

From the builders of No. 60163 Tornado – Britain's first new main line steam locomotive since 1960

Almost £3.5m pledged. Frames erected, wheels fitted, cab and smokebox complete

Yes!

I would like to support the P2 Project and join The Tender Club

Please complete the form below and return to:

The Tender Club, P2 Construction Fund
 The A1 Steam Locomotive Trust
 Darlington Locomotive Works
 Hopetown Lane
 Darlington DL3 6RQ

We will send you the appropriate Standing Order and Donation Registration Forms so that we can set you up on our systems and reclaim UK income tax paid through Gift Aid where appropriate.

Why not visit us at Darlington and see No 2007 *Prince of Wales* under construction for yourself? We are open 11:00hrs to 16:00hrs on the first and third Saturday each month.

Please join The Tender Club and help us to manufacture the tender for No. 2007 *Prince of Wales*:

The Tender Club – Following the success of The Founders Club (for the frames), The Boiler Club (for the boiler), The Mikado Club (for the wheeling), The Cylinder Club (for the cylinder block) and The Motion Club (for the heavy motion) we have decided to establish The Tender Club to fund the tender for *Prince of Wales*.

Club is to raise at least £600,000 from 300 supporters each donating £2,000.

If we are to remain on target to complete No. 2007 within three years, we need to raise the funds to take delivery of the tender tank and tender frames in 2020. We have therefore set ourselves the challenge of raising £450,000 through The Tender Club from 250 supporters each donating £1,500 (plus Gift Aid) to the project in up to 15 payments of £100 by standing order.

Our fundraising clubs have to date raised in excess of £1.7m. Our aim for The Boiler

LET'S GET A TENDER BEHIND!

Help us to manufacture the tender for new Gresley class P2 No. 2007 *Prince of Wales*



Follow us on:





Join The Tender Club today!

THE TENDER CLUB APPLICATION FORM

Name

Address

..... Post Code

Email Telephone

- I have enclosed a cheque for £1,500 made payable to "A1 SLT – P2 Construction Fund or
- I would like to make five (5) payments of £300 – please send me a Standing Order form or
- I would like to make ten (10) payments of £150 – please send me a Standing Order form
- I would like to make fifteen (15) payments of £100 – please send me a Standing Order form

Are you a UK tax payer? Yes No

Are you a P2 No. 2007 *Prince of Wales* Covenantor? Yes No, please send details

Are you a member of The Boiler Club for P2 No. 2007 *Prince of Wales*? Yes No, please send details

Are you an A1 No. 60163 *Tornado* Covenantor? Yes No, please send details

To help our marketing efforts, could you please tell us where you picked up this leaflet?

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Special benefits for members of The Tender Club

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



The A1 Steam Locomotive Trust is raising funds for the construction of the tender for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the construction of the tender, we will use the money to buy other components for the Gresley class P2 that the charity would not otherwise have.

For further information on any aspect of the new Gresley class P2 please visit www.p2steam.com, email us on enquiries@p2steam.com or call us on **01325 460163**.

Together we can build this remarkable locomotive!





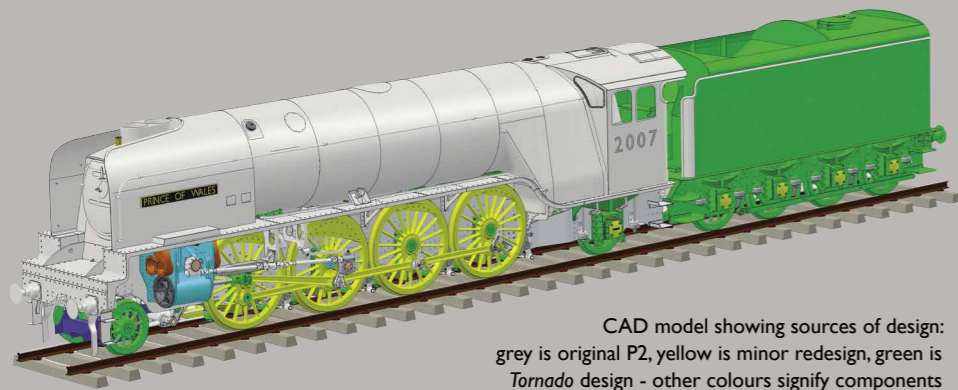
The Gresley class P2 2-8-2 'Mikados' were the most powerful express passenger locomotives to operate in the UK. They were designed by Sir Nigel Gresley to haul 600 ton trains on the arduous Edinburgh to Aberdeen route. Sadly the design was never fully developed and they were rebuilt by his successor Edward Thompson into ungainly class A2/2 4-6-2 'Pacifics' in 1943/4, and scrapped by 1961. As the builders of No. 60163 *Tornado*, we have set ourselves a new challenge: to develop, build and operate an improved Gresley class P2 'Mikado' steam locomotive for main line and preserved railway use. The project to build the 7th Gresley class P2 'Mikado' is using the latest computer design and modelling techniques to enable it to deliver its true potential.

The new locomotive will:

- Be aesthetically similar to class P2 No. 2001 *Cock o' the North* - it is a construction and development project not an opportunity for major redesign
- Make maximum use of systems, fittings and processes in use on No. 60163 *Tornado* - any changes to the original design will be either for operational, manufacturing or certification reasons
- Take into account the needs of the operator - all decisions will be judged for their value for money

- Meet current and foreseeable regulatory standards to allow the locomotive to operate as intended
- We estimate that No. 2007 *Prince of Wales* will cost around £5m to build over a 7-10 year period. As with *Tornado*, funds will be raised through regular donations 'a P2 for the price of a pint of beer a week', donations dedicated to specific components and commercial sponsorship.

We have the expertise, the track record and a plan... But this can't happen without you.



CAD model showing sources of design: grey is original P2, yellow is minor redesign, green is *Tornado* design - other colours signify components requiring more extensive redesign.

Progress to-date

- Frames: engine's frames and cab substantially complete; cab's side and spectacle window frames fitted; manufacture of the pony truck frame at North View Engineering Solutions Ltd (NVES)
- Cylinders & valves: 3D CAD design of the cylinder block and valve gear substantially complete; weld details and assembly order being finalised
- Smokebox & fittings: smokebox assembled and trial fitted to the frames; chimney fitted
- Boiler: boiler design study completed; forged foundation ring corners manufactured; superheater header cast & machined; boiler cladding manufactured; boiler order placed with DB Meiningen for delivery in 2021; foundation ring forgings and regulator castings despatched to Meiningen; minor re-design of the banjo dome to suit the P2 cladding has been completed by DBM; first firebox flange plates manufactured
- Fittings: many non-ferrous fittings are being cast and machined
- Brakes: work well advanced on manufacture of brake rigging and spring gear well underway
- Wheelsets: crank axle re-designed to comply with modern standards and manufactured; all engine wheelsets complete and fitted to engine
- Motion: all heavy motion ordered from Stephenson (Engineering) Ltd; first four forgings completed, with machining in progress - more underway
- Valve gear: updated poppet valve gear design almost complete; components in manufacture
- Pipework: design well advanced and installation under way
- Electricals: significant progress on electrical system with system architecture design frozen, electrical trunking layout design almost complete, battery boxes under construction, prototype of new axle driven alternator to be tested shortly; GSMR radios acquired
- Tender: frames being assembled by ID Howitt at Crofton; tank construction completed by NVES and undergoing painting at DLW; wheelsets returned from South Devon Railway Engineering to DLW
- Finishing: nameplates and chime whistle delivered
- To-date, almost £2.5m has been spent, almost £3.0m raised of the required £5m.

Maintaining momentum

Since its launch in September 2013, the project to build new Gresley class P2 'Mikado' No. 2007 *Prince of Wales* has made remarkable progress. Around £2.5m has been spent on construction to-date, with around £3m raised of the required £5m.

However, to maintain this rate of progress - and complete the locomotive within three years - we need to raise in excess of £700,000 per year. This becomes more challenging as each year passes due to the nature of our 'P2 for the price of a pint of beer a week' Covenant (regular donation) scheme.

The tender in detail

The tender for No. 2007 *Prince of Wales* is based closely on the tender built for A1 class No. 60163 *Tornado*.

The original P2 tenders were built to the 1930s non-corridor design for the new A3 Pacifics being constructed at that time. The original P2 class *Cock o' the North* upon which *Prince of Wales* is based uniquely used an all welded version of the tender tank supervised by Oliver Bulleid, Sir Nigel Gresley's assistant. The normal method of construction used rivets.

The water capacity of the original design was 5,000 gallons, which at a typical consumption of 45 gallons per mile would provide a range between water stops of 80 miles (with a safety margin). The tender for *Tornado* was redesigned to increase the water capacity to 6,250 gallons which increases the range to about 110 miles. This enables *Tornado* to make a typical run from London to York with only one water stop. The additional water capacity is at the expense of a reduction in coal capacity from 9 tons to 7½ tons. This still provides for around 300 miles of range with reserves.

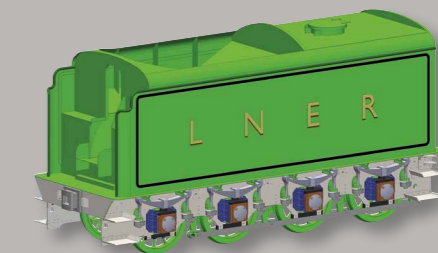
In common with the tender for *Tornado*, the new tender for *Prince of Wales* will run on Timken class D cartridge roller bearings for

the axles and be fitted with a belt driven coach alternator to provide power and charging for the locomotive's electrical system.

The tender tank will be a fully welded structure made from weathering steel (as used on motorway bridges and the Angel of the North) to provide improved resistance to corrosion.

The main visible differences in the new tender will be the curving inwards of the side sheets at the front to match the shape of the cab sides, along with the extensive use of half round beading along the front and top of the sides and the top of the back of the tank.

We have therefore established The Tender Club to raise an estimated £450,000 required to manufacture the tender for No. 2007 *Prince of Wales*.



Help us to manufacture No. 2007's tender by joining The Tender Club today!

To become a member of The Tender Club, please complete the form overleaf or email enquiries@p2steam.com, call 01325 460163 or visit www.p2steam.com for more information.