

THE COMMUNICATION CORD



60163 TORNADO

New Steam for the Main Line

No. 27 Summer 2012



At 60163 *Tornado* and the Royal Train are seen at Castle Hills, nr Northallerton.

Jack Beeson.

WHIRLWIND DAY FOR HRH THE PRINCE OF WALES TRIP TO ALNMOUTH

By John Whitehouse, *Railway Herald Magazine*

One of the most remarkable steam-hauled workings since the end of BR steam occurred earlier this week.

Even today, the prospect of a steam locomotive hauling one train for over 500 miles in less than 24 hours would be greeted with some scepticism. Given that the train in question is the Royal Train and scepticism would probably

turn to incredulity.

Well, the reality is that it did happen, and the fact that No. 60163 *Tornado* hauled the Royal Train for a recorded 510 miles from Wembley to Millerhill Yard in Edinburgh overnight on Sunday 22nd July through to Monday 23rd July is not the end of the story, in fact, it is just the beginning. The Royal Train ECS working from

Wolverton Works arrived at Wembley Yard behind the customary 'Royal' Class 67, where No. 67026 *Diamond Jubilee* was repositioned to the rear of the train, before *Tornado* was attached to the front, having earlier worked with its support coach from Southall. With sunset approaching, the train set off on the first leg of a momentous journey, via

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Rob Morland

the Great Western Main Line, to Kemble where HRH The Prince of Wales, who had engagements over the next two days in the North East, was due to join the train for the overnight journey north.

A nocturnal assault on the Lickey Incline was included in the schedule, with a reported 50 mph on the clock at the summit, albeit with the support of the Class 67 at the rear which was not apparently on full power.

After working through the Birmingham suburbs the Royal Train continued via Derby, Chesterfield and the 'Old Road' through Barrow Hill, to York and then onwards to Bishop Auckland, for The Prince of Wales' first engagement of the day. While he was busy on Royal duties, the 'AIs' support team were probably even busier on their duties, of which more later!

After Bishop Auckland, the Class 67 drew the train back to Darlington, from where *Tornado* took charge for the remainder of the journey to Alnmouth,

via Durham and Newcastle upon Tyne.

HRH The Prince of Wales left the train at Alnmouth for a series of engagements in Northumberland, while the 'AI' continued north via Berwick-upon-Tweed, still with the Royal Train in tow, to Millerhill Yard, where its epic journey concluded.

A dream working in more ways than one, as this was effectively the first steam-hauled 'sleeper' service for the best part of 45 years, which also happened to be conveying the heir to the throne.

However, while the working was a huge success, things did not quite go to plan, as a loud bang was heard on departing York that certainly got pulses racing, resulting in an early opportunity being taken to stop and inspect the locomotive just north of the city. The cause was soon discovered to be a small threaded brass bung fitted to the casing at the rear of the drain cocks, which had dislodged, no doubt under some pressure.

The problem was not serious, and the locomotive was able to continue



Geoff Griffiths

AI 60163 Tornado and the Royal Train pause at Durham.

From the chair by Mark Allatt



It's difficult to know where to start with my column for this issue of *TCC* as so much seems to have happened since I last put pen to paper (ok, I know, but finger to keyboard doesn't quite sound the same).

As you will read elsewhere in this edition there is the story of our third Royal Train with HRH The Prince of Wales. A magnificent

510 miles from Wembley to Edinburgh including our first climb of Lickey Bank. This epic journey was made even more remarkable by the on-the-road repairs conducted by our support crew and director of engineering – truly first rate team work.

Then there is 'The Elizabethan' – an epic day covering the East Coast Main Line twice, once by Deltic D9009 *Alycidon* and the return with *Tornado*. Graham Nicholas's article covers the entire day with its trials, tribulations and eventual triumph. Another great team effort with our volunteers and contractors providing the support crew, merchandising team and stewards.

If that was not enough, David Elliott writes about the maintenance and repairs undertaken on *Tornado* at Southall, including replacing our first boiler stay and changing some superheater elements – a reminder that our boiler is now well into middle age for its first certificated period. This was another great example of teamwork by our volunteers and contractors

So, as you can see, our support crew and merchandise team

are already working exceptionally hard, with packed forward diary of main line trains and heritage railway visits, delivering a well turned out locomotive for our passengers and some record breaking sales.

As usual we are still looking for volunteers across all disciplines. It takes a lot of people to keep *Tornado* on the rails, not just those who travel with the locomotive as support crew or merchandise team 'trolley dollies' but also those in the engineering team in Darlington, Southall and elsewhere. At the moment we are seeking people to help with on-train sales, events, merchandise logistics, marketing, giving presentations, archives, works guides, engine cleaning, engineering (especially on the support coach), support crew and works housekeeping. There is always so much more that we could achieve with the right volunteer with the right skills and a can-do attitude. We are especially short of team leaders who will take some form of managerial responsibility within their discipline. Please email volunteer@alsteam.com if you think you can help.

And finally, read more about our progress with Lot 2 in the second part of Graham Nicholas's article on the Vampire study.

Thank you all for your continued support for our remarkable locomotive. Without your dedication and enthusiasm none of this would be possible. I hope to see as many of you as possible at our convention on the Nene Valley Railway and at the Great Northern Hotel in Peterborough on Saturday 15th September 2012. **TCC**

Having being relieved of her royal duties, A1 60163 *Tornado* crosses the Royal Border Bridge with the ECS working.



Geoff Griffiths

its journey to Bishop Auckland, albeit a little more noisily than usual. While not an ideal situation, it is one that can be accommodated for a short distance. After further assessment of the problem upon arrival at Bishop Auckland, and in the absence of the necessary spare part, a solution was identified and the necessary arrangements put in place. On this occasion, the advantage was in being close to the Trust's base in Darlington, where a telephone call to the Director of Engineering, David Elliott, enabled him to sort out the actual drawings of the part and engage one of the Trust's

local suppliers, M. Machines & Co, to fabricate a replacement which was then taken to Darlington station and fitted to the locomotive within the booked time allowed for the reversal. So, within 90-minutes of arriving in Bishop Auckland, and departing right time from Darlington, the problem had been completely solved and the train arrived at Alnmouth on time so that The Prince of Wales' engagements proceeded without hindrance.

Indeed, a job well done, and once again steam has triumphed on a Royal Train working, and in so doing has provided that important extra ingredient to enhance the

spectacle of a Royal visit. It also raises the awareness of main line steam workings with the general public, especially as tour operators now regularly use newspaper advertising when they can state their train will be hauled by a 'Royal' locomotive. And with *Tornado*, it can now be said that it departed before the sun set, and when the sun rose next day was still on the move, ensuring that its Very Important Passenger arrived on time so that he could, too, perform his duties to an equally high standard.

We are grateful to Railway Herald for allowing us to reproduce this article **TCC**

ON-THE-ROAD REPAIRS

- 09:15** David Elliott at track side at Eldon Lane (about 1 mile from Bishop Auckland) arrives to photograph train.
- 09:17** Call from Graeme Bunker with suspicion of blowing piston rod gland or drain cock gasket on middle cylinder
- 09:25** David heads to Darlington to start machining gland packings just in case.
- 10:22** Engine inspected again at Bishop Auckland Graeme phones David confirming a small plug on cylinder drain cock missing on middle cylinder. No spare available on the support coach and search for alternative spare at DLW not successful
- 10:40** David arrives at M Machine at Darlington with original drawing and instructs Tommy Jones, machinist
- 10:45** Tommy starts work on a metal blank
- 11:00** Tommy completes temporary plug including single point turning 2" x 11 TPI thread, David sets off for station Royal Train passing over North Road bridge as DE drives underneath!!
- 11:10** David arrives at Bank Top station as train pulls into loop on east side under station roof.
- 11:15** Jon Pridmore and David Wright fit the plug, Colin Green from DB Schenker inspects the work and the train gets away right on time.



David Elliott



Geoff Griffiths

Top: The temporary plug is fitted at Darlington.

Left: Repairs completed, A1 60163 Tornado pauses at Newcastle.

MERCHANDISE UPDATE *by Gill Lord*

When you visit our stand, see our wonderful array of merchandise and the smiling faces of our many volunteers, have you ever thought, "I wonder how long it takes to set all this up?" Well I am going to tell you!

Once a visit to a heritage site has been arranged, details are agreed as to where we will have our stand, how many days we will be selling, if there is an electricity supply for the till and most importantly where can we get a good cup of tea!

Volunteers are sought and a rota agreed.

You may not be aware that our stock is kept at our store in Cannock; we also have a supply on the support coach for on train sales. If the support coach is with *Tornado*, at the event, we use stock from the train and bring extra in from Cannock to make sure we have a good supply. This has to be thought out well in advance to make sure we have volunteers with cars to collect the stock at the right time. We also have to ensure stock levels in the support coach are high when we finish at the event; the last thing we want is to run out of stock on the first train after an event.

The stand is usually set up the evening before. This involves placing the tables in the most suitable orientation, sticking the banners to the table with copious amounts of 'Velcro' and smoothing the cloth over the table top, (I say cloth but it is actually a king size sheet brought whilst on special offer!) The stock is locked away overnight in a secure room provided by the heritage railway and off we go to find our hotel, have a meal and set the alarm ready for a start of around 8 o'clock the following morning.

At the site, more volunteers will have arrived early and will help carry boxes to the stall. We have a strict order as to what is placed where on the table; this ensures that at busy times we all know where everything is. Clothing is very bulky so we only place one of each type, colour and size in view; the rest is kept close by. We have a stationery box where we keep Velcro, Bluetac, the pricing gun etc, affectionately known as the 'blue box' even though it is white, and sometimes in the guise of a green felt bag! This is always kept in the same place wherever we are!

With the till set up and the chip and pin machine at the ready, off we go on another fun filled day selling *Tornado* merchandise.

At the end of the day, the stock is returned to secure overnight storage. Whilst this is being done, the team leader presses all the right buttons on the till so we can get a total of



Neil Whittaker

the days takings and how many of each item we have sold. This is most important, as from these printouts the days takings can be balanced, and they usually do.

Then back to either home or hotel, for an early night to ensure we are ready for the following morning. So, next time you see us at our stand, and if we look a bit sleepy, remember we may not have gone straight to bed but lingered over food and a glass of wine whilst chatting about the past 12 hours and how much we enjoy the camaraderie and being around that wonderful piece of engineering that is *Tornado*.

So, when you visit us at our next event at the North Norfolk Railway, 31st August to 3rd September, you will know how everything had to be organised and arranged well beforehand to ensure that we project the professional image that everyone associates with us.

Now for our new items:

Pewter N gauge model of *Tornado* at £45.

2013 Official *Tornado* Calendar at £8, a slightly different design this year and by popular demand our *Tornado* 2013 diary.

FOR SALE || TORNADO SMOKEBOX NUMBERPLATES



All have been carried by *Tornado* and are available at £200 each – an ideal birthday present!

Dates available:

- 9th October 2010 Annual Convention, Barrow Hill
- 4th December 2010 'Bath Christmas Market Special', Bedford to Bath & Bristol

- 3rd July 2011 'Torbay Express', Bristol Temple Meads to Paignton & Kingswear
- 10th July 2011 'Torbay Express', Bristol Temple Meads to Paignton & Kingswear
- 17th July 2011 'Torbay Express', Bristol Temple Meads to Paignton & Kingswear
- 6th August 2011 'The Cathedral Express', London Euston to Worcester
- 26th August - 10th

- September 2011 West Somerset Railway
- 12th December 2011 'The Cathedrals Express', Chertsey to Ely
- 12th May 2012 'The Cathedrals Express', London Paddington to Shrewsbury
- 18th May 2012 'The Cathedrals Explorer', London Victoria to Durham
- 19th May 2012 'The Cathedrals Explorer', Perth to Inverness
- 22nd May 2012 'The Cathedrals Explorer',

Inverness to Edinburgh

- 28th June 2012 'The Cathedrals Express', Salisbury to Worcester and return
- 30th June 2012 'The Cathedrals Express', London King's Cross to Durham and return

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

‘THE ELIZABETHAN’ by Graham Nicholas

Why didn't we think of it before? A Deltic and *Tornado* – two East Coast thoroughbreds – together on the classic London King's Cross to Edinburgh Waverley route. The Trust's 'Elizabethan' railtour was a red hot sell out week's beforehand, with an additional coach added to cater for demand.

Although the Trust is essentially a steam orientated organisation, clearly the inclusion of D9009 *Alycidon* has 'struck a chord'. Although I don't profess a great knowledge of the type, apparently the convention amongst enthusiasts is to refer to the loco as 'Deltic 9'...

Sunday 1st July. With the tour 3½ weeks away, *Tornado* is stopped with a leaking firebox stay. We are also aware that the latest overhaul of Deltic 9 is not yet complete. With neither of the booked traction for 'The Elizabethan' currently available it's a nervous time.

Sunday 22nd July. Following firebox and other repairs, *Tornado* is back to the rudest of health and sets off on her 'positioning move' to Edinburgh; non other than the Royal Train, conveying HRH The Prince of Wales overnight to the North East of England.

Monday 23rd July. *Tornado* eases into the yard at Millerhill (Edinburgh), its prestigious duty complete. Meanwhile, Deltic 9 is still at the East Lancashire

Railway, Bury, with no main line miles yet 'on the clock' following overhaul.

Tuesday 24th July. Just in the nick of time, Deltic 9 gets its main line ticket renewed and sets off light engine for London – which also doubles up as its test run! Its progress is anxiously monitored but it arrives without apparent incident and all the pieces of the jigsaw are now in place. Work commitments prevent us joining the northbound leg at the very start so we head for the midway point.

Wednesday 25th July

08:30 Awake in a York hotel room to the news that Deltic 9 came to a dead stand north of Stevenage for 15 minutes having suffered an exhaust fire (apparently a not uncommon occurrence). Having then worked forward to Peterborough for assessment, all is proclaimed if not exactly well then at least OK to proceed, albeit 30 mins in arrears

09:30 Reported 24 late passing Newark. Clearly the immediate crisis is over. Time to bolt down the remains of breakfast and hotfoot it to the station.

10:15 Whilst waiting we're able to catch sight of 46115 *Scots Guardsman* depart with the day's Scarborough Spa Express.

10:35 In amongst a gaggle of other late running services Deltic 9 coasts to a stop on platform 11. Even as a die-hard steam man, I have to admit it looks well in the

two-tone green with a complete set of blood n custard stock.

10:50 We've got the fast lines and Deltic 9 is cruising along the classic racing stretch north of York at a steady 90-95...

11:35 Oh no! We've just NOT stopped at Durham!! David Elliott and 37 would be passengers are treated to a splendid run past but it's now pandemonium on board and the phone lines are red hot with crisis management.

12:00 The stranded passengers have been scooped up from Durham courtesy of a following East Coast train and we wait at Newcastle long enough for them to arrive and affect a hasty scamper across the footbridge. The doors slam behind and we're away. What a splendid recovery.

12:55 Just hit 'the ton' a few miles south of Berwick. Deltic 9 is doing what it can to claw back time but we remain doggedly 30 mins behind.

13:52 Having avoided the booked pathing stop at Dunbar, the tide finally turns in our favour beyond Drem and 'The Elizabethan' gets a clear run into Edinburgh Waverley to conclude the northbound run a very creditable 12 mins late. Seconds after arrival, the Deltic boys can be seen leaping up and down on the platform hugging each other...

14:30 Round to Millerhill sidings and a welcome sight greets us - 60163 *Tornado*

**A1 60163 *Tornado*
at Alnmouth with
'The Elizabethan'
25 July 2012.**



Jack Beeston

and support coach, still looking resplendent fresh from her Royal Train duties. Within double quick time she is attached and servicing proceeds with alacrity.

16:05 Back at Edinburgh Waverley we present ourselves ready for a right time departure so it's a tad disappointing to eventually be away seven minutes late.

16:55 We needn't have worried. *Tornado* is making a superb start to her run southbound. Eschewing the booked pathing stop at Drem, the climb up Grants House with a full 14 coach load is dismissed at a minimum of 45 mph and as we sail across Berwick's glorious viaduct in the late afternoon sunshine... 'she's running on time!'

18:15 I'm working through the train delivering merchandise bags so only catch occasional sights of the lovely Northumberland coastline. But it is clear that the good work is continuing and we eventually arrive at Newcastle three minutes early.

19:20 Alas, the schedule proves too ambitious at the Tyne Yard servicing stop and we're now 20 down at Durham (at least we remembered to stop this time). But all eyes are on the awkward uphill start out of here. Thankfully it's a text book departure with not a trace of slip in spite of the monster load.

19:45 Driver Stevie Hanszar has the hammer down for the non-stop pass through Darlington, always a special moment. With a clear road and chime whistle crowing *Tornado* flashes past with the speedometer showing 78 mph. Despite being out of path, 'The Elizabethan' is rewarded with a fast line run beyond Northallerton.

21:10 More good running beyond York sees us into Doncaster only 15 mins down but once again agonising minutes slip by with the hoses still attached at the water stop and we eventually rejoin the East Coast mainline over 30 minutes late, a delay which worsens to 42 minutes by Retford.

22:34 Grantham by night. Viewed from the back of the train as we lean to the left hand curve approaching the station, the lights of the coaches and the trace of the exhaust hanging above accentuate the moment as we tear through at our maximum permitted speed.

23:16 More sustained high speed running down Stoke bank and on through Peterborough has once again eaten into the schedule and we now at last enjoy a 'grand prix' watering stop courtesy of Bells and Two Tones, departing Connington loop having regained 14 minutes.

00:15 We're on the Hertford loop, robbing us of the classic final dash into the capital.



Geoff Griffiths

Deltic D9009 *Alycidon* unexpectedly storms through Durham with the down 'Elizabethan'.

VIRGIN TRAINS AUCTION WINNER ALAN GILES

Following a very generous donation by the AI Steam Locomotive Trust of four first class premier dining tickets on 'The Elizabethan' on Wednesday 25th July to Virgin Trains, a blind auction was held in aid of Cancer Research UK and after bids were examined, I found that I had submitted the winning bid. Having never been on a charter such as this before I wasn't entirely sure what to expect but what a fabulous day we had. Northbound from Kings Cross to Edinburgh the train, comprising very tidy and comfortable Mark 1 vehicles, was hauled by Deltic D9009, *Alycidon* and Steam loco 60163 *Tornado* brought the train back to Kings Cross. Meanwhile the staff aboard the train served copious amounts of food and drink. Thanks to the crew, and also a special thanks must go to The AI Steam locomotive trust and to Alexa Stott who really looked after us well and kept calm even when things didn't go quite as planned. We all had a most enjoyable day – it may have been our first rail tour but it certainly won't be our last!

00:45 The clock at London King's Cross station platform 6 can tell no lies as 'The Elizabethan' arrives home some 40 minutes late. Nocturnal cleaning activities are in full swing and for once our presence seems slightly incongruous. But it's still a special moment gathering

round our locomotive, quietly simmering at the buffer stops. It's been an epic few days since Sunday evening yet there's no jumping up and down and hugging each other from the AI support crew. Just satisfaction at another great job done by the incomparable *Tornado*. **TCC**



Adam Cundick

AI 60163 *Tornado* pauses at Huntingdon with the 'Elizabethan'.

TORNADO ON TOUR *by Graham Nicholas*



Mick Rogers

Llangollen Railway 'Steel, Steam & Stars III' gala, 20th to 29th April 2012

362 miles run

Taking a rare trip on a low loader, *Tornado* visited the unfamiliar but beautiful surroundings of the Welsh Dee valley where she took up berth for ten days in a starring role at the Llangollen Railway's mega gala event. Providing inspiration for no less than three new build projects currently at the railway (GWR 'Grange', LMS 'Patriot' and GWR 47xx 2-8-0) the weather sadly didn't match up to the star-studded occasion and photographs in sunshine were hard to

come by. Aside from the actual gala itself, the visit was notable for two reasons. Firstly, on the day before the event opened, *Tornado* was invited to haul the first passenger carrying train over the railway's new one mile extension (from Carrog to Plas Bonwm – roughly halfway to the target destination of Corwen) with celebrity guest Pete Waterman on the footplate. Two days later, our loco clocked up her 50,000th mile since entering service.



Don Brundell

'The Cathedrals Express', 10th May 2012

Colchester to York 1Z42 charter for Steam Dreams 554 miles run

Back on the national network, this working featured a series of East Anglican pick-up stations as, unusually for a 'Cathedrals Express' working, the train never went anywhere near London. ECML metals were gained at Peterborough – thereafter *Tornado* knows her way blindfolded! Despite the convoluted routing, timekeeping was excellent throughout the day, never more than seven minutes late at any point.

'The Cathedrals Express', 12th May 2012

London (Paddington) to Shrewsbury 1Z31 charter for Steam Dreams 479 miles run

This tour was basically a repeat of the working of 26th November last year, being routed along the Great Western mainline as far as Bristol and the Severn Tunnel before heading north through the attractive Welsh Marches. Happily, the difficulties experienced with the homebound run last year were not repeated and, despite being up to 18 minutes late at Abergavenny, *Tornado* entertained her passengers with another spirited run along Brunel's 'billiard table' to post a four minute early arrival back at Paddington.



Peter Lovell

'The Cathedrals Explorer', 18th May 2012

London (Victoria) to Durham 1Z11 charter for Steam Dreams 417 miles run

This was the 'big one' of the spring programme that the operations team had been looking forward to as *Tornado* took on a sizeable role in the imaginative Steam Dreams week-long UK land cruise itinerary. Day one saw the tour train being handed over to 60163 at midday for a one-way sprint up the ECML to the elegant cathedral city of Durham. On a rather dull, overcast day, no undue problems were encountered with such a familiar working and loco and support crew bedded down for the night in Tyne Yard, full of expectation for the altogether more challenging day ahead.



Jack Beeson

'The Cathedrals Explorer', 19th May 2012

Perth to Inverness 1Z24 charter for Steam Dreams 182 miles run



Mark Walker

With Southall stablemate 4464 Bittern booked to work the train northwards from Durham in the morning, *Tornado* followed light engine in the wake of her East Coast counterpart as far as Perth. Now alas a shadow of its former self, this once grand junction station was briefly host once again to a brace of LNER pacifics as 60163 contemplated the climb ahead into Highland Railway territory. Romantic sounding places such as Pitlochry and Killiecrankie, evoke Scotland's turbulent past but all eyes were on the performance of our very own young pretender. Eschewing any thought of assistance, *Tornado* confidently set out with her 11 coach train for a run which has since been described by performance expert Mike Notley as 'arguably one of the finest single-headed runs over the route'. Beyond Blair Atholl, 17 miles of continuous climbing on gradients almost entirely between 1-in-70 to 1-in-80 were no match for the A1 and, aided by the short level stretch beyond Dalnaspidal, *Tornado* whistled for the summit board at Druimachdair at a splendid 51 mph, before easing to a stand at her Dalwhinnie pathing stop a monstrous 31 minutes early!

TORNADO ON TOUR CONTINUED

'The Cathedrals Explorer', 22nd May 2012

Inverness to Edinburgh 1Z35 charter for Steam Dreams 248 miles run



Mark Walker

After a well-earned 48 hours rest, *Tornado* set out from the capital of the Highlands towards the Granite City of Aberdeen for an entertaining run over the former GNSR route, passing further unfamiliar places such as Forres and Elgin. After a three hour layover in Aberdeen, *Tornado* had at last found metals that had a much more recognisable ring to them, being the classic North British route skirting the coast southwards to Edinburgh. Haymarket's classic quintet of immaculately turned out AIs would have run this way during the 1950s and our modern-day AI turned in an immaculate performance in the memory of her long-gone sisters, high above the cliffs at Cove Bay and Stonehaven and striding over the classic Tay and Forth bridges to arrive at Waverley station two minutes early. A thoroughly fitting finale to the great Scottish adventure.

'The Cathedrals Express', 31st May 2012

Crewe to Carlisle 1Z60 charter for
Steam Dreams 306 miles run

Dull and damp conditions greeted *Tornado's* return to the Northern fells. In the circumstances, efficient rather than spectacular running was the order of the day, with the adverse gradients being tackled well without any undue pushing to post an on time arrival into Carlisle. A steady performance continued on the southbound run over the Settle & Carlisle route but delays were encountered due to late running service trains. The steam section ended at Preston on this occasion, the locomotive returning light engine to Crewe.



Gordon Edgar

'The Railfest, York, 2nd to 10th June 2012

Tornado took up her deserved place in the NRM's great display of first, last, fastest, smallest and largest, rubbing shoulders with many other icons of the railway world. The opening day was graced with a flypast by the equally iconic Battle of Britain Memorial Flight of Spitfire, Hurricane and Lancaster as a modern-day Class 91 locomotive was named by Carol Vorderman. Red-blooded males didn't know where to look next.



Neil Whicker

'The Cathedrals Express', 26th June 2012 Westbury to Canterbury IZ69 charter for Steam Dreams 639 miles run

On another 'Cathedrals Express' working from one side of London to the other, *Tornado* spent a bright sunny morning in Great Western territory before switching to Southern metals beyond Kensington Olympia. Arrival at the iconic Kent cathedral town of Canterbury was six minutes early. The good running continued on the return loop past the white cliffs; unfortunately, time was lost on the last leg of a long day beyond Didcot resulting in a 25 late arrival back. Spare a thought for the support crew at this point as, due to the late hour, there was a further 114 miles to go on a convoluted routing via Swindon and Reading before being able to bed down in the wee small hours in Eastleigh yard.



lan McDonald

'The Cathedrals Express', 28th June 2012 Salisbury to Worcester IZ57 charter for Steam Dreams 409 miles run

Aside from grand Scottish adventures(!), it's getting harder and harder to claim 'new' mileage for our locomotive on her regular 'Cathedrals Express' workings but this day was a splendid exception as *Tornado* took the left hand lane leaving Oxford for her first run over the newly refurbished route through the Cotswolds and the Vale of Evesham. On another bright and sunny day, the gods of railway operation were also smiling - the only occasion when timekeeping went a little awry, a 25 minutes late arrival back into Oxford, was swiftly corrected due to generous operational pathing stop immediately after the station.



lan McDonald

'The Cathedrals Express', 30th June London (King's Cross) to Durham IZ67 charter for Steam Dreams 576 miles run

As if to show how fickle the world of main line charter trains can be, *Tornado's* very next outing ended up rather differently as her trademark day trip to York was extended to Durham to give a choice of two destinations. Unfortunately, delays beyond York meant a 31 late arrival into Durham; with the AI having to take her stock on to Tyne Yard for turning and servicing, it did not prove possible to be back at Durham for a right time departure southbound. Thereafter, it was one of those days where things only deteriorated further, eventually arriving back at King's Cross a disappointing 67 minutes.



Alan Weaver



HRH The Prince of Wales enjoyed his third journey with A1 60163 *Tornado* on the 23 July 2012. The Prince was travelling to Alnmouth for his first official visit to Northumberland's coastal communities.

Geoff Griffiths



2012 TOURS DIARY

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 appear at the bottom of the page)

- **Saturday 18th August** - 'The Cathedrals Express' - London to York and Scarborough and return - promoted by Steam Dreams
 - **Sunday 26th August** - 'The Cathedrals Express' - London to Ely and Norwich and return - promoted by Steam Dreams
 - **Wednesday 29th August** - North Norfolk Railway for their Gala - Friday 31st August to Monday 3rd September
 - **Thursday 13th September** - 'The Cathedrals Express' - Norwich to Winchester and return - promoted by Steam Dreams
 - **Saturday 23rd/Sunday 24th September** - Nene Valley Railway Gala
 - **Saturday 29th September** - 'The Cathedrals Express' - London to Kingswear and return - promoted by Steam Dreams
 - **Sunday 30th September** - 'The Cathedrals Express' - London to Kingswear and return - promoted by Steam Dreams
 - **Thursday 4th October** - 'The Cathedrals Express' - Canterbury to Salisbury and return - promoted by Steam Dreams
 - **Saturday 6th October** - 'The Cathedrals Express' - Southend to Canterbury and return - promoted by Steam Dreams
 - **Saturday 13th October** - 'The Shakespeare Limited' - Exeter St. David's to Stratford-Upon-Avon and return (*Tornado* from/to Taunton) - promoted by Pathfinder Tours
 - **Saturday 24th November** - 'The Cathedrals Express' - London to Shrewsbury and return - promoted by Steam Dreams
 - **Thursday 29th November** - 'The Cathedrals Express' - London to Bath and return - promoted by Steam Dreams
 - **Thursday 6th December** - 'The Cathedrals Express' - Redhill to York and Peterborough and return - promoted by Steam Dreams
 - **Monday 10th December** - 'The Cathedrals Express' - Peterborough to Winchester and return - promoted by Steam Dreams
 - **Wednesday 12th December** - 'The Cathedrals Express' - Peterborough to York and Broxbourne and return - promoted by Steam Dreams
 - **Saturday 15th December** - 'The Cathedrals Express' - Ashford to Norwich and return - promoted by Steam Dreams
- The Trust respectfully requests that anyone wanting to see *Tornado* follows the rules of the railway and only goes where permitted**

The following tour operators and preserved lines are involved with the operations listed above:

Steam Dreams

Web: www.steamdreams.com Tel: 01483 209888

Email: info@steamdreams.co.uk

Pathfinder Tours

Web: www.pathfindertours.co.uk Tel: 01453 835414/834477

Email: office@pathfindertours.co.uk

Nene Valley Railway

Web: www.nvr.org.uk Tel: 01780 784444 Email: nvrorg@nvr.org.uk

North Norfolk Railway

Web: www.nnrailway.co.uk Tel: 01263 820800 Email: enquiries@nnrailway.co.uk

ENGINEERING UPDATE *by David Elliott*

The locomotive has performed well on the main line and heritage railways, however we have had some specific problems recently which has regrettably caused us to miss two booked charters.

General maintenance

The cycle of inspection continues with A exams in early May and late June. During June the opportunity was taken at Southall to change the coupled wheel springs – postponed from the winter maintenance – thanks to Mick Robinson for doing this. The pair of load cells built into the rails over one of the pits at Southall greatly assisted with adjusting the springs to achieve the required axle weights.

We have also had to replace the fire arch as the one put in during winter maintenance has not lasted well.

Safety valve problem

During the FTR (Fitness To Run) examination for the Steam Dreams Southend to Gloucester train on 16th June, the front safety valve did not open even with 10% over normal maximum pressure. This required the boiler to be taken out of steam and the safety valve investigated. On dismantling the valve was found to be in good condition and moving freely. It was lapped in and reassembled. The chance was taken to dismantle and lap in the back valve as this has been feathering at lower pressures for some time. VAB boiler inspector John Glaze attended to witness setting the valves and to conduct an accumulation test where, using the blower at maximum, the boiler is steamed hard to try to beat the safety valves. This test was passed satisfactorily and the locomotive passed fit to operate.

The reason for the non-operation of the valve is believed to have arisen from a prolonged period of light steam operation including RailFest at York causing small amounts of sediment to be baked onto the valve spigot causing it to stick.

The solution is to ensure that both valves lift on during the daily safety valve test – this has been made easier to achieve by setting the two valves to nearly the same blowing off pressure.

Firebox leak

After the run back to London from Durham on 30th June, due to late running arising from operating problems on the railway, *Tornado* and the train spent the night under the roof at King's Cross as the railway had closed for maintenance preventing the train returning to Wembley and the locomotive to Southall. When the fire was brought round on Sunday morning

The new arch with formers removed.



David Elliott

The new welded stay.



David Elliott

a hissing sound was heard from within the firebox in the area of the firehole. Once back at Southall as soon as the pressure was off an investigation revealed that a weld between a stay on the fireman's side next to the firehole was leaking. Following a conversation with John Glaze, the boiler was drained and cooled and the area round the leak excavated with a die grinding burr. This revealed that the weld to the stay had not penetrated properly over a small part of the circumference of the stay, and had only been sealed by about 2mm of surface weld, which after 4½ years of intensive operation has cracked through to the surface. A repair was agreed and more material excavated to find good original material and to make a weld preparation. The stay was replaced as some of it had been cut away in the exploration process. This proved time consuming as it is located behind the mask plate that carries the fire hole door and the mock LNER style fire hole. In order to remove this a large 'letter box' had to be cut in the backhead cladding which involved removing three of the injector pipes that run either side of the firehole. Again John Glaze attended to

satisfy himself that the repair would be acceptable.

Coded Welder Oliver Juras was brought in to weld up the area round the original defect and then weld in a new stay. The boiler was filled with water and checked for 24 hours to ensure that the repair was dry.

Preparations for the Royal Train

Whilst being invited to haul a Royal Train is undoubtedly a great honour, the preparations for such a run are intensive and time consuming. A normal FTR takes one DB Schenker inspector about two hours, for a Royal Train it can involve two inspectors for up to three days. As part of this process Colin Green carried out a cold boiler inspection on Saturday 14th July during which he noted two superheater element ball joint connections to the superheater header had a trace of leakage. As one of the joints was the rearmost on the header, it was necessary to remove two columns of elements (ten altogether) to reach the offending joint and to make room to get a magnetic drill in to re-cut the seat.

This job was beyond the resources at Southall in the time available so a team was called in from Riley's at Bury to do the work. Greg and Joe duly arrived with a Transit load of tools at about lunch time on Monday and by the evening had all ten elements out. On inspection three of the element had damaged or burnt clips which had allowed the elements to distort out of shape. This can allow the tube of the element to rub against the inside of the flue with the possibility of perforation of either.

Fortunately we acquired a spare of each of the five shapes of element early this year however, the spares were at Darlington. The elements are about 18 feet long which means they will not fit in our Transit van or anything we could hire for self drive. Eventually after around two hours of phone calls, a car recovery company from Spennymoor using a 4x4 and a trailer collected the spare elements from Darlington Works (thanks to our regular volunteers who came in early to load them at 08:00 on Tuesday morning), and delivered them to Southall by 14:00. This enabled Riley's men to have them all installed by 19:00 Tuesday enabling the fire to be lit early Wednesday morning. Well done all round!

I am writing this in the support coach as the full Royal FTR is taking place, Chris Walker is vacuuming the interior of the coach and Mark Holloway and Steve Ayton are cleaning the loco, John Wilkinson and Jon Pridmore are supporting the FTR. It is a busy day!

The ball joint seats in the superheater header are re-cut.



Support Coach E21249

Progress has been steady if not spectacular given the amount of extra work on the locomotive recently. Carriage restoration specialists RRNE (Rail Restoration North East) from Shildon have been brought in

to do the hand fitting of each door into its door frame – although the coach may be a BR Standard, doors of the age of ours are individuals and require hand fitting to their frames, particularly as in our case most of the frame structure has had to be renewed

SUPPORT COACH FUNDRAISING

There is still an awful lot of work to be done to complete the coach, and there are a number of ways that you can help.

- Volunteers to help with the work are always welcome, but you need to be available at the works during normal working hours. Please email volunteer@alsteam.com for more information
- Make a personal subscription to 'Use Your Loaf'
- Introduce Friends & Family to 'Use Your Loaf' and more people hooked on *Tornado*.

Use Your Loaf: Following the success of our dedicated donation scheme for the construction of *Tornado*, "an A1 for the price of a pint" we've decided to

raise the bread for the support coach in a different way: 'Use Your Loaf':

- The coach is 63ft 6in in length – 762 inches – or 1524 'slices' at ½ inch each.
- Each 'slice' can be sponsored for £50; £100 for a 'doorstep'; £1,000 for a 'half a loaf'; and £2,000 for a 'loaf';
- If all are sponsored, it would raise £76,200; if we assume 80% of the donations come with Gift Aid, this rises to over £93,000

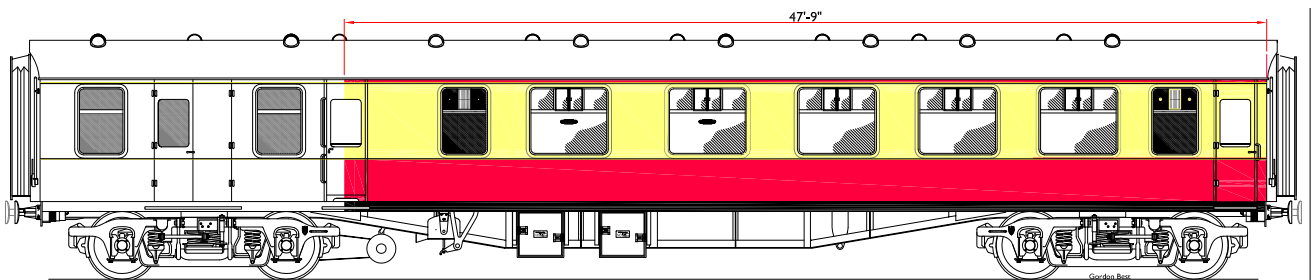
And, as with the dedicated donation scheme, our 'Use Your Loaf' initiative comes with benefits for those generous enough to take part:

- A certificate recording the details of the sponsorship and a copy of a drawing of the coach noting which slice(s) have been sponsored
- Name inscribed on the official Role of

Honour carried on the coach which will detail the slice(s) sponsored

- Entry into draw for main line footplate ride on *Tornado*
- Exclusive opportunity to order Bachmann model of E21249 (a perfect companion to the new model of *Tornado*) with appropriate one of 1524 certificates produced for sponsors. The model is expected to cost about £25.

As of 3rd July 2012 the 'Use Your Loaf' campaign has raised £57,250 which translates to 47ft 9in of the coach's length, an increase of £850 since the last TCC was published, as illustrated on the diagram. Good progress but we still have a very long way to go. We look forward to reporting progress in future Trust communications as coloured section grows to the full length of E21249.



Your support for 'Use Your Loaf' has now reached 47ft 9in or £57,250. Your help is urgently needed to help us to complete the job.



Re-glazing is underway on the support coach.

due to rot and corrosion in the originals.

The volunteer crew of Mike Wood, Martin Brookes, Gordon Little and Gordon Wells have now installed ten of the 16 overhauled windows. The gangway door in the van end has been re-installed and the gangways have been overhauled and refitted to the coach ends, just requiring the Flexitor rubber spring units fitting between the tops of the face plates and the coach ends and the protective rubber hoods fitting to complete them.

Having located and purchased a replacement wheelset for the one that was condemned with cracks in the wheels, Rampart at Derby have completed the overhaul of the second bogie. Once the drawhooks and buckeye couplings which are with Rampart have completed their overhaul and have had the lower shelf bracket modification applied (this is to prevent them from becoming disengaged in event of derailment and was made a mandatory modification several years ago), they will return with the bogies to be reunited with the coach. Interestingly, the supplier of the lower shelf bracket modification kits is William Cook Cast Products, and our kits have been kindly donated by our principal sponsor, Andrew Cook.

Meanwhile some design work continues which has enabled the handbrake alteration to be finalised and the water tanks to be finished. **TCC**



The gangway connection has been refitted.

EXPLORING SCOTLAND *By Graeme Bunker*

On 18th May *Tornado* set out on one of her highest profile and intensive operations to date. Departing from London Victoria, the main support crew had left earlier for a tour of Surrey and Kent with 70000 *Britannia*. This unusual move was required as *Tornado* would need to back onto the train in London and could not propel its support coach, and not everyone fits on the footplate! In another move, very rare indeed on the railway these days, *Tornado* was banked up the steep grade from Victoria station by *Britannia*, which dropped off as Grosvenor Bridge was reached, and then passed 35028 *Clan Line* on the empty VSOE 'British Pullman' stock heading into the terminus. Three steam locomotives at one main line station, and all of them namers!

After a trip around the west of London the East Coast Main Line awaited and a fine run north, with an almost unbroken run on the fast line, from London to Grantham where water was taken. The weather wasn't entirely favourable but the sun did make appearances from time to time. After water at Grantham, and again at York, *Tornado* worked the train onto Durham where passengers alighted for hotels and *Tornado* headed on for Tyne Yard. But that wasn't the end of the day, as *Tornado* took coal and water and then headed with support coach to Edinburgh and overnighted at Millerhill Depot.

The passengers were collected by

another LNER favourite 4464 *Bittern* for the journey from Durham to Perth travelling via The Forth Bridge. *Tornado* was on shed as the train passed Millerhill and the two engines whistled a salute in the Edinburgh suburbs. *Tornado* then followed the train crossing The Forth Bridge before arriving into Perth to take water and then couple onto the coaches. *Tornado* was now in uncharted territory and was also further north than she has ever been before, and was about to tackle one of the most demanding routes in the UK. That with an 11 coach train, probably the heaviest passenger train taken over the route by a single locomotive.

On departing Perth *Tornado* was soon into her stride before being slowed at Stanley Junction as a ScotRail unit came off the single line, but then away again towards a planned pathing stop at Pitlochry. The route is twisty and runs through beautiful countryside and as a bonus on the approach to Pitlochry all signals were green and the train was clear through to Blair Atholl. This is the start of the unbroken 17 mile climb of Drumochter where *Tornado* and her crew would be put to the test. But what a climb was to be had, with cars on the adjacent A9 pacing the locomotive as she stormed up the climb at a minimum of 37 mph and breasting the summit at 49 mph a new record and by some distance. Interestingly from those on the footplate was the fact

that at no point on the long climb had *Tornado* really been opened out, so to have achieved a record on the climb was something of a surprise when arriving at Dalwhinnie!

After a long wait for a service train coming the other way (no time to visit the Distillery!) the run through the scenic splendour of the highlands was uneventful and a storming climb to Schlod Summit rounded off an impressive debut over this unforgiving route, before dropping down into Inverness, journey's end. Two days off at Inverness followed allowing time for a good clean of the locomotive, turning and servicing ready for the final leg of the journey, and what a final leg it turned out to be.

In glorious sunshine and clear blue skies *Tornado* backed the train into Inverness station ready for her first ever run to Aberdeen. This route is very rare for steam and it is considered that 22nd May witnessed the first ever run by a Peppercorn A1 over these metals. As the accompanying photographs show the weather held all day and it was a pleasure for all onboard to pass through the rolling green landscape, the railway here still replete with telegraph poles and wires fulfilling their originally intended purpose.

After Aberdeen the railway runs along the coast to Dundee the A1 storming up the climb onto the cliff tops and then rushing along by the sea, the sun still burning bright in the sky. After passing Montrose and the famous golf course at Carnoustie a brief pathing stop was taken in Dundee. From the station there is a stiff climb up onto the Tay Bridge, a first crossing for *Tornado* on this lengthy structure. Water was taken at Leuchars before two firsts for the locomotive. Crossing south over The Forth Bridge made for the first passenger train worked by an A1 over this iconic wonder of the world since the 1960s. A further first for *Tornado* was to work a passenger train through Princes Street Gardens and to arrive into Edinburgh Waverley from the Haymarket direction, a route banned to steam for many years. Here the passengers disembarked for an extended stay in the Scottish Capital and *Tornado* went again to Millerhill depot at the end of an epic five day tour of Scotland.

The welcome north of the border was fantastic, the weather stunning and the visit memorable for crew and passengers alike. With a planned return in June of 2013, it will not be too long before a Peppercorn Pacific is once again seen at speed in the Highlands. **TCC**



Barry Wilson

A1 60163 *Tornado* stands at Inverness with the 'The Cathedrals Explorer'.



With Dundee visible across the Firth, AI 60163 Tornado storms away from the Tay Bridge.

LOCOMOTIVE MANAGER REPORT *by John Wilkinson*

We have had a very busy period since my last report. As I mentioned at the close of my last contribution we are working on Support Crew competence training, development and assessment. I am pleased to report that this process has now moved into the implementation stage and the first assessments have taken place. This is already proving of great help both to the individuals concerned as well as to the Trust in that it is giving focus on competence that has been achieved and demonstrated, next development stages and longer term goals. The next stage is to up the rate of assessment as different support crew members are on duty.

The difficult bit now is to summarise the last three months operations in a paragraph. April started with a successful run on the main line followed by successful visits to heritage railways. During this period we worked hard on improving the presentation of the locomotive and towards the end of April this really started to bear fruit. Following a washout there were runs to York from Colchester and London to Shrewsbury where we managed without the support coach which had a problem with its brake adjuster. We now have a plan in place should this situation arise in future. Following on from these runs we worked three sections of 'The Cathedrals Explorer' tour and enjoyed our visit to Inverness and Aberdeen with some great performance which will be commented upon elsewhere. Following a good run over Shap and the Settle and Carlisle we moved to York for Railfest and the return to Southall for

washout, maintenance and A Exam.

Finally, to give you an idea of what happens behind the scenes here is a brief description of the work at Southall. In a matter of six days the coupled wheel springs have been replaced, the boiler drained, opened up and washed out, the locomotive has been examined in accordance with the requirements of the A Exam and then re-assembled and presented for a main line run.



The AISLT support crew worked hard to prepare AI 60163 Tornado for her Royal Train duties.

Covenantors' Diary by Alexa Stott

There's a lot to tell you in this Covenantors' Diary so I think I should start by encouraging you to put a date in the diary – Saturday 15th September 2012. This is the date for this year's Convention, to be held most appropriately at the Great Northern Hotel and Nene Valley Railway in Peterborough. Further details and booking forms will be sent out separately to this issue of *The Communication Cord*. The format of the day will follow that of previous years, with the formal reports of the Trustees being presented in the morning and an opportunity to spend some time with *Tornado* in the afternoon. We will once again be arranging a celebration dinner in the evening – last year's dinner having proved such a great success – which we hope you will also include in your plans. We are very much looking forward to *Tornado's* return to the Nene Valley Railway for the second time this year, having received such a warm welcome previously. The weekend after the Convention, the locomotive will be one of the stars of the railway's Steam Gala alongside 71000 *Duke of Gloucester*.

I am delighted to report the continuing growth of the *Tornado* Team, our newly formed club for 5-15 year old supporters of *Tornado*. From as far afield as Australia and Poland, nearer to home in Scotland – where one member was granted the

privilege of visiting *Tornado's* footplate in Inverness – to Kent, Yorkshire and of course Darlington, we now have 30 members. We will shortly be producing our first newsletter to which *Tornado* Team members will be contributing their



Above and below: Maybe not the motion of a Midland Railway locomotive but *Tornado's* is immortalised on an apartment development in the old yards at Loughborough Station.

own stories and pictures. We also have a *Tornado* Team day to arrange so life is very busy at the moment! Please could I encourage you to spread the word about the *Tornado* Team to friends and family. The whole ethos behind this initiative is to ensure the care of *Tornado* is continued for generations to come and what better way could there be of ensuring it? At £25 per year, membership of the *Tornado* Team would make an ideal birthday or Christmas present.

Of course there are many other ways in which you can support the work of the Trust.

Buy a slice of our Support Coach – we are now 75% of the way towards our target with 47ft 9in of 'slices' and 'doorstops' sold. With just a quarter of the coach to go, why not invest in a 'butty' today: for yourself or a loved one or in recognition of a special event in your life: our hard working support crew members will be eternally grateful! To make it even easier for you to support the Support Coach, we have included the forms you will need with the magazine; no need to go searching for them on our website to print them out.

Sign up to www.easyfundraising.org.uk – it won't cost you a penny but it will make pounds for the Trust. *The Communication Cord* 26 gives more information on this fundraising initiative:



if you do any shopping on the Internet, registering with Easyfundraising will see a percentage of what you spend going to the Trust via the retailer – at no extra cost to you. And signing up to Easysearch – a search engine rather like Google, Yahoo, etc. – will also see contributions for every search made going to the Trust.

Buy some Trust raffle tickets – and be in with a chance of winning some stunning prizes. At just £1 per ticket or £10 per book, you could win an exciting footplate ride on *Tornado* at a preserved railway in 2013, a beautifully detailed Bachmann 'OO' gauge model of *Tornado* in BR Green (with the early emblem on the tender) or an limited edition Christopher Ware print 'Tornado!', the original being painted in celebration of the locomotive's now famous second main line test run in 2008 between York and Newcastle. You should find two books of tickets enclosed with this magazine – and more tickets can be requested from the office in Darlington.

Volunteer with the Trust – we are always looking for help in many areas but we currently particularly need volunteers interested in our merchandising and events operations. This is a very important activity for the Trust as it brings in vital funds for the upkeep of *Tornado*. If you like meeting people, want to spread the word of the Trust and have fun too, then please contact volunteer@alsteam.com. If you have any other skills that you think the Trust could make use of, then please do contact us. Tony Lord, our Works Manager at Darlington, would be interested in hearing from anyone who can wield a paint brush or just help to keep the place tidy, inside and out. We are also looking for volunteers to help with the support coach but please note that you must be available to help during normal working hours. We always need help with packing and posting the magazines or perhaps you would like to get involved with our Works open days (the third Saturday of each month)? Even if we can't make use of your skills today, we will keep your details on file for the day when we surely will.

Finally, as you should with every good diary, I am flicking back through the pages to April and *Tornado's* appearance at the 'Fab Four' Steam Gala at Barrow Hill, which was especially memorable for two reasons. Firstly, the event provided us with an opportunity to re-affirm the Trust's links with our friends at RAF

(d) The Tornado steam locomotive was built in 2008.

It was the first steam locomotive to be built in the UK for 50 years.



60163 TORNADO
New Steam for the Main Line

Write down **two** factors that the owners of the locomotive needed to consider when choosing a fuel.

.....

.....

..... [2]

[Total: 6]

Leeming. On behalf of Leeming's Station Commander, Group Captain Tony Innes, Flight Sergeant Kev Sturdy presented the Trust with a station plaque. He also presented our Director of Engineering, David Elliott, with replacement Leeming emblems for the name plate which bears the Leeming badge (on the driver's side). Rather over-zealous polishing had resulted in the current emblem losing definition. However, thanks to the paint shop at RAF Leeming we now not only have a new one but a spare! We are also working with the Station Museum to create an exhibition about *Tornado* which will further cement links between the two organisations.

The second memorable moment at 'Fab Four' was meeting a very special young man called Ernest Brown, or Ernie to his friends. Back in the summer of 2011 the Trust received a request from the 'Make A Wish Foundation', asking if we could help fulfil the wish of a little boy with a rare form of eye cancer (he has lost the sight in one eye and the sight in his other is diminishing) to 'cab' *Tornado* and *Mallard*. 'Fab Four' presented an ideal opportunity

to do just that – and a visiting HST from East Midlands Trains (which of course is also a great supporter of the Trust). Annette Chellingworth of 'The Make A Wish Foundation' describes Ernie's encounter with *Tornado* for the first time: "Within a few minutes of arrival Ernie asked "Where's Tornado then?" So we duly went and found the engine and Ernie and his brother Stanley sat on the footplate for almost two hours, loving every minute. The driver, John Wilkinson, deserves a special thank you as he was fantastic with the boys. He even lent Ernie his driver's hat to wear. The boys asked lots of questions which John explained very carefully."

Needless to say, we were very proud to be able to make Ernie's wish come true and his family had a day to remember. I hope that many of you will be able to attend either the Covenantors' Day Out at the North Norfolk Railway or the Convention (or both) and look forward to seeing you. In the meantime, may I thank you once again for your continued support of the Trust. **TCC**

INCREASE YOUR EASYFUNDRAISING GIVING EVEN MORE *by Chris Walker*

If you are a UK taxpayer and haven't already done so, please do not forget to go into your Easyfundraising account settings and complete the Gift Aid section to increase our income by another 25%. To do this, click on "Account v" at the extreme right hand end of the top information bar that shows how much you have raised, then select "Settings". You will see the Gift Aid section immediately under "Your Account Details".

P2 PROGRESS PART 2 – by Graham Nicholas

Following on from the article in TCC26, steady progress has been made with the P2 feasibility study.

We left the story towards the end of phase one of the study, whereby a fully validated computer (VAMPIRE®) model for *Tornado* was being created. The specific process being grappled with was 'validation', whereby the computer predictions are compared with the actual ride measurements taken of *Tornado* during the 2008 trials.

This process usually involves a bit of 'tweaking' of the computer model to try and get the computer prediction sufficiently close to the measured results. This was no different in our case. The seemingly simple, traditional leaf spring arrangement actually proving particularly challenging in this respect (VAMPIRE® engineers are more used to coil springs and air bags!).

This illustration shows the test results (left) and the computer simulation (right). The horizontal axis (left to right) records frequency of vibrations. What is important is to try and get the frequencies where there is a large response (ie a natural resonant frequency) to coincide; the predicted size of response (which is measured on the vertical, top to bottom axis) is less important. Perfect correlation is seldom achieved.

Well the good news to report is that this process has been successfully completed and we now have a validated VAMPIRE® model of *Tornado*! This has been summarised in a report supplied to us by Delta Rail on 1st May. This report is therefore now available to us to support future certification and approval work, not only for the P2 but also for *Tornado* herself of course.

There is considerable cause for reflection at this point as this is even more of an achievement than might first be thought. This is the first time that a fully validated computer model of a steam locomotive has been created; the expression 'crossing the Rubicon' is an apt one in the circumstances.

Ever since steam locomotives recommenced running on the national network in the preservation era they have done so based on the principle of 'Grandfather rights', in other words the simple logic that they used to run around OK pre-1968 so they should be OK to continue to do so. But as time goes on, the network is forever changing and being updated and this link with the past gets ever more tenuous. If steam is to have a long term future on the main line then it needs to keep pace with the technology of the day to ensure approval can continue to be supported. Once again, the AI Trust is

in the forefront of industry developments to secure the future of main line steam operation.

But enough of the naval gazing for now; the most immediate outcome is that completion of the VAMPIRE® model of *Tornado* has allowed us to initiate phase two of the study - construction of a VAMPIRE® model of an original P2!

In order to get started on this we needed sight of some key original design drawings and the National Railway Museum was the obvious place to look. We were already aware that the drawings were part of the museum's vast archives but, in contrast to the early days of the AI project, this time we did not have to spend days and weeks rummaging through rolls and rolls of randomly bound drawings. No, this time we have been able to benefit from the tremendous advance that the Search Engine project has delivered and it was 'merely' a case of reviewing the index and requesting the specific drawings we required! So, without hardly breaking a sweat, 20 key drawings for the P2 frame arrangements were secured, including front pony truck, driving wheels, axles, axleboxes, hornblocks and suspension springs. We've also taken copies of the drawings for cylinders, valve gear and brakegear whilst we were at it.

With these drawings metaphorically

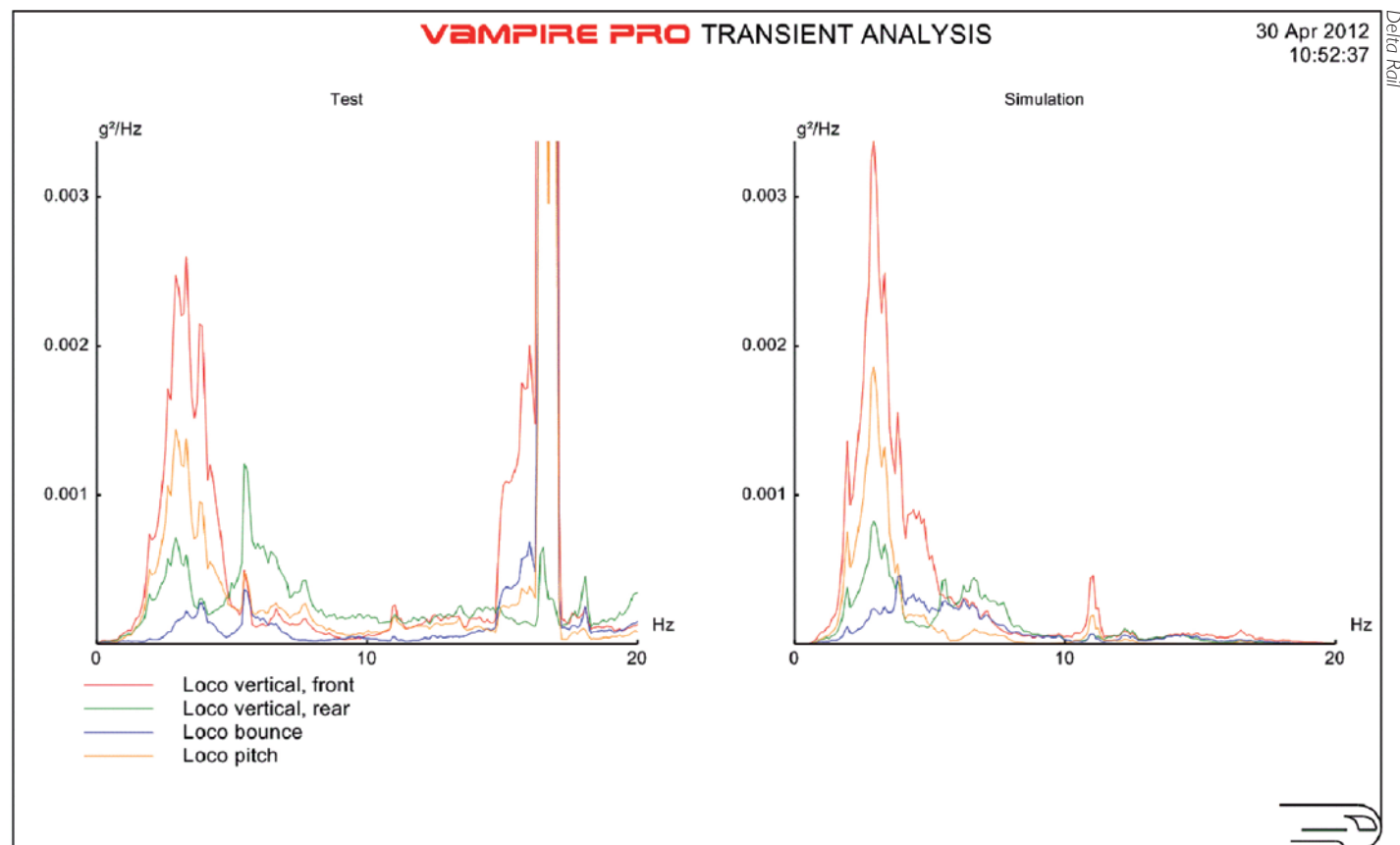


Figure 14: *Tornado* test, ECML-loco vertical ride validation, empty tender, 27km.

P2 2-8-2 No 2001 Cock O' the North passes Greenwood with a Leeds to King's Cross express in May 1935.



Right: Caprotti valve-geared 71000 Duke of Gloucester leads A1 60163 Tornado at Cockwood Harbour with the 'Tamar Devonian,' 28 July 2012.

Below right: P2 2-8-2 No 2001 Cock O' the North waits to leave Kings Cross on a demonstration run, 1st June 1934.

tucked under own arm, on 29th May we eagerly hot footed it to a meeting with an equally eager Owen Evans of Delta Rail for what can only be described as a good 'drool'! One drawing even has the handwritten signature of H N Gresley himself. At least with like minds focussed round the key drawings and that idiosyncratic front pony truck arrangement, a greater appreciation was gained of the original design configuration and how the suspension worked.

The current task in hand is to now derive the key dimensional information from these drawings to enable the model to be developed and so explore just how indifferent that original suspension design was – or not, as the case may be...

Meanwhile, preparations continue in other areas. On Thursday 3rd May, David Elliott visited Crewe for a meeting with Keith Collier who in the past has had much to do with engineering on 71000 Duke of Gloucester. This was specifically to discuss and learn about Caprotti valve gear next to the sectioned cylinder from 71000 and proved useful for understanding how the arrangement works. For whilst the ride of the P2 is the main focus of the study, the rotary valve gear is another area that can clearly be improved upon (without noticeably altering the appearance) if we are to conceive a locomotive best suited to the rigours of the contemporary mainline steam scene. This is an area we will no doubt return to again in future project updates. **TCC**
(to be continued)



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

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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