



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. 52 Winter 2019



Neil Whitaker

Back to doing what she does best, *Tornado* roars through Wilmcote with 'The Bard of Avon' to Stratford.

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EDITORIAL by Graham Langer



The last few months have not been without their ups and downs, especially where returning *Tornado* to traffic has been concerned. We held off putting this edition of *TCC* to bed in the hope that we might have some good news to report and I am sure I am as relieved as most of you to be able say that No. 60163 is now back on the main line. It has been a torrid time for a small number of our core volunteers and the engineering and operations crews have burned excessive amounts of midnight oil to ensure we got the right result.

With DB Cargo (DBC) struggling to resource a second test run, West Coast Railways (WCRC) came to our aid and at very short notice managed to arrange not only delivery of the locomotive to the Wensleydale Railway but the required main line test run; in addition it looked like DBC would also find resourcing the 'Aberdonians' a challenge and in consequence WCRC will be helping us to run those tours. There are a great many pieces in the main line jigsaw, even coordinating a single tour, let alone a series of tours, requires the help of numerous industry partners and it is heartening when the assorted players work in a concerted and pragmatic fashion to ensure success. Resourcing issues have meant that we have had to jigsaw; even re-cast some of the timetable for 2019 and we apologise for the loss of two tours, 'The Devonian' and 'The White Rose', although alternative tours are available; hopefully the published calendar is now finalised.

Despite calls on his time to help with *Tornado*, David Elliott has managed to push on with engineering on No. 2007 *Prince of Wales* and although the locomotive has had to be partially dismantled to allow further work, progress in making and fitting a myriad of parts continues apace. Daniela shows growing skill and confidence in the complexity of components she designs and produces for Finite Element Analysis, a critical phase with newly designed parts, as well as a talent for 'hands on' fitting and finishing. Meanwhile the workshop team have been riveting and bolting more components on the locomotive while Ian Howitt progresses construction of the tender frames.

As suggested in *TCC* 51, further changes continue to occur in the structure of the board and management of the Trust. David Burgess and Rob Morland have stepped down as Trustees and Directors although both will remain involved with the operation of *Tornado* on the main line and, in Rob's case, the electrical system for No. 2007; it goes without saying that we are all hugely appreciative of the countless hours both these stalwarts have contributed in the last 20 odd years. As mentioned in the last edition, Graham Nicholas has been appointed Professional Head of Engineering and in a move which will further strengthen the board, Huw Parker has taken on the role of Trustee and Operations Director; meanwhile, at the 'coal face', Richard Pearson assumes the role of Engineering and Works Manager. Full details of these changes follow in this edition.

As we move forward through 2019 I am sure I speak for all those closely involved with the Trust when I thank you all for your continued loyalty and support, as well as your patience and understanding when things go awry! I sincerely hope many of you will enjoy travelling behind *Tornado*, visiting the Works or attending one of our presentations this year and look forward to meeting old and new friends in the process. **TCC**



Martin Vos

Running under a wintry sky, *Tornado* crosses the Nene.

DAVID BURGESS by David Champion

David Burgess has recently stepped down as The AI Steam Locomotive Trust's Company Secretary and a Trustee and Director. Here David Champion pays fulsome tribute to one of our core team members.

To be greeted by David Burgess the first time, and all subsequent times, is to be welcomed with both a broad smile and a firm handshake. The smile radiates his personal warmth and the handshake echoes his integrity.

Back in 1990, the Trust was specifically designed to attract the best professional management in all spheres necessary for the Trust's operation and David is a superb example of how this bore fruit and developed the Trust into a world leader in its field. David has been an unsung stalwart of the Trust for many years and feels now is the time to take a back seat.

Born in Mitcham, Surrey in 1948, he was brought up in south London and was fascinated by trains almost from birth according to his Mother. On leaving school he entered the oil contracting industry on the administrative side. In typical David Burgess self-deprecating mode he describes his 20 years there as 'unspectacular', he did however qualify as a Company Secretary before moving to Guernsey for a career in the Finance Industry specialising in Trust and Company administration.

David became a Covenantor to the Trust in 1994, the year that physical construction of *Tornado* really got under way with the cutting of the frames and casting of the wheels and cylinders. When Wreford Voge, our

Mandy Grant



David Burgess.

hugely respected Company Secretary was in failing health, the Trust began to seek someone to take over the role as *Tornado's* construction moved into the final phases. David stuck his head over the parapet and was duly appointed.

After becoming Company Secretary, he was also appointed as a Trustee and his work significantly increased over the years. Living in Guernsey, he found that the way the Trust is structured allowed

him to do much of the work from home by email. David admits to being one of the least well known of the Trustees as much of his work has been largely in the background, covering not just the role of Company Secretary, but vital areas such as insurances, purchasing, accounting, and all the boring but essential work any organisation has to cover.

Like all the Officers and Trustees of the Trust, David has had to sacrifice copious amounts of time and expense over the years, particularly when attending meetings or special trains. Because of his home in the Channel Islands, a one-day meeting or train has required at least a three-day absence from home involving return air travel to a UK airport and subsequent train travel.

When *Tornado* was completed and entered traffic, David joined the Support Crew, and when I have been able to travel on Specials I have been impressed by his solid and professional organisation of the on-board staff. I am pleased to hear that he will be continuing to fulfil this role and maintain his connection with the Trust.

The Trust has been very fortunate to have David's input over the last 25 years, and we wish him well on the 'back benches' – and hopefully he may get more time to spend with what sounds to be a super model railway! **TCC**

ROB MORLAND

The Trustees of The AI Steam Locomotive Trust would also like to thank Rob Morland for his services to the Trust since 1995. Rob has been a Trustee since 1995 (with a break between 2004 and 2007) but has recently decided that he wishes to step back as a Trustee. He will continue to take a lead on the electrical systems design and maintenance on No. 60163 *Tornado* and support coach E21249 and the electrical systems design for No. 2007 *Prince of Wales*. He will also continue as a member of the Tornado Engineering Committee and volunteer as a member of *Tornado's* support crew.

Rob was originally responsible for creating and maintaining the Trust's

Project Plan, starting with the very first plan in 1994. In 2006, with the engine in the final stages of construction, Rob began the design of the AI's electrical system, which he completed the following year. He and Paul Depledge built and installed the complete system on the locomotive and support coach and continue to be responsible for its maintenance and ongoing development. Rob is now leading the electrical work on the P2 along with Alan Parkin and Paul Depledge. Rob is a Chartered Engineer, a European Engineer and is Director of his own company, Astutum Ltd, which helps companies make money out of technology in the field of electronics and mobile communications. He has also been an active footplate volunteer on the Tallylyn Railway for over 40 years, and is



Sophie Bunker-James

Rob Morland (centre), flanked by David Elliott receiving the John Coiley Locomotive Engineering Award.

related to railway preservation pioneer, the late Tom Rolt. **TCC**

NEW APPOINTMENTS *by Graham Langer*

The AI Steam Locomotive Trust (AISLT) is delighted to announce significant voluntary and professional appointments to strengthen its engineering and operations teams.

Graham Nicholas

A past Trustee and Quality & Certification advisor for the Trust, has been appointed as Professional Head of Engineering. As such he chairs the new Tornado Engineering Committee and provides oversight and guidance on all the Trust's vehicle engineering activities to support the ongoing operation of *Tornado* and her support coach as well as the construction programme for *Prince of Wales*. A key aspect of the role is maintaining close communication with our operator DB Cargo, the Rail Regulator and other industry parties, ensuring that all engineering activities are undertaken in accordance with industry requirements.

Graham is a professional railway engineer of over 30 years standing, first joining British Rail as an engineering management trainee in 1986. Having spent the formative years of his career in rail vehicle maintenance depots in the North West of England, he has latterly specialised in rail vehicle certification and approvals and is today regarded as one of the country's leading experts in these processes, having rewritten and updated the RSSB industry standards in this area. Graham first gained his registration as a chartered engineer in 1991 and in 2014 was elected as Fellow of the Institution of Mechanical Engineers.

Graham Nicholas commented, "After a challenging and chastening year, I am happy to 'step up to the plate' and play my part in the re-shaping of the Trust's management arrangements, both to ensure *Tornado's* continued successful main line and heritage railway operations as well as helping the Trust deliver its future strategic aims and objectives."



Graham Nicholas with No. 60163 at the locomotive's unveiling at the NRM in 2008.



Huw Parker.

Huw Parker

Huw has volunteered for the Trust for six years, latterly as Deputy Operations Director; has been appointed as a Trustee and Operations Director. In this role Huw will oversee the day to day operations of *Tornado* and liaise closely with the Commercial and Engineering functions to ensure the locomotive continues to meet its commitments.

He was until recently a serving Lieutenant Colonel with the Corps of Royal Engineers, which he joined directly from school through RMA Sandhurst in 1980 and was commissioned in 1981. He held a variety of military appointments and seen tours of duty ranging from the Falkland Islands, Germany, Canada, Northern Ireland, the Balkans and the Middle East. Latterly, he has been based at the Defence Equipment and Support organisation in Bristol in a civilian role where he has primarily been responsible

for Deployable Infrastructure, Protected Mobility and Logistic Vehicles.

Huw began his involvement within the Railway Preservation scene at Steamport Southport. Along with members of the Liverpool Locomotive Preservation Group, he became involved with the restoration of Derek Foster's ex-LMS Jinty 0-6-0T No. 7298. He took part in the Rocket 150 Rainhill Cavalcade celebrations and moved to the Llangollen Railway in North Wales when the Jinty visited there in 1981 and, after a spell at the East Lancashire Railway, Llangollen became his home railway. After many years helping to look after No. 7298, Huw eventually bought it from Derek in 1997 and operated the locomotive with support from the Llangollen until it was recently sold.

Huw first became involved with *Tornado* when the locomotive visited Llangollen for the very successful 'Steam, Steel and Stars III Gala' in 2012 and he was the rostered driver for several turns during the locomotive's visit. *Tornado* opened the first section of the extension to Corwen, which Huw and a small group of individuals had planned and built in the previous 12 months. Although not driving the first train, he enjoyed the experience so much that he took an offer to join them for a run on the main line. Since those first turns as a support crew member, Huw is now responsible for rostering of AISLT Support Crew and as a Responsible Officer, managing the logistics and support to *Tornado* wherever she might be operating. He was responsible for the locomotive on the ill-fated 'Ebor Flyer', where with other AISLT and DB Cargo colleagues, he was integral in the protection and subsequent recovery of the train. Since then, he has been closely involved with repairs and the process to return *Tornado* to the main line.

Huw Parker commented, "Since I was first introduced

to *Tornado*, it has been a privilege to be so closely involved with operating her across the country on main line trips and visits to heritage railways. I am looking forward to my new role as Operations Director working with Trust colleagues and our external stakeholders in managing this wonderful locomotive into the future."

Richard Pearson

Richard has been appointed to the new full-time role as Engineering and Works Manager. Richard was previously Workshop & Rail Operations Manager for the National Railway Museum at Locomotion, Shildon and a long-standing volunteer for the North Eastern Locomotive Preservation Group (NELPG) – AISLT's neighbour in Darlington Locomotive Works. In his new role, Richard will provide engineering management support to the operation of No. 60163 *Tornado* on the main line and heritage railways. He will also lead the team of staff, contractors and volunteers building a new Gresley class P2 steam locomotive No. 2007 *Prince of Wales* at Darlington Locomotive Works. Additionally, Richard will in future take the lead in the delivery of the third new steam locomotive, Gresley class V4 No. 3403, to be constructed by the Trust.

Richard has volunteered with NELPG for more than 30 years and is a voluntary Company Director. His role within NELPG focuses on engineering, and he is regularly involved in overhauling and maintaining the group's four operational steam locomotives, including leading on mechanical and pressure vessel boiler work. During his time with NELPG, he has worked in many roles, including those of Engineer Manager and Assistant Chief Mechanical Engineer for the group's locomotives. He has also been project lead on the overhauls of Worsdell class J27 No. 65894, Peppercorn class K1 No. 62005, Raven class Q6 No. 63395 and Worsdell J72 No. 69023, and recently taken the lead on the final assembly and commission of the most recent

overhaul on No. 65894.

Since 1987, Richard has volunteered frequently in the operation of LNER steam locomotives on Network Rail, working as part of support crews for NELPG with both No. 62005 and Peppercorn class A2 No. 60532 *Blue Peter*. Prior to becoming a paid employee of the National Railway Museum, he volunteered for the NRM on several tours with Gresley class A3 No. 4472 *Flying Scotsman* and Gresley class V2 No. 4771 *Green Arrow*. Richard has also volunteered as support crew with Gresley class A4s No. 60007 *Sir Nigel Gresley* and No. 60009 *Union of South Africa* and of course No. 60163 *Tornado*. Richard also currently volunteers frequently at the Wensleydale Railway as a steam locomotive driver, driving tourist trains over the 22-mile route from Redmire.

Richard Pearson commented, "I have a life-long passion for steam locomotives and I've been a volunteer primarily on LNER locomotives for more than 30 years both on heritage railways and on the main line, I've also followed the work of The AI Steam Locomotive Trust for many years and have worked as a member of support crew on No. 60163 *Tornado*."

"To get the opportunity to play a key role in the engineering aspects of the operation of *Tornado* and the construction of *Prince of Wales* was an opportunity that I just couldn't turn down, so I'm very excited to be part of this high-profile team."

The Trustees of The AI Steam Locomotive Trust commented, "We are delighted to announce the strengthening of both our engineering and operations teams with three new appointments – Graham Nicholas as Professional Head of Engineering, Huw Parker as Trustee & Operations Director and Richard Pearson as full-time Engineering and Workshop Manager. These appointments will bring extra strength and depth to both teams as the Trust works to bring *Tornado* back into main line service and the pace of construction of *Prince of Wales* continues to accelerate." **TCC**



Richard Pearson.

AI ENGINEERING UPDATE by David Elliott

Our return to the main line with *Tornado* became something of a saga. After further work to provide our operator DB Cargo with more paperwork, a main line test run was arranged for the night of Tuesday 15th January. This was structured as light engine and coach run to Doncaster where a train of Mk 2 coaches and a Class 67 diesel was attached. The original plan had been to run to Newcastle where the entire train would be turned on the triangle at the south end of the King Edward bridge followed by a run back to Barrow Hill where *Tornado* and the support coach were to have been detached. On closer examination, the schedule did not include enough time to carry out several inspections of the motion as was required by DB Cargo and our Inspection Party (son of Vehicle Acceptance Body – VAB) Ricardo Rail. To build in the required stops without running the crew out of hours, the test run was amended with stops at Grantham and then around two hours at Doncaster Roberts Road depot where a full pit inspection of the inside motion was undertaken.

With the train behind us, a further inspection was carried out at York whilst taking water where all was well. To complete the run within the crew's hours, the fast run was curtailed at Northallerton, with the train being drawn backwards to Barrow Hill using the class 67. During an examination at Northallerton, it was noted from discoloration of the LH combination lever which houses the bronze bush which drives the pin through the valve spindle crosshead that the bush had run hot. It appeared that the bush has heated and seized on to the pin, after which the bush started to rotate in the lever. By the time we observed this it had cooled, and a shot of grease showed plenty coming out round the bush.

The train was successfully run back to Barrow Hill with steam on *Tornado* to ensure continuing lubrication to the cylinders. The good news is that the middle cylinder valves which had caused the problem on 14th April 2018 with 'The Ebor Flyer' (along with the outside valves) were working well.

During a photo charter on the Nene Valley Railway shortly before the test run, the locomotive appears to have suffered from priming (water carry over into the cylinders) which apart from being apparent from the solid white exhaust seen on one of the videos from the event, had caused small steam leaks from the cylinder covers. No other damage was apparent following the priming incident, although on the test run, the exhaust beat was slightly "off".

As luck would have it, we were planning to carry out the annual C exam and Engineering Acceptance renewal during our stay at Barrow Hill, which would normally involve a piston and valve exam, including removal of the valves. As a major repair to the valves and valve gear had been carried out at Wansford following the Ebor Flyer failure, it was not originally intended to extract the valves.

All three combination levers were removed and subjected to geometry checks. The affected LH lever was found to be set forward by approximately 0.065" at the bottom, inwards by 0.031" and slightly twisted. The new middle combination lever was found to be set forward by approximately 0.041". The RH lever was unaffected. The forward displacement compared with the 29" length of the lower part of the levers is small and not noticeable to the naked eye. However inward displacement and twist of the LH lever had caused the lever to be pulled outwards rubbing on the side of the slot in the valve spindle crosshead. This generated heat which eventually led to the bush seizure.

We have had a previous instance of a combination lever being displaced after priming and A2 class No. 60532 *Blue Peter* which has the same valve gear and cylinders as *Tornado* has experienced a similar issue. The LH and inside combination levers have been straightened, with gentle "tweaking" using a hydraulic press, a new bush fitted to the LH lever and all the clearances checked. All three combination levers were subjected to Magnetic Particle Inspection (MPI) to check that they are free of any cracks – all

passed. As the priming incident appears to have been more serious than first thought, the valve spindles were removed, examined and checked for run-out. They were all found to be in excellent condition and running true.

The cylinder covers were also removed and as a precaution were also subjected to MPI whilst the studs were examined for stretching. All were found to be satisfactory. The opportunity was taken to adjust the valve events using the method described in former Norwich Shedmaster DW Harvey's excellent book *A Manual of Steam Locomotive Restoration and Preservation* and the beat is now good. In contrast to the engineering activity at Wansford which seemed to take for ever, the (admittedly simpler) engineering effort at Barrow Hill went smoothly and to plan – again thanks to David Wright's Locomotive Maintenance Services team. *Tornado* successfully passed cold and hot boiler exams, cold and hot Inspection Party exams, Train Protection and Warning System (TPWS), On Train Monitoring and Recording (OTMR) tests and completion of the annual C exam. The visit to the Wensleydale Railway saw *Tornado* operating faultlessly and drawing the crowds.



David Elliott

Straightening left hand combination lever.

No. 21249 Support Coach

Following from the annual No. 7 exam, the coach has required some maintenance, including exchange of the draw hooks and Buckeye couplers which had worn to their limits (we knew that the original drawhooks/couplers which came with the coach before we rebuilt it were near the end of their service lives).

Another issue was buffer heights. During the overhaul of the coach completed in 2013, new primary springs and augmented secondary springs were fitted to the bogies. Support coaches tend to be heavily loaded, particularly in the van/workshop area, and the springs have settled. The result was that the coach leaned over slightly towards the compartment side and was significantly lower at the van end. We actually weighed all the portable equipment on-board and it totalled 1.5 tons excluding sand which can add a further ton to the weight. As most of this

kit is concentrated at the van end and on the compartment side, low buffer heights are not an uncommon problem with support coaches. Whilst the locomotive was undergoing the C exam at Barrow Hill, the opportunity was taken to have Rampart Engineering (which specialises in carriage restoration) to adjust the springs and suspension by adding packings to restore the correct ride height. At the same time it was possible to have the empty coach set with the compartment side slightly higher than the compartment side – when re-loaded the coach is now nearer to level than before.

The heating system on the coach is novel by railway standards. Most support coaches rely on traditional steam heating which is fine when the locomotive is in steam and attached to the coach. This is not normally the case when the locomotive is being maintained, so the tendency is to keep one or two compartments warm using electric heaters powered by extension leads from the nearest 13A socket – not an ideal solution. To overcome this

No. 21249 is fitted with a propane gas fired "system" condensing boiler and a modified domestic central heating system. So that the gas boiler does not need to be used when we are on a railtour (I am not sure of the reliable operation of a balanced flue at 75mph!) a steam/water heat exchanger is fitted in the return pipework before it enters the boiler. This takes steam from the steam heat pipe which runs under the carriage and uses it to heat the central heating water. The system has worked very well and is a Godsend when we are maintaining the locomotive out of doors or in unheated sheds in the middle of winter.

However, the steam side of the system stopped working recently. A bit of fault finding determined that the steam side of the heat exchanger was blocked. Disconnecting it from the steam supply, removing the innards of the steam trap on the outlet side and back flushing it using a hose attached to the condensate outlet pipe blew some scale and other detritus out of the heat exchanger. It is now working properly! **tcc**

KEEPING *TORNADO* ON THE TRACKS by Mark Allatt



Coreth Griffiths

Tornado tears past Arksey with 'The Talisman'.

Keeping No. 60163 *Tornado* in tip-top working order is an expensive business as we are being reminded following the locomotive's failure on 'The Ebor Flyer' on Saturday 14th April 2018. Whilst the profit from operating our programme of main line tours and *Tornado*'s hire fees from heritage railways and working for other rail tour promoters currently covers her day-to-day and year-to-year maintenance costs, they do not at present generate a sufficient surplus to fund her five and ten year overhauls, conservatively estimated at

around £500,000 each. Therefore, it is vital for us to continue to maintain (and hopefully grow) *Tornado*'s on-going Covenant income.

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

PADDINGTON 2 movie and our 2019 railtours programme will continue to help to grow this number. I would therefore urge all our existing 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? Now that really would be a great and lasting 10th birthday present for *Tornado*! **tcc**

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

TORNADO ON TOUR *by Huw Parker*

NENE VALLEY RAILWAY



Martin Vos

Out in the country, clocking up the miles on the NVR.

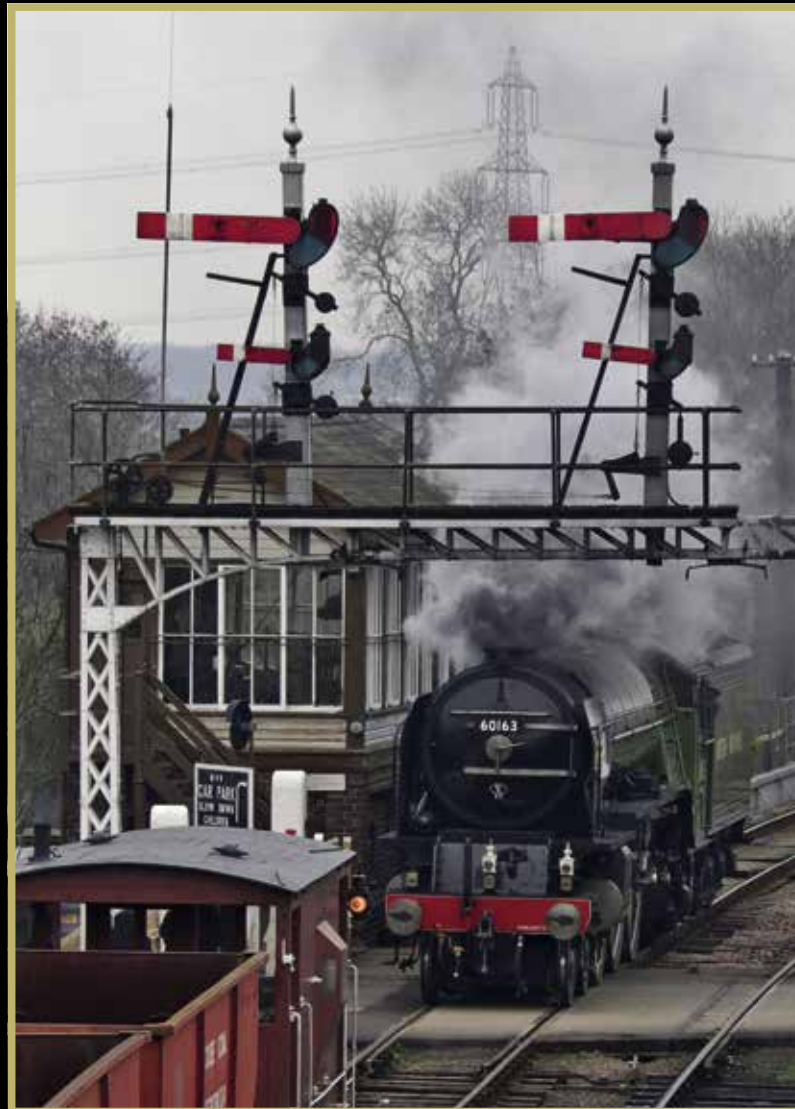
At last year's Convention, we explained the background to 'The Ebor Flyer' failure and some of the engineering challenges behind returning *Tornado* back to traffic. Alongside this, a very thorough audit of our processes, documentation and supporting systems has been conducted by DB Cargo, as our Train Operating Company. This DB Engineering audit and their engineering focus has been both on components involved in the failure and our repair procedures and standards. The work to respond to their requests for information and address any issues and shortfalls has been significant and we certainly underestimated the level of detail required. This added further delay to our main line return, but we can be certain that the whole experience has made our standards, processes and record keeping even more robust.

Although this activity delayed our return, *Tornado* was active at the Nene Valley Railway accumulating mileage after the repair, operating

Santa specials and service trains prior to our departure in early January for Barrow Hill. In total, the locomotive ran over 1750 miles since the beginning of October. Unfortunately, a priming incident towards the very end of our stay induced some faults that would impact the successful completion of the test run, but more about that later.

Operating the Santa services at the NVR saw *Tornado* with eight air-braked continental coaches tailed by one of the Class 14 Diesels based at the railway and these trains were certainly popular with the public. After Christmas, we operated the Mince Pie specials ahead of New Year, a couple of popular Driver Experience Days, a Photo Charter and a last day of service trains before the planned loaded test run.

Our preparation and the Fitness to Run exam for the loaded test run took place on 14th January at



Out in the country, clocking up the miles on the NVR.

Martin Vos

Wansford and was passed without incident. The following day, we left Wansford well ahead of time to collect our crew for the test run at Orton Mere. TI Tom Rees, Driver Stevie Hanczar and Fireman Dave Proctor took us back onto NR metals for the first time since 14th April and we made good time light engine and support coach towards Doncaster. A strong engineering presence from DB Cargo, Ricardo Rail and AISLT paid careful attention to every move and a planned stop at Grantham allowed for detailed examination; everything was well, although we had detected the exhaust was slightly off beat at higher cut-off. On arrival at Doncaster, the locomotive called at Roberts Road Electromotive Depot to utilise the wheel lathe inspection pit for further examination, before watering and coaling. Again, nothing untoward was detected and soon after, coupled to the front of eight Mk2 with a diesel training we set off towards Northallerton. All was well at the water stop at York and soon after we were back up to 75mph running well, including a short spell of a 10% overspeed at 80mph just after Tollerton. However, as we arrived at Northallerton and conducted an inspection prior to returning South, we identified that during the run, sometime after York, the pin joining the left-hand combination lever to the valve crosshead had run warm and picked up. At this point, it had already cooled and not caused any further damage but would have to be taken down, inspected and replaced. Disappointment and frustration for all as you can imagine, especially as all had gone seemingly so well on the run North. The whole formation ran in reverse behind the diesel as planned, back to Barrow Hill, where *Tornado* and her support coach detached to stable at the roundhouse.

Subsequent inspections identified the combination lever as slightly bent, which had given the uneven exhaust beat and forced the valve crosshead over to one side creating the unwelcome heat. The combination lever has been straightened, the pin and bush replaced and reassembled ready for a further test run to confirm that all is well. Further examination of the valves took place to confirm all was well after the extensive repairs last year and the cylinder covers were removed for a piston exam and to address weeping covers, probably as a result of the priming incident.



A night study, No. 60163 in the dark at Wansford.

Martin Vos

TORNADO ON TOUR by Huw Parker

WENSLEYDALE RAILWAY

Maurice Burns



With Castle Bolton in the background, *Tornado* climbs away from Redmire.

West Coast Railways helped us move the locomotive from Barrow Hill to the Wensleydale Railway where she completed a good number of turns, including being overflown by three RAF Tornados on 19th February during their final tour before withdrawal from active service. However, it looked like resourcing problems with DB Cargo were going to jeopardise any chance of getting a second test run in before 'The Auld Reekie' on 3rd March. Once again, through the good offices of WCR, a test run was arranged round a circuit from Carnforth, the locomotive subsequently passed it DBC FTR examination and all was set fair for a trip to Edinburgh. We are extremely grateful to West Coast Railways for ensuring the locomotive met its commitments with a sparkling run to Scotland even if, sadly, No. 55009 *Alycidon* failed during the return run. **TCC**



Andy Golpin

Tornado is delivered to the Wensleydale Railway courtesy of West Coast Railways.



Andy Golpin

Huw Parker and Steve Davies – Steve helped facilitate the visit to the WR and the move by WCR.



Dave Hall

Above: Another new location! *Tornado* is turned at Steamtown, Carnforth.



Cameron Telfer

Left: *Tornado* passes through Chester-le-Street on 1st March with her test train.



Andy Golpin

No. 60163 is seen working a colourful service train near Bedale.

WENSLEYDALE RAILWAY



Stewart Williams

Four Tornados! No. 60163 is over-flown by a trio of GR4s at the Wensleydale Railway on the 19th February, the day of the aircraft's 'last hurrah'.

TORNADO ON TOUR *by Huw Parker*

'THE AULD REEKIE'



Craig Oliphant

Back in rude good health and eating up the miles, No. 60163 tears past Newton Hall on Sunday 3rd March.



Mandy Grant



Mandy Grant

Above: Traction Inspector Bob Hart.

Above centre: Fireman Tony Jones and driver Steve Hanczar.



Mandy Grant

Destination reached (one minute late!).

TORNADO AND PRINCE OF WALES BANNERS IN DARLINGTON TOWN CENTRE *by Mark Allatt*

The A1 Steam Locomotive Trust in collaboration with Darlington Borough Council has recently decorated Darlington town centre with London & North Eastern Railway (LNER) style posters by renowned railway artist Stephen Millership. The designs of the posters were inspired by the iconic posters of the LNER from the 1930s and 1940s.

Tornado 10 Years in Steam was produced to celebrate the tenth anniversary of the completion of new Peppercorn class A1 'Pacific' No. 60163 *Tornado* at Darlington Locomotive Works in 2008. The poster was designed by Stephen Millership and drew its inspiration from the iconic *Silver Jubilee* poster by Frank Newbould published by the LNER to mark the entry into service of Britain's first streamlined train – which called at Darlington – in 1935.

A Giant Resurrected has been produced to promote the construction of new Gresley class P2 'Mikado' No. 2007 *Prince of Wales* at Darlington Locomotive Works. The poster was designed by Stephen Millership and drew its inspiration from the iconic *Giants Refreshed* poster by Terence Cuneo published by the LNER to mark the restoration of its locomotives from wartime Black liveries to Apple Green and Garter Blue liveries in 1947. The original posters have now been turned into

lamppost banners and will feature in the town centre for around six months.

Mark Allatt commented, "The London & North Eastern Railway not only built some of the finest steam locomotives to operate in Great Britain but also promoted its services with some of the most iconic posters ever produced, working with artists including Tom Purvis, Frank Newbould and Terence Cuneo.

"As the re-creator of long-lost LNER steam locomotive designs, The A1 Steam Locomotive Trust wanted to use the designs to help celebrate *Tornado's* tenth birthday and promote the construction of the seventh class P2 *Prince of Wales* by having the posters made into lamppost banners. We could think of no more appropriate way than to use the commissioned work to advertise in Darlington town centre, the birth place and home of No. 60163 *Tornado* and No. 2007 *Prince of Wales*. Stephen Millership's work pays homage to the golden age of steam. We would like to again thank Darlington Borough Council for its on-going support of the Trust."

Councillor Nick Wallis, Darlington Borough Council's cabinet member for leisure, local environment and transport, said, "Darlington is the birthplace of the passenger railway and we're rightly

proud of our rail heritage. The A1 Steam Locomotive Trust is an incredible organisation that is building new steam locomotives here in Darlington for a worldwide audience and we're delighted to be collaborating with them on this latest project." **TCC**



Bob Hughes

Darlington town centre lamppost banners.

ALL ABOARD! TORNADO WELCOMES PRINCE OF WALES' CREW



Paul Bruce

We were fortunate to be joined by members of the crew from HMS Prince of Wales for the inaugural and very successful 'Aberdonian' trip.

Covenantors' Diary *by Gemma Braithwaite*



In June 2018, we switched to a new Customer Relationship Management (CRM) system. Due to the growing number of supporters, across The A1 Steam Locomotive Trust as a whole, we had outgrown the old system. The new system allows us to be more efficient and responsive with our supporters. The new system

has identified that some data we had, wasn't up to date, in particular email addresses. If you have a new email address or have multiple email addresses, please could you call the office on 01325 460163 or email us enquiries@a1steam.com, to let us know which email address you would prefer us to use.

If you have received a gift aid declaration renewal from us, we kindly ask that you return this declaration to us so we can continue to receive an additional 25% of your donation from the HMRC.

All of our supporters should now have received their supporter cards. If you haven't received yours or if any of the data on your card is incorrect, please call us, or email us, to let us know.

We have recently updated the roll of honour at Darlington Locomotive Works. The roll of honour is situated in what is known as 'Covenantors Corner'. Due to the growing support, we will need to ask for an extension soon as we have almost run out of space to put up new boards!

REMINDER:

Darlington Locomotive Works is open the first and third Saturday of each month, 11:00hrs to 16:00hrs. We invite all supporters, friends, family and enthusiast to come and see the progress of No. 2007 *Prince of Wales*.

● SAVE THE DATE! Saturday 12th October 2019 – Annual Convention.

This year's Annual Convention will be held at the Mercure Darlington Kings Hotel for both the morning presentations and the evening dinner. Supporters will then also have the opportunity to visit Darlington Locomotive Works to see the progress on No. 2007 *Prince of Wales*, with David Elliott conducting a guided tour.

This event is always popular so put the date in your diary. The invitations will be sent out in July. Those wishing to book a hotel room at the Mercure Darlington Kings Hotel can do so now, but please remember to call the hotel direct (01325 380222) to make a booking. If you book through any other method (i.e. through a hotel booking site), there is a chance you will pay more and also be moved to another hotel as our event takes priority. A special rate of £68.00 for single occupancy and £78.00 for double occupancy has been applied for our supporters attending the event.

● Supporters and Tornado Team Day at the Wensleydale Railway!

On Wednesday 29th May 2019, The A1 Steam Locomotive Trust will be holding a Supporters and Tornado Team Day at the Wensleydale Railway.

The Tornado Team will be visiting the engine before a special Supporters ride behind *Tornado*. We will then depart Leeming Bar at around 14:00hrs, returning around 17:00hrs with our Supporters train. Supporters can bring a guest with them. Your supporters card is your ticket to travel. Please email enquiries@a1steam.com to register; if you don't have email, please call 01325 460163 to register your intention of coming. **TCC**

TORNADO TOUR DIARY - 2019

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

- **Saturday 13th April** – 'The Border Raider' – West Midlands to Carlisle via the Settle & Carlisle Railway and return – bookings through UK Railtours
- **Saturday 4th May** – 'The Ynys Mon Express' – East Midlands and North Staffs to Holyhead and return – bookings through UK Railtours
- **Saturday 11th May** – 'The Mad Hatter' – Darlington, York and Wakefield to Chester – bookings through UK Railtours
- **Saturday 15th June** – 'The Yorkshire Pullman' – London King's Cross to York and Scarborough – bookings through UK Railtours
- **Sunday 23rd June** – 'The Summer Cornishman' – Bristol to Par and return – Pathfinder Tours
- **Saturday 6th July** – 'The Dart & Torbay Express' – Birmingham to Kingswear and return – Pathfinder Tours
- **Sunday 14th July** – 'The Pembroke Coast Express' – Bristol to Tenby and return – Pathfinder Tours
- **Saturday 20th July** – 'The North Briton' – London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return – bookings through UK Railtours

- **Thursday 1st August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through UK Railtours
- **Sunday 4th August** – Linlithgow to Tweedbank and return – Scottish Railway Preservation Society
- **Thursday 8th August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through UK Railtours
- **Sunday 11th August** – Linlithgow to Tweedbank and return – Scottish Railway Preservation Society
- **Saturday 31st August** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through UK Railtours
- **Saturday 7th September** – 'The Aberdonian' – Edinburgh to Aberdeen and return – bookings through UK Railtours
- **Saturday 28th September** – 'The North Briton' – London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return – bookings through UK Railtours
- **Saturday 5th October** – 'The North Briton' – London and East Coast stations to Carlisle via the Settle and Carlisle Railway and return – bookings through UK Railtours

UK Railtours
01325 488215
www.ukrailtours.com

Pathfinder Tours
01453 835414
www.pathfindertours.co.uk

Scottish Railway Preservation Society
0131 202 1033
www.srps.org.uk

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

• SHED NOTICES •

The New Year's Honours List recognised the contribution to preservation by two of our good friends, Mervyn Allcock of Barrow Hill and Sam Mullins of the London Transport Museum.

Mervyn Allcock and Barrow Hill have worked with The Trust since the earliest days, indeed the roundhouse was the destination for one of the *Tornado's* three main line test runs in 2008 and since then the locomotive has been a regular visitor to this unique preservation centre. Located in Chesterfield, Barrow Hill Roundhouse was built in 1870 and was used until 1991 when British Railways closed the site which was then threatened with demolition. Mervyn led a successful campaign to save the shed and give it a future, refurbishing the building and developing the site to incorporate other railway businesses. Granted a £1.2 million award by the HLF, extensive renovation has seen the inclusion of modern facilities and improved access and the museum has been the recipient of numerous awards. Mervyn Allcock was made a Member of the Order of the British Empire for his services to railway preservation and development.

Sam Mullins is the director of the London Transport Museum in Covent Garden, London and has been a long-standing AI covenantor, helping the Trust by providing a venue for talks and presentations since the early days (indeed, this year's first P2 presentation was held there). Having assumed the role of director in 1994, Sam has presided over the evolution of the museum into a multi-faceted organisation, growing the collection and opening the museum's depot at Acton as well as the superb commemorations of the 150th Anniversary of the underground in 2013, returning steam to the 'Met'. Sam was awarded an OBE in the New Year's Honours list.



Barrow Hill Roundhouse

Mervyn Allcock.



LT Museum

Sam Mullins.



Gareth Jones, gentleman of the footplate, retired as a DB Cargo Traction Inspector at the end of 2018 after a 65-year career on the railways. Well-known among members of the support crew, Gareth has been involved with the running of *Tornado* since her first main line moves, taking both the new locomotive

and many footplate novices under his wing to ensure all went smoothly during those initial runs. Possessing an encyclopaedic route knowledge, Gareth subsequently covered thousands of miles with *Tornado*, travelling with her to almost every point of the compass.

Gareth grew up in Tywyn and was a youthful volunteer on the Tallylyn Railway before joining the 'big railway' as a cleaner at Machynlleth at the age of 15. A career with BR, EWS and then DB followed before his retirement last year. Gareth was given a presentation at DB's Doncaster HQ organised by Richard Corser at which he was presented with a model of a Class 66 and a plaque to mark his long service. We hope that Gareth will be able to join us 'on the cushions' for future tours with *Tornado* and, hopefully, *Prince of Wales*!

ISAAC'S WISH by Huw Parker

Whilst at the Nene Valley Railway, we received a request from the Make a Wish Foundation to help make the wish of nine-year-old Isaac come true. Isaac wanted to be a steam driver for a day and with the help of our friends at the NVR, we were able to make his wish come true with *Tornado*. Following some careful planning, Isaac helped oil the locomotive, he cooked his breakfast on the shovel and



Isaac and Huw Parker seen here at Nene Valley Railway.

even took to the controls and drove the locomotive with his family able to enjoy the experience with him. AISLT are proud to support the work of the Make a Wish Foundation who make very special, life changing wishes come true for children with critical illnesses. It was a special day for everyone involved.

KITTIWAKE'S 'PLATE

On 2nd March Great Central Auctions sold a nameplate from No. 60120 *Kittiwake* for £9,400. Presumably this is the right-hand plate since the left hand one was bent in the collision that ended *Kittiwake's* career in 1964. No. 60120 was withdrawn due to damage sustained hitting the rear of an up freight train stopped for examination at North Otterington (Nr Northallerton) on the ECML in the early hours of 16th January 1964. The AI was running south light engine at the time. No. 60120 was profiled in *TCC* 49.



Kittiwake was photographed by Richard Postill at York just hours after the accident.

Below: Kittiwake's (undamaged) nameplate.



BUILDING TORNADO, ONE BRICK AT A TIME!

Seven-year old Christopher Biggs and his dad Liam, have made No. 60163 *Tornado* out of Lego! Christopher, who is an avid fan of both steam engines and Lego, decided to join the two. The inspiration came after the son and father duo watched *PADDINGTON 2*, featuring *Tornado*. When we saw this Lego representation of *Tornado*, we were most impressed. Good job Christopher and Liam!



Liam Biggs

Lego Model of Tornado No. 60163 made by Liam and his father.



Mandy Grant

ANOTHER SMALL TORNADO MAKING NEWS

Among the many other tasks undertaken by the workshop staff this winter was much-needed spruce up for the 'Roundabout *Tornado*' that has graced a traffic island in Darlington for some time.



With the North Sea behind her, *Tornado* hurries 'The Auld Reekie' north at Lamberton, East Coast Main Line.

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

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

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

The repairs to *Tornado* have included:

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

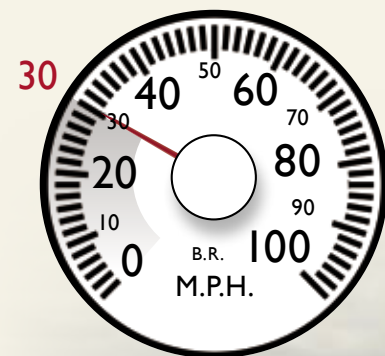
- Following recent tyre turning, acquisition of a replacement set of coupled wheel tyres.

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

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

Since our 'I ♥ 60163' appeal was launched at our 25th Annual Convention on Saturday 13th October 2018, 30 supporters have generously donated to the fund. With the imminent 10th anniversary of *Tornado*'s naming at York station by TRH The Prince of Wales and The Duchess of Cornwall we would encourage those who have yet to support this appeal to consider coming on board.

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



Let's shift the speed from a heritage railway 30mph to *Tornado*'s historic 100mph!

Jack Boskett

PREPARATIONS CONTINUE ON V4 PROJECT by Mark Allatt

At its annual strategy meeting in January 2019, The A1 Steam Locomotive Trust made some significant decisions concerning the yet-to-be-named new Gresley class V4 No. 3403 as part of its preparations for the formal launch of the project.

At the meeting, Mark Allatt presented the fundraising strategy for the V4 Project which was broadly agreed by the Trustees. The strategy closely follows the successful approach taken with No. 60163 *Tornado*, which was evolved into that now being implemented for No. 2007 *Prince of Wales* with the addition of the fundraising Clubs – which will hopefully leave the locomotive debt free on completion. The most significant change with the V4 will be that The Founders Club will be used for component acquisition whilst the Trust completes and tests No. 2007 in advance of the start of construction in 2022. It is now anticipated that the formal launch of the V4 Project will be in Spring 2020 subject to final board approval.

At the same meeting the Trustees confirmed the high-level specification for No. 3403. Although just two in number, the Gresley class V4s were very successful in traffic with no known design and development problems as with the Gresley class P2s. It was therefore agreed that the locomotive would have:

- A P2-style electrical system which is in itself developed from that successfully implemented on the A1
- Air plus vacuum brakes as on both A1 and P2 but with only one air pump due



to the limited space available

- An all steel, all welded boiler with no thermic syphon – the one originally fitted to No. 3402 provided no discernible benefit and was removed in 1945
- An LNER 4,200 gallon style tender with as much water capacity as possible – modifications made to the A1 and P2 tenders added around 1,200 gallons
- Roller bearings throughout as with A1 and P2
- The new P2 design of crank axle and pony truck
- Its monobloc cylinder block casting redesigned as a fabrication as with the P2
- As much detailed commonality as possible with A1/P2

As previously reported, in January 2018 along with tyres, chimney and speedometer drive generators, the Trust acquired over 500 original Gresley class V4 drawings from Malcolm Barlow, a Doncaster scrap dealer who launched the now defunct Gresley V4 Society in 1994 to build a new example of the class. Since then – although recently predominantly preoccupied helping to get *Tornado* back into main line service - Graham Nicholas has made significant progress reviewing and cataloguing these drawings in advance of their scanning into the Trust's CAD system.

Mark Allatt, Trustee, commented:

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

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

"Unlike with our class P2, where we have had to do a considerable amount of development work to complete the job that Sir Nigel Gresley started in 1934, there will be very little redesign work needed as there were no known problems with the Gresley class V4s.

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

For more information on how to help, visit www.v4steam.com, email enquiries@v4steam.com or call 01325 460163. [TCC](#)

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

Two locomotives were built at the LNER's Doncaster Works in 1941. The first locomotive, No. 3401 *Bantam Cock*, had a scaled-down version of the Gresley Pacific boiler with a grate area of 27½ sq ft. Its tractive effort of 27,000 lbs was produced by boiler pressure of 250 psi and three cylinders of 15in diameter. The second locomotive, No. 3402, incorporated a fully welded steel firebox and a single thermic syphon for water circulation. It was not named but was known unofficially as *Bantam Hen*. The class was tried on the Great Eastern section of the LNER, and was well received, with more power than the existing Gresley class B17 4-6-0s and better riding qualities. It was anticipated that many more would be produced, but after the sudden death of Gresley in April 1941 and his succession by Edward Thompson, no more were built. Instead, the simpler

two-cylinder Thompson class B1 4-6-0 was adopted as the LNER's standard mixed-traffic locomotive and 410 were built between 1942 and 1952. The two locomotives were sent to Scotland for use on the West Highland Line, although their wheel arrangement was not particularly suitable for the line's steep gradients. The two class V4s were renumbered Nos. 1700/1 in 1946 and later became British Railways Nos. 61700/1. Both locomotives were scrapped in 1957 when their boilers became due for renewal.



An original LNER press photo, September 1941.

E.R. Metherell



An undated study taken at Doncaster.

The last of the initial AI order, Engine Order No. 382, No. 60123 was the tenth class member built at Doncaster. Its works number was 2040. With Darlington-built No. 60142 also entering service on 10th February 1949, they were the 22nd and 23rd AIs to come into traffic. Of note is that No. 60123 was the first AI to be shedded at Doncaster.

Livery of this plain-chimneyed Pacific was the customary apple green with black and white lining and the nationalised railway's name carried on the tender in white block capitals. The first working recorded was a down passenger train into Newcastle then a visit to Gateshead shed, both on 16th June. In October of that year the locomotive was involved in a derailment on the Lincoln Avoiding Line while hauling a goods train, ending up under a pile of wagons at the bottom of an embankment whence it had to be recovered by crane; in consequence, after only ten months in its original livery, a repaint into BR express blue was made in December following repairs at Doncaster. This was the fifth of the 39 AIs delivered new in green to be repainted. A transfer to Grantham shed on 19th March 1950 kept its area of operations on the English section of the East Coast

Main Line; No. 60123 was seen at Newcastle on March 25th and at Darlington on 23rd April.

A transfer to Copley Hill shed on 4th June shifted No. 60123's operations to Yorkshire and the lower section of the main line. In fact it was to remain a Yorkshire-based engine for the rest of its life. Naming in July as *H.A. Ivatt* commemorated an eminent Great Northern Railway CME, one of three from that railway carried by AIs and one of half a dozen class members named after East Coast engineers. This locomotive was among the earlier AIs to be named with another six so treated that month while another nine had been named earlier. A special train was the return 'Ivatt Atlantic' special to King's Cross which on its outward trip was hauled by the last Ivatt 4-4-2 on its final run, No. 62822, on 26th

November; unfortunately, an extra fast schedule was spoiled by an over-heated axlebox on a restaurant kitchen car, causing a considerably delayed arrival with No. 60123 at the terminus. Other changes were the fitting of a lipped chimney and the removal of the Flaman speed recorder.

Yet another reallocation came on 9th September 1951 with a move to Ardesley shed. *H.A. Ivatt's* first named trains were the down 'Queen of Scots' on 25th May 1952 from Leeds-King's Cross and the up train as far as Leeds on 26th July. Between October and December, No. 60123, along with Nos. 60122 and 60135, was experimentally fitted with an inside connecting rod with a Swindon-style forked big end with a clip and cotter arrangement to secure the brasses. At the conclusion of this trial in 1956 it was deemed to have been a success. *H.A.*

Ivatt was one of the last AIs to be repainted into BR green; it was one of three done in December 1952 after 43 had already been dealt with. The start of the next year found No. 60123 as one of ten class members hurriedly fitted with the Hudd system of ATC. Of note are two specials; a Rugby special into King's Cross on 25th April and a Cup Final special to the same destination on 2nd May. A less common working was the 06:05hrs King's Cross-Cambridge on 15th July 1954. In the mid-1950s the smokebox numberplate and handrail were transposed. Detailed logs at King's Cross between September 1956 and January 1957 show No. 60123 primarily on trains to Leeds with the 09:18hrs, 13:18hrs and 15:40hrs departures noted but by far the most common turn was the 18:15hrs. Several noon departures with the 'Queen of Scots' were noted plus the 07:50hrs King's Cross-Newcastle/Bradford and the 08:20hrs to Edinburgh. On 17th November 1956 *H.A. Ivatt* was seen at Bradford shed under repair. Other named trains hauled

Bill Reed



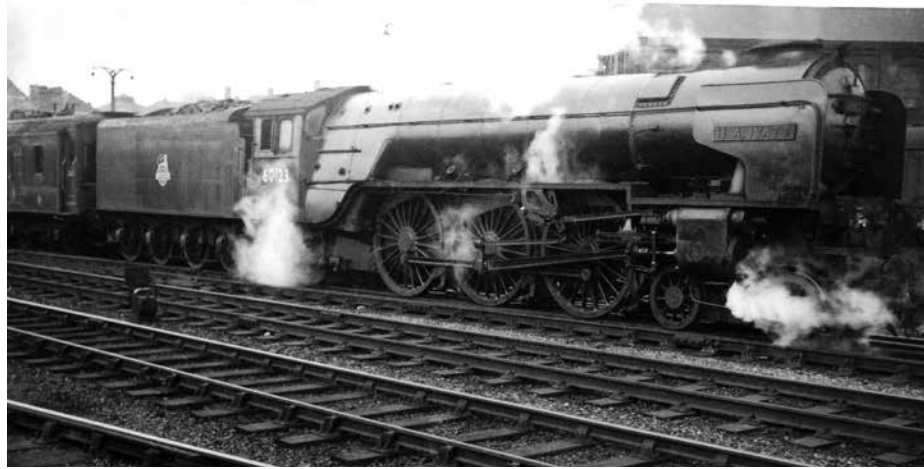
No. 60123 H.A.Ivatt on the down 'West Riding' at Potters Bar on 21st May 1955.

included the down 'West Riding' on 6th and 22nd June 1953 and the down 'Aberdonian' from the capital on 26th September 1956. Observation on 1st June 1957 of a King's Cross-Leeds train hauled via Lincoln was presumably due to diversions.

A transfer back to Copley Hill was made on 15th September 1957. The following January the later BR crest was applied to the tender. Trains to and from Yorkshire included the 08:21hrs up 'West Riding' on 27th June 1959 returning with the 16:48hrs to Leeds; the 11:15hrs up 'Yorkshire Pullman' on 8th August; *H.A. Ivatt* was recorded working the down 'Harrogate Pullman' on 8th May 1960 and one of its regular duties, the up 'Queen of Scots', on 9th July the same year, then on 24th June and 1st July 1961 the 08:21hrs up 'West Riding' returning on the 16:20hrs down 'Tees-Tyne Pullman'. A hockey special was hauled from Leeds to the 'Cross on 10th March 1962. Around this time a Smith-Stone speedometer was fitted to one of the rear driving wheels.

Transfer back to Ardesley on 1st April

1962 presaged the last stage of No. 60123's life. With six allocations it had been moved around more than most AIs. Passenger trains continued much as before, examples being the down 'Tees-Tyne Pullman' from the capital on 8th August and the 15:55hrs to Leeds on the 18th. The first recorded non-passenger working of No. 60123 also proved to be its last. On 7th September it suffered severe damage when it derailed at Offord when pulling the 08:20hrs King's Cross Goods-Leeds. It entered Doncaster Works on the 24th but was withdrawn on 1st October – the first AI to be condemned; although the damage sustained would normally have been regarded as a straightforward repair; by this time in the Modernisation Plan even minor damage could result in a locomotive's withdrawal. With a service life of just 13 years and seven months, No. 60123 was one of the shortest-lived AIs. In its time it had carried seven boilers. Scrapping was at Doncaster Works; the last reported sighting of No. 60123 was in the Works yard on 14th October. **trcc**



Another undated image shows No. 60123 at Doncaster on a Pullman train.

Robin Gibson

John Dixon

P2 ENGINEERING UPDATE *by David Elliott*

General

Design and manufacturing resources have continued to be diverted from time to time to support *Tornado's* return to the main line, however some good progress has been made on *Prince of Wales*.

Frames

Daniela has completed the FEA study of the pony truck crosshead which has emphasised that it is satisfyingly over engineered! She is presently working on the completing the study for the pony truck frame. North View Engineering Solutions in Darlington are making good progress with the outside motion brackets with delivery expected in March.

Wheelsets

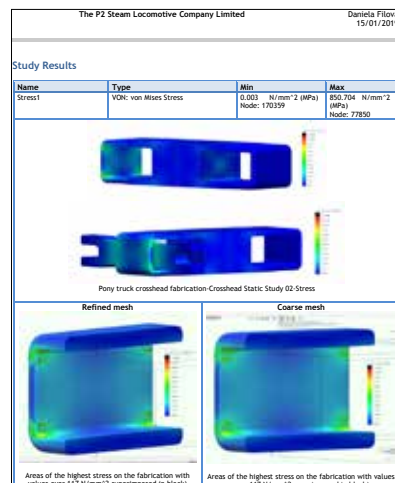
The saga of the pony truck cannon box continues! Due to a machining error, one of the bearing seats was bored oversize which has necessitated having it welded by a specialist in this field. This inevitably caused some distortion in the castings so they were stress relieved to restore them to the correct shape. Unfortunately, the stress relieving caused some of the manganese steel wear plates which form the liners where the cannon box slides up and down in the pony truck to crack. At the present time, under instruction from Timson Engineering who were contracted to machine all the cannon and axle boxes, North View Engineering Solutions in Darlington are welding on new liner plates. Based on satisfactory experience with *Tornado*, we have encouraged North View to maintain a welding code and procedure in welding manganese steel liners to steel axleboxes or hornblocks – hence their use for this work.

Otherwise Ian Matthews has got as far as he can with preparing and painting the wheel centres and spokes of the coupled



Above: Left Hand outside motion bracket being fabricated.

Right: Extract from pony truck crosshead FEA report.



Graphic - Daniela Flovid



Ian applies a blue marker coat for rubbing down.



Cream wheels.

wheelsets – we have had to leave the areas around the built-up balance weights until the lead/antimony alloy is poured into the spaces between the balance weight plates and the spokes to provide the desired level of rotary and reciprocating mass balance. These areas will be painted once the balancing is complete which can be concluded when the motion parts are weighed. The adjacent photograph shows Ian applying a fetching shade of blue to act as a marker coat whilst he was rubbing down to apply the grey undercoats. The blue shows up the high spots by appearing when the grey is rubbed down. Our volunteers have started sanding down the outer tyre faces as similar to the original P2 No. 2001 *Cock o' the North*, *Prince of Wales* will run with polished wheel tyres.

Cab

The first attempt to fit the cab spectacle windows was not successful due to the sloping front plates of the cab not being sufficiently flat. Ian Matthews has partially dismantled this area and applied much heat and controlled percussion to rectify this problem and both spectacle windows are installed and fit properly. Daniela has modified the window catch design to suit the thicker frames which are required to hold the 21mm thick glazings required to meet current Railway Group Standards.

Bob Hughes



David Elliot



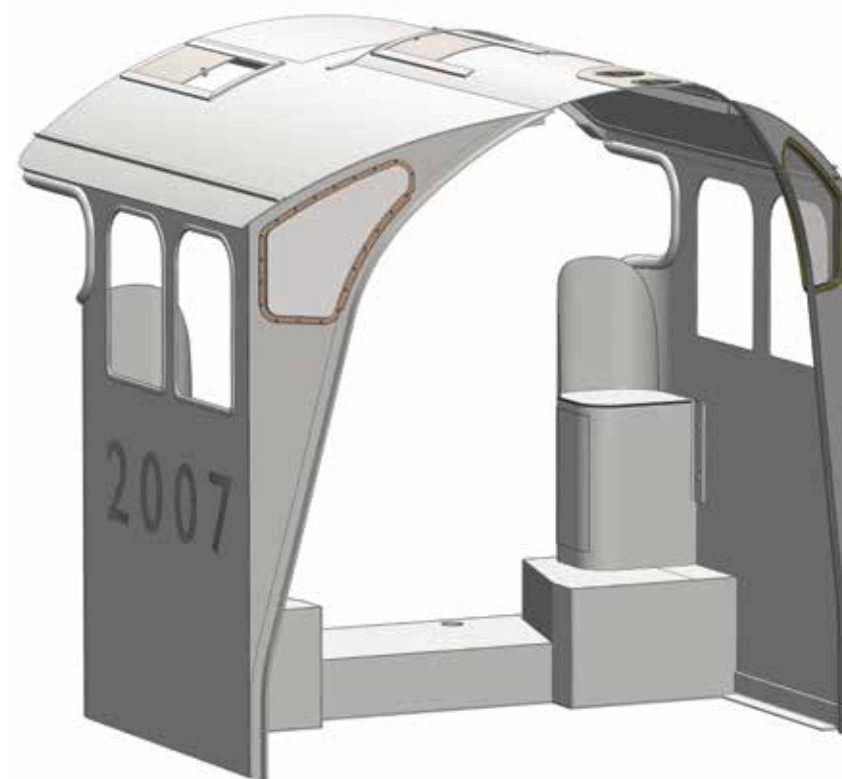
Daniela is also working up a slightly modified version of the electrical cubicles which form the bases of the cab seats. These are closely based on the design used on *Tornado* but amended to suit the different cab profile and curved in rear edges of the P2 cab.



Bob Hughes



Bob Hughes



Graphic - Daniela Flovid

Cab seats and cubicles.

Tender

With a total of four quotes to build the tender tank, we are near to making a decision on which supplier we will select. Unilathe at Stoke on Trent, which is supplying the tender axles, have delivered the three plain axles, but have had problems with the 4th axle (which has an extra seat on it to carry the tender alternator pulley). Two attempts to manufacture this axle have failed when the finished axles have been rejected during the final Non-Destructive Testing procedures. This has resulted in Unilathe's axle forging supplier carrying out further tests on their stock blank forgings resulting in a sizeable batch being scrapped. A new forging has been made and we are promised delivery of the finished axle in April. Once it is received, the four axles may be sent with the wheels to South Devon Railway Engineering for assembly (they already have the tyres).

Ian Howitt is making good progress with the tender frames at his Crofton works. Castings are being machined and bolted to the frame plates and several other components have been manufactured.

Fittings

Progress on steam and air fittings has been limited by the diversion of time to the *Tornado* repair and the difficulty in finding machining capacity in our contractors. Fortunately, Alan Parkin, whilst taken on part time for electrical design, has proved to be a good mechanical designer so has been producing 3D models of several fittings to help us catch up which will enable detailed pipe work layouts to be designed. Following a trawl through the project plan, we have identified three person-years of machining work so have taken the decision to advertise for a machinist and to acquire some better machinery with digital readouts and power feeds on all axes so that we can carry out this machining in-house.

Boiler

We are expecting receipt in the near future of the updated design for the boiler from Meiningen incorporating all the modifications and improvements fitted to *Tornado's* boiler over the years. Once this is complete we will be in a position to make a final decision on where the boiler is to be built. The machining of the superheater header is complete at Multi-Tech Engineering of Ferrybridge. Two sets of regulator castings have been ordered from H. Downs of Huddersfield. One set to act for a regulator for No. 2007, the other as a set of spares for both locomotives.



Chris Hubbs and Daniel Anderson bolting brackets to frame.



Brackets set up on tender frame plate.



Tender axles.



Completed turbine wheel and arbor.

Electrical

The new trial turbine wheel for the turbo-generators has been completed and at the present time an arbor and attachment cone are being made to enable it to be dynamically balanced. Alan Parkin is continuing to oversee manufacture of the structural components of the new design of belt driven alternator for the locomotives and support coaches.

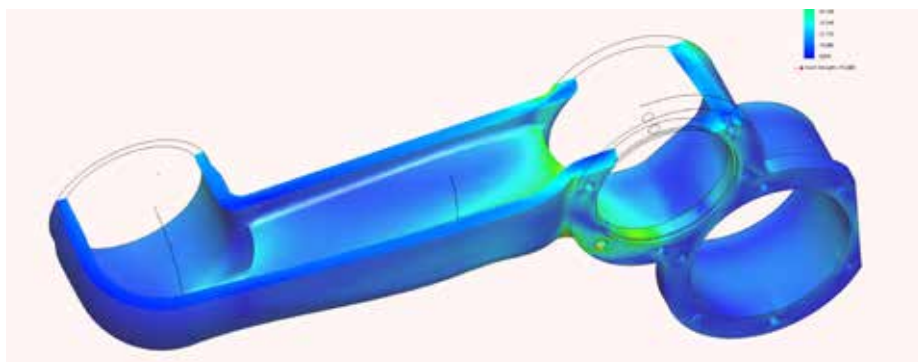
Rob Morland is continuing to develop the electrical design and specification of equipment. A start-up meeting has been held between Alan Parkin, Rob Morland, Paul Depledge (the electrician who installed most of the electrical system on *Tornado*) and David Elliott to discuss design

and routing of the conduits and trunking for the wiring. Following experience with *Tornado* it is intended to use stainless steel for this equipment to minimise corrosion.

Cylinders

With Daniela having produced detailed models of external steam pipes and elbows for the cylinder block, she has refined the design using Finite Element Analysis (FEA) and created manufacturing drawings. This has enabled us to seek pattern and casting costs for these items. In the meantime, David Elliott has been developing the Lentz/Franklin valve gear and detailing the cylinder block design.

tcc



Cylinder Front Middle Combined Inlet Exhaust Casting FEA.

I D Howitt

David Elliott

Graphic - Daniela Floxó



No. 2007 was specially painted up and equipped with vacuum hoses and coupling for a cover image for *Steam Railway* magazine.

David Elliott

P2 ROADSHOWS by Mark Allatt



Mandy Grant

P2 Roadshow at Darlington.

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

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

NEW 2019 ROADSHOW PROGRAMME:

- **Saturday 1st June 2019** – Dundee Heritage Trust, Dundee (amended date)
- **Saturday 8th June 2019** – Royal Station Hotel, Newcastle
- **Saturday 6th July 2019** – Darlington Locomotive Works, Darlington
- **Saturday 14th September 2019** – Hilton Hotel, Leeds
- **Saturday 2nd November 2019** – Darlington Locomotive Works, Darlington
- **Saturday 7th December 2019** – Pendulum Hotel (Manchester Conference Centre), Manchester.

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

P2 DEDICATED DONATIONS UPDATE by Mandy Grant

November 2018 to March 2019 has seen a steady increase in component sponsorship, with 59 individual components being sponsored, raising a further £8,364.00 before gift aid. This brings the total number of components sponsored to 518!

Components sponsored include;

- 2x Washout Door Escutcheons
- 50x Individual Driven Bolt and Nut sets
- Cartazzi Wheel Tyre LH

- Inlet Valve Reverse Cam LH
 - Pony Truck Cannonbox Casting Upper
 - Pony Truck Cannonbox Casting Lower
 - Cam Box Worm Gear and Pinion LH
 - Steam Heating Safety Valve Casting
 - Pony Truck Adjustment Ring (Half) I
- We are most grateful to all of our supporters who have responded to the Dedicated Donations campaign so far!

If you haven't yet sponsored components, now is the perfect time, with prices ranging in price from one of

over 1,000 driven bolts & nuts for £25, to the complete exhaust steam injector for £15,000. Why not treat yourself or a loved one to something different and help us to complete this iconic locomotive by 2021!

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

THE BOILER CLUB STEAMS PAST THE HALF WAY POINT

by Mark Allatt

In early September, The A1 Steam Locomotive Trust was delighted to announce that pledges made to The Boiler Club fundraising campaign had passed the two-thirds point. Launched in October 2014 to raise the £600,000 needed pay for the manufacture of the boiler, The Boiler Club now has over 175 members who have each donated or pledged £2,000 (plus Gift Aid) meaning that over £430,000 has been raised so far for the boiler.

Following the success of The Founders Club, which was designed to get to the P2 Project to the point of cutting No. 2007's frames, the Trust established The Boiler Club to fund the construction of *Prince of Wales* boiler. It is the Trust's desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore its aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 40 payments of £50 by standing order). In return for this commitment, members of The Boiler Club receive these special benefits:

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

Passing the half way point in the funding of No. 2007 *Prince of Wales* boiler through The Boiler Club marks a significant milestone in the project to build Britain's most powerful steam locomotive. The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion before the end of 2021 we need to place the order for the boiler in the next few weeks for delivery in January 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**

P2 PROGRESS TO DATE

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

- Frame plates for engine and tender rolled and profiled; engine's frames erected at Darlington Locomotive Works; all major engine frame stays, brackets, horn blocks, axle boxes and buffers cast (44 in total); over 1,000 fitted and driven bolts ordered and delivered, approximately 800 now fitted to the frames
- All engine wheelsets complete; materials for tender wheelsets including tyres, axles and wheel centres delivered
- Preliminary discussions held with boiler manufacturers and forged foundation ring corners manufactured and machined; boiler design study commissioned; start made on boiler fittings with castings for combined injector steam and delivery valves; regulator castings delivered; super-heater header cast and machined
- Study into ride and suspension completed using rail industry standard Vampire® software; finite Element Analysis completed on re-designed crank axle to ensure locomotive complies with modern standards; assessment and notified body appointed to oversee certification - first site visit made
- Cab erected and cab side and spectacle window frames fitted; engine footplating and splasher kits delivered and permanently fitted to frames
- Smokebox door pressed; details made and door completed; door frame manufactured; smokebox delivered and erected; chimney cast and fitted
- Crosshead castings received
- Boiler cladding assembly jig built; cladding crinolines and hoops rolled and fitted to jig; cladding sheets procured, rolled and fitted to jig; jig trial fitted to the frames
- Tender frame construction under way, axlebox and other tender castings ordered from William Cook Cast Products
- Nameplates and chime whistle delivered
- Significant progress on design and manufacture of pipe-work
- Over £2m spent, £2.5m raised and £3.2m pledged of the required £5m. **TCC**

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

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



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

FUNDRAISING FOR No. 2007 PRINCE OF WALES by Mark Allatt

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

Bob Hughes



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

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

Pledges towards building No. 2007 Prince of Wales have passed £3.2m just under five years after the frames were rolled at British Steel's plant in Scunthorpe. Public interest in seeing a new Gresley class P2 become a reality sooner rather than later remains high and over 900 people have already signed up to the 'P2 for the price of a pint of beer per week' (£10 per month or more) Covenant scheme since its launch in March 2014. The average monthly donation is now over £17 per Covenantor (including Gift Aid) and the projected monthly income for our P2 project from the monthly Covenant scheme is now running at around 110% of that of *Tornado* – a remarkable achievement in such a short period of time and all thanks to the generosity of our supporters. What is even more striking is that only around 30% of A1 Covenantors (36% of P2 Covenantors)

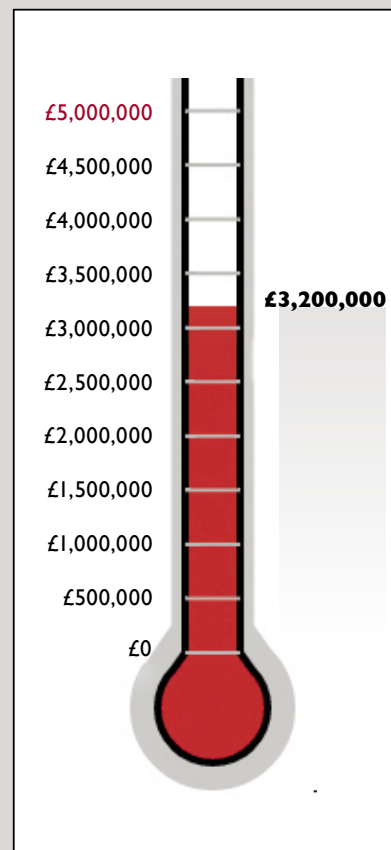
are regular donors to both locomotives, meaning that the overwhelming majority of the funds are being given by new supporters of the Trust.

In addition to this core scheme, funds have been raised through The Founders Club with over 360 members donated £1,000 each plus Gift Aid – target 100 people, now closed; The Mikado Club, launched in March 2016 with an initial target of 160 members to wheel the engine and extended in May 2017 to 200 members to also wheel the tender - now fully subscribed with 200 supporters pledging £1,000 each plus Gift Aid and therefore potentially raising £250,000; The Cylinder Club, only launched at our last Convention in October 2017, is now also fully subscribed with 100 people have already pledged £1,000 each plus Gift Aid and therefore potentially raising £125,000; The Boiler Club, over 170

people have pledged £2,000 each to fund the boiler - target of 300 people – meaning two-thirds of the £600,000 target is now pledged; and Dedicated Donations, with over £315,000 from existing supporters sponsoring a variety of components. The Gresley Society Trust has also sponsored the locomotive's distinctive front-end for which we are most grateful.

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

April 2018 saw the launch of The Motion Club, established to fund the manufacture of the heavy motion for



No. 2007, where we have set ourselves the challenge of raising £210,000 from 175 supporters each donating £1,000 plus Gift Aid. In just ten days we had already signed up 24 members of The Motion Club, potentially worth £30,000 including Gift Aid – a remarkable achievement thanks to the generosity of our supporters. As of early April 2019, we had recruited over 125 members to The Motion Club, with over £155,000 pledged.

We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has received since its launch. This means over £2m (40% of the total required) converted into metal, over £2.5m (50%) raised and £3.2m (64%) pledged.

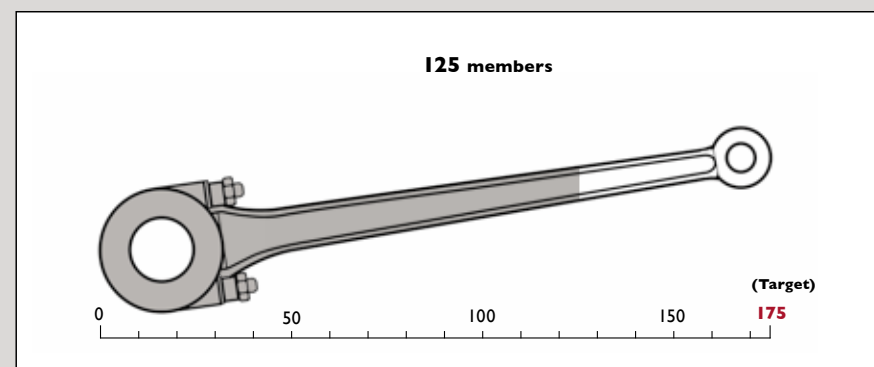
We now have a rolling chassis and we remain on-track for completion of the new locomotive by the end of 2021. However, to maintain this rate of progress we need to raise more than £700,000 per year, which given the nature of the regular donation scheme becomes more challenging as each year passes. Last financial year we more than achieved our budget of £500,000 and this new financial year we have set a fundraising budget of £700,000.

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, becoming a member of The Motion Club or taking out a Dedicated Donation. It's time to get on-board!

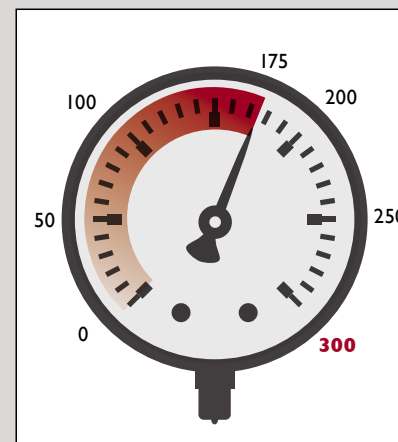
For more information on how you can help to build Britain's most powerful steam locomotive visit www.p2steam.com, email enquiries@p2steam.com or call **01325 460163**. TCC



No. 2007 stands outside Darlington Locomotive Works.



Above centre: Motion Club gauge - 125 Members.



Left: Boiler Club gauge - 175 Members.



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

The Gresley Society Trust

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 £430,000 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 Boiler Club 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.

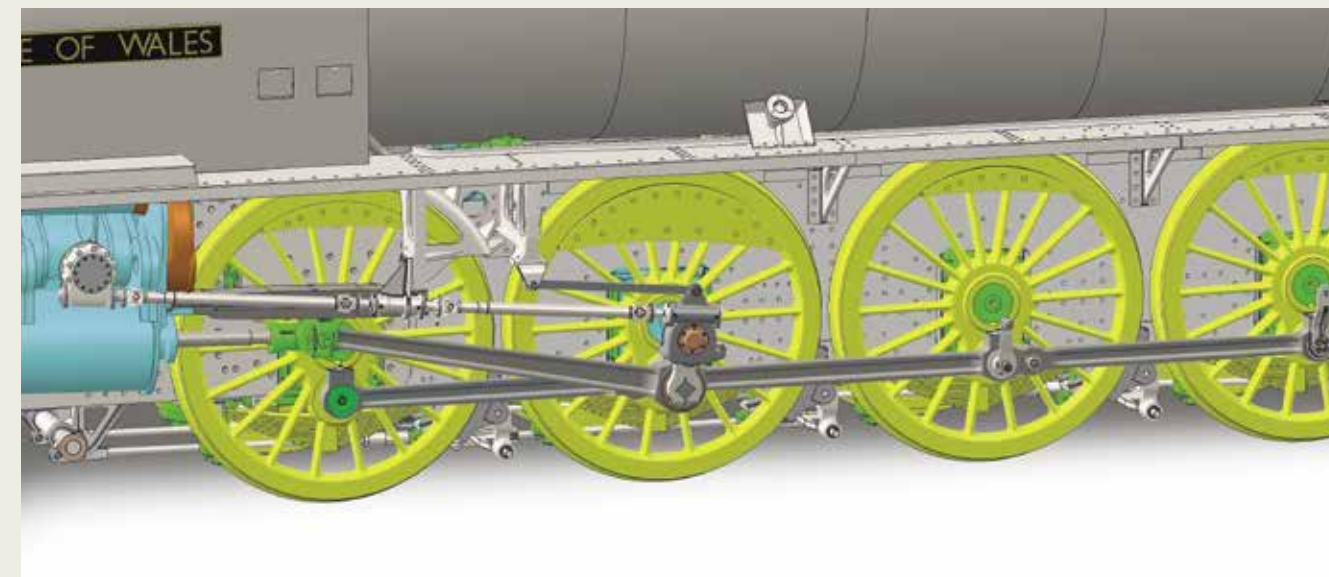


2007 PRINCE OF WALES
Building Britain's Most Powerful Steam Locomotive

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

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

by Mark Allatt



David Elliott / A1ST

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 early February 2019 we had recruited over 125 members to The Motion Club, with over £155,000 pledged.

In May 2018 we were delighted to announce that we had placed a £220,000 order with Stephenson Engineering Ltd of Atherton, Manchester for the heavy motion No. 2007 *Prince of Wales*. The order included the forging, machining and heat treatment of the nine heavy motion rods - intermediate coupling rod LH/RH, trailing coupling rod LH/RH, leading couple rod LH/RH, outside connecting rod LH/RH and the inside connecting rod assembly (including strap, gluts and strap nuts and washers) – and the combined piston and rod. The motion is expected to be delivered in batches throughout 2019. Orders are to follow for the motion include rod bushes, oil box covers and miscellaneous components.

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

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

The work involved in designing and manufacturing the motion includes:

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

We are delighted with the level of support that the project to build Britain's most powerful steam locomotive has received since its launch. Thanks to our supporters' continued generosity, over £3.2m has now been donated or pledged. We now need to turn our attention to the motion which is our next major manufacturing challenge. Given the level of support The Motion Club has received in just ten months, we are confident we can raise the additional £55,000 needed to pay for the heavy motion and remain on-track for completion of new Gresley class P2 locomotive, No. 2007 *Prince of Wales* in 2021.

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

PROFILE – GRAHAM MORTON *by Graham Langer*

Graham has been P2 book-keeper from the inception of the project, a role which means primarily looking after the P2 Construction Account; this involves paying invoices which makes Graham probably the biggest 'spender' of all in the trust at the present time and he likens this to a huge firebox where all our donors, Covenantors, Founders and various club members pitch in the 'coal' and Graham is the 'fire' which uses it all up – so do keep the 'coal' coming! Graham is also responsible for money transfer, payment of the salaries of the staff at Darlington Locomotive Works and his favourite task of all, the quarterly VAT return. Gift Aid comes under Graham's remit and it is perhaps a timely reminder that all donations can be so treated thus; cash flow projection is another area shortly to come under Graham's umbrella.

Graham has no professional railway background but being born in the early 1950s and living in a suburb of Glasgow on the West Coast Main Line just five miles out of Glasgow Central; having to cross that line four times daily walking to and from school (yes, including lunchtime), it was very easy to get bitten by the trainspotting bug. Graham recalls that if the morning trek to school was timed properly the 08:30hrs southbound 'Caledonian' could be espied complete with that most excellent of locomotives, a splendid Stanier Princess Coronation class, with possibly only eight carriages on a tight schedule reaching Euston around 15:00hrs. Who could resist? The West Coast line was full of variety and even when the early diesels arrived (today's class 20s and 40s initially) this just added to the magic of it all as in those pre-computer times one generally had little idea of what was likely to come along; hence Graham spent many pleasureable hours by the lineside.

Having mentioned the lack of today's technology, the trainspotting grapevine could work almost unbelievable wonders and Graham remembers to this day the most unusual locomotive to reach Glasgow. One of the LNWR 0-8-0 tender locomotives had somehow crossed the border! Next morning it was on the bikes and a four mile ride to Polmadie Shed (66A, the main West Coast shed in Glasgow), down the lane beside the shed towards a lorry transport depot and the convenient 'hole in the fence'. Luckily the repair



Graham Morton.

shed was adjacent to this lane and could generally be accessed or 'bunked' without being seen. To Graham's amazement No. 49104 was present with a set of driving wheels missing but the 'spotters' were cock-a-hoop. Graham never saw one of these locos again until the preservation era.

What's the best café you've ever visited? For Graham it was No. 60532 *Blue Peter* (now part of the Hosking fleet); in 1966 steam was rare in Scotland and he managed a trip to Dundee Tay Bridge shed where two steam locomotives were present, a J37 0-6-0 and *Blue Peter*, which had been kept as a standby for possible diesel failures on the Aberdeen line. Graham, armed with a packed lunch to eat, found himself in the drivers' seat of No. 60532! Still a fond memory of his.

Graham is married to Elizabeth, who is also involved in the Trust. They live just to the south of Edinburgh and have two children and four grandchildren – needless to say the latter are all part of

The Tornado Team although they have yet to see her close up. His main career was in the banking sector although this was cut short due to illness, but he still works part-time (ostensibly!) as a tour guide on Edinburgh's open-top buses, even in the winter months.

You might ask why someone brought up in an LMS area would fall for LNER new locomotives. Graham's answer to that is that any steam locomotive has that indescribable allure, "It's been described thousands of times – the sight, smell, noise, heat and downright personality. Who can resist being a little part of ongoing steam locomotive history? Just to see *Tornado* and say, 'I had a small part in that' is an honour."

Graham and Elizabeth have merchandised on a couple of *Tornado* trips although distance is often a difficulty but with 'The Aberdonian' this year it will give them a chance to be more 'hands on' and who knows perhaps his grandchildren will at last get to see 'their' engine up close. **TCC**

FROM THE ARCHIVES *by Graham Langer*



Ken Richardson

Coupled to the Royal Train and carrying the Prince of Wales' feathers, *Tornado* is ready to depart York on 19th February 2009.

Winter 1999 – An order had been placed for the first tranche of forgings including the slide bars and several parts of the reversing gear for the locomotive's three sets of Walschaerts motion. The three slidebars, one for each of its three sets of motion, were forged by John Hesketh & Son at Bury and machined by Ufone Precision Engineers at Rowley Regis and will be fitted by March 2000. The slidebars were paid for under the Trust's 'dedicated covenant scheme' at a total cost of £5,000. The total cost of the three sets of motion for *Tornado* was estimated at £130,000. The bogie's bottom centre, end stretchers and crosshead castings were dispatched to Ufone for machining. The most complicated pattern needed for the construction of *Tornado* was ordered from Kingsheath Patterns of Kingswinford. The pattern for the superheater header cost around £9,000.

Winter 2004 – Progress centred on the boiler; a decision had been taken to go with coal firing, increases in the cost of oil meant that this option was no longer viable and so the design contract, which had been awarded to DB Meiningen specified a coal-fired grate. At Darlington work had concentrated on setting up the fully machined valve gear and assembling the reverser and its mechanism. Having been reduced in height to Railtrack's new loading gauge limit, the cab had been assembled and riveted at the North Yorkshire Moors Railway and returned to DLW for fitting.

Winter 2009 - On Thursday 19th February 2009 *Tornado* was officially named by TRH The Prince of Wales

and The Duchess of Cornwall at York Station. Their Royal Highnesses arrived by the Royal Train and were greeted by civic dignitaries and Mark Allatt and Barry Wilson of The A1 Steam Locomotive Trust. Having met a representative number of Covenantors, volunteers and contractors as *Tornado* backed down onto the train they proceeded to the podium to officially name the locomotive. Prince Charles paid tribute to all those who brought the dream to reality and then removed the banner covering the nameplate; moments later an RAF flypast of a Tornado F2 and two Hawk jets thundered over the station. After meeting the crew The Prince joined them on the footplate while The Duchess accompanied Dorothy Mather and other guests to the train. *Tornado* then departed with the Royal Train for Leeds with the Prince still on the footplate. It was an extraordinary start to what was become an extraordinary career.

Winter 2014 – Coincidentally *Tornado* had moved from the Nene Valley Railway to Barrow Hill Roundhouse for winter maintenance which included a 'C' exam. The safety valves and injectors were removed from the locomotive for annual inspection and maintenance again and the copper pipework which feeds steam from the various control valves in the cab was removed and taken to Darlington Locomotive Works for annealing to ensure that the pipework retains its flexibility. After a programme of planned stay replacement by staff from Meiningen the locomotive passed a successful boiler test on 11th February, ready to resume its mainline career.. **TCC**

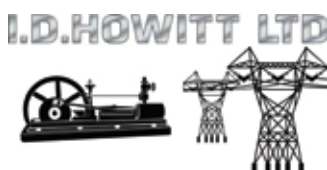
The A1 Steam Locomotive Trust is pleased to display the logos of organisations giving us their ongoing support. Their contribution is gratefully acknowledged.

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)

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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

David Breakell Legal (david.breakell@a1steam.com)

Sophie Bunker-James Education (sophie.james@a1steam.com)

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 (daniela.filova@a1steam.com)

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

Richard Pearson Engineering & Works Manager (richard.pearson@a1steam.com)

Administration

Gemma Braithwaite Office Manager (gemma.braithwaite@a1steam.com)

Leigh Taylor Administrator (leigh.taylor@a1steam.com)

Editor

Graham Langer (graham.langer@a1steam.com)

Picture Editor

Tony Watson (tony.watson@a1steam.com)

Design

Kevin Lumb (kevin@limegroveprintanddesign.co.uk)

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● 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 *Tomado's* main line passenger trains follows the rules of the railway and only goes where permitted.

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