

Yes!

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

Please complete the form below and return to:

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

We will then send you the appropriate forms for your standing order and, where applicable, a Gift Aid form so that we can reclaim UK Income tax paid.

Why not visit us at Darlington and see *Prince of Wales* under construction for yourself? We are open from 11:00hrs to 16:00hrs on the first and third Saturday of each month – see www.p2steam.com for more details.

THE BOILER CLUB APPLICATION FORM

Name

Address

Post Code

E-mail

Telephone

I have enclosed a cheque for £2,000 made payable to "A1 SLT – P2 Construction Fund" or

I would like to make eight (8) payments of £250 – please send me a Standing Order form or

I would like to make sixteen (16) payments of £125 – please send me a Standing Order form or

Are you a UK tax payer? Yes No

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

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

Are you a 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?

2017/07/21



Please join The Boiler Club and help us to complete No. 2007 *Prince of Wales* in record time:

The Boiler Club – Following the success of The Founders Club, which was designed to get to the P2 Project to the point of cutting No. 2007's frames, we established The Boiler Club to fund the construction of *Prince of Wales*' boiler. We set an initial target for The Founders Club of at least £100,000 from 100 'Founders' but due to the overwhelming generosity of our supporters we actually raised £450,000 from 360 donors. It is our desire to leave No. 2007 *Prince of Wales* debt free upon completion and therefore our aim is to raise at least £600,000 for The Boiler Club from 300 supporters each donating £2,000 to the project (in up to 16 payments of £125 by standing order).

Special benefits for members of The Boiler Club

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

The A1 Steam Locomotive Trust is raising funds for the manufacture of the boilers for the new Gresley class P2 No. 2007 *Prince of Wales*. If there are surplus funds left over following the manufacture of the boilers, 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.

Thank you for your valued support – together we can build this remarkable locomotive!



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

Boiler assembly started for delivery in 2022



Follow us on:

Join The Boiler Club today



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

Cover photo: Graham Nicholas/A1 SLT

Help Britain's most powerful steam locomotive to build a head of steam

Over three-quarters subscribed and more than £450,000 donated



Inner and outer firebox throat plates at DBM. Firebox tube plates.

Taper and parallel boiler barrel sections.

Smokebox tubeplate in the smokebox ring.

First boiler being assembled at DBM.

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 4-6-2s in 1943/4, and scrapped by 1961.

As the builders of No. 60163 *Tornado*, we have therefore decided to 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.

Our Vision: to build the 7th Gresley class P2 steam locomotive. The project will demonstrate how the most powerful class of express passenger steam locomotives to operate in the UK can be fully realised. We will use modern computer design and modelling techniques to enable it to deliver its true potential hauling passenger trains at high speed across the national network.

The new locomotive's design will:

- Be aesthetically similar to 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.



No. 2007 *Prince of Wales* outside Darlington Locomotive Works.

Progress to-date

- **Frame:** engine's frame & cab substantially complete; cab window frames fitted; pony truck frame complete, (FEA) study being completed
- **Cylinders:** 3D CAD design complete; (CFD) study of steam flow undertaken; Howco Group Plc has started work on the cylinder block and William Cook Cast Products Ltd has delivered the steam port castings
- **Valve gear & camboxes:** updated poppet valve gear design almost complete - 40 manufacturing drawings produced; components in manufacture; 3D printed scale model of cambox produced
- **Smokebox & fittings:** smokebox assembled and chimney fitted; CFD study underway to check smoke lifting performance of front end
- **Boiler:** boiler design study completed & approved by TÜV Sud notified body; forged foundation ring corners manufactured; superheater header cast & machined; boiler cladding manufactured; boiler order placed with DB Meiningen (DBM) for delivery in summer 2022; minor re-design of the banjo dome to suit P2 cladding completed; most components made & assembly of boilers underway
- **Fittings:** many non-ferrous fittings being cast & machined; material for bespoke fittings delivered
- **Brakes:** manufacture of brake rigging well advanced and spring gear underway; brake cylinders acquired and trial fitted; brake gear partially fitted
- **Wheelsets:** crank axle re-designed to comply with modern standards & manufactured; all engine wheelsets complete & fitted to engine
- **Motion:** heavy motion ordered from Stephenson (Engineering) Ltd; six coupling rods, inside connecting rod & strap and outside connecting rods forged; six machined coupling rods and two outside connecting rods at DLW & inside connecting rod and strap to be delivered 2021
- **Pipework:** design well advanced, pipe and fittings procured & installation between frame well advanced
- **Electricals:** significant progress on electrical system with design scrutiny underway; battery boxes fitted to frame; stainless steel conduit sections cut & bent and mostly fitted; prototype of new axle driven alternator testing ongoing
- **Tender:** frame being assembled by ID Howitt; tank constructed at NVES & wheelsets returned from SDR Engineering, axles painted, ready to be balanced
- **Finishing:** nameplates and chime whistle delivered.

To-date, over £4m has been spent and more than £4m (if Gift Aid is included) raised of the estimated £6m required to complete No. 2007 *Prince of Wales* within the next two years.

But this can't happen without you.

The boiler is the beating heart of a steam locomotive and to keep the construction of No. 2007 *Prince of Wales* on schedule for completion in two years we needed to place the order for the boiler in 2019.

No. 2007's boiler in detail

- Use of the diagram 118a *Tornado* boiler with detailed modifications to improve life between overhauls
- Interchangeable with *Tornado's* boiler
- *Tornado's* boiler is 17in shorter than P2 boiler – No. 2007's smoke box will be extended within the cladding
- 250psi of No. 60163's boiler will be retained to improve economy and increase maximum power.



Diagram 118b boiler drawing shows fitted with Melesco type superheater header as used on *Tornado*.

In June 2019, we announced that we had placed a £1m order with DB Meiningen for two new Diagram 118 boilers for our two new steam locomotives. The order is to supply the boiler for *Prince of Wales* and a 'spare' boiler for use on both No. 2007 and No. 60163 *Tornado*.

This order will enable us to rotate the three identical boilers on our two locomotives, with two boilers operational and one 'spare' undergoing overhaul at any one time.

This will reduce the time out of traffic for each locomotive by around four months, increase the potential revenue earned by both locomotives during each operational cycle and reduce the cost of their overhauls. By ordering both boilers at once we saved a six-figure sum that would have otherwise been required if the two boilers had been procured separately. The first new boiler, to be fitted to *Tornado* during her next overhaul, will be delivered in early 2022 with the second, to be fitted to *Prince of Wales*, scheduled to be delivered in summer 2022.

In addition, the two new boilers - to be designated diagram 118b - will incorporate some design changes and improvements as a result of operating No. 60163 *Tornado* over the past 10 years on the Network Rail main line and heritage railways.

It is our desire if possible to complete No. 2007 debt-free and so we launched The Boiler Club to raise £600,000 to fund *Prince of Wales'* boiler. Over £450,000 (excluding Gift Aid) of the £600,000 target has already been donated or pledged but we must reach our 300 members target by summer 2022 if Britain's most powerful steam locomotive is to be completed within two years.

To become a member of The Boiler Club please either complete the form overleaf or email us on enquiries@p2steam.com for more information.