of November. As well as taking on this new position, I

have relocated from South Yorkshire back to the North-East to be closer to my family. My career has been diverse, working in construction, education, and finance. This is the first time I have worked for a charitable trust, especially one that is such a unique organisation. Everyone has been fantastic and are always helpful, I already feel very much part of this 'family'. My greatest love is my dog Faro – an aging Saluki who gets all the compliments when out and about!

Lauren joined the Trust back in 2019, following a career working in business administrative environments. Since then, Tornado Railtours has become her 'baby' and as the Booking Office Manager, her passion is looking after our passengers. Usually it is her chatty, bubbly voice you will receive when you call to make a booking or make an enquiry. Lauren has recently achieved a certificate in Event Planning and most people at DLW would agree it is deserved, as she has a flare for being the social secretary and designated party planner. Outside of work, she enjoys keeping active at the gym and cooking up a storm in the kitchen!

The team at Darlington Locomotive Works look forward to meeting you during your next Rail Tour, or at the convention in October. **TCC**

## THE A1 STEAM LOCOMOTIVE TRUST IS YOUR LEGACY

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 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 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](http://www.a1steam.com) or contact our Legacy Coordinator who will talk you through the process on [legacy.coordinator@a1steam.com](mailto: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 I 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 request 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



Bob Hughes

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

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.

### 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](http://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](http://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**



Mandy Grant

## AI PROFILE - No. 60135 MADGE WILDFIRE by Phil Champion

This early AI entered service in November 1948. Already seven were in use, this was one of five completed that month – three from Darlington and two from Doncaster. It was noted in the Works on the 14<sup>th</sup> fitted with boiler No. 3922. Works No. 2054 had the Darlington finish of countersunk rivets to give a smooth finish to the cabsides and tender. It was turned out in LNER apple green with white and black lining with 'BRITISH RAILWAYS' lettering on its tender but, as can be seen in the image below, the top lining on the tender was lower than normal, a feature of some of the early AIs until the livery was standardised. As with other Darlington AIs numbers and letters were in LNER style old gold.



Cecil Ord/RAS

Un-named No. 60135 at Chaloners Whin Junction with an up express in 1948.

No. 60135 entered traffic from Gateshead shed on 18<sup>th</sup> November. This was the third of a dozen to be allocated there. It was noted at Darlington six days later. Its first recorded trains were 'namers', bringing the up 'Flying Scotsman' into Newcastle on 22<sup>nd</sup> December then 22<sup>nd</sup> January 1949. It ranged along the main part of the East Coast Main Line covering Newcastle, Grantham and King's Cross and on 15<sup>th</sup> April it was seen on Haymarket shed. The down 'Flying Scotsman' was hauled by No. 60135 on 2<sup>nd</sup> April presumably from Grantham where it had seen on shed. A couple of times in 1950 it was seen on the Delaval-Holloway ECS double-headed from Stockton (as far as Northallerton or Thirsk) at 11:30hrs with B16 No. 61415 on 4<sup>th</sup> April and B1 No. 61069 on 25<sup>th</sup> May, on the latter they hauled eighteen bogie coaches, three six-wheelers and seven four-wheel vehicles.

Following its first general overhaul at Doncaster, which included changing the boiler for No. 29803, naming and painting in BR blue with black and white lining plus the early BR emblem on the tender

both came in October 1950 and were about halfway through the class with 22 already dealt with and No. 60135 being one of three so treated that month. *Madge Wildfire* was one of seventeen AIs named after characters in Sir Walter Scott's novels. She was a character from 'The Heart of Midlothian' published in 1818, a mad woman also known as Magdalen Murdockson. The name 'Madge Wildfire' had already been carried by a paddle steamer which sailed from 1886 to 1945, initially from the Clyde. Two months later No. 60135 worked a 19:25hrs Newcastle-Sheffield parcels. Named trains hauled in this guise included the up 'Heart of Midlothian' from Newcastle, the up 'White Rose' on 11<sup>th</sup> August 1952 and its down working the next day. Several ordinary King's Cross-Leeds or Leeds-King's Cross trains were noted in this period. It concluded 1952 with another 'General' at Doncaster, leaving with boiler No. 29838 and a livery change becoming one of the later AIs to undergo a repaint into BR green with orange and black lining. It was one of three painted in December 1952 to

follow the 44 already done.

During the rest of the 1950s a variety of trains were worked. Named trains included up 'Flying Scotsman' into Newcastle and from there as well as Grantham, to King's Cross. Others were 'The North Briton' down from Newcastle and up from Edinburgh-Newcastle, 'The Heart of Midlothian' up from Newcastle-Grantham then the up 'Tees-Tyne Pullman' on 28<sup>th</sup> December 1959. Arrivals in Newcastle from the south or departures southbound were common and some went up well into Scotland like the 20:35hrs Dundee-Edinburgh on 9<sup>th</sup> January 1954, a York-Edinburgh taken forward from Newcastle on 24<sup>th</sup> September 1955 and 18<sup>th</sup> February 1956 then the 7.20 pm Aberdeen-Edinburgh relief of 3<sup>rd</sup> July 1959. No. 60135 hauled the 12:15hrs from Glasgow Queen Street for York on 1<sup>st</sup> May 1957. Workings at the southern end of the ECML included the 11:15hrs King's Cross-York train of 9<sup>th</sup> January 1957. This was six months before the later BR crest was applied to the tender. Parcels trains were exemplified with the 11:15hrs

arrival of the York-Edinburgh parcels into Newcastle and working the 19:15hrs King's Cross-York parcels on 7<sup>th</sup> January 1957. The highlight of the decade was haulage of the Royal Train in 1954, on 28<sup>th</sup> October *Madge Wildfire* brought it into Newcastle at 20:14hrs from Bradford and the next day took it up to Edinburgh, part of a tour of the West Riding of Yorkshire, Tyneside and to Perth. The legs were King's Cross to Barnsley, Sheffield, Dewsbury, Newcastle, Sunderland and Perth with the return from Perth to Euston. The train conveyed HM the Queen and HRH the Duke of Edinburgh.

Works visits during the rest of the 1950s comprised a number of 'Light Casuals' and two general overhauls, one during August 1954 which saw boiler No. 10594 fitted, and another during January 1956 (boiler No. 29819) with a further two in June 1957 (boiler No. 29877 fitted) and November 1957, latterly leaving carrying boiler No. 29876. No. 60135 was known as a good, if lively, runner and a first-class steamer. This was shown when on New Year's Day 1960 it took a late running twelve coach relief express originating at King's Cross forward from Newcastle the 126 miles to Edinburgh in an hour and 45 minutes. This was ten minutes ahead of a "demanding" schedule on a "difficult road." A number of fittings were not working

though including the speedometer, electric lights, tender coal water sprinkler and steam chest pressure gauge. This good run was in the same timings as later scheduled for the 'Deltics'.

After its final general overhaul at Doncaster in August 1960 which included fitting its last boiler, No. 29842, a move to Copley Hill shed (56C) along with No. 60115 followed that November. It still reached Tyneside, being noted on Gateshead shed during 17<sup>th</sup> February 1961. A move across to Ardsley shed (56B) with three other AIs came in April 1962. Newcastle was reached with the 15:30hrs ex-Manchester on 19<sup>th</sup> April 1962 then the 09:00hrs ex-Liverpool two days later. On the 22<sup>nd</sup> *Madge Wildfire* was on the Delaval-Holloway ECS. A trip down the main line came when it worked 'The Queen of Scots' into King's Cross on 18<sup>th</sup> August.

Withdrawal from service along with No. 60115 was on 12<sup>th</sup> November. This was about a quarter of the way through the AI withdrawals with twelve already gone. In its time No. 60135 had carried the class average of seven boilers, all of them diagram 118 types. Its time in service was fourteen years, a year and two and a month less than the class average although it lingered for over six months longer, being sent into Doncaster Works for cutting up on 29<sup>th</sup> May 1963.



By then Gateshead-based, *Madge Wildfire* sits on the Haymarket turntable awaiting turning in preparation for working the Glasgow-Leeds 'North Briton' service, 17<sup>th</sup> January 1953.

This history was compiled by Phil Champion based on a database compiled by Tommy Knox, "The Pioneer" (AI Steam Locomotive Trust) and with reference to the RCTS book "Locomotives of the LNER Part 2A" as background. Revised and updated by Graham Langer, June 2020. [TCC](#)



Another early image of No. 60135 running without nameplates, this time at Edinburgh Waverley.

## P2 ENGINEERING UPDATE *by David Elliott*

### General

Whilst progress has been maintained, it has however slowed somewhat from several directions. The high point since the last issue has been the trial fitting of the coupling rods and turning the wheels with the rotator.

As you may be aware, our Workshop Manager and Assistant Mechanical Engineer Daniela Filová has left full-time employment with us to set up her own machining business. As I write this, she is awaiting the arrival of over 30 tons of machinery from her family home in the Czech Republic which she has been collecting over the last 15 years. She has established 'Daniela Works Ltd.' in an industrial unit in Shildon and expects to be in business in the near future. In the meantime, she is still working for us a few hours a week on an "as required" basis. We have started the process to find her replacement. Once her new workshop is set up it will add to the resource of sub-contract manual machining – a diminishing field with the onward march of CNC (Computer Numerical Control) manufacturing.

The combined effect of Christmas and diversion of staff from DLW to assist with the urgent overhaul work on *Tornado* has resulted in a slight slowing of work at Darlington on the P2.

### Pony Truck

The pony truck dimensional correction work has been completed and the manganese hornblock liners finish machined by Triple T Engineering at Shildon. Arrangements are in hand to have the new liners welded onto the cannonbox after which Triple T will machine them to match the liners on the pony truck frame.

### Boiler

The Omicron variant of Covid-19 has had a more significant impact on German industry compared with earlier waves which had delayed work on the new boilers at Meiningen. In practice, any delay in delivery of the first new boiler is not causing concern at the moment.

### Motion

Following on from the successful trial fit of the left-hand coupling rods, work has concentrated on fitting the right-hand set. As per the first set this has involved pressing in bushes, taking measurements of the bushes, pressing them out again, skimming the bores of the bushes to ensure that when fitted to the rods, the desired clearance with the crank pins is achieved. Meanwhile Ed Laxton has made the second set of gradient pins which form the links between the leading and trailing and intermediate rods and allow them to articulate vertically when the engine negotiates uneven track.

It was reassuring (and with no small sense of relief) that once the left-hand rods had been refitted the right-hand rods slid on with a satisfying "thunk" noise. The frames were then rolled backward and forwards over 10 feet which corresponds to half a revolution and there were no tight spots.

**Right: With both sets of coupling rods fitted it was possible to jack No. 2007 up and sit it on the rotator, allowing the wheels to be fully turned for the first time.**



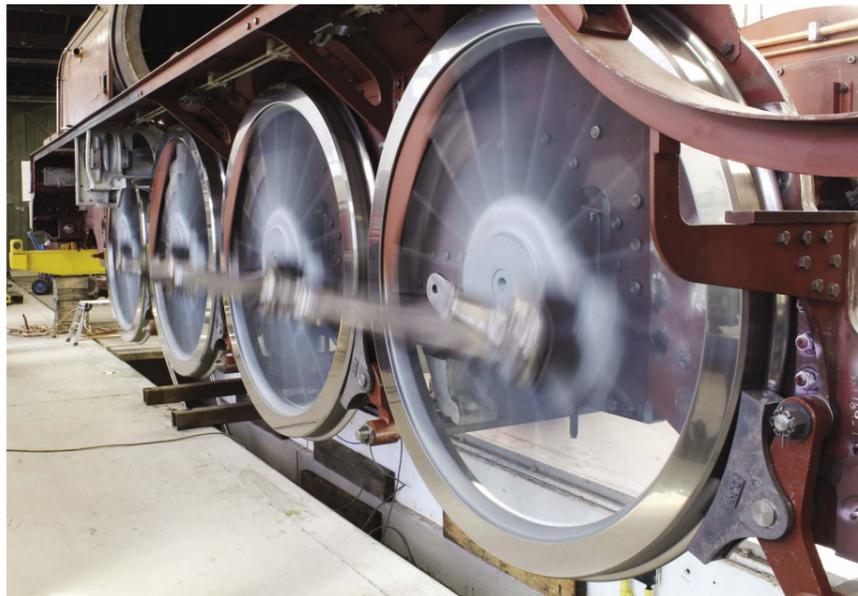
Fitting the left-hand rods.



The left-hand rods in place.



The right-hand rods in position.



All Photos David Elliott except where marked

### Cylinders and valves

The hydraulic testing of the cast steel steam ports has been completed successfully and the steam ports delivered to Howco at Irvine.

Howco continued to make progress with the cylinder block with much of the cruciform exhaust ports fabricated into the middle cylinder assembly and a good start on the outside cylinders. Howco has agreed to machine the cylinder cover patterns which are now in Irvine.

An order has been placed with Timson Engineering foundry at Kettering for the valve covers and cylinder liner castings. Quotes have been supplied for machining the covers – the liners will be machined and fitted by Howco as part of the cylinder block fabrication. A set of profiles has been procured to block off all the holes in the cylinder block to facilitate a hydraulic test when it is complete prior to delivery from Howco to check for leaks. Quotes are being sought for some of the long lead items in the valve gear.

### Brakes

Now that the correct location of the coupled axles has been demonstrated by the successful trial fit of coupling rods, the fixed length brake pull rods will shortly have their forked ends fully welded on.

### Tender

The axleboxes have been sent out for finish machining. The spring hooks are being finish machined at Ian Howitt's Crofton works along with manufacture and fitting of a number of hand brake components. A start is about to be made on the engine/tender drawbar components.

The spring planks have had their manganese liners welded on after which they will be finish machined.

### Pipework and fittings

Ed Laxton and volunteer Malcolm Harwood have been machining the first of the many LNER style pipe fittings. Ed has also been machining the remaining parts for the cylinder drain cocks.

The combined vacuum ejector control valve (an LMS railway design as also used on *Tornado*) has been acquired from Locomotive Maintenance Services (also LMS!) Ltd at Loughborough who were having a batch made for several engines.

Similarly, LMS are procuring a batch of castings for BR style cylinder relief valves which we are using for the P2 instead of the LNER design. The reason for this is that the LNER valves screw directly into the cylinder block/cylinder covers



The cast steam ports are hydraulically tested at DLW.

The right-hand cylinder valve-chest and flange tacked together.

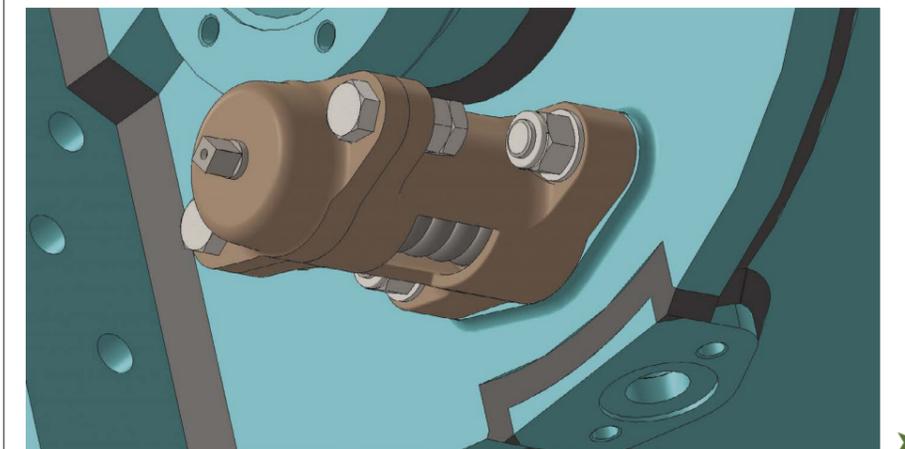


Progress on the fabrication of the middle cylinder at Howco.

and are often damaged when attempts are made to unscrew them. The BR design uses a 2-bolt flange to attach them which makes removal for overhaul and adjustment a much easier task.

**Right: The combined vacuum ejector control valve.**

**Below: A CAD drawing of the BR type cylinder relief valve showing the bolted attachment.**



## Electrical System

by Rob Morland

The electrical system design is now largely complete, with just a few smaller modules remaining to be designed. Final design of the tender conduit system is currently paused as Alan Parkin is heavily engaged in design work associated with the overhaul of *Tornado*.

The new ADA passed its railway EMC test and was fitted to *Tornado's* support coach, No. 21249, in early November 2021 and the In-service Experience Trial was started. The ADA performed extremely well on the early runs, generating up to 160A as expected.

Sadly, the trial was curtailed when *Tornado* was obliged to stop its main line programme in late November. Plans are now being developed for the trial to be completed in the coming months, in time for approval to be received so that the ADA can be fitted to *Tornado* during the overhaul as planned. Once the design is proven, additional ADAs will be manufactured and fitted to the P2, along with the Trust's other vehicles.

TCC

**Right: The new steam turbo-generator is tested on air.**

**Below: Some of the pipe runs and electrical conduit between the frames.**



Paul Depledge moving the new ADA into position ready for attachment to the support coach.



Completed speedo generator cable connectors.



Daniela Flova



ASLT

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



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

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

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

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



The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion within two years, we placed the order for the boiler in 2019. We established The Boiler Club to fund the construction of *Prince of Wales's* boiler. Therefore our aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 16 payments of £125 by standing order) - we are more than three-quarters of the way there, having pledges of over £450,000 (excluding Gift Aid) so far!

Special benefits for members of The Boiler Club:

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

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



Diagram 118b boiler drawing shows fitted with Melesco type superheater header as used on *Tornado*.

#### No. 2007's boiler in detail

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

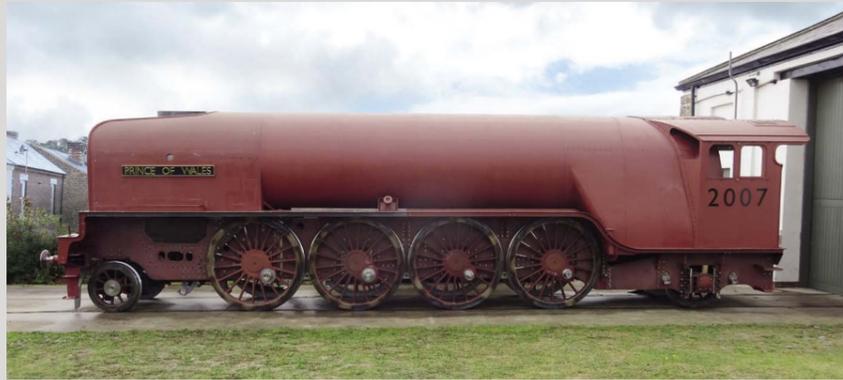


**2007 PRINCE OF WALES**

Building Britain's Most Powerful Steam Locomotive

For further information please visit [www.p2steam.com](http://www.p2steam.com) email [enquiries@p2steam.com](mailto:enquiries@p2steam.com) call 01325 460163 or write to The Boiler Club, P2 Construction Fund, Darlington Locomotive Works, The A1 Steam Locomotive Trust, Hopetown Lane, Darlington DL3 6RQ

## P2 FUNDRAISING PROGRESS *by Nick Keegan*



**Gresley class P2 No. 2007 Prince of Wales.**

I'm delighted to have joined the Trust at this incredibly exciting time in its history. I spent my first couple of weeks meeting the team and learning about *Tornado*, the P2 project and plans for the future. From the team at Darlington Locomotive Works to the Board and Trustees, the one thing that struck me was the genuine passion, enthusiasm and level of commitment they all have. You can't fake this!

I remember walking into the workshop for the first time and seeing the P2 "up close and personal". It's massive and truly a magnificent sight! Not only is this project an incredible feat of engineering, it's also a very tangible demonstration of what your funding support makes possible.

The P2 project is about so much more than simply building a steam locomotive. Combining traditional engineering skills with modern techniques and 21<sup>st</sup> century safety systems, you are preserving and promoting the UK's proud railway legacy for future generations to enjoy.

### P2 PROGRESS UPDATE

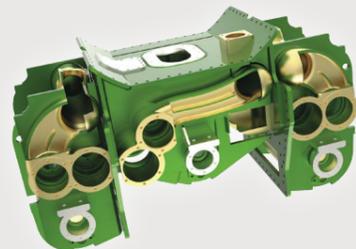
As you will have seen in David Elliott's engineering update, we've continued making noteworthy progress against considerable odds. Covid-19 has, not surprisingly, had a detrimental impact on our plans, both in terms of engineering and fundraising. But with your support, we're more determined than ever to race towards the finishing line.

Just before going to press, we finally got both sets of coupling rods fitted for the first time! This significant event was made possible thanks to the generous donations from members of our Motion Club. As this club is now closing, we would love to invite Motion Club members, or new supporters, to consider supporting one of our other clubs, for example the Cylinder Manufacturing or Tender Clubs mentioned below.

### CLUB FOCUS

#### Cylinder Manufacturing Club

Work continues apace at the Howco facility in Irvine, Scotland and we are looking at an early summer finish date. Unfortunately, we've fallen behind on our Cylinder Manufacturing Club fundraising and need your help today. The club aims to raise £250,000 and invites 250 supporters to each donate

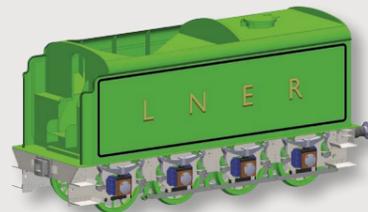


£1,000 in up to eight payments of £125. To date, we've secured nearly 20% of these funds. Can you step in to help? Do you know someone who would be interested in joining the **Cylinder Manufacturing Club**?

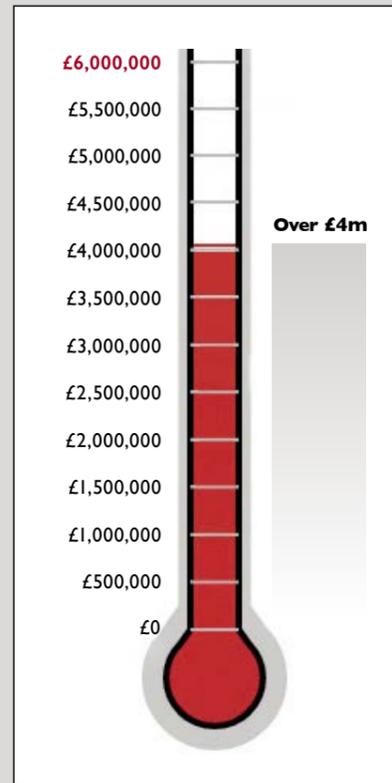
#### Tender Club

The tender carries the coal and water - it's the circulatory system to the beating heart of the boiler! I'm no doctor, but you get the idea; it's a critical component! Our Tender Club aims to raise £450,000. Thanks to you, nearly 45% of these funds have now been secured. We'd love to top-up the tender coffers and are inviting supporters to each donate £1,500 (plus gift aid) in up

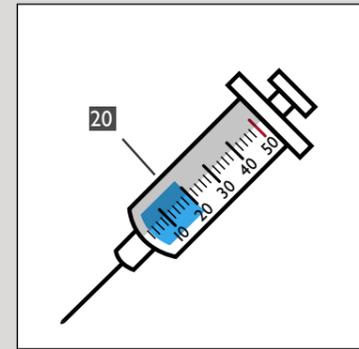
to 15 payments of £100. Please consider joining the **Tender Club** today.



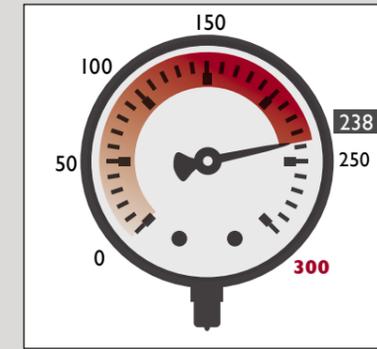
And finally, watch this space for news about our new Valve Gear Club coming soon! Contact me to find out more information on how to get involved – [nick.keegan@alsteam.com](mailto:nick.keegan@alsteam.com).



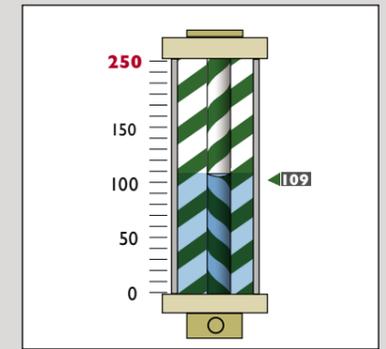
**Donated to date.**



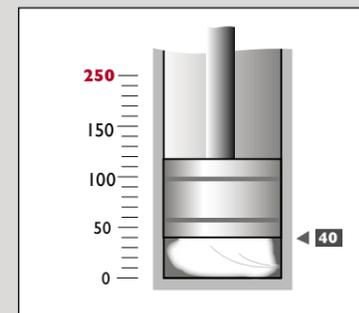
**Injectors Club - 20 members.**



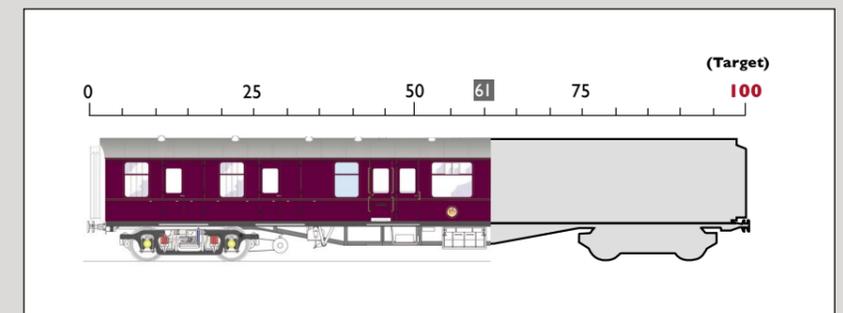
**Boiler Club Gauge - 238 members.**



**Tender Club Gauge - 109 members.**



**Cylinder Manufacturing Club 40 members.**



**The P2 Coach Appeal - 61 supporters.**

### OTHER WAYS TO HELP

**Legacies** - This is not a subject that we like talking about, but the lasting impact from leaving a gift in your will is considerable. Leaving a legacy can help secure the P2's future for generations to come. Please contact [legacy.coordinator@alsteam.com](mailto:legacy.coordinator@alsteam.com) or phone 01325 460163 for more information.

**DLW Open Days** - We're happy to announce that we are once again able to open up our Darlington Locomotive Works on the first and third Saturday of each month. Why not come in and see first-hand the progress we're making and bring a friend too? We're open between 11:00hrs and 16:00hrs.

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

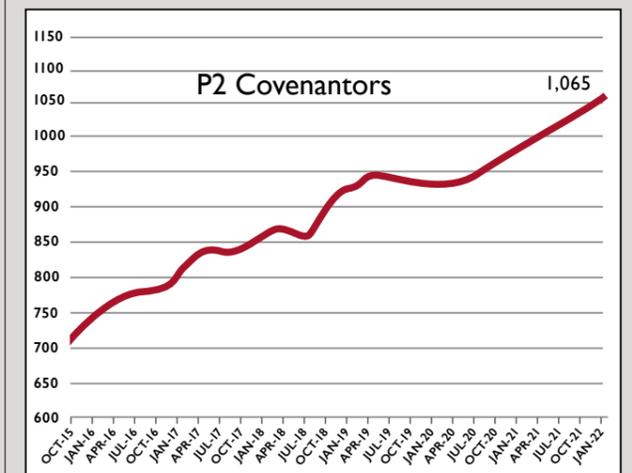
**Social Media** - We're social creatures so please do follow us on Facebook and Instagram and like us on Twitter. Sharing is caring so don't forget to comment and share our content too.

### THANK YOU

The last two years have arguably been one of the toughest periods that many of us have faced in recent times. The threat of Covid-19 coupled with economic impact and uncertainty

combined to create considerable stress for everyone. Despite these challenges you continued supporting our work.

Your donations make this incredible project possible and I hope that you will agree that we have the skills, track record and team needed to bring your P2 to life!



Thank you for your generosity and support. I look forward to having the opportunity to chat and meet with as many of you as I can over the coming months. **TCC**

## A TEST RUN WITH COCK O' THE NORTH by Graham Langer

*Railway Wonders of the World* was a weekly magazine published in 50 parts during 1935-1936 and having a cover price of 7d. The following is an article from the journal describing a run with No. 2001 entitled, "A test run with Cock o' the North – Hill climbing feats of new locomotive".

Readers were promised an account of a footplate trip on *Cock o' the North*, the magnificent 2-8-2 express engine recently introduced on the LNER. Up to the time of writing it has not been possible to make such a run over the difficult route between Edinburgh and Aberdeen for which *Cock o' the North* has been specially designed, but we are able to give a description of a test journey from King's Cross to Doncaster carried out during an extensive series of trial runs in both directions on this section of the LNER main line.



**No. 2001, equipped with an indicator shelter for the testing, stands at King's Cross being prepared for its next test run. Note the doors in the front of the shelter to give access to the smokebox.**

A preliminary test was made on Tuesday, 19<sup>th</sup> June 1934, when the engine hauled a specially made-up train with the enormous weight of 650 tons from London to Grantham and back with great success. During the first week in July, a series of "full dress" trials were carried out. Each day the engine worked the 11:04hrs up Yorkshire Luncheon Car express from Doncaster to London and returned on the very heavy 16:00hrs train, which carries in addition a portion for Grimsby and Cleethorpes.

On these journeys every single feature of the engine's working was under the closest observation. Steam indicators were fitted to the cylinders for measuring the horsepower developed. A shelter was erected round the smokebox to protect the men riding right out on the front of the engine for the purpose of taking the indicator diagrams - mighty hot work with the thermometer at 80 in the shade!

Immediately behind the tender, in front of the ordinary passenger coaches, was coupled the dynamometer car. This marvellous vehicle is a completely equipped engineering laboratory on wheels. Under the floor is a strong spring, one end of which, called the "live" end, is attached to the tender coupling. Acting just like a great spring balance, it measures the pull exerted by the engine to start a 650-ton train from rest, *Cock o' the North* exerted a pull of about 16 tons, while the pull when travelling at 60mph was as high as six tons at one point. A system of delicate levers operated by this spring work a

pen that makes a continuous record of the pull on a seemingly endless roll of paper. The rolls on which this paper is wound are driven directly off the wheels and thus the paper is passed underneath the pen at a speed proportional to that of the train. A similar roll chart is used for continuously recording the speed, the pen in this case being driven by an electric clock.

Many other quantities are measured, among them the amount of coal, oil and water used and the temperature of the steam at various points. Even the exhaust gases in the smokebox are analysed.

During the interesting test week, I travelled with *Cock o' the North* on a run with the 16:00hrs express from King's Cross and witnessed a magnificent performance, the load consisted of 16 bogie coaches and the dynamometer car, weighing 548 tons empty and 585 tons with passengers and luggage. No attempt was made to break records, the object of the test was to work the train to schedule time in the most economical manner.

We made a fine start. From King's Cross the line rises steeply at 1 in 105 out to Holloway, yet *Cock o' the North* passed the top of the rise, 1 3/4 miles out in 5 1/4 minutes. By Finsbury Park, still climbing, the speed had risen to nearly 40mph and the short slightly downhill "breathing space" to Wood Green quickly brought speed up to 54mph before we tackled the mile climb at 1 in 200 to Potters Bar. At Holloway the cut off had been brought down to about 25 per cent, and through

Wood Green it was only about 15 per cent. In fact, it was only when we were halfway up the Potters Bar bank that cut-off was advanced to about 20 per cent and with this really easy working the sustained speed on the 1 in 200 was 44mph - with a 585ton load! The exhaust beat was quite sharp and clear, but that is largely due to the poppet-valves, which permit a very rapid and somewhat explosive exhaust.

Thus, we passed Potters Bar, 12 3/4 miles, in 20 1/4 minutes, and here the cut-off was brought back to about 10 per cent. Throughout the rest of the journey I never heard the exhaust. We reached 67 mph through Hatfield and mounted the Woolmer Green bank at a minimum of 50mph, but on approaching Hitchin signals at danger were sighted and the momentary slackening before they were pulled off caused a slight loss of time.

Still working on 10 per cent cut-off, some very fine running now followed. Speed rose to 72mph through Biggleswade and then the engine maintained a rate of 69mph on the dead level past Tempsford for mile after mile, a remarkable feat on such an early cut-off. The slight rise through St. Neots did not bring the speed below 65mph, and we were travelling at 70mph again at Offord.

The engine was now blowing off steam furiously, showing full boiler pressure, and this despite very easy firing. For Stukeley Bank, nearly four miles at 1 in 200, cut-off was advanced to 15 per cent. We simply stormed up, going over the top at 54mph with steam still blowing off. Back came the cut-off to about 10 per cent, and we ran down the Abbots Ripton bank at 73mph.

Now came a most extraordinary feat. When we reached the level at the foot of the bank, steam was shut off altogether, as we were well on time, and the valves were put into mid-gear.



**Cock o' the North heads the heavy 649ton preliminary test train past Welwyn on 19<sup>th</sup> June 1934. Note the LNER dynamometer car immediately behind the locomotive.**

We ran like this for five miles on the level and at the end of these miles were still running at 54mph!

A long slowing to 30mph for permanent way repairs was in force through Yaxley, but we came into Peterborough, 76 1/2 miles from King's Cross, in 85 minutes, the net time being about 82 minutes.

Perhaps the finest feat yet achieved by the engine is a "flying" ascent of Stoke bank, the 10 miles of this incline, with a gradient of 1 in 200 to 1 in 178, being climbed at a minimum speed of 56 1/2 mph with 650 tons! The engine's remarkable hill-climbing ability will be of incalculable value on the Edinburgh to Aberdeen route, and we hope to include in an early issue an account of a footplate trip on this service. **TCC**



**A view of the fireman's side of the locomotive under test, note the various gauges and the umbilical running back to the dynamometer car over the tender.**

## DLW2 UPDATE by Paul Bruce

On your marks... You may have seen snippets in the press around the progress with Darlington Council's exciting new Railway Heritage Quarter. Those apart, it's seemed mainly quiet whilst funding for the major visitor attraction is tied down, alas, many media releases haven't mentioned the Trust. However, like a swan on the river, the Trust has continued to work feverishly with the Council to refine the plans for the new Darlington Locomotive Works (DLW2) across the Bishop Auckland line from North Road station. Connected to the national rail network, this is a massive step change in the Trust's operations and facilities.

Subject to concluding the funding arrangements, the new Trust facility will have a 52m long workshop with two roads and four vehicle bays. A high-level viewing gallery is planned for the public to experience the live engineering from seven metres above the workshop. The conclusion of Network Rail's land sale to the Council is getting close and this allows the construction of DLW2 to start and the refurbishment of the 1861 'Peachey' shed to get underway.

As part of bringing this Trust vision to life, we have committed to sourcing and installing the 2km of track and points which will comprise the new

private siding. Along with our funding contribution towards the building itself and our agreement to a lengthy lease, the Trust is very excited to be extending its commitment to this historic railway town which lies at the heart of the Stockton & Darlington Railway.

Construction is expected to start this Spring with completion of DLW2 coming in late 2023. It will be a stunning new home for *Tornado* and *Prince of Wales* and will be the birthplace of the V4. **TCC**

**STOP PRESS!** - The first sod was cut at North Road station on 3<sup>rd</sup> March by Leader of Darlington Council, Councillor Heather Scott, using a firing shovel!



**Councillor Scott cuts the first sod for the new DHRQ.**



**Tees Valley Mayor Ben Houchen addresses the assembled guests at DLW.**

Sophie Bunker-James

Lauren George

## P2 DEDICATED DONATIONS UPDATE by Liz Gibson



The period 18<sup>th</sup> October 2021 – 23<sup>rd</sup> March 2022 has seen a steady addition to the total raised, with a further two items being sponsored, raising a further £1,105.00 before gift aid. This brings the total number of sponsorships to 653!

Components sponsored during this period include:

- Cambox machining (left-hand)
- 4in bowler hat pipe clip (one) - front

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

Looking for an unusual gift? With prices ranging from one of many castellated nuts for £30.00, to the Leading right-hand coupled wheel casting and proof machining at £12,000.00 and many items in between! Why not treat the rail enthusiast in your family to something different and help us to complete this iconic locomotive!

Whatever your budget, please email Liz Gibson at [dedicated.donations@p2steam.com](mailto:dedicated.donations@p2steam.com) for more information.

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

**TCC**



**A 3D printed model of the cambox - you could sponsor one of these in metal!**

## FROM THE ARCHIVES by Graham Langer

**Winter 2002** – The Trust acquired (from EWS via Ian Riley) a set of basic brake-control equipment from redundant Class 31 and 37 diesel locomotives with a view to seeking AWS equipment compatible with the new TPWS (Train Protection and Warning System). Having not yet found an acceptable boiler designer/manufacturer in the UK, the Trust had been approached by the Commercial Representative of the Deutsche Bahn works at Meiningen in Germany. It would be possible to appoint TÜV, the German pressure vessel inspectorate as the Notified Body (NoBo), whose approval of the boiler as a pressure vessel will be recognized throughout the EU without further tests or documentation.

**Winter 2007** – By this time the Trust had ordered the hopper ash pan from Great Northern Steam Ltd in Darlington and most of the remaining nonferrous fitting patterns. In addition, the new (lowered) chimney patterns had been ordered from Elfield Patterns, and South Lincs Patterns has started making the moulds for the superheater header. The inside reversing rod lifting arms and cross shaft had been fitted, the reverser cross shaft removed and the arms to drive the inside cylinder reverser and for the balance spring slid on. The final positions would be set on assembly of the rest of the inside valve gear.

**Winter 2012** – *TCC 25* reported that *Tornado* was undergoing winter maintenance at the Mid Hants Railway following an extremely busy year in traffic, including removing both injectors for cleaning and repair as well as routine dismantling and reassembly including piston and valve exam, removing the motion to enable all the rod bushes and crank pins to be inspected and measured. Alexa Stott was able to



**Tornado's original and lower (by an inch) chimneys.**

report that the Trust has set up 'The Tornado Team', a club for younger enthusiasts to join.

**Winter 2017** – Headline news in February 2017 was *Tornado's* involvement in the Settle & Carlisle 'Plandampf' series of trains, celebrating the re-opening of the route following substantial repairs in the Eden Valley. A number of changes were made to the structure of the AISLT Board of Trustees, Gill Lord stepped down after seven years as Merchandising Director and Mark Allatt retired as Chairman to concentrate on leading the P2 project, Paul Bruce and Graham Langer joined the Board at the same time. Solid progress continued to be made on the P2's frames and James May, of *Top Gear* fame, made a further visit to DLW. **TCC**



**Scenes of onlookers and passengers at Appleby station as *Tornado* hauls two round trips a day between Appleby and Skipton on the Settle & Carlisle railway in February 2017.**

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



### THE A1 STEAM LOCOMOTIVE TRUST CONTACTS

President **David Champion** ([david.champion@a1steam.com](mailto:david.champion@a1steam.com))  
 Vice Presidents **Peter Townend** ([peter.townend@a1steam.com](mailto:peter.townend@a1steam.com)),  
**Ben Godfrey** ([ben.godfrey@a1steam.com](mailto:ben.godfrey@a1steam.com))  
**Rick Peacock-Edwards** ([rick.peacock-edwards@a1steam.com](mailto:rick.peacock-edwards@a1steam.com))

#### Board of Trustees

**Paul Bruce** Property Director ([paul.bruce@a1steam.com](mailto:paul.bruce@a1steam.com))  
**Graeme Bunker-James** Commercial Director ([graeme.bunker-james@a1steam.com](mailto:graeme.bunker-james@a1steam.com))  
**Richard Courteney-Harris** P2 Project Coordinator ([richard.courteney-harris@a1steam.com](mailto:richard.courteney-harris@a1steam.com))  
**Steve Davies** Chairman ([steve.davies@a1steam.com](mailto:steve.davies@a1steam.com))  
**Graham Langer** Publications ([graham.langer@a1steam.com](mailto:graham.langer@a1steam.com))  
**Ben McDonald** Group Engineering Director ([ben.mcdonald@a1steam.com](mailto:ben.mcdonald@a1steam.com))  
**Huw Parker** Operations Director ([huw.parker@a1steam.com](mailto:huw.parker@a1steam.com))  
**Chris Walker** Finance ([chris.walker@a1steam.com](mailto:chris.walker@a1steam.com))

#### Advisers to the Board

**Terry Graham** P2 Project Manager ([terry.graham@a1steam.com](mailto:terry.graham@a1steam.com))  
**Mark Grant** Volunteer Coordinator ([mark.grant@a1steam.com](mailto:mark.grant@a1steam.com))  
**Andy Hardy** Archivist ([andy.hardy@a1steam.com](mailto:andy.hardy@a1steam.com))  
**Rob Morland** Electrical ([rob.morland@a1steam.com](mailto:rob.morland@a1steam.com))  
**Graham Nicholas** Professional Head of Engineering ([graham.nicholas@a1steam.com](mailto:graham.nicholas@a1steam.com))  
**Richard Peck** Commercial ([richard.peck@a1steam.com](mailto:richard.peck@a1steam.com))  
**Gary Hughes** Council & Board Business Coordinator ([gary.hughes@a1steam.com](mailto:gary.hughes@a1steam.com))

#### Engineering

**David Elliott** P2 Engineering ([david.elliott@a1steam.com](mailto:david.elliott@a1steam.com))  
**Alan Parkin** Electrical Design ([alan.parkin@a1steam.com](mailto:alan.parkin@a1steam.com))  
**Richard Pearson** Locomotive Manager ([richard.pearson@a1steam.com](mailto:richard.pearson@a1steam.com))

#### Administration

**Dawn Phillips** Office Manager ([dawn.phillips@a1steam.com](mailto:dawn.phillips@a1steam.com))  
**Sophie Bunker-James** Marketing and Communications Director ([sophie.bunker-james@a1steam.com](mailto:sophie.bunker-james@a1steam.com))  
**Liz Gibson** Dedicated Donations ([liz.gibson@a1steam.com](mailto:liz.gibson@a1steam.com))  
**Nick Keegan** Head of Fundraising ([nick.keegan@a1steam.com](mailto:nick.keegan@a1steam.com))

#### Railtours

**Sophie Bunker-James** Marketing and Communications Director ([sophie.bunker-james@a1steam.com](mailto:sophie.bunker-james@a1steam.com))  
**Lauren George** Railtours Booking Office Manager ([lauren.george@a1steam.com](mailto:lauren.george@a1steam.com))

#### Editor

**Graham Langer** ([graham.langer@a1steam.com](mailto:graham.langer@a1steam.com))

#### Picture Editor

situation vacant

#### Design

**Kevin Lumb** ([kevin@limegroveprintanddesign.co.uk](mailto:kevin@limegroveprintanddesign.co.uk))

\* All information correct at the time of going to press early March 2022. For up-to-date information and dates please check the website [www.a1steam.com](http://www.a1steam.com).

- The A1 Steam Locomotive Trust, Darlington Locomotive Works, Hopetown Lane, Darlington DL3 6RQ
- e-mail: [enquiries@a1steam.com](mailto:enquiries@a1steam.com) ● website: [www.a1steam.com](http://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.

© 2022 The A1 Steam Locomotive Trust except where shown. Views of contributors are not necessarily those of The A1 Steam Locomotive Trust.