

Top Link

Issue 12
Summer 2005



*Outstanding
Sponsorship
Announced*



*Journal of The A1 Steam
Locomotive Trust*



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Issue 12

Summer 2005

Editor: John Hartley

JOURNAL OF THE A1 STEAM LOCOMOTIVE TRUST

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1953. 60162 *St Johnstoun* waits outside Mound Tunnel west of Edinburgh
 Photo: © Colour-Rail

Rear Cover :
 6233 sporting the correct headboard for the southbound run
 Photo: © Keith Drury 2005 Image from the A1 Steam Locomotive Trust Library

William Cook Cast Products Limited sponsors Tornado's tender

As we announced on 19th July, and as reported in The Guardian, The Yorkshire Post, Steam Railway No 312 and other railway magazines, Tornado's tender is to be provided by long-term Trust supporter, William Cook Cast Products. In a statement to accompany the announcement, William Cook Group Chairman, Andrew Cook, expressed delight in continuing his support for The Trust's aim to build a new mainline steam locomotive. We first mentioned his Group in issue 13 of The Pioneer (Summer 1994); an indication of how long he has given his support. Since then Cook's Burton-on-Trent foundry has made a number of important items including the loco wheels and many frame castings.

William Cook is a large UK based engineering company with a network of foundries producing sand-moulded, investment and diecast castings, primarily of steel, for an extensive range of markets. It started as a maker of steel castings which still form the basis of 99% of its products. They now include sophisticated components, assemblies and systems for a huge range of applications in the rail, aerospace, building and other fields. Up-to-date rail vehicles, including Desiro, Electrostar and Pendolino sets, are fitted with William Cook products as are aircraft, armoured fighting vehicles and missiles. External frame buildings, for example at Heathrow, Stansted and the Natural History Museum, benefit from the Company's products as do the oil and gas, mineral extraction and handling, medical and food industries. The Trust is delighted and most grateful to have such a prestigious Company as its principal sponsor.

Tender Construction *David Elliott writes:* As space and crane capacity at Darlington is tight, tender frame construction has been awarded to Ian Howitt Ltd. The frame plates will then be fitted out at Ian's Crofton workshops prior to a move to Taylors of Leeds who have adequate cranes and coded welders for final erection and fitting the tank (the builder of which is yet to be decided). We will project manage the frames and tank and source the wheelsets. The work will be done under the A1SLT quality management system. Use of Euroshuttle locomotive wheels for the tender is increasingly likely. They are almost A1 tender size, and are in current production to replace the originals which have worn to the minimum size. Eurotunnel has agreed in principal to our use of the design; price and delivery terms are being obtained from the manufacturer, Bonatrans in the Czech Republic. We then need approval via our Vehicle Acceptance Body (VAB) to use them on Network Rail (NR) as, although they are designed to the appropriate British Standard and are made by a NR approved supplier, Euroshuttle locomotives have never worked on NR lines having been confined to the Channel Tunnel infrastructure.

The Talisman – The Editor’s Personal View

Four hundred and sixty three miles behind a steam locomotive running to a demanding schedule at high average speed for mile after mile for most of its journey, and setting down literally hundreds of satisfied passengers at the end of the run. Not bad for a first attempt! We won’t know whether it was beginners’ luck until next time.

In the run-up to The Trust’s first foray into steam special operation, I shared the disappointment at the postponement of the run, and, shortly before the new date, the let-down on hearing that we would not have a Gresley A4 on the front. The substitution of 6233 *Duchess of Sutherland* prompted memories of my childhood reading of the Reverend Awdry’s ‘Henry the Green Engine’ (known to be sickly before being re-built) and of ‘James the Red Engine’ (which had a reputation for being cheeky). Despite the discrepancy in sizes and shapes, the memory recurred especially when, after departure from Kings Cross, I heard that the Duchess was running with a ‘Royal Scot’ headboard (what a cheek)!

Northbound under ‘false colours?!’
6233 on arrival at Darlington

Photo: © Keith Drury 2005
image from *The A1 Steam Locomotive Library*



The prospect of a long main-line steam run made rising at 5am easy, and I arrived at Kings Cross to take up my carriage steward duties full of anticipation.

The day started really well with an on-time departure and an early realization that we had the down fast road. The timers in my coach became increasingly excited as we neared Peterborough with the prospect of breaking 70 minutes start to stop. Alas, a local service was slow to clear our platform and we were held on the approach. After picking up more passengers, we visited the yard to water the locomotive then got on our way again, this time on the down slow. However, Stoke bank was taken with apparent ease despite have 13 behind the tender and we fairly rattled through Grantham, Newark and Retford before pulling into the

Doncaster Royal Mail depot for more water. A delayed re-start due to late service trains gave us an unexpected bonus as we accelerated through Doncaster: we actually overtook a GNER Eurostar heading for Leeds, and the already good morale on board rose to new heights! A very slick stop at York’s Platform 5 allowed those visiting the NRM to leave and a handful to join us for an excellent run on the down fast to Darlington. There, after a short delay for locomotive viewing, 5 double-decker buses and one coach left for Darlington Locomotive Works (to view *Tornado*) and Darlington Railway Museum with 2 other double-deckers going to ‘Locomotion’ at Shildon. The parties came back together at Darlington Bank Top Station ready to board the southbound special which made a fine sight entering Platform 1 from the north. The locomotive was by now carrying a pristine headboard with the words ‘The Talisman’ for all to see. (See the photograph on the Rear Cover of this issue). An on-time departure led to an up fast journey across the Vale of York and an early arrival in York’s Platform 3. Some of the passengers were now taking naps lulled by the excellent running and the happy atmosphere on board, but the timers remained alert throughout! After watering stops in Doncaster and Peterborough yards, and dropping our Peterborough passengers, we made a good journey back to a wet London where the locomotive and crew received a lot of plaudits and admiring attention.

It was a very special and successful day that has given invaluable experience of main line steam train operation that will stand us in good stead when we are also the owner of an operational locomotive (hopefully in about 3 years time). It also clearly engendered a lot of goodwill for The Trust and made it a modest profit to put towards the completion of *Tornado*. Inevitably, there are some lessons to be learned, but we now know we can run a successful main line outing. Beyond the locomotive crew which was magnificent, I was much impressed by the West Coast Trains on-board team, and I feel everyone who helped make the day happen deserves a sincere pat on the back. I congratulate the 2 raffle winners who are each now the proud owner of a full sized ‘Talisman’ headboard. My own weekend outing was enhanced by a Friday evening ride from Bloomsbury to Piccadilly on an ex-London Transport (now Arriva) Routemaster bus on the type’s last weekend in public service and by sight of a gleaming 71000 *Duke of Gloucester* at Exeter St Davids when homebound on Sunday.

Overleaf may give some idea the effect of firing a locomotive at speed for over 230 miles!



Before and After!

Left: Photo: © Keith Drury 2005 Image from the A1 Steam Locomotive Trust Library

Right: Photo: © David Elliott

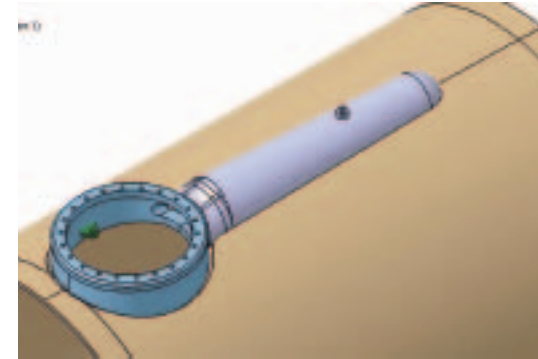
Talisman Servicing Graeme Bunker arranged coal and water in London, Peterborough and Doncaster (and fired the loco)! David Elliott had the seemingly straight forward task of organising watering and coaling from a railway access road running alongside the Darlington North Road goods loop where the train was to be stabled. A 25,000 litre tanker would drive alongside to refill the tender. The loco would then uncouple, run tender first to Thornaby, turn on the triangle, and return tender first to rejoin the train. In the meantime the tanker would find a hydrant to refill itself and return to work its way along the train replenishing carriage water tanks. A Hiab lorry would arrive with 6 tonnes of coal and lift it into the tender. Finally the tanker would top up the tender again. Alas, life isn't that simple. The roadway alongside the loop has a 2 tonne limit due to a weak bridge, and a concrete cable trough between the road and the loop prevented the Hiab lorry getting close enough to the tender for coaling. Fortunately, a little used siding off the north end of the loop before the offending bridge and, for the last 25 metres, free of cable trough presented a solution. However, several shunting moves were needed to position the loco both before and after turning.

We had to borrow 250m of fire hose from Bishop Auckland and Darlington Fire Stations to run down the length of the train from the weak bridge for carriage watering. A massive scrap yard fire in Darlington on Friday had absorbed the Brigades' spare hoses, but happily these came back to Darlington just in time for the arrival of the train. We thank Covenantor Peter Neesam for solving the problem and acting as Trust site manager until the train arrived, and Malcolm Simpson and his colleague from NELPG and Darlington Railway Preservation Society who, having PTS cards, laid out the hoses (we discovered from this that Malcolm, a retired fireman, is an expert hose handler)! There was a palpable sense of relief when the Duchess appeared back at Darlington Bank Top station on time and with the train pointing towards London.

Altogether, including the light engine moves from and to Butterley, *Duchess of Sutherland* needed 8 tankers full of water and 4 lorry loads of coal!

Engineering

The Boiler Bob Bramson from our VAB and David Elliott attended the final design review at Meiningen on 4th and 5th July. The results look very good and Bob was satisfied with the design quality. Most of the review entailed going through the main features in turn to ensure that the boiler interfaces with the locomotive satisfactorily. Proposed minor changes were examined carefully for interface issues and for any impact on maintenance. An area of concern to Meiningen is the perforated steam collector (popularly known as the 'banjo dome') which has no equivalent in the German TRD design code, so it has proved necessary to develop a design using finite element analysis. A computer program is used to model the shape of the boiler and dome in this area, and represents the material by a large number of rods or elements. The model is then loaded to see where the highest stresses occur and to compute maximum stress levels. After some judicious thickening of the boiler barrel in the area of the dome hole, satisfactory results were obtained. (see drawing).



Drawing of the 'banjo dome' seating on top of the boiler

Illustration: © David Elliott

Another change has been the incorporation of modern blow down valves. The original diagram 118 boiler had a single washout valve on the RH front corner of the foundation ring designed for hot water washout and draining the boiler when cold. It was not meant for regular blowing down at full steam pressure to remove sludge as recommended with steel fireboxes and water treatment systems. Thus a modern valve using a stainless steel valve on PTFE seats made by Spirax-Sarco has been chosen. German designs use a single blow down valve in the middle of the front of the foundation ring, but as the A1 has a large frame stretcher there to which we intend to attach the air pump, the blow down valve cannot go there. To achieve the full cleaning action a valve is to be fitted on each side. They will be used alternately. The design has been submitted to the TÜV Thüringen notified

body (NoBo) for approval which is expected at the end of July. It will then be sent to the UK authorities (HMRI, NR, VAB and insurance surveyor) for any further comments with a view to starting full boiler construction in October. Meiningen has recently had a batch of *firebox* tube plates delivered for German 01 Class boilers of which one has been reserved for the A1 boiler (contrary to information recently reported elsewhere).

Motion Ufone have completed the combination levers and has made significant progress with machining the radius and eccentric rods. Bedestone have ground the hardened radius links. William Cook Cast Products is making patterns, and casting the halves of, the inside valve gear eccentric sheave.

Cylinders and Valves North View Engineering are well on with the valves and valve spindles despite the rejection of the 3 front valve heads due to insufficient metal on the outside diameter to clean up. The pattern was modified and 3 new castings made. The back valve heads were satisfactory as they are 1/8" smaller diameter to assist with withdrawal though the front valve liners during maintenance. Volunteer Steve Wood is making good progress with the machining of the valve spindle crosshead guides using the Darlington Locomotive Works Bridgport milling machine. Ian Howitt arranged for Taylors of Leeds to make the two front cylinder cover casings from stainless steel to make them easier to keep burnished when *Tornado* is running.

Platwork Since the report in 'Communication Cord 3' this has been the main activity to prepare *Tornado* for the 'Steam Railway' photo shoot. The footplating, effectively complete forward from the step behind the cylinders forward, includes the raised areas around the cylinders and the removable panels over the valve spindle crossheads (a later modification to facilitate access to the valve gear). Volunteer Barry Wetherell has domed the heads on a large number of hexagon bolts for the footplating and cylinder lagging sheets. Great Northern Steam has made a nice job of the outside cylinder steam pipe casings now fitted to the engine. The distinctive protector plate over the inside cylinder valve chest cover has been assemble by Ian Howitt's staff from a kit of laser profiled steel plate parts. The smoke deflectors are complete and drilled to take the nameplates. Handrails were bent by Steel Benders UK at Middlesbrough and were fitted using handrail knobs made by Ian Howitt on one of his CNC lathes.

Fittings The first cylinder drain cocks were delivered by South Coast Steam and fitted for the "Steam Railway" photo shoot along with their operating linkage made earlier by our volunteers. We hoped to have a pair of cylinder release valves (to allow water out if the fireman fails to open the cylinder drain cocks or the engine primes unexpectedly) in time for the photo shoot, but they were delayed as South Coast Steam had problems with the castings. Meanwhile, pattern and casting work is underway for the safety valves, water gauges and

regulator stuffing box needed for boiler testing in Meiningen. Further non-ferrous fittings will be ordered as soon as finances permit.

Tender News of the tender sponsorship and construction is at page 3. The tender is expected to be complete in about two years to be in line with the planned construction of the locomotive. However the sponsorship deal makes it clear that the tender should be built at a rate consistent with it being finished at about the same time as the locomotive, so if the loco is delayed due to funding constraints, progress on the tender will be delayed to keep it in step.

Preparation for the Photo Shoot

The two weeks before the 'Steam Railway' photo shoot on 1st July was taken up with assembling the front of the locomotive, refitting the wheels and removing the jacks. We thank Andy Meyers from Great Northern Steam and our own Finance Director, Barry Wilson, who then painted the front end with satin black paint. We also thank NELPG for loaning us buffers and a vacuum "swan neck" from their J72 *Joem* (currently undergoing overhaul in the other end of our building) and Darlington Railway Museum which loaned us a set of drain cock pipes from 60532 *Blue Peter*. We are delighted with the results of the photo shoot which graced the front cover and pages 3, 7, 49, 50 and 51 of 'Steam Railway' no 312 and amply illustrated the excellent articles on *Tornado*. ***We thank the Editor and his staff for their invaluable support.***

2005 Convention

The Trust's 2005 Annual Convention will be held at The Dolphin Centre Darlington (the main entrance is in the Market Square) and at Darlington Locomotive Works (DLW) on Saturday 1st October between 11.00am and 4.00pm. The plan for the day is at page 10 (see Marketing) and a detailed programme will be available to Covenantors on arrival. For those travelling to Darlington by rail, the Dolphin Centre is a short walk from Darlington Bank Top Station (directions will be sent out with Convention tickets). After a buffet lunch, transport will be available to DLW and back to the Station. Due to the limited parking in Darlington town centre, arrangements have been made for Covenantors travelling by car to have the benefit of free parking at Darlington Railway Museum with transport to The Dolphin Centre. If you or your guest(s) have special dietary needs please include details on your booking form. A cash bar will be available. The Convention is planned to break even, and we have held the cost to £18 (as for 2004). Please book as soon as possible. We look forward to seeing you.

Recent months have been very exciting for us all with The Trust taking great strides – the Tender sponsorship, progress on the Boiler and *The Talisman* (report at page 4).

“The best day out I’ve had in years” a *Talisman* passenger said to me as we returned to Kings Cross – and what a day it was! But it would not have worked without the efforts of many: Information packs: Gordon Best, Terry Greaves Duncan Ross. On the train: Mark Allatt, Norman Bradbury, Graeme Bunker, David Burgess, Alan Bradstock, Keith Drury, David Elliott, John Hartley, John Larke, George Norrie, Beulah Shaw, Colin Vickridge. York Station and Shildon: Jon Pridmore. Darlington Station: Keith Crabtree. The Works: George Aitchison, Gordon Best, Chris Calver, Terry Greaves, Trevor Mumford, Norman Raine, Duncan and Jean Ross, Barry Thompson, Charles Tremeer, Tony Woodger - a great team, a fantastic day and a hugely enhanced image and credibility for The Trust. Here’s to the next time !



All the way from London just to see *Tornado*!

Photo: © Keith Drury 2005 Image from the *A1 Steam Locomotive Trust Library*

Thanks to Jon Pridmore, we are finding more opportunities to attend special events - for example we are at Shildon’s “1st Birthday Party” (24th/25th September) and Barrow Hill Roundhouse (8th/9th October). Thus we now need an ‘events team’ of people willing and able to assist at such events which are enjoyable in their own right being. Our presence raises awareness of The Trust, but super-knowledge of it and/or the A1s isn’t necessary - just a liking for talking to people. Please have a look at the sheet enclosed; if you would like to help, return it to us and we’ll take it from there.

On the e-mail front, our progress is slower than hoped for. Computer-related matters are rarely simple and more urgent tasks have had to take priority. We *are* making progress and I will report more fully at the Convention on 1st October.

The 2005 Convention will differ in format *and* location. We will gather at the Dolphin Centre, Darlington for Board and Management presentations followed by your questions. Then, after a buffet lunch, we will transfer to The Works. If you haven’t yet done so, please book place as soon as possible – see you there !



0 Gauge Model of Peppercorn A1

A kit to build an 0 gauge scale model of a Peppercorn A1’s frames, body and valve gear has been produced by a Covenantor. The kit is engineered to a fine standard using photo-engraving techniques to create the necessary parts. The footplate, tender and boiler (ready rolled) are etched onto brass. The chassis, cylinders and valve gear are etched out of nickel-silver sheet. Mirror image technique is used wherever possible to ensure accurate alignment of the various parts. Castings for the chimney, dome and other fittings complete the kit which costs £234.99 (normally £249.99) and is obtainable from W Ascough, 7 Ringley Park Road, REIGATE, Surrey, RH2 7BJ. Wheels, motor and motor gears are left to personal choice (estimated cost from £125)

Commissions to build and supply the model ready to run – in any A1 guise including *Tornado* – can also be undertaken for Covenantors on request at a cost of around £390 plus £130 for painting.



In 1958 or 9. 60157 Great Eastern waits at ‘Top Shed’ for its next duty: The Flying Scotsman
Photo: © Peter Tounend

Since Newsletter 4 (February 1991) only 2 house magazine issues – Pioneers 21 (Autumn 1996) and 26 (Winter 1997/8) – have not had a photograph on the front cover. Until now! However, the magnificent support from Andrew Cook of William Cook Cast Products Limited in sponsoring the tender for *Tornado* demands a special cover. Information about the Company is included under ‘Headline News’. Elsewhere, we report on the success of The Talisman, on special offers for Covenantors and give news of progress with the boiler and other parts of the locomotive. There are announcements and reminders about forthcoming events. We are particularly indebted to Philip Hawkins FGRA for his permission to reproduce his painting of 60131 *Osprey* at Leeds Central in 1958 as our centre fold ‘big picture’.

In the latter half of this issue, I am delighted to include articles written by my 3 predecessors - Mike Wilson, The Trust's first Chairman, issued the first Newsletter in the late Summer of 1990; Phil Champion edited Newsletters 2 to 5, Journals 6 to 10 and issues 11 to 36 of The Pioneer and Gerard M-F Hill produced Top Links 1 to 10. I am sure you will welcome the thoughtful pieces they have written, and I know that many of you will be pleased to see that the series of locomotive profiles which graced issues of The Pioneer has been restarted. All being well, a profile of 60129 *Guy Mannerling* will feature in Top Link 13.

An analysis of the full archive set of our various house magazines shows we have yet to publish photographs of 4 of the original A1s. This issue includes 60162 *St Johnstoun*, and the other 3 will, I hope, be in Top Link 13. *John Hartley*

60131 *Osprey* at a damp, overcast Stockton Station on 21st March 1965

Photo: Image from the A1 Steam Locomotive Trust Library. Original source unknown

(If anyone recognises this photograph as theirs, please advise me. Editor)



The past few months have been some of the busiest for The Trust since our project was first mooted back in 1990 (see Mike Wilson's article). In launching our bond issue, ordering the boiler, securing the tender sponsorship by William Cook Cast Products Limited (and starting work on it) and running *The Talisman*, all of us involved in running The Trust have had our work cut out.

All these efforts had one goal in mind – completing *Tornado* by November 2007. The superb £200,000 sponsorship of the tender by William Cook Cast Products Limited takes the sum raised through your covenants and donations, commercial sponsorship and our bond issue to over £1.5m. To finish *Tornado* by November 2007 The Trust must raise **only** another £385,000 on top of its existing pledges – less than the cost of most heavy general overhauls now being carried out on Class 8 pacifics.

Many of us are asking ourselves “What more can I do to help?” Well, if you do feel able to donate more to the Trust there is a whole range of new dedicated covenants available for purchase. Alternatively there are still bonds available from our £500,000 bond issue. However, equally important for us is to increase the number of people donating to the Trust – do you have any family members, friends or colleagues who have expressed an interest in *Tornado* but have not yet joined us? If so, I would encourage you to do all you can to persuade them to come on board and help us to finish *Tornado* by November 2007.

I thank all our volunteers who made *The Talisman* possible - especially my colleagues David Bedding and Graeme Bunker who put in so much hard work behind the scenes. I must also thank Brell Ewart and his *Duchess of Sutherland* support crew for stepping in at the last minute and delivering such a phenomenal performance – we have quite a target to beat with *Tornado*!

I close by personally thanking Andrew Cook, Chairman of William Cook Holdings Limited for his outstanding contribution to the project. In his own words, “*Tornado* will not only keep mainline steam alive in Britain for generations to come but it will also be a great example of how persistence and determination – my motto – wins through in the end. I am looking forward to seeing *Tornado* in steam in 2007”. Andrew, we are doing everything we can to make this happen.

I hope to see as many of you as possible at our Annual Convention in October.

Picture overleaf: 60131 *Osprey* on the Yorkshire Pullman at Leeds Central circa 1958. (45698 *Mars* and an unidentified J50 appear in the background). ©Philip D Hawkins FGRA



YORKSHIRE
PULLMAN

60131

60131

Philip D. Hawkins

'The Man with the Clipboard'

Having discussed the role 'quality' plays in the construction of *Tornado* in Top Link 11, **Graham Nicholas, Quality Engineering Director**, turns his attention to the locomotive certification process for mainline running.....

Did you know that, every time you travel by rail, whether it be Pendolino, DMU or charter train, whatever vehicle you sit in, there will be a certificate somewhere, signed by a VAB, to say that that vehicle is fit to run on the railways (the thousands of freight wagons and locomotives you might spy from the window will each have a similar certificate!) Approval of railway locomotives and rolling stock is by no means a new concept. Controls over allowing vehicles to run have been around for many years, even back to the days of Railway Clearing House standardisation of designs for railway equipment.

However, with the onset of privatisation in 1994, a formalised process of certification was adopted, largely due to the increased risk associated with splitting of track and trains into various different companies (as opposed to the 'all under one roof' BR). This heralded the concept of Engineering Acceptance and the creation of Vehicle Acceptance Bodies (VABs) to issue certificates confirming that vehicles are in accordance with agreed (safety) standards. Put very simplistically, it is the VAB's job to check that the rail vehicle has been designed right, built right and (will be) maintained right. Once they are happy that this is so, then certification is issued and forwarded to Network Rail for authority to operate to be granted. The attached diagram summarises the process. People often say 'Oh, a bit like a car having an MOT then'! Well, no, not quite – the nearest equivalent I can think of is an aeroplane's airworthiness certificate. A rail vehicle's Certificate of Authority to Operate is, in effect, its 'rail-worthiness certificate' and can often be valid 'until further notice'.

So how do steam locomotives fit into this bureaucratic world of certification? Well, in essence, they are no different from any other rail vehicle – there will be an Engineering Acceptance certificate somewhere! One main difference is that, due to being classified as a 'heritage' vehicle, their certification does have to be renewed annually. Also, there is (usually) no need for design and construction certification, as this is accepted on the basis of previous proven experience in service (i.e. pre-1968)

However, *Tornado* is different, as it is a brand new construction and therefore is being subjected to appropriate (construction) checks as work progresses. As far as design is concerned, the base design is accepted as 'proven' (from the pre-1968

service of the first 49 A1's!), but where we are deviating from the design, this has to be verified. A notable example is the boiler, due to the change to all-welded construction. Consequently, during the initial design review at Meiningen (March 2005), the opportunity was taken to conduct a formal supplier appraisal to formally report on Meiningen's ability to both design and construct the new boiler. This has been written up and circulated within the industry and has received favourable comments from both the VAB and Network Rail. So far, work such as this has been fairly low key within the overall project but, as we get nearer and nearer to completion, it will assume greater prominence in the run-in to mainline operation.

We don't want to spend our days just trundling up and down a preserved railway, do we.....!?

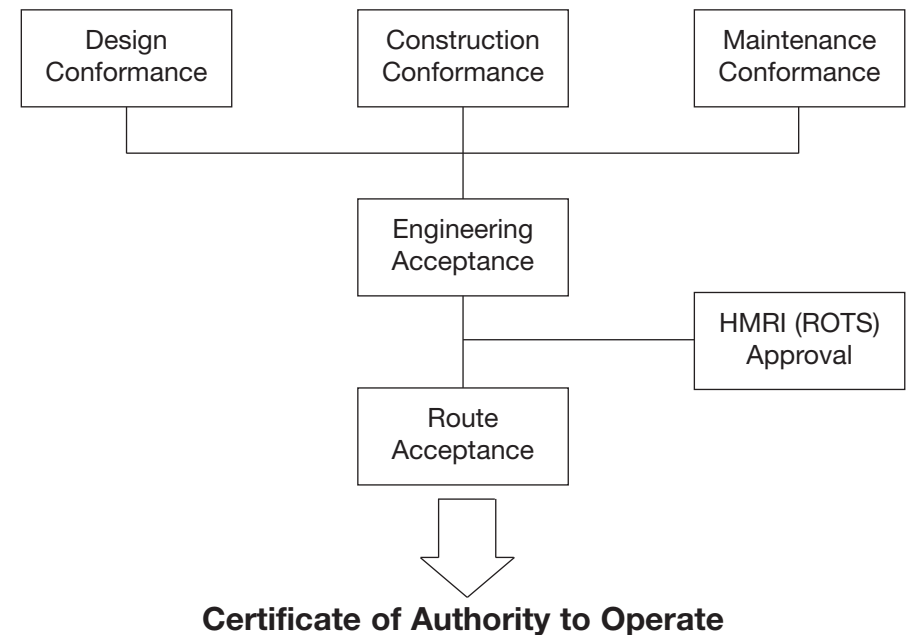


Diagram summarising the vehicle registration process (from Railway Group Standard GM/RT2000)

*Memories of the birth of a new A1 by Mike Wilson**The Trust's first Chairman looks back*

It seems just yesterday that the idea to build an A1 was born. To build a locomotive would be a mammoth task, but, as we sat around the table discussing the project, there was already a feeling of optimism that it would succeed. How could it fail with a slogan that, like a steam engine, was simple but effective: 'an A1 for the price of a pint of beer'? The day arrived for the first public meeting at York (17th November 1990) with great anticipation. The response far exceeded our expectations with many people coming forward to offer their services.

Having committed a lot of time and effort over a couple of years getting the project off the ground, I felt it was time to leave it in the hands of others to take it forward to the next level. As you can see, the project did indeed move forward in a very professional manner, and we are now in sight of our goal: seeing *Tornado* running on the main line. Indeed, I hope to purchase the first ticket!

It has been a privilege to be involved in the project from the beginning and, in the process, meeting many interesting people. Sometimes we would agree to disagree, but we never lost sight of our aim – a working A1! *Mike Wilson*



The dream Mike Wilson shares with many, many others
Original Photo: © Colour-Rail/Trevor Owen

PROFILE: 60128 BONGRACE by Phil Champion

To a schoolboy locospotter, the name *Bongrace* had a fine ring to it though he didn't realise its origin; the first syllable reminding him of the French for "good" and the other speaking for itself. 'Locomotives Illustrated' 71 shows how fine 60128 looked curving under York's train shed or swinging off the High Level Bridge at Gateshead.

It began as part of Engine Order No.383 for 60124-9 issued in November 1945 four years before the metal was cut. By 24th April 1949 the frames and boiler were noted at Doncaster Works. As Works No. 2045, it entered service on 19th May. Numerically it was the 15th A1 and Doncaster's 15th, but, as Darlington had already delivered 60130-47, it was the 33rd A1 to enter service and one of four completed that month; two from each works. No doubt they were welcomed by sheds as their predecessors had been. The unnamed loco with plain chimney must have made quite a sight in post-war Copley Hill, being the third of 13 A1s to appear brand new in blue express livery. It had broad black and narrow white lining plus vertical double narrow white lines at each end of the outside cylinders. Instead of the owners' (BR) name appearing in full on the tender there was now the early BR emblem: the lion straddling the wheel. (Wouldn't it be good to see an A1 in this guise again sometime?!) Like the rest of the 60114-29 batch, (Engine Order Nos 382 and 383), 60128 was fitted with a Flaman speed recorder from new.

As one of Copley Hill's original quintet, 60128 was soon on West Yorkshire- Kings Cross trains. The 3.50 pm KX-Leeds on 30th May, 1949 was our first recorded run followed by the 14 coach 11.55 pm from Leeds entering the capital on 4th June. Tyneside was reached by 13th June when it was seen at Heaton Junction. Between late June and early August it hauled the 'West Riding' in both directions a number of times. Like a number of classmates it was fitted with the Hudd system of Automatic Train Control in 1950. That November (probably when at Doncaster Works for repairs) 60128 took the name of the winner of the 1926 Doncaster Cup. About half of the class had already been named. Illustrating its work were the Up 'Tees Tyne Pullman' on 11th April 1951, arriving at Darlington at 2.15pm on 13th June with a 13 coach KX-Aberdeen train and on a Down passenger seen at Werrington on 28th July.

A major reallocation in September, 1951, when shorter out and back turns replaced a lot of through engine workings, saw 60128 move to Grantham where it became one of 10 A1s shared by two crews each. One of the first sightings then was on the 30th when it was seen at Stockton at 8.16pm with an 11 coach KX-Newcastle passenger. For the next six years *Bongrace* powered up and down the ECML with trains like an XP York-KX on 4th November 1951, the Up 'Aberdonian' into the capital on 16th May 1952, an Up parcels into KX on 9th September 1953 plus a number of Down 'Flying Scotsman' runs hauled into Newcastle between May 1954 and April 1955. An example of the diagramming comes from 26th July 1955 when it hauled the Fred Olsen Line boat train to Newcastle then left with the Up 'Heart of Midlothian'. Two unusual runs came in 1955. On 20th May 60128 ran from Grantham light engine to and from Cleethorpes to test a new turntable. On 25th September it hauled two Grantham-Peterborough brake test runs with a load of 462.5 tons including dynamometer car. The regular driver "Curly" Royce boasted to the testers he would show what it could do –and did! After a 1 in 200 climb up Stoke bank *Bongrace* reached 90 mph by Corby.

A move to Kings Cross shed came in September 1957 for work on the Main Line as far as Edinburgh. Two high speed return trips for a 'special' were run on 1st May 1958 between York-Darlington. It hauled the Down "Talisman" from the English capital on the 25th. On 21st June 60128 left Newcastle with the 11.10am to Edinburgh.

With the coming of more diesels most A1s lost their mainly express duties and so *Bongrace* went back to Doncaster shed in April 1959. Sightings between Tyneside, Yorkshire and the capital still show a range of passenger work like hauling the Up 'White Rose' on 27th June 1961 and entering Newcastle with the down 'Anglo-Scottish Car carrier' on 7th January 1962. 7th November saw it bring 'The Norseman' into Newcastle then work back south with the important 3E22 Aberdeen-KX fish train. More prestigious were a KX-Harrogate Pullman special on 11th January 1963 and the Up 'Yorkshire Pullman' on 30th March. On 20th April it headed south from York with new electric stock. By contrast, 60128 pulled the up BP tanks into Newcastle mid-morning on 14th May. Increasing dieselisation and the closure of Top Shed in June 1963 put the A1s onto a mix of goods, parcels and substitutes for diesels. Indicative of this was *Bongrace* on the KX-York parcels on 19th September. The summer of 1964 brought a variety of workings. 4th July found 60128 passing through Newcastle on a Class C goods and noted with it two hours later at Beal. Travels north of the border beckoned a fortnight later. 17th July saw it take the 9.25am York-Glasgow forward from Newcastle to Edinburgh. Next day it worked the 10.30am Edinburgh-Aberdeen returning on the 19th with the 6.00pm Aberdeen-Glasgow as far as Dundee. On the 20th *Bongrace* pulled a Dundee-Aberdeen goods then returned with the 12.30pm Aberdeen-KX. 19th September found 60128 taking over from Royal Scot class 46115 *Scots Guardsman* at Peterborough on an LCGB railtour.

On 10th January 1965 60128 was withdrawn having had eight boilers in its life. It was one of three to go that month 23 having already gone. A fortnight later it was still lying at Doncaster Works. With a good working life of 15.5 years surely *Bongrace* could have served the railways for much longer?



60128 *Bongrace* northbound out of Welwyn Tunnel on Sunday 9th June 1963

Photo: © G W Goslin, the Gresley Society

Those of a nervous disposition need not apply by Gerard M-F Hill

If you're building a new steam locomotive, where do you start? With a blank sheet of paper? If you have time, money and confidence, yes. Gresley is said to have sketched the V1 tank on a piece of blotting paper, specified a few dimensions and left his assistants to produce the drawings. At the opposite extreme, the Furness and Cambrian railways bought identical designs off the shelf from Sharp Stewart. When the Furness let their chap have his head, they got some vast 4-6-4Ts that they never really found a use for. The LMS soon turned them into scrap.

Of course the board of directors had to be persuaded that a new design was going to fill a need. Where it was to work would decide axle weights and weight per foot run, what it pulled would decide driving-wheel diameter and tractive effort, and calculation, habit or belief would decide the number of cylinders and boiler pressure. Some engineers were very persuasive. How did Bulleid convince the Southern board that they needed a hundred pacifics when they'd never had any? How did Robinson persuade the Great Central board to authorise yet another type of 4-6-0, with more cylinders or slightly smaller wheels? If the design was a lemon, though, the engineer might be asked to pack his bags, as F G Smith was on the Highland and the younger Beattie on the South Western; or they could hush it up and be very careful thereafter.

Locomotive designers of a nervous disposition made use of existing designs, as Collett did on the Great Western. His one original design ignominiously got its motion in a twist the first time it moved, and had to be redesigned. The disaster was hushed up at the time and only revealed years later by J C Gibson. No wonder Collett stuck to enlarging his predecessors' designs after that. It's curious that Thompson apparently admired his work. Wise caution could become unwise tradition: in 1950 Swindon was still calculating blastpipe dimensions for new designs on the basis of the Dean Goods; and for years it was Derby's habit to begin every six-coupled design with axle-spacings of 8ft and 8ft 6ins. When called on to produce an 0-8-0, Derby gave it inadequate axleboxes based on those of the 4F. It seemed no-one had the confidence to start from first principles.

Another limitation on design was money. It was cheaper to use what you had. Often the directors would authorise rebuilding, but not new construction. Perhaps they saw it as thrifty? Waste not, want not. In the 1860s and 1870s, the North Eastern never threw anything away: they rebuilt locomotives again and again, until there were no two locomotives alike. Indeed they had no locomotive with its two cylinders alike, even ignoring those von Borries two-cylinder compounds. Superannated locos were just put aside; Tweedmouth shed being used as a *de facto* museum. Was rebuilding thrift, or was it just a way to get past the auditors? In the 1870s, the Great Northern

spent a year stocktaking its rolling stock. At the end of the twelvemonth, there were still half a dozen carriages missing. When this was reported to the directors, they ordered that these carriages should be 'rebuilt'. It is said that A3 2744 *Grand Parade* emerged 'rebuilt' from Doncaster Plant before work had started on dismantling its remains from the Castlecary accident.

It was no doubt a combination of financial controls and wartime restrictions that caused Thompson to rebuild older designs, when he really wanted to leave his own mark on the LNER fleet. His first pacifics were notoriously laid out around the P2's short connecting-rods. His policy of standardisation gave the company 26 extra pacifics of four new designs. Even if you built new, it was cheaper and quicker to build something for which you already had drawings and patterns. So Gresley in 1923 decided to build some more Robinson Directors and Coronation tanks; and in 1949 Darlington Works built some NER E1 (LNER J72) shunting tanks, a design from the 1880s. Yet in 1949 the same works was building Arthur Peppercorn's new pacifics, at terrific speed. What a contrast in approach! How did it happen?

When Thompson retired, work had started on an order for 30 of his A2s and the board had authorised 39 A1s. The need was urgent and time was short. Unknown to the CME, work had also started on redesigning both types along Peppercorn lines. Barney Symes explained that they started at the back, in case Thompson happened to look at their drawing-boards. Arthur Peppercorn knew what he wanted, and he knew how to get it (which is often much harder). He did not start with a blank sheet of paper. He judged when to start afresh, when to redesign, when to use tried and tested elements from existing drawings. He also had to use the people, skills and works capacity that he had. Bert Spencer, who made Gresley's pacifics quieter and more efficient but had been sidelined by Thompson, was in charge of design, strongly influenced by Freddie Harrison - who was a smooth operator as well as a talented engineer. The drawings had minimal information on materials and tolerances, because shop-floor staff knew what was needed. Even the huge resources of Doncaster and Darlington had their limitations, though. Harrison had been a keen exponent of welding since his time at Gorton in the early 1930s, but the LNER had only a handful of skilled welders, so the A1 frames were riveted and the stretchers were cast. He was also an advocate of roller bearings and the five locomotives built with them proved his point. Arthur Peppercorn took over in June 1946; his first pacific was steamed in December 1947, a remarkable achievement in those difficult post-war years, and 63 more followed in just two years. They did their job, gave little trouble and proved cheap to run. What more could any board of directors ask? We can only imagine what might have resulted if Sir Ronald Matthews had managed to entice Bulleid back, along with his blank sheet of paper. Confidence isn't everything.

An Apprentice Remembers

An A1-related extract from 'A Loco Apprentice's Tale by Brian Gregson
Brian Gregson started his working life as an Indentured Apprentice Fitter and Turner at Stratford around the time that British Railways was being formed. His day-release was spent at West Ham Polytechnic. At the end of his time in the various parts of Stratford Railway Works ('the shops'), Brian's last few months of his apprenticeship were spent gaining experience in a running shed; in his case, at 51A Darlington!

After commenting on a cold winter spent in the open-ended, north-south aligned 51A and his welcome transfer into the shed office, he mentions a couple of casualties: a B1 4-6-0 and an ex-GCR A5 4-6-2T. He then goes on:

'..... Visits to home, in London, provided the opportunity to scrounge a footplate ride (passes were not available, so it was unofficial). The engine was usually a peppercorn A1 with a Grantham crew as far as that town. The 44 minutes for the 42 miles to York were exhilarating once one had become accustomed to the sometimes violent movement of the cab. The exit from Darlington on to the main line provided a painful introduction when incautiously leaning out of the cab window; the blow to the back of the head can still be felt. The fireman's seat was less than ideal since there was nowhere to rest the feet except a boiler plug. Perhaps something might be done to correct these niggles in the new engine being built, as the impression was of an excellent, powerful and free running engine.

Less successful were attempts to gain the footplate south of Grantham with Kings Cross crews.'

At the end of his apprenticeship Brian Gregson did his National Service in the Army and then entered Doncaster Drawing Office. There, he found much of the work mundane and related to modifications. He was most impressed by the very detailed general arrangement drawings of locomotives laboriously produced using a T-square, set square and slow-drying ink. Brian also spent time on a temporary assignment at the Rugby Testing Station where his memory is of heat and excruciating noise. Soon thereafter, for a number of reasons including the announcement of the end of steam, he left the railways for other employment.

Editor's note: Brian's point about 'correcting the niggles in the new engine being built' highlights the changes The Trust has made when updating the original A1 design for building *Tornado* with modern materials and manufacturing methods. Perhaps the only change I am not aware of is the provision of a footrest for the fireman! David Elliott may have something to say about that?

SAFETY VALVE

SAFETY VALVE

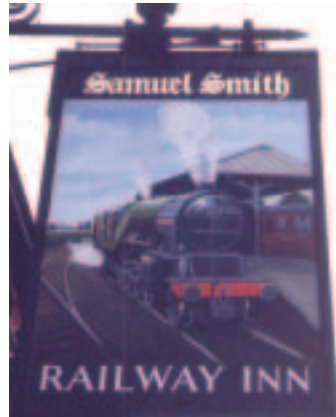
My thanks to the many Covenantors who wrote to me or sent e-mails to tell me that the equipment behind 60130 Kestrel's smoke deflector (Top Link 11, p26) was the turbo-generator. In the absence of any letters on other topics to the Editor of Top Link, I thank those who sent congratulatory e-mail to the organisers of The Talisman. The messages demonstrate quite clearly that the steam special did The Trust no harm at all!

SNIPPETS

An A1 on a pub sign!

In Top Link 11 I reported on the pub in the village of Spofforth close to the course of the line from Wetherby to Harrogate that has an inn sign showing, on each side, a painting of A1 60147 *North Eastern*. I am now pleased to publish a photograph of that sign kindly sent to me by Phil Champion

Photo: © James Rogers



A Reminder

The East Anglia Support Group invites all Trust supporters in the greater East Anglia region to its activities and meetings. For details contact: Alan.Lusby@alsteam.com

Railway Art

The painting show in the centrefold will feature in Philip Hawkins forthcoming book 'Steam on Canvas' (OPC) due for publication later in the year as a follow-up to his book 'Tracks on Canvas'.

Non-Photographic images of A1s

The centre-fold of this and earlier Top Link issues shows that quite a number of non-photographic images of A1s are in circulation as postcards, jigsaws, book covers and as original paintings. *Please let me know of any you are aware of (I have noted 10).*

TORNADO MERCHANDISE

Enamel Badge (shown below) - £2.50 **including** postage and packing (£2.00 if with other item (list below))



Tie (Woven polyester - green - £15.00 **including** postage and packing with orange/black stripes)

Clothing:

Sweatshirt	- £20.00	
)		
Polo Shirt	- £20.00	plus £2 postage and packing
)		
Fleece	- £30.00	

All items Forest Green with badge (actual size – 4 1/2" x 3 1/2") as shown below:



Clothing Sizes:

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Write with *full remittance* and complete order details (please include phone number and/or E-Mail address in case of query) to **Sales, Darlington Locomotive Works, Hopetown Lane, Darlington, DL3 6RQ**. Allow 4 weeks for delivery of Clothing items. Other items will be despatched as soon as possible.

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