



60163 TORNADO
New Western Corridor Main Line



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



3403 ANON
Recreating Gresley's last design

THE COMMUNICATION CORD

No. 56 Winter 2020

No. 2007's tender tank nears completion at North View Engineering.



Daniela Flawá

THE P2 PROGRESSES!

This edition of The Communication Cord focuses on the volume of work that has been completed on No. 2007 *Prince of Wales*. Construction of the locomotive has moved forward on many fronts but none more so than the tender, the tank of which is nearly finished at North View Engineering as are the frames at Ian Howitt's

works. At Darlington Locomotive Works great strides continue to be made with dozens of sub-assemblies and parts are now being produced for the fabrication of the pony truck in parallel with the on-going manufacture of the complex electrical system at both DLW and in deepest Cambridgeshire (see page 22). In Meiningen

boiler parts are beginning to appear for the two new diagram 118a boilers, the first of which should be assembled later this year. The accelerating rate of construction means that we must re-double our efforts to finance all this work if No. 2007 is to be completed in 2022 – you all know what to do! **tcc**

CONTENTS

PAGE 1

The P2 progresses!

PAGE 2

Contents

Editorial

PAGE 3

A1 winter maintenance update

PAGE 5

Volunteering with No. 60163 and No. 2007

PAGE 6

Tornado on Tour-

'The Marches & Severn Express'

PAGE 7

Tornado on Tour-

'The Christmas Bath & Bristol Express'

PAGE 8

Tornado on Tour-

'Lincoln Christmas Market Special'

PAGE 9

Tornado on Tour-

'The Bath & Cardiff Christmas Markets Special'

'The Christmas White Rose'

PAGE 10

Tornado on Tour-

'The Chester Christmas Special'

'The Edinburgh Christmas Market Express'

PAGE 11

'I ♥ 60163' appeal reaches its target

Keeping Tornado on the tracks

Tornado Tour Diary 2019

PAGE 12

Railtours

PAGE 13

'The Aberdonian'

PAGE 14

A1 Profile - No. 60127 Wilson Worsdell

PAGE 16

The big picture

PAGE 18

P2 engineering update

PAGE 21

P2 Dedicated Donations update

PAGE 22

P2 electrical engineering

PAGE 23

The Tender Club steadily filling up

PAGE 24

P2 Fundraising

PAGE 26

The Boiler Club

PAGE 27

The race is on to get up steam!

Workshop notes

PAGE 28

Come on, come on, do the loco-motion with me!

PAGE 29

Covenantors' Diary

P2 Roadshows

Club Badges

PAGE 30

V4

PAGE 31

From the archives

PAGE 32

Sponsors and contact information

EDITORIAL by Graham Langer



We live in changing and challenging times! With the confirmation that HS2 is going ahead it is becoming clear that there will be massive changes in the way in which the West Coast route evolves and subsequent benefits for many of the secondary lines that feed into it. While it is encouraging that we have a government that is willing to be seen as 'pro rail' one must assume that this project will be the catalyst for a cascade of improvements for other routes and we will have to wait to see how this affects the operation of main line

steam specials. With the East Coast Digital Programme, Network Rail is aiming to create a 'signals away' ETCS on the East Coast Main Line and *Tornado* may well be the first steam locomotive to be equipped with this technology which may only be applied to a very limited number of steam locomotives. The ECML programme may well prove to be a trial for a more extensive roll-out of the system, something main line locomotive owners will have to factor in if they wish to continue to have 'open access' to a network that is already shrinking for steam operation.

Evidence of changes in technology manifested itself in the withdrawal of HST services from some of the UK's principal main lines last year as these useful trains, now 40 years old, were cascaded into secondary roles. There can be no doubt that the provision of the HST fleet saved British Railway's Inter City business and their introduction saw the beginning of the turn around in what had, until that time, been the apparently terminal decline of passenger numbers on the network. We have to face the reality that most of the main line steam fleet is now 70 to 90 years old and increasingly costly to maintain; the justification for building new main line steam locomotives has never seemed pertinent.

Another source of concern is the future use of coal and there is much debate about this at the moment. I think most people agree that our dependence on fossil fuels is unsustainable for many reasons but their use in a heritage setting is not difficult to justify. The heritage railway industry is lobbying for exemptions from any draconian legislation that might affect it and it is worth remembering that a main line steam special generates less CO² than a long-haul flight and there are over 110,000 of the latter every day involving some 28,000 aircraft being in the sky at any given moment! The carbon footprint of the heritage railway industry is tiny by comparison. **TCC**



Richard Pearson

Changing times. An HST, restored to its original livery, passes *Tornado* at York during the unit's 'last hurrah' on the ECML.

AI WINTER MAINTENANCE UPDATE *by Huw Parker*

All photos by Richard Pearson unless stated.

This winter *Tornado* is her undergoing routine maintenance in the engine shed at Leeming Bar, Wensleydale Railway. During this period the focus is on preparing the locomotive for another season of operations and carrying out its annual 'MOT'.

Work has continued on both *Tornado* and our support coach to prepare them fully for the coming operating season. The tender has been to Electromotive at Doncaster Roberts Road to remove some wheel flats and is now back at Leeming bar awaiting to be reunited with the locomotive. Following investigation of a couple of known broken stays in the firebox, others around them were showing sign of fatigue and have been replaced. Whilst the cab was off, the opportunity was taken to replace a number of rigid boiler stays and welding repairs have also been carried out to foundation ring corners. Since the grate had been removed to facilitate firebox repairs, the side and middle carrier bars have been renewed as the old ones were becoming tired and repairs have also been made to the self-cleaning plates and screens in the smokebox. Once the hydraulic test has been completed, the refurbished grate can be replaced and the firebox cladding refitted to enable the pipe work to be replaced.

Top right: To facilitate the stay repairs the cab had to be removed, greatly expedited by David Elliott's and Rob Morland's 'quick release' fittings.



The process of stripping *Tornado*'s motion commences at Leeming Bar.



Above: All of the steam, air pressure and vacuum gauges have been removed from the engine and the coach, and they have been sent away for their annual service and calibration.



Centre right: During the last A-Exam, the drivers brake valve was reported to be showing slight fluctuations in pressure. It has now been replaced with the spare, and we have sent the old one to Railway Brake Service for overhaul. This picture shows the new valve in position.



Above: With the help of Terry Graham and James Heginbottom, the boiler was washed out and prepared work for the boiler annual C-Exam.



Above left: Both safety valves were removed for their annual service.



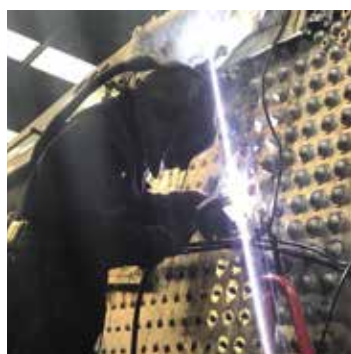
Above centre: Following removal of the cab, the fire grate was removed - this was to allow access to the broken stays. David Wright and Huw Parker take a minute before removing the last of the very heavy rocking bars!



Right: The main central fire grate carrier will be replaced. The picture shows the old and new central carriers; the bend in the old carrier - which is the reason for replacement - can be clearly seen.



The stay heads are removed on the inner and the outer firebox using oxygen acetylene and a grinder, before they are knocked out using a very large hammer and punch.



The work of welding in the new stays has been completed.

AI SLT Staff and volunteers have conducted a piston and valve exam and replaced piston rings on all three cylinders, which have now been reassembled and covers replaced. Key motion components have been inspected and tested to identify any issues and these have passed successfully and are being refitted to the locomotive with new felts and trimmings where necessary, critical areas of the coupling and connecting rods have been subjected to Magnetic Particle Inspection (MPI) crack detection and all coupling and connecting rod bushes have been checked with renewal of white metalling where necessary



David Elliott is seen measuring up the outside motion. The measurements proved the motion is generally still in good condition and within acceptable limits. New little end bushes and a new RH gradient pin bush are all that are required on the outside motion.



Oceaneering International Services Ltd carried out MPI crack detection work on the engines coupling and connecting rods.



All three piston valves were withdrawn, had their rings removed, were then thoroughly cleaned and measured, and refitted to the locomotive.

Both injectors have been cleaned and inspected and worn removable tips replaced where appropriate. The exhaust injector is ready to be refitted to the locomotive. All the gauges have been sent away for their annual re-calibration and the copper pipework which was removed to allow the boiler repairs to be carried out was all annealed. On the Support Coach, the annual gas certification has been renewed and passed as safe and the brake components removed in early January have been refurbished and



The injector was dismantled into its three main component parts, and a start was made with cleaning and servicing.

are expected back for re-fitting later.

By the time *Tornado* re-enters traffic work that will have been completed during this cycle of winter maintenance will have included refitting and connecting the injectors, refitting the coupling and connecting rods, replacing the boiler cladding and cab and the examination of the locomotive in steam by our boiler inspector and the inspection party which will issue the new engineering acceptance certificate. **TCC**

VOLUNTEERING WITH No. 60163 AND No. 2007 by James Heginbottom

James Heginbottom, one of our youngest and newest volunteers, has benefitted enormously from volunteering at DLW and more recently on-site with No. 60163 at Leeming Bar. Here in his own words is his tale.

I first volunteered with the AI Trust in November 2018 during my gap year between A levels and University. Initially, I was working on 'Tin Tornado', a model of *Tornado* that is on Feethams roundabout in Darlington, with Terry Graham, another volunteer. Working on 'Tin Tornado' was a great introduction to being in a workshop and working alongside adults, which for an immature, fresh from Sixth Form teenager, was an invaluable experience.

Following on from our graft on 'Tin Tornado', we were asked to help with the full-size No. 60163 *Tornado* when extra hands were needed for boiler washouts and maintenance throughout the touring period. I have been to places such as Barrow Hill, Bo'ness and Kinneil Railway and the Wensleydale Railway. Particularly on the bigger maintenance jobs, I have had the opportunity to work with professional engineering companies such as Locomotive Maintenance Services.

Alongside helping to maintain *Tornado*, I have been involved with the construction of No. 2007 *Prince of Wales* on workshop jobs which were highly varied. They ranged from helping manufacture parts such as the exhaust steam pipe or seals for the superheater header, repainting the mess room or being a forklift truck mechanic. I have also enjoyed guiding



James works on the Trust's forklift truck.

visitors at a recent Darlington Locomotive Works (DLW) Open Day.

Through this array of different volunteering activities I have developed a large variety of skills that I wouldn't have if I had gone straight to university. As well as a set of practical skills, The AI Steam Locomotive Trust has given me a huge boost in my soft skills such as communication, time management and working with other people. The best thing that I have gained from the time I have spent at the DLW and with *Tornado*, has been the increase in confidence and maturity. This combination of practical and



An example of James' work.



The 'Tin Tornado' referred to in James' article.

soft skills development has been really beneficial for me now that I'm studying Mechanical Engineering at Sheffield University.

I have really enjoyed volunteering with the Trust and returned this January to help with *Tornado*'s winter maintenance at Leeming Bar. **TCC**

TORNADO ON TOUR *by Huw Parker*

‘THE MARCHES & SEVERN EXPRESS’ - 23rd November 2019



Neil Berry

A rarely photographed location, Dinmore Tunnel, south of Leominster. *Tornado* rushes towards one of the gradient-separated bores with the return run.

‘The Marches and Severn Express’ was a Pathfinder Railtour originating at Eastleigh with passenger stops through Hampshire, Berkshire and Wiltshire before the steam leg behind *Tornado* commenced at Gloucester. Earlier in the morning, *Tornado* had travelled down from Kidderminster and taken water before attaching to the train. From Gloucester, the train headed down the Severn Estuary to Newport before then heading through The Marches to call at Ludlow and Shrewsbury. Despite a late departure from Gloucester, some lively running had made up time by the water stop at Pontrilas and made for an early arrival at both Ludlow and Shrewsbury. Problems with the train heating generator required a diesel at the rear of the train as far as Hereford, which delayed the Shrewsbury departure and lost further time removing it at Hereford before *Tornado* headed away towards the return water stop at Magor. Sadly, despite completing this in good time and getting away early, the train



Chris Walters

The returning ‘Marches & Severn Express’ is seen at Hereford.

was held to time for the run back to Gloucester, where *Tornado* was replaced with a DB Cargo diesel and locomotive and coach ran back to stable at Bridgnorth.

'THE CHRISTMAS BATH & BRISTOL EXPRESS' – 7th December 2019

Tornado started 'The Christmas Bath & Bristol Express' from Bridgnorth after previous weekend's running service trains over the Severn Valley Railway. After a successful fitness to run exam at Bridgnorth, *Tornado* and her support coach ran down the line to overnight at Kidderminster ready for an early light engine move departing at 05:20am to join the train at Bescot. The stock had travelled from Eastleigh in the early hours, and after taking charge and completing the necessary brake tests, *Tornado* took the train down to Wolverhampton as the starting point for the trip. A right time departure and some good time keeping from Driver Graham Ward saw us make good progress, running early beyond Banbury, through Oxford and on to the Hinksey South water stop. Fireman Stevie Hanczar made the job seem easy, mentoring a trainee fireman as far as Bristol. On arrival at Bristol Temple Meads, a quick shunt and turning move for the locomotive placed the Support Coach onto the London end of the stock before heading to Bristol East Yard for coal and water.

The locomotive and train were serviced and ready in good time for *Tornado* to draw the whole formation back into Temple Meads and despite a

delayed departure, we were soon on our way back to Bath to pick up the majority of passengers who had been sampling the delights of the Christmas market. Following a crew change at Bristol, Driver Wayne Thompson got stuck into clawing back lost time, ably supported by Traction Inspector Tom Rees and Fireman Steve Rodenhurst. Passing Swindon, most of this had been made up and we settled into a steady run through Didcot, arriving into Reading three minutes early. At Reading, *Tornado* and support coach were swiftly detached from the train and quickly continued their journey on to stable overnight at Southall, whilst a Class 66 was attached to the country end of the train ready for the return leg back to Wolverhampton.

Arriving at West Coast Railway's Southall Depot, the Support Crew quickly attended to the locomotive and began preparations for the following day's run. In addition to thoroughly cleaning the fire and a careful inspection of the locomotive, one of the two air pumps required a minor repair to restore it to full working order. Only once all was complete and the locomotive had been passed fit for the next day could the Support Crew sign off and settle down for the night ahead of the trip to Lincoln.



Derek Carruthers

During a long day, *Tornado* passes Shrewley with the express to Bath and Bristol.

TORNADO ON TOUR *by Huw Parker*

‘LINCOLN CHRISTMAS MARKET SPECIAL’ – 8th December 2019



Tornado crosses Digswell Viaduct with the return run.

Sunday 8th December saw *Tornado* back in charge of her first Steam Dreams Charter for quite some time. Departing from Ealing Broadway, and after a pick-up at West Hampstead, the train ran North through Gospel Oak and Camden to join the East Coast Mainline at Copenhagen Junction. Despite the challenges of gradients and curvature around North London, we were running ahead of schedule most of the way. Some well-managed pick up points by stewards and station staff and a smart water stop at Huntingdon meant good time was made up to Peterborough. From here, generous pathing meant that even a period of slow running due to a level crossing failure could not delay our arrival into Lincoln early. At Lincoln, no turning move was required and *Tornado* reversed the whole formation into Northern Terrace Sidings for servicing.

The return leg took us back to the East Coast Mainline at Newark with a good run down to the water stop at Peterborough. Some slow line running lost us time against the schedule, but we still managed to arrive early at King's Cross to deposit the remainder of our contented passengers to make their way home. As the last passengers departed, the train returned to Southall behind a West Coast 47 and another couple of days prep and maintenance for *Tornado* ahead of her trip to Cardiff.



Simon Kerry

Under blue skies the train passes Donington.



Thomas Shrimpton

Tornado shares the buffer stops at King's Cross with an East Coast 'Azuma'.

'THE BATH & CARDIFF CHRISTMAS MARKETS SPECIAL' – 10th December 2019

Failure of a couple of other mainline locomotives and operational issues saw *Tornado* supporting other tour operators in the very busy period leading up to Christmas. On 10th December our locomotive was in charge of the Railway Touring Company's Bath and Cardiff Christmas Markets train. A relatively uneventful outward leg via the 'Berks & Hants' route quickly changed approaching Bristol as the Severn Tunnel was blocked by a failed train. *Tornado* and her train made an unplanned stop at Temple Meads whilst the situation in the tunnel was resolved and just in case the train had to terminate here. Fortunately for all concerned, the offending train was removed and the train ran in reverse formation to Cardiff. Despite the resulting delays, arrival into Cardiff was just an hour late and the reversal at Temple Meads saved time at Cardiff which meant that the return leg left on time as planned.



On a grey December day *Tornado* lifts her heavy train past Hungerford.

Tony Bartlett

'THE CHRISTMAS WHITE ROSE' 14th December 2019



Thomas Shrimpton



Thomas Shrimpton



Michael Barnes

Above: The train pauses at Peterborough on the return run.

Above left: Busy times at York! No. 7029 *Clun Castle* meets *Tornado*.

Left: Looking a little work stained, *Tornado* stands outside the National Railway Museum.

TORNADO ON TOUR *by Huw Parker*

‘THE CHESTER CHRISTMAS SPECIAL’ – 19th December 2019

On Thursday 19th December, Tornado stood in as a substitute for the Railway Touring Company’s Christmas special to Chester.



Paul Davies



Mick Rogers

In cold dawn light, Tornado passes Melton Mowbray.

The outward-bound train passes Alraham.

‘THE EDINBURGH CHRISTMAS MARKET EXPRESS’ – 21st December 2019

Right: Redhouse Castle.

Below: ‘The Edinburgh Christmas Market Express’ passes Burnmouth.



Stuart Black



Peter Backhouse

I ♥ 60163 APPEAL REACHES ITS TARGET *by Mark Allatt*

STOP PRESS!

In response to the many offers of help we received during *Tornado's* annus horribilis, we 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. We are delighted to announce that thanks to our supporters' on-going generosity this appeal has reached its target and is now closed.

With all eyes now on *Tornado's* next major overhaul and the

delivery of the first of our two new diagram 118a boilers in September 2020 we are currently working on a new fundraising appeal to support these activities – please watch out for more details.

In the meantime, for more information on how you can support *Tornado*, please visit www.alsteam.com, email enquiries@alsteam.com or call **01325 460163**. **TCC**

KEEPING TORNADO ON THE TRACKS *by Mark Allatt*

Keeping No. 60163 *Tornado* in tip-top working order is an expensive business as we are constantly being reminded! 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. Hopefully the positive profile generated by our excellent

2019/20 railtours programme will continue to help to grow this number. I would therefore urge all our existing AI Covenantors to help us to recruit new supporters and for P2 Covenantors (around two-thirds of whom are not also AI covenantors) to come on-board if they are able to. And perhaps each of our existing Covenantors could pledge to recruit a friend or colleague? **TCC**

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

TORNADO TOUR DIARY - 2020

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

- **Friday 6th – Sunday 8th March** – *Tornado* running at Wensleydale Railway
- **Friday 13th – Sunday 15th March** – *Tornado* running at Wensleydale Railway
- **Saturday 21st March** – York to Edinburgh and return with pickups at Durham and Newcastle – bookings through The Railway Touring Company
- **Saturday 4th April** – 'The Fen and Fells Flyer' – Cambridge to Carlisle – bookings through *Tornado* Railtours
- **Saturday 18th April** – 'The Great Britain 2020' – London to York – Railway Touring Company
- **Saturday 2nd May** – 'The Cumbrian Explorer' – Darlington to Carlisle – bookings through *Tornado* Railtours
- **Saturday 9th May** – 'The Jorvik Express' – Liverpool to York – bookings through *Tornado* Railtours
- **Friday 22nd – Monday 25th May** – *Tornado* running at the Nene Valley Railway
- **Saturday 30th May** – 'The Buxton Spa Express' – Ealing Broadway to Buxton and return – bookings through The Railway Touring Company
- **Saturday 6th June** – 'The Pennine Explorer' – Leicester to Carlisle and return – bookings through *Tornado* Railtours
- **Saturday 27th June** – 'The Cheshireman' – London Euston to Chester and return – bookings through The Railway Touring Company
- **Saturday 18th July** – 'The Caledonian' – Birmingham to Glasgow and return – bookings through *Tornado* Railtours
- **Thursday 23rd July** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Thursday 30th July** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Sunday 9th August (AM)** – 'The Forth Circle' – Linlithgow and return via Forth Bridge, Fife, Clackmannan & Stirling – S.R.P.S. Railtours
- **Sunday 9th August (PM)** – 'The Forth Circle' – Dalmeny and return via Forth Bridge, Fife, Clackmannan & Stirling – S.R.P.S. Railtours
- **Thursday 13th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Sunday 16th August** – 'SRPS Special' – Linlithgow to Aviemore and Inverness and return – S.R.P.S. Railtours
- **Thursday 20th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Sunday 23rd August (AM & PM)** – 'The Fife Circle' – Edinburgh and Fife Circle route – S.R.P.S. Railtours
- **Thursday 3rd September** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Thursday 10th September** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through *Tornado* Railtours
- **Saturday 12th September** – 'The Queen of Scots' – York to Edinburgh and Stirling and return – bookings through *Tornado* Railtours
- **Saturday 19th September** – 'The Ticket to Ride' – Darlington to Liverpool and return – bookings through *Tornado* Railtours
- **Saturday 3rd October** – 'The Easterling' – London King's Cross to Lowestoft – bookings through The Railway Touring Company

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

Tornado Railtours
01325 488215
alsteam.com/railtours

Wensleydale Railway
01677 425805
wensleydale-railway.co.uk

The Railway Touring Company
01553 661 500
railwaytouring.net

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

RAILTOURS by Sophie Bunker-James

Step on board with *Tornado* in 2020.

We have some superb journeys promised this year, with no less than three fabulous days over the Settle and Carlisle Railway. A firm favourite with passengers, come along to experience *Tornado* hard at work through the rolling Yorkshire Dales landscape. Famed for its soaring viaducts and many long tunnels, this magnificent railway is a must for all rail enthusiasts. Join us on 'The Fen and Fells Flyer' and 'The Pennine Explorer' from East Anglia and the East Midlands. For a very special day out take 'The Cumbrian Explorer' which takes on the S&C before returning to the North East via the spectacularly scenic Cumbrian Coastline.

We are delighted to bring you *Tornado*'s first ever tour from Liverpool, 'The Jorvik Express'. Step aboard at Lime Street to travel along much of Stephenson's Liverpool and Manchester Railway, pausing for passengers at the newly refurbished station of Newton-le-Willows and again at Manchester Victoria, before steaming across the Peak District to the historic city of York. 'The Jorvik Express' includes a number of route sections that are a first for *Tornado*; not only our first ever departure from Liverpool as far as Newton-le-Willows, but it is also the first time the locomotive has worked a passenger train over the beautiful Calder Valley route through Rochdale and on to

Manchester Victoria as we do on the return.

Following a very well received first season last year, we are returning to Scotland for a programme of six trains from Edinburgh along the beautiful Fife Coast. 'The Aberdonian' is the perfect way to see much of the stunning Scottish countryside and coastline and take the time to explore historic Aberdeen from the capital. Ideal for tying into a short break, perhaps visiting the Fringe Festival or Military Tattoo.

We have two further trains that will see *Tornado* north of the border. 'The Caledonian' starts in the West Midlands this July, taking the west coast route to the vibrant city of Glasgow. Passing along the wild countryside of the Lake District and Pennines on this wonderful journey, *Tornado* will tackle the long climb to Shap Summit via the formidable Grayrigg bank, the beautiful Lune Gorge and the steep Shap Bank itself - not one to be missed! Taking on the Eastern route north and sure to be a superb day out for all is 'The Queen of Scots'. Journey to the historic royal cities of Edinburgh and Stirling in September and enjoy *Tornado* on 'home turf' for a spirited run along the East Coast Main Line.

Do join us for a very special tour at the end of September as we take passengers to Liverpool for the very first time. Not only is the scenery along the route wonderfully picturesque but the

destination is hard to beat: take time to visit the Royal Albert Dock, Cavern Club and The Museum of Liverpool near the docks or perhaps the stunning cathedrals and extensive shopping at Liverpool One in town. There has been a lot of interest in this train so make sure that you have your 'Ticket to Ride!' **TCC**



Tornado Railtour routes 2020



Alan Weaver

Enjoy spectacular scenic Cumbrian Coastline with 'The Cumbrian Explorer'.

Featuring new
100mph steam locomotive
No. 60163 Tornado
Star of Top Gear and Paddington 2

THE ABERDONIAN

NEW DATES FOR 2020

- Thursday 23rd July
- Thursday 30th July
- Thursday 13th August
- Thursday 20th August
- Thursday 3rd September
- Thursday 10th September

Departing Edinburgh Waverley station
at around 09:30hrs for Aberdeen,
returning at around 20:30hrs

Bookings taken via telephone
or online on 01325 488215
or alsteam.com/aberdonian

AI PROFILE - No. 60127 WILSON WORSDELL *by Phil Champion*

Peter Townsend



An unnamed No. 60127 at Doncaster weigh-house in new blue livery in May 1949.

Notable for being the first AI to appear brand new in the BR express passenger blue livery with black and white lining plus the early lion and wheel emblem on the tender, No. 60127 entered service from Heaton shed on 13th May 1949. Built as works No. 2044, it was the 14th Doncaster AI and the 32nd AI to be built. Only a dozen others appeared in blue from new.

Four class members were to enter service that month but No. 60127 quickly achieved prominence by being exhibited at Peterborough for arts week from the 21st to the 27th. Back at Heaton it was third of a quartet of AIs allocated there, joining Nos. 60116 and 60126 delivered a month earlier and followed by No. 60150 in June. This shed's AIs normally hauled trains to York, Leeds and Edinburgh but No. 60127 could also be found further south on main line. The first logging was Newcastle-King's Cross train hauled into York on 22nd August 1949. It was noted on Doncaster shed on October 10th while on 16th January 1950 it had certainly reached King's Cross, derailing in the station while waiting to depart with the 17:35hrs train. Other visits that year, like arriving at 13:35hrs on 9th March 1951 and leaving with the 17:35hrs, passed without mishap. Services worked round the Durham coast were typified by the 11:15hrs departure from Stockton on 5th October 1949 with 11 coach Newcastle-Liverpool train and the Bristol-Newcastle working of ten LMR coaches which arrived at Stockton on 18th May 1950. Naming after an eminent North Eastern Railway C.M.E is recorded as in September. However, a double naming ceremony took place at Newcastle central on 30th October with No. 60142. Already 20 AIs had been

named. Around this time the Flaman speed recorder was removed. While visits were made back to Doncaster works for various classes of repair, *Wilson Worsdell* made the much shorter trip from Heaton across the River Tyne to Gateshead works on 13th November 1952 for non-classified repairs.

Repainting in BR green took place in March 1952, one of trio done that month and about half-way through the programme for the class with 23 already dealt with. Workings continued along the main line with sightings from Newcastle to King's Cross. *Wilson Worsdell's* first recorded goods train was the 15:40hrs Hull-London fish train hauled into the capital on 11th January 1954. On July it bought a Leeds-King's Cross passenger into the terminus. Workings into Scotland were first arriving at its destination at 10.48am. On 27th June No. 60127 hauled the 16:18hrs north from Newcastle to the Scottish capital. Around this period the smokebox numberplate and handrail were transposed as part of an effort to eliminate difficulties fitting train headboards to the AIs. An unusual working was double heading the 13:03hrs Newcastle-Birmingham on 3rd June 1956 with Peppercorn A2 No. 60539 *Bronzino*. Typical runs through were like 26th July as the AI followed the

normal practise of hauling part of a longer distance working; *Wilson Worsdell* took the 10:08hrs Newcastle-Swansea as far as new York where B1 No. 61096 took over and came back on the 10:30hrs ex-Liverpool (bought in by 'Black 5' No. 45216) leaving York at 13:49hrs.

The first logging of No. 60127 on a named train was the down 'Queen Scots' from Newcastle on 24th April 1957. Several times over the next few years it was rostered for this train. On 20th August 1960 No. 60127 hauled the up train into Newcastle and left with the down working. Also noted were couple of 'Talisman' expresses into Newcastle. Back in 1958 a couple of changes to the engine's appearance took place. The late BR crest was applied to the tender, No. 60127 being among the last AIs so treated. In July the Thompson diagram 117 boiler off A2 was put on No. 60127. The round dome on this was concealed by a dummy banjo dome but it could be recognised as the dome was further forward, being centered on the second cleading band. Sixteen AIs had these boilers at various times, *Wilson Worsdell* carrying this until October 1959 when it received a normal boiler off No. 60141. In November 1961 it received another Thompson boiler from A2 No. 60537 which it carried until withdrawal. Other notable workings

included hauling a diverted up express along the Leamside line in Co. Durham on 14th May 1959 and the 07:00hrs Newcastle–Edinburgh on 20th August. During 1960 and 1961 the locomotive was noted being serviced a number of times on Gateshead shed.

Along with No. 60116 *Hal o' the Wynd*, No. 60127 had been shedded at Heaton since new. In September 1962 they, along with ten others, were reallocated to Tweedmouth to haul goods and regular passenger trains. This marked a shift northwards in *Wilson Worsdell's* regular travels; instead of Edinburgh to King's Cross it was Newcastle to Aberdeen. On the 22nd it brought the up 'Anglo–Scottish Car Carrier' into Newcastle. A common working for Tweedmouth AIs was the 07:28hrs Berwick–Newcastle stopping train; No. 60127 was first seen on this on 28th September and took its turn on this over the next two years. It was diagrammed for all stations to/ from Edinburgh trains and covered for diesel failures. Evidence of working through to Aberdeen includes pulling the Aberdeen–Carlisle goods from the granite city on 5th November 1962, the 14:00hrs Up fish from Aberdeen as far as Perth on 11th February 1963 returning with the 17:05hrs ex-Glasgow to Aberdeen.

Other non-passenger work included the 3G38 Berwick–Newcastle parcels on 22nd March and 26th April. In contrast to the more secondary nature of *Wilson Worsdell's* recent work it hauled the prestigious 'Queen of Scots' Pullman from Edinburgh to Newcastle on 24th May.

The final logs for No. 60127 were quite a mixture. On 28th July 1964 it hauled an Up extra for the 'Flying Scotsman' into Newcastle after which it was serviced on Gateshead shed then took a Down passenger from 'Central'. It was seen on a breakdown train there on 5th September. On 18th October *Wilson Worsdell* was transferred to Gateshead shed. Sightings locate it on shed, in the yard and at the ash tip. Shed staff told visitors that No. 60127 was steamed, minus nameplates, solely for the purpose of cleaning the bogies of diesels such as English Electric and Brush Type 4s. Throughout its life it had carried eight boilers, now it was being used precisely for that, a stationary boiler. Withdrawal from service came on 14th June 1965, one of eight AIs withdrawn that day. It lay at the shed's ash tip until at least 12th July when it was sold to Hughes Bolckow of Blythe for scrapping. Having worked for 16 years it had survived slightly longer than the average for the class.



Shorn of nameplates, No. 60127 ekes out its life at Gateshead.



No. 60127 is seen at Newcastle on 28th May 1964.

This history was compiled by Phil Champion based on a database compiled by Tommy Knox and with reference to the RCTS book "Locomotives of the LNER Part 2A" as background. TCC



On 1st August 1959 *Wilson Worsdell* is seen at York.

Bill Reed

Michael Denholm

Geoff Parrish



With the Tweed looking like a mirror, the train crosses the Royal Border Viaduct on 21st December.



P2 ENGINEERING UPDATE *by David Elliott*

Significant progress has been made with boiler, tender and final fitting items to the frames.

Frames

Both motion brackets and the forward boiler support are now permanently bolted on bar three bolts on each side which require the outside brackets to be countersunk in-situ. Daniela is dreaming up a special tool for this. Bolts and cold turned rivets to complete fitment of the spring hangers are on order.

Pony truck

North View Engineering are making progress with the pony truck with the profiles delivered and pre-machining of the crosshead centre block and its cast iron liner.

Wheelsets

We have now received the pony truck cannon box from Timsons which, pending receipt of the last of the certification paperwork, completes the protracted order with them. The cannonbox appears to be accurate and the machining of good quality. This enables us to complete adjustment of the cannonbox roller bearings (which had been postponed until we had all three cannonboxes so that approval of the assembly could be achieved with a single visit from the Timken technician).



The combined spring hangers are trial fitted.



The left-hand slide bar bracket in position.



Above: The pony truck profiles.



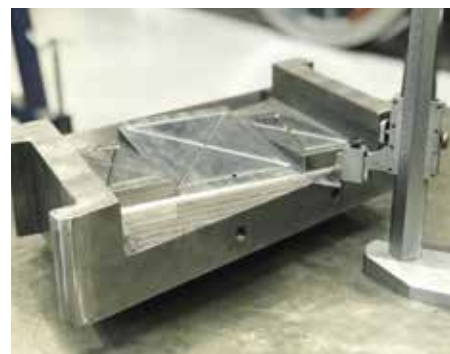
Right: The pony truck crosshead centre block and liner.



The pony truck cannonbox.

Spring gear

We have received the two Cartazzi springs from Owen Springs of Rotherham. They also delivered the eight tender springs, however on inspection it was noted that the 'nib and slot' feature ordered which maintain the spring leaves in line were missing. The springs have been sent back for correction. We requested this feature which was already incorporated in *Tornado's* engine springs, as the leaves on *Tornado's* tender springs tend to splay out.



Cartazzi planks on a drawing table.



The Cartazzi planks and slides in position with the cannonbox in place.

Boiler

The updated design for the new boilers is now complete, prompting a visit to Meiningen by Graeme Bunker-James, Daniela Filová and myself to review the design. The design will now be forwarded to Meiningen's Notified Body TÜV for approval after which copies will be supplied to us to send to Network Rail, ORR, Ricardo and our insurance company for information and comment. As under EU law TÜV's approval has to be accepted throughout the EU, objections from the above bodies are unlikely. Even with Brexit, it is unlikely that these technical standards will change in the near future. Further components have arrived at Meiningen in the form of two firebox tube plates and firehole door plates. Both sets of superheater elements are well into manufacture.

Right: David Elliott, Achim Decker and Udo Drees at the design review in Meiningen.



Photos: Daniela Filová



Superheater element assembly.



Superheater return bends.



Superheater ball ends.



Firebox tube plates.

Smokebox

Progress is being made on the fabrication and assembly of the Kylchap cowl.

Motion

The leading coupling rods have been forged whilst the intermediate and trailing rods have been heat treated and are about to commence machining.

Brake rigging

Ian Howitt has sent the brake cross shafts out to have the levers welded on.

Cylinder drain cock gear

We now have a full set of profiles and other raw materials for the cylinder drain cock operating mechanism along with detailed manufacturing and installation drawings from Alan Parkin.

Pipework

Alan has made further progress with the design of the pipework layout having routed the exhaust steam injector sensing pipe from the cylinder block back to under the cab. He has also completed the routing of air pump and turbogen steam supplies along the top of the boiler from the steam stand. The steam heat and sander air pipes have also been routed through the frames.

Tender

The tender tank is nearing completion at North View Engineering Solutions and exhibits much flatter external panels than those on *Tornado's* tender when it had reached this stage. We are now expecting delivery around the end of January. Ian Howitt has made further progress in making small parts for the tender frames and Ian Matthews has completed filling and priming/undercoating the tender wheels. **TCC**



The Kylchap cowl takes shape.



Forged coupling and connecting rods.



The process of bending and applying the tender beading.





Above: The tender filler/manhole cover.



Right / Below: The tender tank approaches completion.



P2 DEDICATED DONATIONS UPDATE *by Mandy Grant*

The period from mid-November 2019 to February 2020 has seen a steady increase in component sponsorship, with 20 individual components being sponsored, raising a further £5595.00 before gift aid. This brings the total number of components now sponsored to 600! We are most grateful to all of our supporters who have responded to the Dedicated Donations campaign so far!

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

We have recently released another batch of brand new components which are available to sponsor now!

Components sponsored during this period include:

- 14 Nut & Bolt Sets
- 12" Air Brake Cylinder Tender LH
- Crosshead middle casting
- Speedometer generator socket
- Brake Lever Pin 9
- Cambox casting RH
- Cambox machining RH

These include the 4 distinctive locomotive headlamps. Please email Mandy at dedicated.donations@p2steam.com for more information.

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

P2 ELECTRICAL ENGINEERING *by Rob Morland*

Electrical work is proceeding well, and in accordance with the project plan. Following a conference with Mandy Sharpe and Steven Greeno on 20th December, where Alan Parkin talked through the cab design aspects relevant to the safety systems (AVS/TPWS and OTMR), we were pleased that Mandy and Steven were happy with the design, which keeps the main equipment in very much the same positions as it is on the A1. The under-seat layouts on both sides are now signed off.

The system architecture for power generation is now complete, including an automatic method for directing outputs from the two turbogens to the most appropriate loads, irrespective of whether one, the other or both are operating. Following agreement on the safety systems in December, work is now proceeding on the overall electrical system architecture. This will be complete by the end of January.

The Trust has been attending Network Rail meetings in connection with the East Coast Digital Programme. This is looking to install 'signals away' ETCS on the ECML, beginning with the southern sections and requires a solution to be found for a small number of steam locomotives that have a strong case for operating on this stretch of railway. This will effectively be a pilot for a more extensive fleet installation in the future, as required by operating routes.

Darlington Works South (*Rob's home! Ed.*) has been busy in January with the start of construction of the new uprated Shore Power Supply for the P2. This will include a third output for the ETCS system and has a significantly increased capacity of up to 73A. It will also operate off a wide variety of mains voltages, from 85-305V AC, outputting a constant 28V DC. This should significantly improve our ability to extract useful power from some of the more wayward supplies we see on depots around the country, whilst also reducing the risk of damage to our systems. Once complete, the new supply will be tested first on the A1.

New P2 Shore Power Supply under

construction - The higher output from this supply will exceed the capacity of our present small load bank, which was designed to cope with the output of a turbogen, around 28A. Given the imminent need to test the new Axle Driven Alternator, which could deliver up to 200A, it was decided to build a new Load Bank with up to 200A capacity to meet both needs. This is also under construction. It uses eight 1KW power resistors arranged on a custom frame with switching and meters to monitor the load. Given that it may be called upon to dissipate up to 5.6KW it is fitted with a set of fans, one for each power resistor.

200A Load Bank under construction - With the overall system architecture now defined, the next step in the electrical design work will be the detailed design of subsystems, beginning with the I/O Panels. These take in power from all available sources and distribute it to loads around the engine. On the physical side, Alan Parkin will soon be commencing work on the conduit layout for the tender.

We now have all the parts for the axle driven alternator so once resource is available, the prototype will be assembled and tested using the new load bank featured above to test this and the new shore power units for No. 2007 and *Tornado*.



Daniel Flox

Axle driven alternator pulleys.



Rob Morland

New P2 Shore Power Supply under construction.



Rob Morland

200A Load Bank under construction.

Accommodation bogies - The accommodation bogies have had their overhaul and painting completed and are now able to be left outside without deterioration.

Workshop - Daniela has continued to re-organise the workshop to good effect taking the opportunity to paint the floor as equipment was moved around. The new milling machine has been set up and is operating well. Our apprentice Ed Laxton is producing some nice work having completed three sets of cable plugs for the speedo generators along with detail components as necessary. **TCC**

Right: The refurbished accommodation bogies.



David Elliott

THE TENDER CLUB STEADILY FILLING UP *by Mark Allatt*

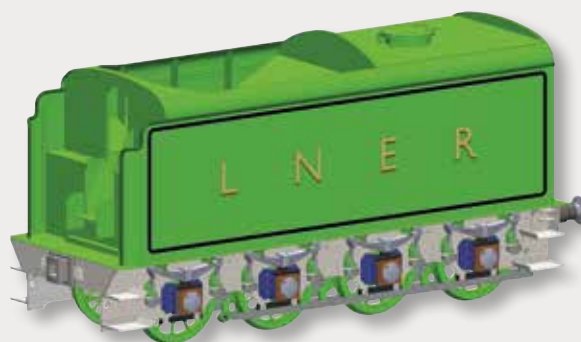
On 8th April 2019, the project to build Britain's most powerful express passenger steam locomotive announced a new £450,000 appeal to fund the manufacture of the tender for new Gresley class P2 No. 2007 *Prince of Wales*. The A1 Steam Locomotive Trust has set itself the challenge of raising £450,000 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. At the same time, 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.

At the Trust's annual convention in October, we were delighted to be able to announce that substantial progress has been made on the tender with the erection of the tender frames by ID Howitt of Crofton (now around two-thirds complete and expected to be delivered to Darlington in the next few months), the construction of the tender tank by North View Engineering Solutions Ltd of Darlington (now almost complete and expected to be delivered to DLW shortly) and the assembly of the four tender wheelsets at South Devon Railway Engineering Ltd in Buckfastleigh (now complete and in DLW where they have been filled and painted and await balancing).

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

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

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



David Elliott

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 a safety margin). The tender for *Tornado* was re-designed to increase the water capacity to 6,250 gallons which increases the range to about 110 miles. The additional water capacity is at the expense of a reduction in coal capacity from 9 tons to 7½ tons.

The tender tank is a fully welded structure made from weathering steel (as used on motorway bridges and the Angel of the North) to provide improved resistance to corrosion. The main visible differences with the new tender when compared to that of *Tornado* is the curving inwards of the side sheets at the front to match the shape of the cab sides, and the extensive use of half round beading along the front and top of the sides and the top of the back of the tank.

We now need the fundraising for the tender to keep pace with its construction if we are to remain on-track for completion of No. 2007 within the next three years. By the end of January, The Tender Club had recruited 60 members of its 250 members target meaning that over £110,000 of the required £450,000 has already been pledged – that still leaves us with a lot of work to do!

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

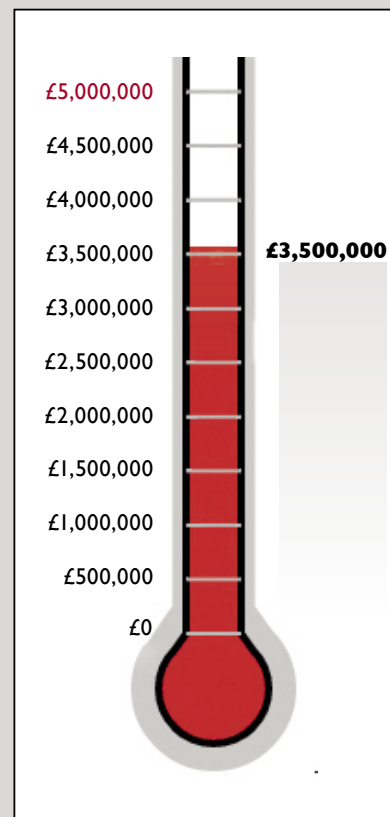
FUNDRAISING FOR No. 2007 PRINCE OF WALES PASSES 70% PLEDGED *by Mark Allatt*

Over £3.5m pledged, £2.7m donated and £2.1m 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 within three years provided we can turn up the wick on our 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 £3.5m just over five years after assembly officially started at Darlington Locomotive Works. Public interest in seeing a new Gresley class P2 become a reality sooner rather than later remains high and around 930 people have already signed up to the 'P2 for the price of a pint of beer per week' (£2.50 per week or more) Covenant scheme since its launch in March 2014. The average monthly donation is now over £15 per Covenantor (excluding Gift Aid) and the projected annual income for our P2 project from the monthly Covenant scheme now well in excess of £200,000pa – a remarkable achievement in such a short period of time and all thanks to the generosity of our supporters.

In addition to this core scheme, funds have been raised through The Founders Club with over 360 members 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; and The Cylinder Club, only launched at our Convention in October 2017, is now also fully subscribed with 100 people having already pledged £1,000 each plus Gift Aid and therefore potentially raising £125,000. The Gresley Society Trust has sponsored the locomotive's distinctive front-end for which we are most grateful. You can read elsewhere in this issue of TCC where these funds have already been put to good use.

Our order in June 2019 for two new boilers – an heir and a spare – from DB Meiningen makes it more important than

ever that we reach our 300 members target for The Boiler Club as soon as possible. We have already recruited 185 people to The Boiler Club, each of whom have pledged £2,000 each to fund the boiler meaning over 75% of the £600,000 target is now pledged. With the delivery of the boiler for No. 2007 scheduled for July 2021 we need seven new members a month – please do consider becoming a member of The Boiler Club if you are able.

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



No. 2007 stands outside Darlington Locomotive Works.



Tornado's boiler at Meiningen.

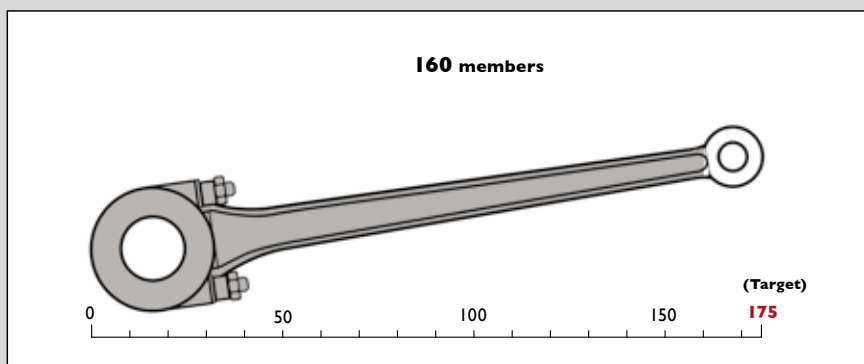
David Elliott/SLT

our supporters. As of the end of January 2020, we had recruited 160 members to The Motion Club, with around £200,000 pledged. Although somewhat delayed, through no fault of our supplier, you can read elsewhere in TCC where work now underway on the heavy motion and the first motion forging was available for inspection by supporters at this year's convention. We now have four forged coupling rods ready for machining. Let's get this Club over the line by Summer!

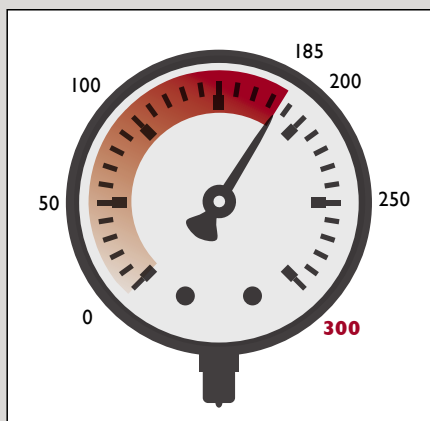
We launched The Tender Club on 8th April 2019 to raise the funds to manufacture No. 2007's tender. We set ourselves the challenge of raising £450,000 through The Tender Club from 250 supporters each donating £1,500 (plus Gift Aid) to the project in up to 15 payments of £100 by standing order. The Tender Club got off to a rather slow start but has now recruited 60 people as of the end of January which is still in stark contrast to the tender's construction! As you can read in David Elliott's engineering update, work is progressing rapidly on the tender tank, frames and wheelsets. With a fair wind we should have an almost complete tender behind the engine in DLW this year. However, to make this happen we need many more people to get on board The Tender Club.

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

We are delighted with the level of support that the project to build Britain's



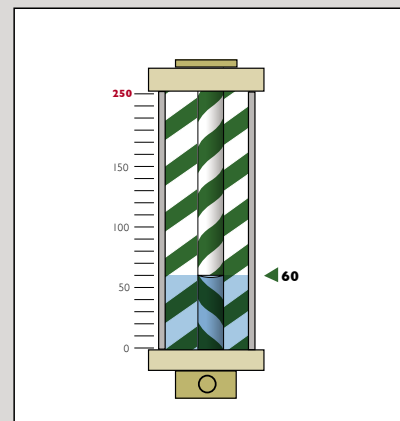
Motion Club gauge - 160 Members.



Boiler Club gauge - 185 Members.

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

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



Tender Club Gauge - 60 Members.

our momentum.

We would encourage all our supporters who haven't yet contributed to this exciting project to help us to meet these deadlines by becoming a monthly 'P2 for the price of a pint of beer a week' Covenantor, joining The Boiler Club, subscribing to The Motion Club, becoming a member of The Tender Club or taking out a Dedicated Donation. It's time to get on-board!

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

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

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

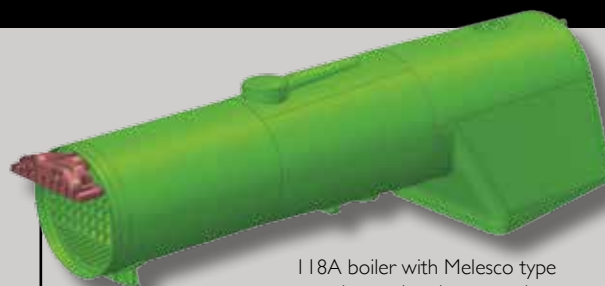


The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion in 2021, we need to place the order for the boiler in 2019 for delivery in January 2021. We have established The Boiler Club to fund the construction of *Prince of Wales*' boiler. It is our desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore our aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 40 payments of £50 by standing order) – we are over half way there, having raised £440,000 so far!

Special benefits for members of The Boiler Club:

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

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



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

No. 2007's boiler in detail

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



2007 PRINCE OF WALES

Building Britain's Most Powerful Steam Locomotive

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

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

In June 2019 the starting gun was fired with the order of two new boilers from DB Meiningen – and we now have just 18 months to raise all of the funds necessary to pay for No. 2007's boiler – that's more than one new member recruited to The Boiler Club every week for two years! By the end of January 2020, The Boiler Club fundraising campaign had recruited over 60% of its target membership with pledges of over £450,000. Launched in October 2014 to raise the £600,000 needed pay for the manufacture of the boiler, The Boiler Club now has over 185 members who have each donated or pledged £2,000 (plus Gift Aid). Following the success of The Founders Club, which was designed to get to the P2 Project to the point of cutting No. 2007's frames, the Trust established The Boiler Club to fund the construction of *Prince of Wales*' boiler. It is the Trust's desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore its aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 40 payments of £50 by standing order).

In return for this commitment, members of The Boiler Club receive these special benefits:

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

Reaching the 60% point in the funding of No. 2007 *Prince of Wales*' boiler through The Boiler Club marks a significant



Daniela Flord

Graeme Bunker-James, Udo Drees, David Elliott, Achim Decker & Christoph Wörfel looking at boiler components.

milestone in the project to build Britain's most powerful steam locomotive. The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion within three years we need to take delivery of the new boiler in 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**

•WORKSHOP NOTES•



@Mandy Grant

A newly discovered photo of No. 2006 Wolf of Badenoch at Tay Bridge.



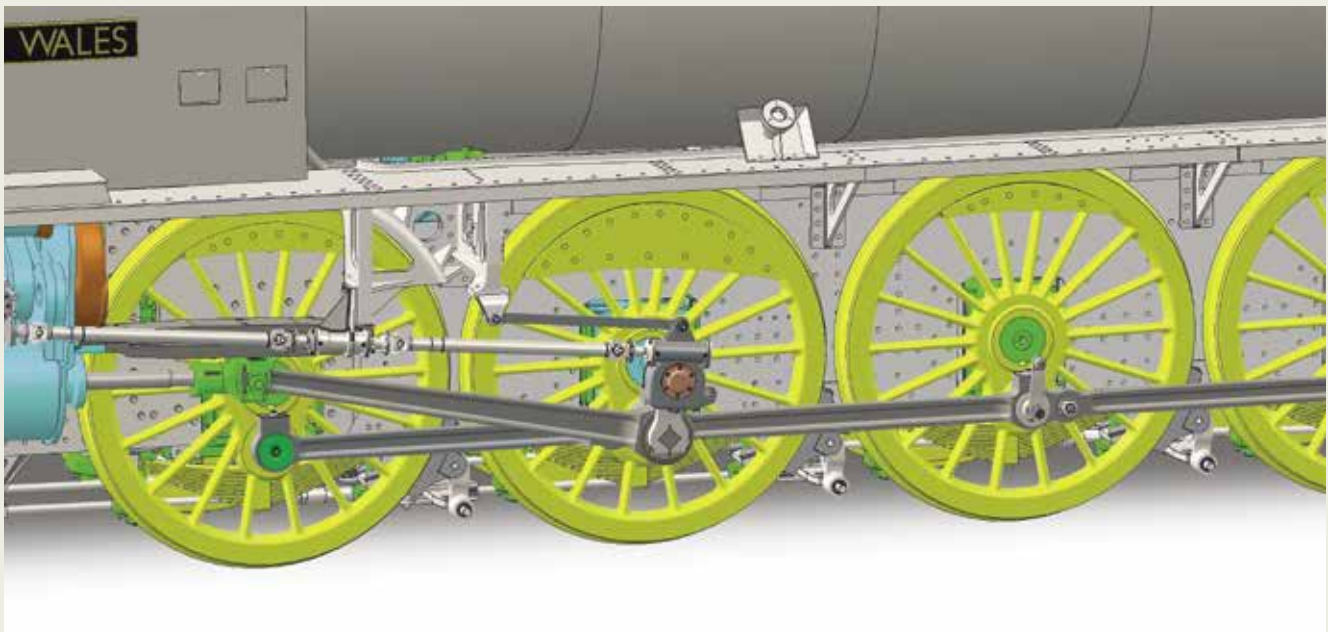
Darlington Works apprentice Edward Laxton proudly shows off his handiwork on Tornado's 'shriek' whistle, polished to perfection.



Leigh Taylor

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 January 2020 we had recruited 159 members to The Motion Club, with almost £200,000 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 for No. 2007 *Prince of Wales*. The order included the forging, machining and heat treatment of the nine heavy motion rods - intermediate coupling rod LH/RH, trailing coupling rod LH/RH, leading couple rod LH/RH, outside connecting rod LH/RH and the inside connecting rod assembly (including strap, gluts and strap nuts and washers) – and the combined piston and rod. Following a delay due to lack of resources at our supplier, the first heavy motion forgings – the two middle coupling rods – were completed in October and one was exhibited at Darlington Locomotive Works during the convention. These have been joined by two more coupling rod forgings and are all expected to be machined over the next few months with the rest of the heavy motion following over the next 12 months. Orders are to follow for the motion including rod bushes, oil box covers and miscellaneous components.

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

- Opportunity to buy ticket (seat already reserved) on one of the first trains hauled by No. 2007 *Prince of Wales*
- Reasonable access to No. 2007 at all times
- Opportunity to buy exclusive Motion Club badge

- Opportunity to join one of the teams building No. 2007
- First choice of other components to sponsor
- Special supporters' day with *Tornado*
- Special limited-edition version (signed/numbered) of Stuart Black's drawing of No. 2007 *Prince of Wales*.

The work involved in designing and manufacturing the motion includes:

- Redesign of coupling and connecting rods to use modern material (pre-war nickel chrome steel alloy proved prone to fracture)
- Incorporation of late-pattern BR-type continuous white metal lined crank pin bearing bushes
- Use of the late-A1 design of inside connecting rod which overcame the tendency for the original design of inside connecting rods on LNER 'Pacifics' to big-end failure
- Open die forging of six coupling rods, two outside connecting rods and the inside connecting rod and strap
- CNC machining of all rods
- Manufacture of oil box lids, coupling rod knuckle pins, nuts and washers and bearing bush keys
- Casting of leaded gunmetal and phosphor bronze castings of crank pin bearing bushes
- Machining and white metallising of bearing bushes
- Fitting oil box tops
- Assembly of bearing bushes to rods
- Polishing rods.

With fewer than 15 places still remaining in The Motion Club, now is the time to come on-board and help No. 2007 to locomote!

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

Covenantors' Diary *by Leigh Taylor*



The 2020 supporters' cards have been mailed out from DLW, however if your contact details, communication preferences or Gift Aid status have changed over the past 12 months please contact the office. Thank you to all of you who have returned your data sheets, and raffle ticket stubs and

payment. Your generosity in taking part in the raffle and making donations will go towards funding the maintenance of No. 60163.

We are looking forward to several special anniversaries and events this year in addition to our usual calendar. Information about them will be available through The Tornado Telegraph

and The Mikado Messenger; via email, The Communication Cord and our website and Facebook pages.

Save the dates:

Sunday 24th May 2020 – Tornado Team and Supporters' Day at Nene Valley Railway, Wansford. Your annual invitation to spend a day with *Tornado* – Please call or email the office for more details and to sign up yourself, and a guest if you wish to bring one.

26th September 2020 – The AI Steam Locomotive Trust Convention. Invitations will be sent out in July 2020. (Our convention coincides with Stockton and Darlington 195th celebrations weekend at the Head of Steam Museum) – why not make a weekend of it? We hope to see you this year! **TCC**

P2 ROADSHOWS 2020 *by Mark Allatt*

Our first P2 Roadshow of 2020 was at home in Darlington Locomotive Works on Saturday 18th January 2020 and was attended by around 50 people all eager to see *Prince of Wales* under construction and hear about our plans.

The presentations in 2020 will feature key team members including Mark Allatt and/or David Elliott and will cover the background to the project to build new Gresley class P2 No. 2007 *Prince of Wales*, progress to-date, future plans and details of how to get involved. We would encourage you to attend and bring along some friends and family members who would be interested in hearing about the project. The two-hour presentation will start promptly at 11:00hrs and run until 13:00hrs and is open to existing supporters and interested members of the public:

- **21st March** - Great Northern Hotel, Peterborough
- **18th April** - Darlington Locomotive Works
- **23rd May** - Nene Valley Railway, Wansford *Please contact the office for timings.
- **6th June** - Hallmark Hotel, Carlisle *Please contact the office for timings.
- **4th July** - Darlington Locomotive Works
- **23rd July** - Jurys Inn Aberdeen, Aberdeen *Please contact the office for timings.
- **22nd August** - Darlington Locomotive Works
- **3rd October** - Darlington Locomotive Works
- **10th October** - Great Northern Hotel, Peterborough
- **21st November** - Darlington Locomotive Works

* Please contact the office for timings as they are associated with trains hauled by *Tornado*.

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

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



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

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

V4 - by Mandy Grant

Mandy Grant has continued with her quest to find rare or unpublished images of the V4 'twins' and these are a few examples of her success.



H.C. Casserley ©Mandy Grant

No. 61701 at Glasgow Eastfield in 1949.



Real Photographs Co Ltd.

No. 3401 With 'The Coronation' at Sandy 25th August 1939.



©Mandy Grant

No. 3402 in 1945 Crainlarich in 1945.



H.C. Casserley ©Mandy Grant



H.C. Casserley ©Mandy Grant

Above: No. 61701 Eastfield in April 1952.

Left: No. 61700 on a turntable at a Scottish shed, location unknown.

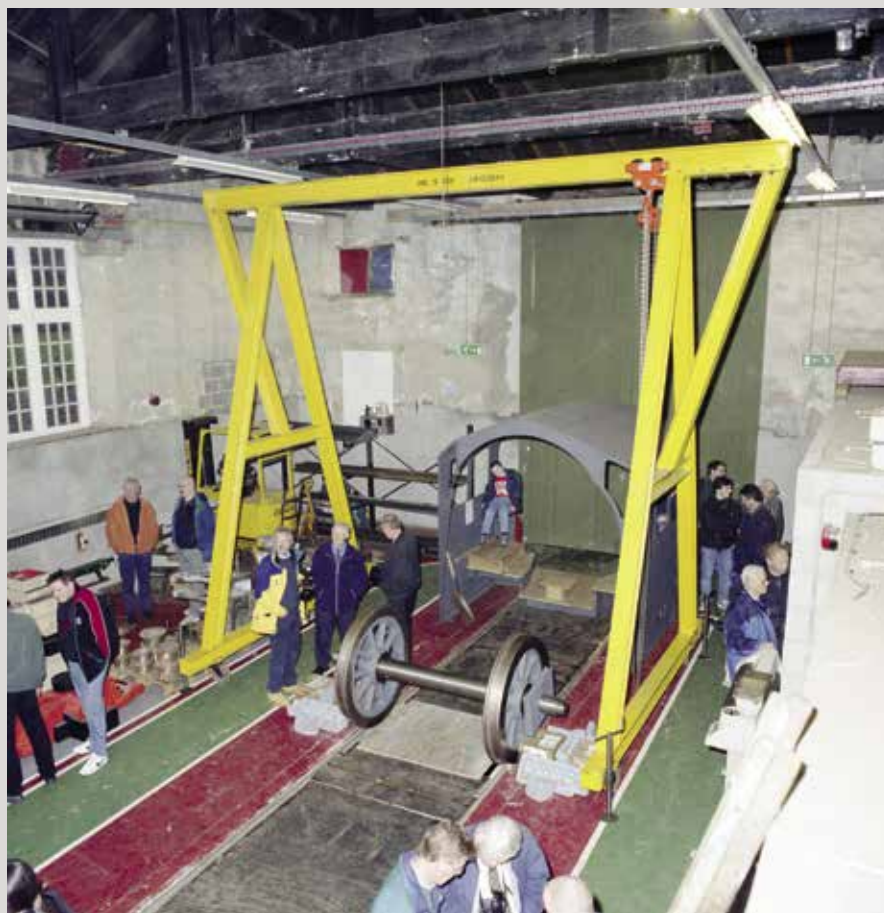
FROM THE ARCHIVES *by Graham Langer*

Winter 2000 - At the start of the year the rear coupling rods had been machined by Ufone, meanwhile the machining of further rods was underway. The crosshead machining had also started in preparation for welding on the crosshead arms, which drive the drag links that are connected to the combination levers. The development of Darlington Locomotive Works continued. Recent equipment acquisitions included a new 6m x 6m five tonne overhead crane funded by a £10,000 grant from Darlington Borough Council. In addition to enabling DLW to take delivery of the 6ft 8in driving wheelsets without complication, it was invaluable in both production tasks, such as the drilling of the bogie, and material handling.

Winter 2005 - In January 2005 the Trust was in a position to sign a contract with Meiningen. The contract was with Dampfkloswerk Meiningen (Steam Locomotive Works Meiningen), a workshop of the Deutsche Bahn (the German Federal Railway), through its subsidiary DB Fahrzeuginstandhaltung GmbH (DB Rolling Stock Maintenance Company), and followed on from an initial order for the redesign of the original LNER Diagram 118 boiler for the 21st century. The boiler was scheduled to be completed in June 2006. Ufone continued to make progress with the outside motion machining. They completed the radius links, radius link trunnions and the union links. The radius links were case hardened and sent to Bedestone Ltd in Birmingham to have the slot and hole ground.

Winter 2010 – During a very cold January, *Tornado* was safely tucked inside the workshop at the National Railway Museum for her winter maintenance, this included the addition of running board LED lights, fitted by Rob Morland. Meanwhile, back in Darlington the works was occupied with the renovation and conversion of a Mk1 BCK No. S21249 to become *Tornado's* new support coach, a job that turned out to be more complex and comprehensive than anyone imagined!

Winter 2015 – *Tornado's* winter maintenance period saw the boiler sent to Meiningen for refurbishment



The newly acquired five tonne crane at DLW in 2000.



The massive rear frame stay casting in place in No. 2007's frames.

whilst the locomotive's frames were delivered to Darlington Locomotive Works. A comprehensive overhaul would see No. 60163 returned to apple green livery after a period wearing BR express passenger blue. In other news the P2 project was beginning to make great strides, with the driving wheels cast and machined and tyres on order and no

fewer than 24 frame castings delivered for machining by William Cook Cast Products, the Trust's principal sponsor. David Elliott was getting to grips with the Lentz/Franklin valve gear, the Trust having acquired the blueprints for the Franklin 'B' gear applied to a Santa Fe design, the largest of which was 11' long!

TCC

Rob Morland

Bob Hughes

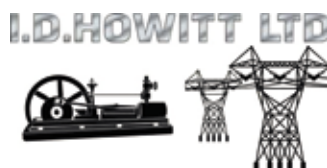
The A1 Steam Locomotive Trust is pleased to display the logos of organisations giving us their ongoing support. Their contribution is gratefully acknowledged.

WILLIAM COOK CAST PRODUCTS

PRINCIPAL SPONSOR



The Gresley Society Trust



THE A1 STEAM LOCOMOTIVE TRUST CONTACTS

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

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

Ben Godfrey (ben.godfrey@a1steam.com)

Board of Trustees

Mark Allatt P2 Project Director, Head of PR, Marketing and Fundraising (mark.allatt@a1steam.com)

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

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

Steve Davies (steve.davies@a1steam.com)

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

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

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

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

Advisers to the Board

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

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

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

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

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

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

Engineering

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

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

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

Administration

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

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

Railtours

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

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

Editor

Graham Langer (graham.langer@a1steam.com)

Picture Editor

Tony Watson (tony.watson@a1steam.com)

Design

Kevin Lumb (kevin@limegroveprintanddesign.co.uk)

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

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

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

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

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

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

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