

# THE COMMUNICATION CORD



60163 TORNADO

New Steam for the Main Line

No. 35 Summer 2014

## ‘THE BORDER RAIDER’

by Huw Parker



A period of fine weather allowed *Tornado's* support crew plenty of opportunity to prepare the engine and coach to a high standard ahead of the run and both looked superb as they sat waiting to take charge of the train as it arrived at Crewe behind the DBS liveried class 90 electric locomotive. Preparation the day before saw the usual bout of frenetic activity cleaning and fully preparing the locomotive for the FTR - Fitness to Run examination. This was undertaken by Colin Green, who conducted a series of functional tests and a full mechanical inspection that ensures the engine meets the required standards to run over Network Rail. With this successfully completed, we were ready!

On the day of the run, members of the support crew were again hard at work early to complete the final preparations and hand the locomotive over to the DBS crew who would take us North from Crewe to Carlisle. On this occasion, driver Keith Murfin and fireman Mark Dale under the watchful eye of traction inspector Bob Hart were to tackle the formidable climb northbound over Shap. The route northwards saw some good running despite a brief signal check at Newton le Willows, arriving a few minutes down for the water stop at Barton & Broughton Loop. Thanks to

Heading for Carlisle,  
*Tornado* arrives at Preston  
with ‘The Border Raider’.

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## EDITORIAL by Graham Langer

As you can see, this is a packed edition of *The Communication Cord*, bulging with news about *Tornado's* recent adventures and the remarkable progress being made with *Prince of Wales*. 'The Border Raider' was a huge success, with No. 60163 once again flattening Shap and timing the train to perfection. Building No. 2007 continues apace with myriad parts being ordered and some even being delivered – the speed with which this project proceeds depends heavily on the income being received and we are delighted to announce that we have now launched the dedicated covenant scheme for this locomotive.

As ever, none of this would be possible without the hundreds of man hours voluntarily given by so many people. One of these was Neil Whitaker who for many years fulfilled the role of picture editor and kept me supplied with images for *TCC*, *The Tornado Telegraph* and the website; Neil has had to relinquish this role recently and I would like to record our gratitude for all he has done for the Trust. **TCC**

quick work by the support crew on the ground, the tender was filled and we left without losing any further time arriving at Carnforth Loop still eight minutes down.

We were held at Carnforth longer than scheduled to allow mainline services to pass, leaving six minutes down; from here

*Tornado* got stuck into the long climb with gusto! Some excellent early running saw the train pass the summit just under 45 mph, claiming what may be the fastest section time from Carnforth to Shap Summit. A good run down the bank the other side and through Penrith saw 'The

Graham Nicholas



**Below: The Border Raider' pitched *Tornado* against Shap, she's seen here in the Lune Gorge.**

**Right: On the return, leaning into the curve, *Tornado* coasts through Greenholme.**



Border Raider' arrive right time in Carlisle. After bidding our passengers farewell, Driver Murfin moved the locomotive across into Upperby Yard and then the support crew took charge to prepare *Tornado* for the return run. Cleaning the fire, coaling and watering took place alongside a mechanical inspection by our own Duty Engineer to ensure all was well. After a quick brew and quicker lunch for all involved, it was time to return to Carlisle station to re-join the train.

Driver Pete Sheridan took the regulator for the return trip with TI Gareth Jones supervising. A rather apprehensive fireman Jones was to fire his first mainline trip solo under the supervision of Sean Levell. He need not have worried as the engine began the attack on the southbound drag with plenty of steam and Jones keeping pace with demand. A 50 mph TSR spoilt what could have been a further record climb, but nevertheless the engine reached the summit in good health at around 55mph with speed dropping to just under 50 mph during the climb. After a short water stop at Oxenholme, arriving just three minutes down, we were away again on time to arrive at Preston six minutes early.

The pace of life changed once more as *Tornado* handed the train back to the DBS class 90 for the return leg to London. After a short break in the bay platform surrounded by an appreciative group of admirers, *Tornado* with support coach in tow set off back to Crewe, arriving back at the Heritage Centre at 21.15hrs to allow the crew to dispose of the engine after the day's run. The following day saw another early start for all involved to prepare for the long journey south to the Swanage Railway.... but that is another story! **TCC**

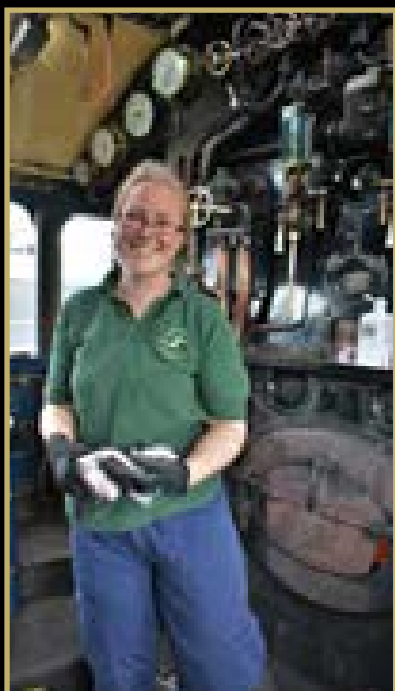
## OPERATING 'THE BORDER RAIDER' *by Mandy Grant*

All photos by Mandy Grant unless stated



**Tornado is readied for the run at Crewe. By this stage many of the support crew had already worked a day or two preparing the locomotive.**

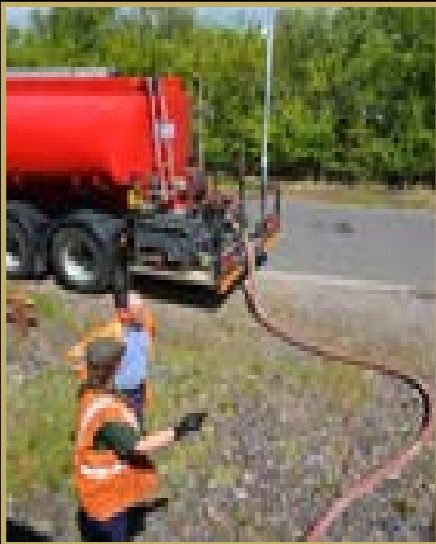
**Naomi Collett, hard at work cleaning the cab and backhead fittings.**



**Geoff Holland busies himself preparing breakfast for the support crew. This essential job often entails feeding the DB Schenker staff as well!**

**Mark Grant, a member of the merchandise team who do such sterling work raising funds for Tornado on these trips.**

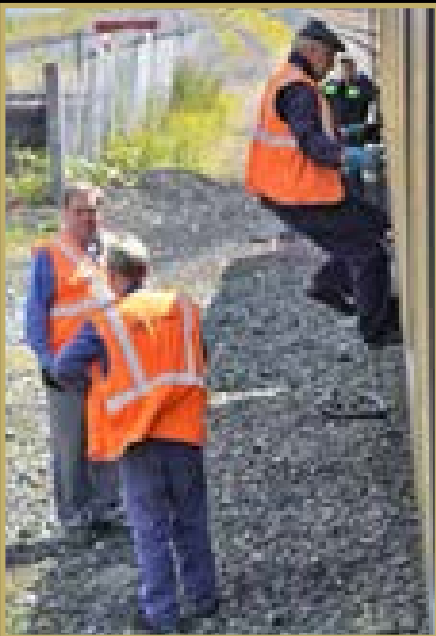




**Naomi Collett and Geoff Holland supervise the watering of the engine whilst servicing at Carlisle prior to our return run. 'Bells & Two Tones' provide water at regular pre-planned points during a tour.**



**The coal was also replenished at Carlisle.**



**Bob Hart (DBS Traction Inspector) descends from the support coach while David Elliott confers with Geoff Holland.**



**After an excellent run north, *Tornado* rests at Carlisle.**



**Left: Pete Sheridan, the DBS driver for the southbound run, and Huw Parker (AISLT) at Carlisle.**

**Below: Geoff Holland swaps the galley for the cooler environment of the footplate!**





**Eileen Grace boasts the winning ticket in the draw for the southbound headboard.**



Mandy Grant

## ‘THE BORDER RAIDER’ HEADBOARD GOES TO A DESERVING HOME *by Mandy Grant*

After her initial excitement at winning ‘The Border Raider’ headboard in our on-train raffle on the 5th July, Eileen Grace selflessly decided that she would like to present it to two very good friends of hers, whom she said were very deserving of the gift.

Celia and Nick Hunnisett bought Newtonmore Station, a former highland railway building, in 2003. The station was built in 1893 and had already been converted into a house when they became custodians. They bought it because it particularly intrigued Nick that it was next to a “live” railway line and not a disused or abandoned one. They saw that it could have great potential as a holiday

business; this has subsequently proved correct.

As well as teaching, Celia and Nick are 16+ carers for Bromley where they live and usually have three placement girls, many of whom stay with them and love the old station just as much as they do.

Nick says that ‘The Border Raider’ headboard, kindly donated by Eileen, a former colleague of his, will look fabulous displayed somewhere at the station for all their clients to see. Nick and Celia are very grateful to Eileen for this kind gesture!

More information can be found at [www.theoldstationnewtonmore.com](http://www.theoldstationnewtonmore.com). **TCC**



Mandy Grant

**Mark Allatt presents Eileen with the headboard (complete with dead flies as proof of its provenance!)**

## AI ENGINEERING UPDATE *by David Elliott*

**General** - Tornado has operated satisfactorily since the completion of annual maintenance, however there have been a couple of problems

**Safety valves** - As part of the annual maintenance programme, the safety valves were sent to Crewe Heritage for overhaul. However whilst they were clearing surplus steam effectively (since new springs were fitted last year) they have tended to drop too much pressure before closing. The Ross instruction manual offers some remedies for this problem which have all been tried with only a marginal improvement.

During research for the P2 we came across two drawings giving LNER instructions for fitting and setting various types of Ross pop safety valves. These indicated that the gap we have been using between the pop ring on the valve and the base of the valve (as quoted in the Ross booklet) is not correct for 250 psi valves, this gap increasing significantly with increasing pressure

Whilst at Crewe prior to ‘The Border Raider’ tour, Crewe’s safety valve specialist removed the front valve and reset the gap to the LNER drawing and the valve was tried on the locomotive. Unfortunately it was not opening properly and not popping correctly. As time was running out, the valve was removed and the gap was returned to the original figure. It worked better but is still not opening sharply. The rear valve was adjusted to be the first valve to open and the front valve set up as well as possible.

The view is that the components of the valve may not be truly concentric which is causing it to drag. This can happen over time due to the heat of the steam slowly stress relieving the valve components and has been experienced previously with some of the cab steam valves. The safety valves are acceptable at the present but it is intended that further work should be done before the locomotive is dismantled for the intermediate overhaul so that the valves are working optimally when they are refitted after the intermediate overhaul.

**Firebox stays** - When the boiler cooled down at Swanage after the engine and coach move from Crewe, two leaking stays in the combustion chamber next to the tube plate were observed.

Under the additional maintenance instruction based on German practice that was issued after the Hither Green stay replacement activity in 2010, we are permitted to plug leaking stays provided

they are not adjacent. As these two were quite close, a conversation was had with Bob Garnett of Royal and Sun Alliance Engineering who is our insurer's boiler inspector, and it was agreed that we could plug the stays and run during the Swanage gala weekend, but the stays should then be replaced. Meiningen were able to send ten flexible stays and stay caps to Swanage in double quick time. Olly Juras, a coded welder (who lives locally to Swanage and has done stay replacement for us at Southall) agreed to do the stay work and Mick Robinson went south to remove the rear air pump to enable a "letter box" to be cut in the cladding under the boiler to give access to the outside of the stays. Following the recommended practice, the stays around each of the cracked stays will be replaced, totaling ten.

The presence of pipe work under the boiler rendered the exercise somewhat more difficult than originally envisaged, but following a successful water test (to check for leaks), the engine was successfully steamed for work on the Swanage Railway over the weekend of 19th/20th July. Thanks to all involved for what was a difficult job carried out in near tropical conditions. This is a further indication that the boiler (and in particular the firebox) is becoming tired which leads directly onto the next topic.

**Intermediate Overhaul** - Further planning work has been done by on the intermediate overhaul and it is anticipated that Graeme Bunker and David Elliott will visit Meiningen in early August discuss details of the work to be done on the boiler. The present plan envisages the locomotive being dismantled at Barrow Hill during mid to late October with the boiler being trucked directly to Meiningen.

P2 work at Darlington Locomotive

Works (DLW) is being planned such that the new frames can be skated over into the south eastern corner of the building (where *Tornado's* boiler stood during construction) to allow room for *Tornado's* frame and cab to be moved in for work on the bottom half of the engine. Having reached nearly 80,000 miles of running since new, the locomotive is starting to knock due to a buildup of clearances between the axleboxes and the hornblocks. Correcting this involves removal of the coupled wheelsets to enable the horn block liners to be shimmed back to the correct clearances. To do this properly requires all the wheels to be out at the same time, precluding doing it one axle at a time with a wheel drop. The lift can be easily achieved with the DLW synchro jacks which were used during construction of the locomotive.

The cladding, pipework etc will be placed in a container at Barrow Hill which will be moved to and stored outside DLW pending refurbishment and reassembly. Some other work will be undertaken whilst the boiler is off, in particular improving the fit of the bolts holding on the inside slide bars (they are presently too tight a fit - good for securing the bars to the engine, but making their removal difficult for running repairs). Pipework to the air pumps will be altered to make removing and refitting quicker and easier.

It is not anticipated that much will need doing to the motion, however it may prove necessary to re-metal the coupling rod bushes once the re-shimmed horn block liners return the axles to the correct position.

The opportunity will be taken for Ian Matthews to fully repaint the frames whilst the wheels are out. He will also apply the apple green livery when the engine is reassembled. The boiler will be refitted

at Darlington and a limited steam test undertaken.

At present we have a choice of leaving the tender at Barrow Hill and doing any repair work and the repaint there, or bringing it to Darlington once the wheels are back under the locomotive (there is no room to store the wheelsets on the track and get the tender inside at the same time). The latter is attractive as it is expected that there will be significant amount of work to be done to modify the front of the tank to accommodate ERTMS (cab signalling) equipment and it will be possible to carry out the re-paint in controlled temperature conditions. It will also enable testing of the complete locomotive before leaving Darlington. However this will be offset by additional cost of low loader moves and a possible support coach move if the locomotive is returned to the main line locally.

**Support Coach** - The main work here has been the carrying out of the No. 7 (annual) exam and with Graham Nicholas' invaluable input, extension of the engineering acceptance (EA) maintenance policy up to the end of the 2014. It is planned that the final work on the maintenance policy will be done in time to bring coach certification into line with the locomotive.

**Staffing** - With the absence of Jon Pridmore, we have been drawing on engineering resource from various sources including David Wright, Fraser Birrell, Chris Smith and for out of course repairs, Mick Robinson and David Elliott with co-ordination by John Wilkinson. So far this has worked well given the less intensive programme this year and should see us through to the intermediate overhaul. **TCC**

## STOP PRESS

## NEW CUSTODIAN FOR THOMPSON CLASS B1 NO. 61306 MAYFLOWER

Retired businessman and long-term LNER enthusiast David Buck has acquired Thompson class B1 No. 61306 *Mayflower* from the Boden family for an undisclosed sum. The locomotive will be managed on behalf of David Buck by The A1 Steam Locomotive Trust. The locomotive returned to the main line in 2012 as No. 61306 in Apple Green livery with 'British Railways' on the tender. Since the time it has been under the care of Neil Boden and has always been an exemplary locomotive both in terms of the high quality of its turn out and its operational pedigree. Having only completed around 2,000 miles since its last overhaul, No. 61306 will be available for private hire by heritage railways and for use on main line charter trains. It is anticipated that the locomotive will initially move to the North Norfolk Railway in Sheringham.

• **David Buck commented**, "I am delighted to become the new custodian of No. 61306 *Mayflower*. I have vivid

memories of B1s working in and around Ipswich and this is the fulfilment of a childhood dream. The Boden family have always ensured that the locomotive was immaculately presented and this will continue as *Mayflower* seeks work on heritage railways and main line charters."

• **Neil Boden added**, "The Boden family has had the pleasure of owning *Mayflower* for over 30 years and we are delighted that this wonderful locomotive is going to David Buck who will continue to maintain the same high standards of presentation and who really cares about the locomotive."

• **Mark Allatt, chairman, The A1 Steam Locomotive Trust, concluded**, "We are delighted to be working with David to operate this much-loved LNER designed locomotive and bring it to new audiences up and down the country. As a Darlington designed locomotive, No. 61306 *Mayflower* is a perfect complement to No. 60163 *Tornado*." **TCC**

## TORNADO AT DERBY *by John Wilkinson*

*Tornado* departed Southall on 14th May under her own power in the hands of Devon & Cornwall Rail crew driver Dave Court, fireman John Wilkinson and conductors Rob Buchanan and Geoff Sweetmore. Leaving Southall tender first, a run round move was made at West Hampstead loop before proceeding chimney first to Derby and onto the Litchurch Lane site where we received a great welcome from all the staff.

The following day *Tornado* was the star of a press day for the Derby 175 event and Mark Allatt, John Wilkinson and others were interviewed by press, radio and TV ensuring the *Tornado's* profile remains high. Highlight of the day was *Tornado* being driven on the demonstration line by Francis Paonessa, Managing Director of Bombardier.

The locomotive was prepared for service again on 18th May when Bombardier held a day for staff, family and friends which saw *Tornado* leading the train along the demonstration line within the works. On Monday 19th the loco was used to entertain corporate



Paul Davies

**Blue skies further enhance an incredibly clean locomotive at Derby.**

clients of Bombardier before having a fitness to run exam and departing for Barrow Hill, again in the hands of Dave Court and John Wilkinson with DC

Rail Head of Operations, Paul Cheley conducting. After a successful run to Barrow Hill the loco received a little maintenance ahead of 'The Border Raider'.

## TORNADO ON THE SWANAGE RAILWAY *by Huw Parker*

*Tornado* left Crewe on Monday 7th July heading south for a visit to Swanage Railway. Unfortunately, the locomotive and support coach were piloted by a Class 56 diesel, although *Tornado* was in steam, crewed by driver Dave Court and fireman John Wilkinson. The route took us down the West Coast Main Line to Wembley, then off round the North London line to head South West through Woking, Farnborough to Salisbury, where we took water and reorganised the consist for the run round through Southampton and Bournemouth to ensure we arrived at Swanage tender first.

The following week, Gareth Owens and Jorge Gorman set to preparing *Tornado* for the gala weekend in sunshine and extremely warm temperatures and, once again, the engine looked her very best for the busy weekend ahead. The sunny weather held over the gala to produce some excellent pictures of the locomotive in charge of trains throughout the weekend. On the Saturday evening, as the main timetable drew to a close, *Tornado* ran four evening trips as 'The Twilight Tornado'.

The second weekend, assisted by further support crew members John Rawlinson and Chris Ardy, *Tornado* provided the opportunity for a number of members of the public to drive over the length of the

Swanage line. Under the watchful eye of AISLT's Huw Parker or John Wilkinson with the Swanage Railway's Nick Lloyd closely supervising each novice driver, the engine ran a total of eight trips over the Saturday and Sunday. In addition, the Saturday evening diner ran again as 'The Twilight Tornado', with passengers enjoying two return trips along the line in evening sunshine into the dusk. After two driver experience trips on Sunday, *Tornado* headed the lunchtime train to complete her visit to the Swanage Railway.

Throughout the visit the engine was

admired by many summer visitors and the Swanage Railway crews thoroughly enjoyed their opportunity to drive and fire an A1. Although this was not the locomotive's first visit, previous trips had been brief at the head of visiting charter trains. *Tornado* and her support crew were well looked after by crews and Swanage Railway staff alike; we look forward to future visits and thoroughly recommend a trip to this to this picturesque Dorset line amongst the Purbeck Hills. Visit [www.swanagerailway.co.uk](http://www.swanagerailway.co.uk) for further information. **TCC**



David Cook

***Tornado* passes Eddystone with an 11.30 departure from Swanage.**





**A**s I write this column *Tornado* has just arrived at the Bluebell Railway following a most enjoyable visit to the Swanage Railway (see page 8). This was preceded by our second main line train of the year – ‘The Border Raider’ from Crewe to Carlisle and back to Preston on 5th July – which was described to me by Mike Notley

as the best main line steam performance of the year to-date (see page 1 for a full report). This was both a great operational and commercial success thanks to the dedication of all of our volunteers beforehand and on the day of the run. Our next train is ‘The Devon Belle’ on 25th August from London Paddington to Exeter and return which will be *Tornado*’s last main line train in British Railways Express Passenger Blue. More details at [www.a1steam.com](http://www.a1steam.com).

This year has been a challenging year for the Trust with regards to main line running. A lack of available DB Schenker crews has significantly reduced the number of trains and routes that they have been willing to operate outside of their regular ‘British Pullman’ and ‘Torbay Express’ commitments. We have, however, been working very hard behind the scenes and although still in the early stages of planning, next year’s main line operations are looking significantly improved, with many more dates (even though we will only be operating from May due to the intermediate overhaul) and routes – including a number starting in the north and the midlands. We need to make a success of running our own trains so please support ‘The Devon Belle’ and next year’s main line trains when they are confirmed.

Our fundraising focus for *Tornado* over the next few years will be to raise the funds to purchase her tender at the end of its 15 year lease from William Cook Cast Products, leaving the Trust debt free. ‘The 163 Pacifics Club’ is starting to gain traction with 22% (up from 18% in the last TCC) of the £200,000 already donated or pledged – but there is still a long way to go. Read more about how you can help the Trust to purchase *Tornado*’s tender on page 15.

As I am sure you have read in the railway press, our project to build Gresley class P2 No. 2007 *Prince of Wales* continues to gain traction. The Founders Club has signed up over 350 members since its launch at the AISLT convention in September last year – potentially worth over £440,000 with Gift Aid added – and will have closed to new members by the time you receive this newsletter. We launched the ‘P2 for a price of a pint’ covenant scheme at the first of the P2 Roadshows in London on 8th March and over 350 people have already signed up, worth over £890,000 over the duration of the project. This means that we are now well past our first £1.3m pledged – but there is still a long way to go to reach the magic £5m. With the frames now erected in Darlington and their dedication by the Mayor and local MP, the fundraising for and construction of No. 2007 *Prince of Wales* has certainly got off to a racing start. The frames’ dedication on 19th July also coincided with the launch of the dedicated donation scheme, with parts available to sponsor ranging from £50 to £12,000. Again, we experienced a racing start with £40,000 pledged over the weekend alone. You can read more on about our P2 progress on page 16 and find out more about how to get involved with this exciting project at [www.p2steam.com](http://www.p2steam.com).

Finally, we are already starting the think about ‘what next’ once we have completed our new Gresley class P2. If – and it

is a big ‘IF’ that can only become a reality with your support – we can complete No. 2007 *Prince of Wales* in our planned seven years AND this time be debt free on completion, we can move straight into the launch of our next project. In preparation for this we have already sourced the drawings of the Gresley class V4 2-6-2s (of which only two were built before the great man’s untimely death in 1941), the class K3 2-6-0s (which have to be one of the most significant remaining gaps in preservation. It is vital for our future success that we continue to grow our supporter base by recruiting more people as covenantors for both *Tornado* and *Prince of Wales* and, thinking further into the future, I especially urge you to encourage any children that you know who share our passion for *Tornado* to join the *Tornado* Team.

Thank you all for your continued support. Your kind and often witty letters and emails always help to keep the team motivated. I hope to see as many of you as possible later this year at one of our remaining heritage railway visits, on ‘The Devon Belle’ or at our convention in October. **TCC**



**Gresley class V3 No. 67601.**

Garvin W Morrison



**Freshly out-shopped K3 No. 61950 looks immaculate at Doncaster Works.**

Bill Read



**In sad contrast, V4 No. 61700 *Bantam Cock* is seen at Cowlairs Works just prior to scrapping.**

Bill Read

## PROFILE – DAVID ELLIOTT by Graham Langer



David and his father at the RH&DR with Hurricane.

The AI Steam Locomotive Trust succeeded where other new builds struggled because of the way in which it was structured from the outset, "The rules of the organisation would prohibit cliques and any form of élitism. Everyone would achieve recognition based on effort rather than size of cheque book. This would enable all efforts to go into the building of the 'AI'." In essence no person, or ego, could be bigger than the locomotive and this ethos has helped glue a highly successful team together for over twenty years; a core member of this group since the outset has been the project's engineer, David Elliott.

Railways and engineering are in David's blood. One of his grandfathers worked for the Railway Clearing House, the other was a Signaller at Velvet Hall on the Berwick to Coldstream line and subsequently at Belford on the East Coast Main Line. A great grandfather was one Septimus Jennings who after a spell with a set of steam ploughing engines in mid Northumberland established an early Ford dealership at Morpeth in Northumberland which eventually grew into the regional Jennings Ford distributorship.

As a consequence of his father's Northumbrian origin and interest in railways, and in spite of being brought up in Kent, the LNER was David's favourite company. He remembers visiting his grandparents at Oakwood (near Cockfosters on the Piccadilly line), "I would be taken for a walk in a nearby wood which culminated in a bridge over the East Coast Main Line near Hadley

*"I spent ten enthralling minutes on the footplate as we climbed Stoke Bank"*

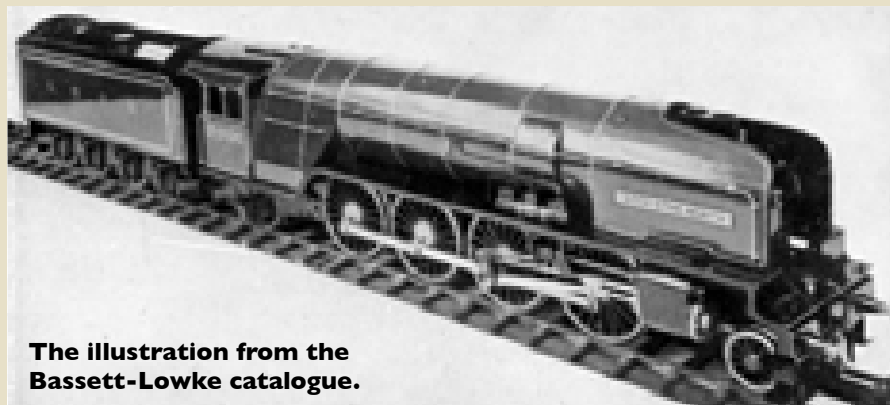
Wood for some spotting. Other day trips from our home in Kent would end up at King's Cross or Potters Bar to observe operations in the late 50s and early 60s." Another regular destination was the Romney Hythe and Dymchurch Railway which had/had a fleet of Gresley lookalike Pacifics of which his favourite was *Hurricane*.

"One of my most thumbled childhood books was my father's copy of the 1947

Model Railway Handbook by W J Bassett-Lowke, where on page 65 is a picture of a beautiful 2½" gauge model of *Cock o' the North*." David relates, "I asked my father to take me to see it and was devastated when he told me it had been rebuilt into a Pacific."

The final thing that cemented him to East Coast motive power was in 1967 when he travelled on two No. 4472 *Flying Scotsman* railtours within two weeks. On 'The Mercian' railtour of 16th April he happened across Alan Pegler in the buffet car as the train was coming down Stoke Bank at high speed and congratulated him on the 90mph they were doing to which he replied, "Yes, it is a good 80 miles an hour" which was No. 4472's speed limit at the time! As a result David plucked up the courage to ask if there was any chance of going on the footplate during the next trip. David picks up the story, "He asked me to find him as we were going through Peterborough on that day and, having been escorted through the corridor tender, I spent ten enthralling minutes on the footplate as we climbed Stoke Bank - Brilliant!" Although David possessed Ian Allen ABCs, he found number collecting boring and tended to spend his time trying to understand how the engines worked - which subsequently proved very useful.

After graduating as a mechanical engineer, David joined British Rail at Derby in 1973, becoming a Senior Technical Officer before moving to Leeds in the same role. He moved to Corkerhill Traction Depot in Glasgow as Depot Engineer before leaving the railway to join Westland Helicopters as an Advanced Project Engineer in 1979. After four years in Yeovil, David joined Westland



The illustration from the Bassett-Lowke catalogue.

Aerospace's hovercraft division on the Isle of Wight before moving to Pilatus Brittan-Norman in Bembridge in 1988, becoming that firm's commercial manager dealing with the MoD and overseas defence agencies. In 1996 he moved to Adtranz to oversee the signalling installation on the Kuala Lumpur monorail system and during this period became heavily involved with the design and construction of *Tornado*, firstly as a part-time Director of Engineering and, from 2005 to 2008, in a virtually full-time role. David is now a consultant project manager and engineer and is heading up the construction of P2 No. 2007 *Prince of Wales*.

The main reason David got involved with the nascent AI Trust was that having come from a modern railway engineering background and having worked with some locomotive restorations over the years, he was not very happy with the way they were being done - particularly the way that old and worn out components (which in a normal engineering environment would be scrapped and renewed) were being painstakingly repaired or restored, not always successfully. Building a new locomotive immediately overcame that problem! He takes up the story, "I responded following press reports of the launch meeting at York in 1990 and was invited to the King's Cross roadshow in March 1991. On arrival I was a bit taken aback to find that I was sitting on the stage rather than in the audience. As the first professional engineer to join the management group I quickly fell into the role of Technical Director, a post I have held, with the odd change of title, ever since." The rest, as they say, is history. **TCC**

**Below: David Elliott in his natural habitat, expanding on a topic to our late Vice President, Malcolm Crawley.**



AI/SLT

## TORNADO AND PRINCE OF WALES HIT THE ROAD TOGETHER *by Tim Beere*

With the frames for new Gresley class P2 No. 2007 *Prince of Wales* now in place at Darlington Locomotive Works and all eight driving wheels ordered and in the process of being cast at William Cook Cast Products (WCCP) of Sheffield, the fundraising for this mammoth project continues at pace. Key to its ongoing success is raising awareness beyond the core railway enthusiast community, securing support and donations from the wider general public. In an ambitious move for a new build steam locomotive project, The Trust has secured the services of a 40ft mobile billboard to help not only spread the message and drive funding, but secure a mutually beneficial relationship with one of the country's longest serving road hauliers as haulage partner, namely L Hunt & Sons of Basingstoke.



Tim Beere



Tim Beere

The trailer is designed to have a working life covering the duration of the seven year anticipated build for No. 2007 *Prince of Wales*. During that time, it will cover hundreds of thousands of miles and be visible to millions of motorists and pedestrians across the country. Forming part of L Hunt & Sons haulage fleet, the trailer will be put to work immediately, but will be used for the first time by the Trust to transfer the driving wheels from William Cook Cast Products in Sheffield to Darlington Locomotive in the next few weeks.





**Tornado is seen at Hest Bank with 'The Border Raider'.**



## MERCHANDISE UPDATE *by Gill Lord*

We have only had two main line trips so far this year, both very successful in terms of sales of merchandise also selling the smoke-box number plates and headboards on both runs which is excellent.

On the merchandise side we do have two new tea towel designs, one which is artwork of *Tornado* donated to the trust by Paul Cornish, an artist from Somerset and the other is by Jonathan Clay showing *Tornado* in BR Blue. Both will be available on our stands, trains and our on-line store. Corgi have now produced in their Rail Legends series a 1:120 die cast model of *Tornado* in BR blue, which is now available to purchase from our on-line shop.

I have been assisting with the administration at DLW and helping to tidy up the works ready for when the work begins in earnest on No. 2007. Next year I will be re-vamping our merchandise, so if you have any suggestions for unusual items or anything you think children would love to purchase please contact me on [gill.lord@alsteam.com](mailto:gill.lord@alsteam.com) and I and my team will consider each proposal. **TCC**



### FOR SALE EIGHT TORNADO SMOKEBOX NUMBERPLATES

- **9th October 2010** Barrow Hill Convention
- **3rd July 2011** 'Torbay Express'
- **17th July 2011** 'Torbay Express'
- **9th March 2013** 'The Cathedrals Express' - London Paddington to Plymouth
- **19th March 2013** 'The Cathedrals Express' - Tonbridge to Worcester
- **23rd March 2013** 'The Cathedrals Express' - London Paddington to Kingswear
- **21st June 2013** 'The Cathedrals Express' - Tonbridge to Ely
- **14th September 2013** 'The Cathedrals Express' - London Euston to Worcester

**To secure your number plate (all profits to *Tornado*) email [shop@alsteam.com](mailto:shop@alsteam.com). Please allow 28 days for delivery.**

## MERCHANDISE ON 'THE BORDER RAIDER' *by Mandy Grant*

Our day started at Crewe Heritage Centre around 07:30hrs. We met up with the locomotive crew who had been up and about since 06:00hrs. They had already brought the fire round, oiled up the locomotive and topped up the water in the tender and support coach tanks ready for the day's running. The support coach was a hive of activity, Geoff Holland was on board making a start on the breakfasts and last minute preparations were taking place all around us by other crew members.

Just after 08:00hrs we got the green light and moved slowly out of Crewe Heritage Centre, through Crewe station and onto the very elaborate network of points and sidings around Gresty Lane signal box and Crewe sorting sidings south; this was so that the locomotive could be turned ready for the trip north to Carlisle. The main tour had started from London Euston and was hauled by a class 90 electric locomotive as far as Crewe, which is where *Tornado* would then take over.

Although my husband, Mark, and I have previously attended several heritage events working with other volunteers on the merchandise stand, this was to be our first time merchandising on the train. We were fortunate enough to steward 'The White Rose' in April, but had been advised that merchandising on the train was a whole new ball game and not for the faint-hearted, it was full on, fast paced but we were assured it would be fun!

As soon as *Tornado* had backed up and coupled onto the train, our first job was to get the merchandise trolley off the support coach, along the platform and onto the last coach, not the easiest thing to do with a trolley full of stock and people everywhere! Once the trolley was safely on the rear of the train, we met up for a briefing with the rest of our merchandise team on the support coach, Diana Hurfurt, Janet Hill, Nigel Roake, Jorge Gorman, Sheila Seabrook and David Reed. Nigel was our team leader for the day and he gave us our instructions before most of us paired up and headed off to our designated coaches.

The trolley is only normally used in standard class. It means that passengers have the advantage of being able to look at the goods on offer before buying them. The sales and payments are then carried out at the passengers' seats. We have the added advantage of being able to accept card payments on board the train. Altogether there were four standard class coaches for the merchandise team to



**Diana Schindler and Janet Hill waiting to join the merchandise team at Crewe.**

work through before we got to Carlisle.

The dining coaches are approached differently so as not to interfere with food service. A brochure is available on each table and passengers who wished to order simply filled out a merchandise order form. Members of our team then went through each of the four coaches, talking to passengers and assisting them with their order forms if required. After payment, the forms were collected in and taken to the support coach for processing.

Whilst most of us were busy dealing with merchandise, Mark went solo to take photograph orders. Passengers were able to pre-order a photograph of the trip as a memento, which will be of *Tornado* taken on the actual day of the tour; this comes with a certificate of authenticity, stating when and where it was taken and is posted out to the purchaser soon after the event. These proved hugely popular on this trip! Once in Carlisle and with passengers alighted, *Tornado* and the support coach were separated from the train once again and taken off into a siding to pick up coal, water and carry out routine checks.

Meanwhile, back on the support coach the order forms were sorted into coach and seat numbers and two team members started to make up the orders and place them in bags. Every order was then checked a second time by two more team members to make sure that all pricing and items were correct, only then does each bag get signed off and put into the dispatch pile. Once the orders were complete, it was time for some well-earned lunch! Geoff Holland rustled up some lovely sandwiches for us all. We had chance to reflect on the day so far and looked forward to the highlight of the afternoon, our raffle of the northbound headboard!

As soon as we re-joined the train in Carlisle station, four of us went up the

Mandy Grant

platform with our orders and placed them on the relevant seats ready for the passengers' return. Our final job of the day was to organise the headboard raffle. We made for the far end of the train for one last time. As soon as the passengers were on board, Mark Grant walked down the train carrying the 'not so light' headboard and announcing the raffle as we all followed closely behind with the tickets. We were astounded at people's generosity and couldn't tear out the tickets quickly enough! As soon as we had been through each coach we returned to the support coach and had to tear all the ticket stubs off and place them in a container ready for Mark Allatt to draw. After the winning ticket was drawn, two of us went down the train to locate the raffle winner. Eileen Grace was the lucky winner of our northbound headboard, congratulations to Eileen! Mark Allatt presented Eileen with the headboard before we reached Preston and our job was almost done.

We re-grouped for one last time and made sure that the trolley was restocked and everything was tidied up. Those members of our team who were staying on the train beyond Preston said their goodbyes and went off to have dinner. Mark and I remained on the support coach ready for the light engine move back to Crewe Heritage Centre later that evening. *Tornado* pulled into Preston at about 18:30hrs and we uncoupled from the train for the last time and waved goodbye to everyone. The locomotive remained in the station for some time, which gave members of the public chance to take photographs and have a quick tour of the footplate. Geoff was busy in the kitchen again and rustled up a wonderful mushroom omelette for me, whilst the rest of the crew had lamb shank hotpot! He then quickly changed outfits and took his turn on the footplate for the final part of the journey home. Huw Parker and I sorted out the washing up and cleaning of the kitchen and all that remained after that was to sit down and enjoy the last part of the journey.

We pulled into Crewe Heritage Centre at 21:15hrs after a wonderful day out. *Tornado* was put to bed at 22:00hrs after a faultless trip. Thanks to all the lovely passengers, to everyone who looked after the loco before, during and after the trip and to Geoff who looked after us all on the trip and big thanks to Janet and Diana who showed Mark and I the ropes, their patience is second to none. We hope to see you all again soon! **TCC**

## 163 PACIFICS CLUB

### *Get on-board The 163 Pacifics Club!*

As you know, we are now focusing our fundraising for *Tornado* on her tender. The tender is currently owned by William Cook Cast Products, the company owned by Andrew Cook and the Trust's Principal Sponsor. Andrew kindly offered to fund the construction of the tender in 2006, allowing funds being raised at the time to be spent on the locomotive herself.

The tender is leased to the Trust under a fifteen year loan agreement which will come to an end in 2021. *Tornado's* tender is a development of those built for the original Peppercorn class A1s - mainly due to the different operating environment on the modern Network Rail main line. Due to the lack of surviving steam infrastructure, water capacity is at a premium and so *Tornado's* tender carries 6,200 gallons, as opposed to 5,000 gallons, and seven tons of coal, rather than nine tons in the original A1s. The tender is also the home for many of *Tornado's* other unique features including an alternator, Timken cartridge roller bearings (pre-greased sealed self-contained units which do not have to be fitted in enclosed axleboxes), Train Protection & Warning System (TPWS), National Radio Network (NRN) radio, Global System for Mobile Communications - Railway (GSM-R) radio, GPS tracker and of course the mobile phone charger!

We need to raise £200,000 by 2021 to purchase *Tornado's* tender - thereby making the Trust debt-free - and finally completing the project we embarked upon in 1990.

Following the success - thanks to your generosity - of our Regular and Dedicated Donation schemes for the construction of *Tornado* and the 'Use Your Loaf' appeal for the support coach, the Trustees have decided to follow a similar route for the purchase of *Tornado's* tender. However, instead of "an A1 for the price of a pint"

and "use your loaf", we've decided to raise the funds in a different way, "The 163 Pacifics Club":

- We need to raise £200,000 to purchase *Tornado's* tender.
- Although *Tornado* carries the number '60163' - the next in the Peppercorn class A1 series following 60162 *Saint Johnstoun* - her pre-nationalisation LNER number would have been '163'.
- If 163 people were to donate £10 per month over the eight years until we need to purchase the tender (or alternatively make a one-off donation of £960) with the addition of Gift Aid (£2.50 per month or £240 one-off) this would raise £195,600.

As with the previous schemes, this initiative comes with benefits for those who generously take part:

- A numbered certificate (1-163) recording the details of the donation and the number/name of your favourite ex-LNER express passenger pacific from the Gresley class A3s/A4s, Thompson class A1/I and Peppercorn class A1s.
- Name inscribed on the official Roll of Honour in Darlington Locomotive Works which will detail the pacific sponsored.
- Entry into a draw for a main line footplate ride on *Tornado*.

Forms to join 'The 163 Club' can be found on the website in the 'How You Can Help' section. Membership of The 163 Pacifics Club has grown steadily since its announcement and 20 of the available 163 ex-LNER express passenger Pacifics have already received new 'shed allocations' with a further ten promised later in the year. It really is that simple! Sponsor your favourite Pacific today and help make *Tornado* debt free with her paid-for tender behind by 2021. Thank you. **TCC**



### **"On Macabre Lines - Original railway tales to haunt the imagination"** by Phil Mathison

A collection of fifteen railway, predominantly steam, short fictional ghost stories, written with the general public as well as railway enthusiasts in mind. The book has been reviewed in both 'Steam World' and 'The Railway Magazine'.

The book is available from: Dead Good Publications, 12 Wallingfen Lane, Newport, Brough, East Yorkshire, HU15 2RF.

Price £7.99 post free - £2 to the A1 trust. Cheques payable to Dead Good Publications

## P2 PROGRESS

# FRAMES DEDICATED AT DARLINGTON LOCOMOTIVE WORKS *by Graham Langer*

During a hugely successful weekend over the 18th - 20th July, VIPs, Founders, Covenantors and the general public were all able to view the tremendous progress being made with the construction of No. 2007, *Prince of Wales*. In addition to

the work previously recorded here, two stretchers had been added to the frames as well as the buffer plank. The dedication of No. 2007 *Prince of Wales*'s frames on Saturday 19th July at Darlington Locomotive Works in the presence of 200 of the

project's supporters and sponsors as well as the Darlington Member of Parliament, Jenny Chapman, and the Mayor of Darlington, Councillor Gerald Lee, marked the formal start of construction of Britain's most powerful steam locomotive.

Graham Langer



**Left: Before the crowds arrived, No. 2007's frames dominate Darlington Locomotive Works.**

**Below left: David Elliott, the Mayor and Mayoress, Mark Allatt, Jenny Chapman MP and her son, Dan.**

**Below: Jenny Chapman MP and Mark Allatt address the audience.**

Graham Langer



Mandy Grant



Mandy Grant



**Councillor Gerald Lee reads a poem to the assembled crowd.**



**Gerald Lee and Jenny Chapman do the honours, FI style!**



**Peter Townend and John Veitch of Hitachi (UK) discuss the build.**

**Tony Lord and Nigel Roake share a joke.**



**Left: David Elliott, Mark Allatt and Mayoress, Mrs. Gerald Lee.**

**Right: At the sharp end! Charles Tremeer signs up new P2 covenantors.**

**Below: The Works, packed with dignitaries and members of the Founders Club.**



**Dominique Elliott, Gillian Nicholas and Gill Lord enjoying the event.**





# Covenantors' Diary *by Alexa Stott*

It is that time of year when my thoughts turn towards the organisation of our major get-together of the year – the Annual Convention. As previously announced, this year's Convention will once again take place in Chesterfield and Barrow Hill on Saturday 4th October. The format will follow that of previous years with the official proceedings during the morning at a Chesterfield venue (to be confirmed) followed by the opportunity to take some lunch at Barrow Hill Roundhouse and to spend time with *Tornado* and to travel behind her. A lucky few will once again have the chance to travel on the footplate courtesy of the footplate draw.

This year there will be a chance to spend somewhat longer on the footplate as we are once again organising our very popular Driver Experience Days at the Roundhouse – on Tuesday 30th September and Wednesday 1st and Thursday 2nd October. I hope that some of you who are planning to join us for the Convention might take up the opportunity to arrive a day or so earlier and take part in one of the Driver Experience Days.

This year will see an addition to the Convention agenda as we hand out our Covenantor Awards for the very first time. For those of you who may be unsure – or unaware – of these Awards, details can be found below. There is still plenty of time to earn your Award!

We will also once again be holding our Annual Dinner on the evening of 4th October in the company of Trustees. I am delighted to announce and that Danny Hopkins, former editor of *Steam Railway* magazine and now editor of *Practical Classics* magazine – and a great friend of the Trust – has agreed to be our guest speaker. Again, I hope some of you will take up the chance to join us for this really friendly and interesting social event.

Sunday 5th October will once again see a gathering of our growing *Tornado* Team members as they carry out their annual cleaning of *Tornado*. Invitations and booking forms for the Annual Convention and *Tornado* Team Day will be sent out by post in August so please keep a look out for them. As always, guests are also welcome.

I have just returned from my first visit to Darlington in many months. It is good to be able to spend time in *Tornado*'s 'ancestral home', especially now that the P2 frames are in situ and we have the

Ian McDonald



**Tornado Team members with their locomotive.**

reality of the birth of a second locomotive. An awful lot of hard work by Trust volunteers has gone into preparing the Works for the construction of P2 No. 2007 *Prince of Wales* and it was wonderful to be able to show off that hard work at the Dedication of the frames in the presence of the Mayor of Darlington, Gerald Lee, and the Mayoress Mrs Lee and the MP for Darlington Jenny Chapman. Of course all this is reported on in much more detail elsewhere in this edition of *The Communication Cord* but I have been asked by several people who were present if the poem the Mayor read out could be reprised here and your wish is of course my command... (below)

Of course, as the Mayor was quick

*We used to sit beside the track,  
Watching trains go clickety clack.  
We'd count each carriage passing by,  
And smell the smoke that filled the sky.*

*A trick that made our parents pale,  
Was to lay our ears upon the rail.  
To listen for a steady drumming,  
And know that soon a train was coming.*

*Then back we'd stand with cap in hand,  
Our little hearts a pounding.  
We had no fear as we stood near,  
And heard the whistle sounding.*

*Excitement there beyond compare,  
The train had come at last.  
And as a boy I'd jump for joy  
As it went puffing past.*

*With widened eyes we'd watch the skies  
filled with smoke and steam  
Of things we did when we were kids,  
This would be the cream.  
But that's all gone.*

*They've 'progressed' on.  
There's something new each day.  
And on the track we feel the lack,  
The steam has passed away.*

**George Savidge**

to point out, The A1 Steam Locomotive Trust is doing much to ensure that the last verse does not come to pass! This is, of course, only possible with the support and commitment of our Covenantors – on behalf of the Trustees, thank you.

## Covenantor Awards Scheme

In 1990, a pint of beer in Newcastle was £1.25; it is now £3.10. Although Covenantors receive many benefits for their £5 per month donations, we have introduced a Covenantor Awards scheme to encourage a minimum monthly donation of £10.

To remind you, for £5 per month you get:

- A copy of *The Tornado Story* book and a photograph of *Tornado* on becoming a Covenantor
- *The Tornado Telegraph* magazines by email
- *The Communication Cord* by post or email
- Invitation to Annual Convention and other events at preserved railways
- Privileged access to *Tornado* at special Covenantor events
- Opportunity to volunteer
- Exclusive Covenantor tie, scarf and badge to buy
- Annual Convention team photograph to buy

The Covenantor award scheme brings the following additional benefits:

- **Bronze:** Pay £10 per month and recruit one new Covenantor – certificate, bronze badge
- **Silver:** Pay £25 per month or recruit five new Covenantors – certificate, silver badge, heritage railway cab ride
- **Gold:** Pay £50 per month or recruit 10 new Covenantors – certificate, gold badge, main line support coach ride
- **Platinum:** Pay £100 per month or recruit 20 new Covenantors – certificate, platinum badge, main line cab ride



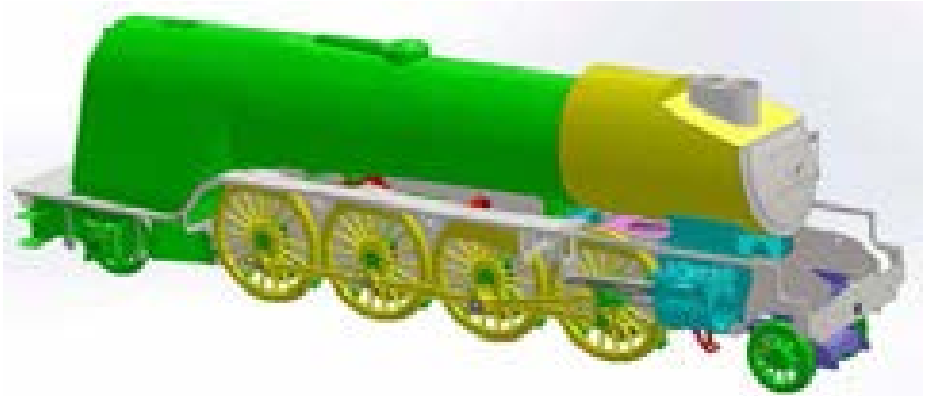
## P2 ENGINEERING UPDATE *by David Elliott*

The main effort over recent weeks has been on the frames which have been set up as a trial of assembly of components. Significant progress has been made on wheel and frame castings.

**Frames** - The frame profiles were delivered by TATA to the chosen machinist, Boro' Foundry at Stourbridge on 3rd June. Arrangements were made for the rear outer (Cartazzi) frames and the main frame doublers under the front of the firebox to be machined first to enable them to be sent to Steel Benders UK at Middlesbrough to be bent to the required shape in time to have them arrive in DLW at the same time as the other components.

Mick Robinson has refurbished the *Tornado* frame stands with one stand being completed (having never been used before). Two additional screw jacks have been made to support the Cartazzi frames. The main frames, forward frame extensions buffer beam and drag box wing plates arrived at DLW on 10th July. The small doublers over the Cartazzi axle slots in the main frames were welded on the same day.

On 11th July the Cartazzi frames and main frame doublers arrived. The main frames were set up on the stands immediately. The frames are temporarily held together (and apart) with threaded rod and tubes turned to the correct length. The bends in the rear frames which are needed to allow room for the Cartazzi wheelset to move sideways without the wheels hitting the frames, were achieved as follows: A bending former was made up (see photo) using a piece of steel plate we normally use to protect the pit boards from exceptionally heavy loads, to which was temporarily welded a hefty piece of rolled steel joist (RSJ) which forms part of the boiler cradle, a specially pressed former



David Elliott

**The cylinder cut-outs are machined at Boro' Foundry.**

to provide the correct bend diameter and a spare piece of angle to brace the upright to the floor plate.

This was carefully lined up with the inside of the required bend and secured to the rails by large tack welds. The area of the frame to be bent was then heated using large oxy-propane torches, two being required to reach the necessary dull red heat in the whole of the width of the 30mm plate being bent (see photo of Mick heating the frame). We used two whole bottles of oxygen which was made possible by the loan of a second oxy-propane set from M Machine.

The rear end of the frame was then

"nudged" into the correct place using the fork truck, the angle of the bend being checked with a laser profiled template CNC cut from the 3D model of the frames. Once we were happy with the first bend, the whole rig was reorganised with the bending former outside the frames to make the rear bend which returns the back of the frame parallel to the main part of the frame. This time there was no room to use the fork truck between the frames, so an alternative method was employed where the truck was placed hard up against the rear end of the frame not being bent (to hold it in place) and the 10 tonne jack set used to push the end of frame being bent.



**Left: The bending former in place.**

**Above: Mick Robinson heats up the frame plate.**

Once all four bends were in place, the doublers under the front of the firebox and the rear outer (Cartazzi) frames have been temporarily bolted on. The frames are held together and apart by threaded rod and tubes cut to the required distance between the frames. The benefit of CNC machining and drilling is evident from the virtually perfect alignment where three pieces of frame are bolted together. Meanwhile, three small frame stays had been made by North View Engineering Solutions being two buffer beam/draw hook stiffeners and the rear frame stay which via the diaphragm plate secures the rear of the foundation ring to the frames. These have since been temporarily bolted to the frames enabling the buffer beam to be bolted on.

The general finish and accuracy of the plates is excellent and a good reflection on Boro' Foundry. Mick Robinson made the unloading and setting up of the frames appear effortless being done quickly in a safe and efficient manner.

**Tender frames** - The tender frame plates are presently being machined at Boro'. As there is less urgency for the tender frames, transport should be significantly cheaper using a return load.

**Frame stays** - The batch of expanded polystyrene patterns have been completed to a high standard by Bakers Patterns and delivered to William Cook Cast Products (WCCP) with two Cartazzi horn blocks and the two combined firebox support and brake hanger brackets being cast by 21st July.

*Tornado's* coupled hornblock patterns have also been sent to WCCP. A total of 22 frame castings are now on order. Redesign of four large frame stays is under way to convert to welded fabrications from castings (as they are not suitable for polystyrene patterns and for one-offs wooden patterns are very expensive).

The leading frame stay which forms the pivot for the pony truck and supported the vacuum brake cylinders for the leading pair of coupled wheelsets requires modification to convert to air brakes. The combined boiler support and inside slide bar bracket has had the boiler support element deleted as a separate leading boiler support casting similar to that on *Tornado* is to be used to suit the shorter boiler. The star stay between the second and third coupled axle requires modification to carry the forward air pump and to convert from vacuum brake operation to air for the third and fourth coupled wheelsets.

The rear star stay between the third and fourth coupled wheelset which supports the boiler, will probably become the resting place for the rear air pump, as the combination of the smaller coupled wheels and the wheelsets being very close together makes mounting it in the same fashion as *Tornado* excessively tight. In order to redesign the two star stays, an accurate and detailed 3D space model of an air pump is being drawn from *Tornado's* spare air pump presently located at DLW. A model has also been generated of the brake rigging for the rear pair of coupled wheels and an air cylinder model used to confirm the conversion to air operation is straightforward.

**Wheelsets** - WCCP has made the driving wheel pattern and the first wheel has been cast. All the other *Tornado* wheel patterns are now at WCCP with order cover, so a total of 20 wheel castings have been ordered. WCCP kindly delivered the first wheel to DLW in a partly finished state to be on display for the frame dedication ceremony. It has since returned to Sheffield for dimensional checks and NDT prior to proof machining.

Post graduate mechanical engineering student Antaran Kumar at Teesside University has been provided with 3D drawings of the various components and assemblies of the crank axle wheelset as originally used on the P2s, as designed by Timken in 1948 and used on *Tornado* in a slightly developed version of the Timken design incorporating the BASS 504 BR axle design requirements. Antaran is constructing FEA models of these which will then be compared by subjecting the models to representative loads.

### Preparation of Darlington

**Locomotive Works** - In order to ensure that DLW was sufficiently advanced to receive the frames and to host the dedication ceremony, Andy Roberts has been taken on two days per week and Mick Robinson almost full time. As a result the mezzanine and compressor house are complete and all the patterns have been cleaned, sorted, catalogued and photographed. They have been returned to the two mezzanines separated into those needed for No. 2007 and those that are unique to *Tornado*. The cannon and axle box patterns have been stacked up on their boards ready for sending for casting once a price is agreed.

The pit has been emptied and steam cleaned, but will need painting at some time in the future. Otherwise thanks to Andy and volunteers Stan and over the last two days Robin and Muriel, much paint has been applied to the walls and floor. Thanks are



The fork truck is employed in the bending process.



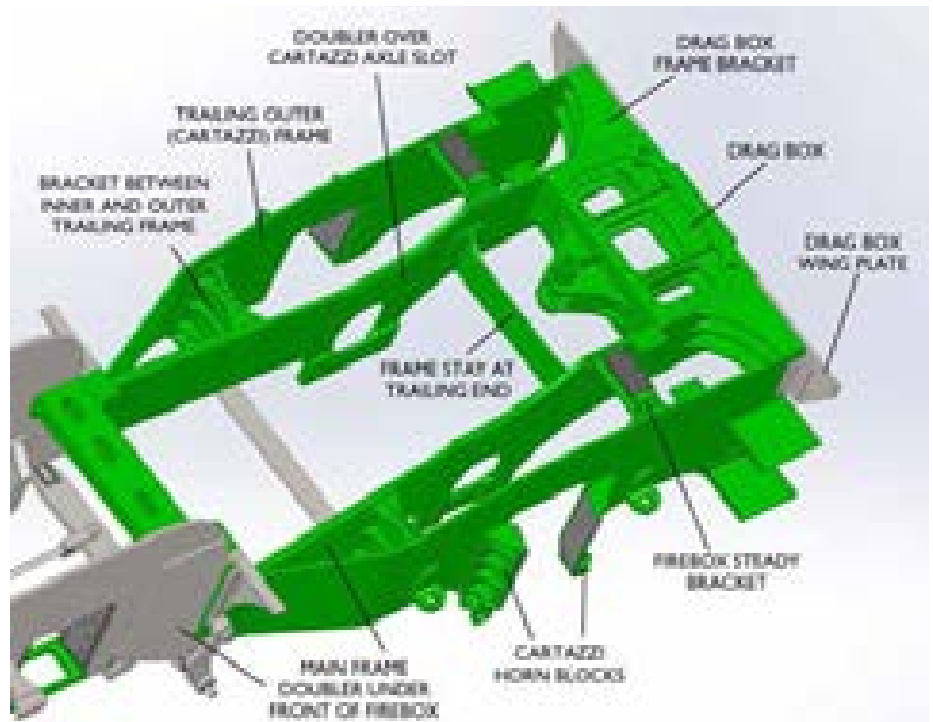
The jack is employed for the reverse bend.

due to Tony Lord who has continued to arrange contractors for various works in DLW. The setting up of the stores ready for moving into the present office building is about 70% complete and will continue to be progressed by the Tuesday volunteer gang. Lifting chains have been repaired and re-certified and most of the strops replaced.

Ian Matthews (aka Rembrandt) has recently left M Machine as he now has a significant amount of work on his own account. This proved very useful as was available for three days prior to the frame dedication event on 18th to 20th July as Mick Robinson had been called away to Swanage to assist with *Tornado*.

**The next stages** - Compared with July, August is a fairly quiet month on the frame erection. Some work is continuing to permanently weld and rivet the main frame doublers and to apply the fillet radii to the horn cut outs to ensure that the hornblocks are a snug fit when they arrive. Work will pick up again when the first of the machined frame stays start to arrive in September. In contrast to the relative lull at DLW, design work is continuing and it is expected that further patterns and castings, axles, tyres and roller bearings will be ordered shortly. Work has also started to formally identify modifications and processes for risk assessment in connection with certification.

Our sincere thanks are due to the Historical Model Railway Society who have kindly given access to their archive which includes some useful documentation and drawings of the Lentz and Caprotti



David Elliott

**Above:** The castings currently being produced by WCCP and their locations at the rear of the frames.

**Left:** Fresh out of the mould, the Cartazzi hornblock castings at WCCP.

valve gears which were licensed by the Associated Locomotive Equipment company, which also held the license for the Kylala Chapelon (Kylchap) exhaust

system fitted to all but one of the P2 class and contributes in no small part to the outstanding performances from *Tornado*. **TCC**



**From CAD....**



**.....to pattern.....**



**....to mould.....**



**...to rough casting....**



**....to tidy casting!**

## THEN... AND NOW!



NRM/SPL

**Then....**

**No. 2001's frames are erected at Doncaster, probably during March 1934.**



**....and now**

**No. 2007's frames set up on the stands at Darlington in July 2014.**

Andy Hardy

## FROM THE ARCHIVES *by Graham Langer*

● **Summer 1994** - The AI Trust placed a £20,000 order with Kings Heath Patterns of Birmingham, for the manufacture of the new locomotive's three cylinder patterns. The aim was to deliver the three cylinder patterns over the next year, with the inside cylinder pattern being ready by September and the core boxes following by Christmas. The remaining two outside cylinder patterns were to follow in April and July 1995.

● **Summer 1999** - The Trust made novel use of rape seed oil from Tesco's to assemble the wheelsets. The oil was used by the Trust's contractor, Ian Riley of Riley & Son (Electromech) Ltd of Bury to enable *Tornado's* six driving wheels, four front bogie wheels and two Cartazzi wheels to be pressed onto their axles. These days railway wheels are fitted to their axles by heating the wheels so that they expand and then shrink-fitting them to their axles. Due to the roller bearings having to be fitted to *Tornado's* axles before the wheels, the Trust reverted to the traditional method of pressing on the wheels to avoid the hot wheel damaging the bearing. In other news investigations into oil-firing continued and an excellent response for dedicated covenants to cover the cost of the motion parts enabled the first tranche of components to be ordered.

● **Summer 2004** - The Trust could announce that No. 60163 *Tornado* was now a Pacific following the fitting of all four coupling rods to its six 6ft 8in driving which now rotated freely together for the first time. Each of the four 7ft 6in rods weighs around two hundredweight and after forging, extensive machining and heat treatment, the four cost around £22,000 to manufacture. These rods are vital components within the £150,000 valve gear and motion assemblies, which were now the focus of work on *Tornado* at the Trust's Darlington Locomotive Works. It was also revealed that part of the motion represented the £1m component, that funding total having been passed by the Trust earlier in the year. (£1m in 14 years? The P2 project has this pledged in less than eight months! Ed.)

● **Summer 2009** - *Tornado* continued to make headlines, not the least of which was the dash to Edinburgh for BBC *Top Gear's* 'Race to the North', the train



**David Elliott, David Champion and Dorothy Mather with a driving wheelset.**

recording some astonishing point to point timings but just failing to deliver Jeremy Clarkson in time to win! Other main line work included runs to York, Bristol, Carmarthen, Plymouth ("what banks?") and a number of workings to Kingswear with 'The Torbay Express'. The locomotive also visited the North

Yorkshire Moors Railway and the West Somerset Railway and made many friends on both lines. One has to admire the dedication of the support crews covering an incredibly busy summer schedule with many light engine turns to be fitted in between different runs and venues. **TCC**



**Tornado hurries north with the 'Top Gear' train on 25th April 2009.**

AI SLT

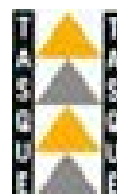
Dave Cooper



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



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Designed by Debbie Nolan

\* All information correct at the time of going to press on 21st August 2014. For up-to-date information and dates please check the website [www.a1steam.com](http://www.a1steam.com).

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Darlington Locomotive Works is normally open to the public on the 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. Charity registration No. 1022834.

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

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