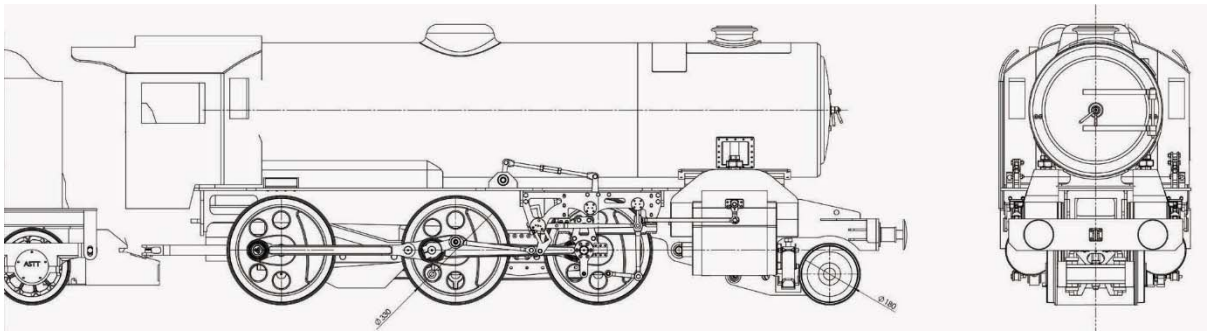
Revolution Funding Appeal

Can we get it running in time for the 2025 bicentenary of steam?



Those of you who attended the Darlington conference will have seen the progress that Jamie Keyte has been making on the *Revolution* project. Jamie brought with him the latest parts that he has manufactured, including:

- The assembled frame,
- Suspension components including axle bearings,
- Coupling and connecting rods (manufactured in aluminium),
- Pony truck including axle and wheels.

Since then, he has assembled the three driving wheelsets including axles and tyres.

The idea behind *Revolution* is to build a 10¼" gauge (fifth-scale) demonstrator to test out new "revolutionary" ideas that might be developed for use in full-sized locomotives with the aim of reducing their operating and/or maintenance costs. Ultimately, the concept could be expanded into an all-purpose low-cost low-maintenance locomotive to operate on heritage railways.

Whilst the prototype takes the form of a 2-6-0 Mogul, the design can be easily adapted to take on a variety of wheel arrangements and externally guises – for instance a 2-6-2T or a 2-8-0, styled in a way to replicate any of Big Four railways or BR Standards - or anything else.

Its revolutionary features include a simple unstressed frame structure mounted on spring beams which house the axles, bearings and wheelsets all at fixed distances from one another, and which transmits the traction forces directly from cylinder block to drawgear, rather than through the frame. Its cylinders will be fitted with steam jackets, while its valves and valve gear will be a novel combination of Walschaerts and Bulleid concepts. Its suspension system will be almost entirely formed from elastomers developing ideas first tried out in the early days of the railways and since used on modern traction.

We have a small team of members working on the design of the locomotive including:

- Jamie Keyte who has designed (and built) the frames, wheelsets, rods, suspension system and pony truck;
- Richard Coleby who has designed the cylinder block and valve gear;
- Grant Soden who is working on the design of the tender;
- Alex Powell who has undertaken preliminary design work on the boiler, and

- John Hind who is overseeing planning, coordination and budgeting.

So far, ASTT has accumulated donations amounting to £11,500 from which £9,700 has been spent. A further £2500 (for the wheels) has been committed which will be drawn from ASTT's general funds. It is estimated that a further £2000 is needed to complete the rolling chassis which will represent the completion of the first stage of the project and allow the novel suspension system to be tested on Stapleford's tracks.

We've estimated a "worst case" baseline cost of £99,300 to complete the locomotive (including a 10% contingency), of which some £45,000 will need to be raised through additional donations, the balance being covered through gift-aid and VAT rebates.

One of our members has generously committed to donating £75 per month (£900 per year) towards the project through a standing order. If each of our other members could donate £10 per month (or if half our members could donate £20 per month), the locomotive could be completed within four years - and even quicker with more generous donations.

This is a challenging, exciting and eminently achievable project that will focus attention on ASTT and its aims. It will also provide an opportunity for members to participate in taking steam traction forward beyond where its development ended. Equally importantly, it will provide us with a testbed of our own that will allow us to try out new ideas that might allow further advances to be developed. To that end, it is being designed with built-in facilities for instrumentation and data capture.

We appeal to members to support this endeavour. If you all our members could donate £10 per month for the next four years, this should suffice to bring *Revolution* into steam by the end of 2026. Better still, £20 per month could see it running by the end of 2024 – in time for it to be displayed at the celebrations for the 200th anniversary of the birth of railways that are planned to be held in Darlington in 2025.

Please help by sending a donation or by setting up a standing order with your bank to send a monthly contribution to the Advanced Steam Traction Trust's HSBC bank account: Sort Code 40-28-14, Account No 4176 0947.

If you are a UK tax payer and have not yet signed a Gift Aid declaration, we would be grateful if you could complete and sign the form below, and either email a copy to info@advanced-steam.org, or post it to Chris Newman, Flat 4, 2 Kimmerghame View, Edinburgh EH4 2GP. By so doing, we should be able to claim a rebate of 25 pence for every pound that you donate.

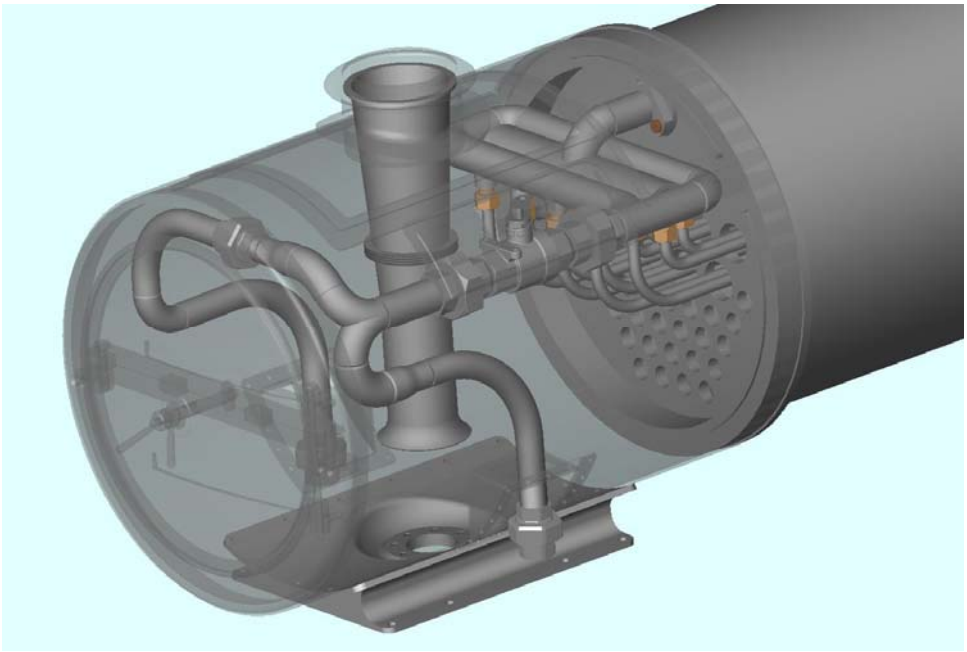
GIFT AID DECLARATION

Please treat all gifts of money that I make today and in the future as Gift Aid donations. I understand that I must pay an amount of Income Tax and/or Capital Gains Tax to the UK government each tax year that is at least equal to the amount of tax that the **Advanced Steam Traction Trust** will reclaim on my gifts for that tax year. I confirm that I have paid or will pay an amount of Income Tax and/or Capital Gains Tax for each tax year (6th April - 5th April) that is at least equal to the amount of tax to **all** the charities or Community Amateur Sports Clubs that I donate to will reclaim on my gifts for that tax year. I understand that VAT and Council Tax do not qualify.

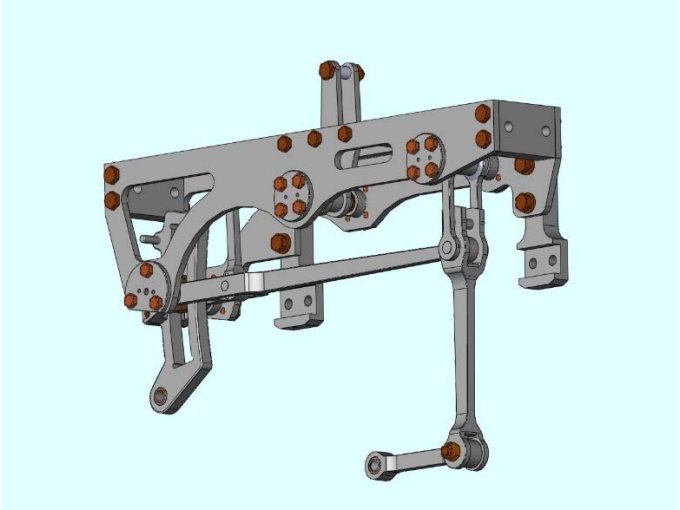
I confirm that I would like all my donations to the Advanced Steam Traction Trust to be treated as Gift Aid:

Signed: _____ **Date:** _____

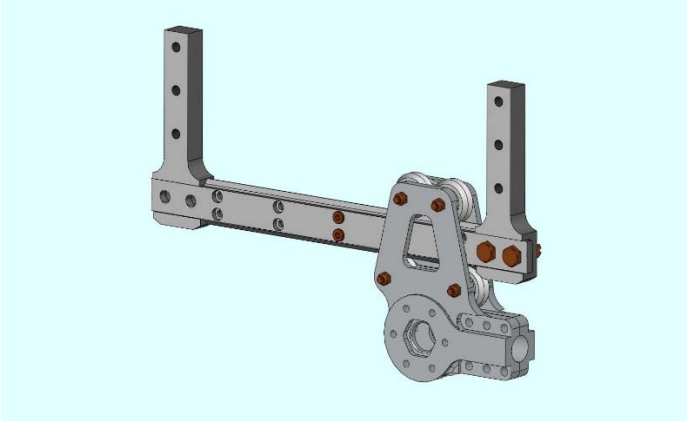
CAD Drawings of Revolution Components by Richard Coleby



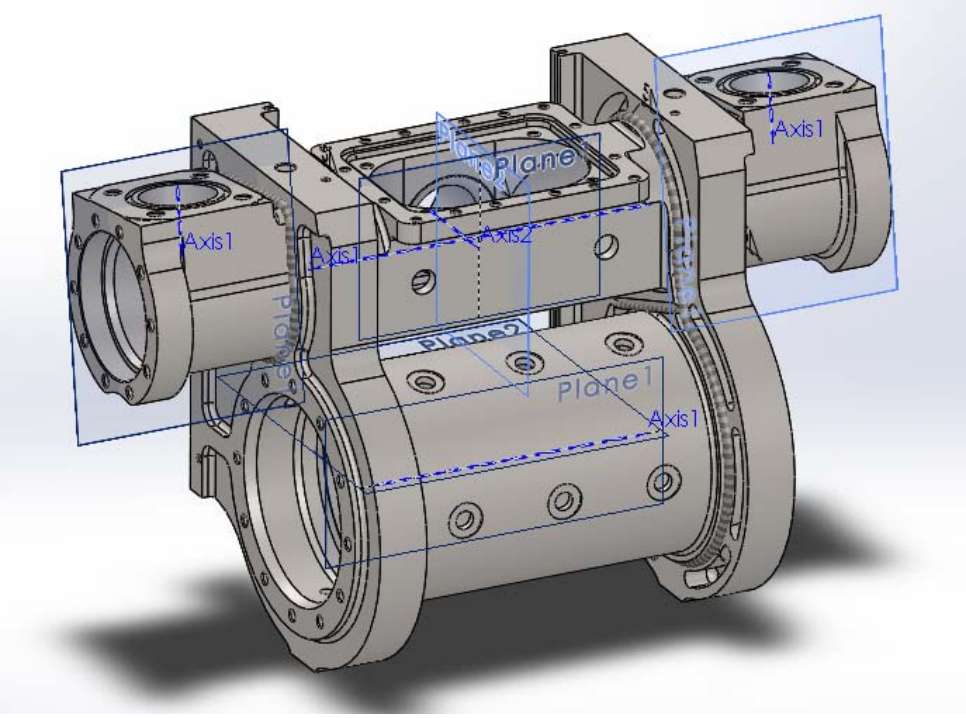
Smokebox, Superheater and Exhaust System



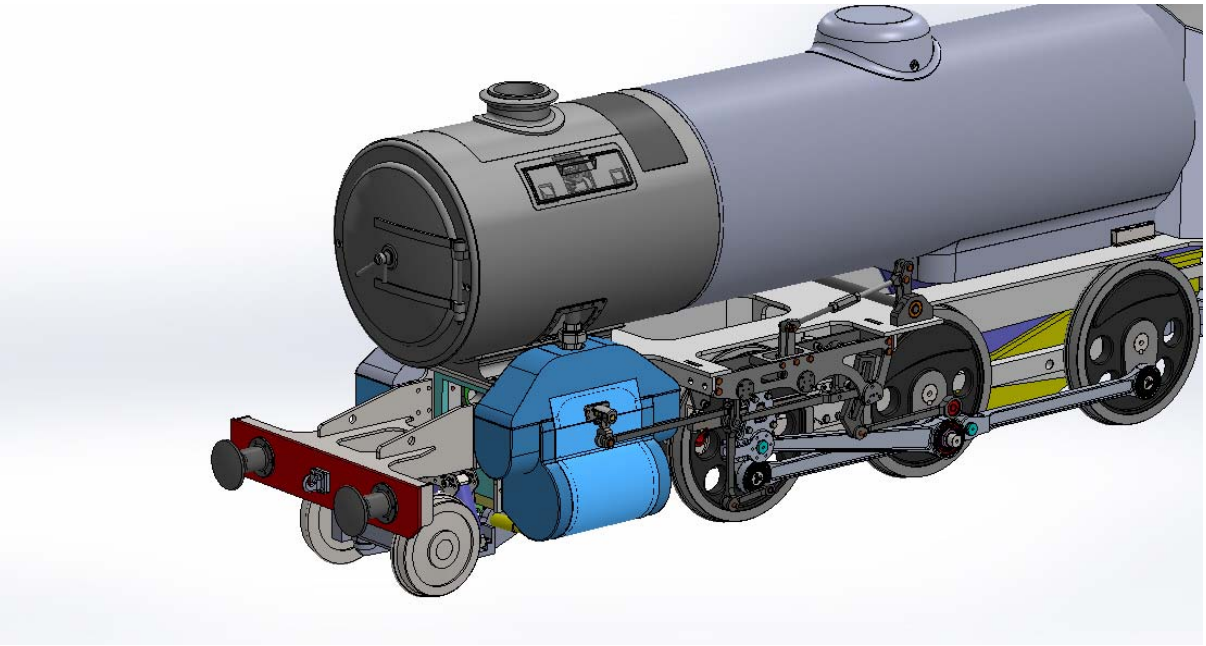
2,174.42 Walschaerts valve gear assemblage



Slide bar and roller-supported crosshead



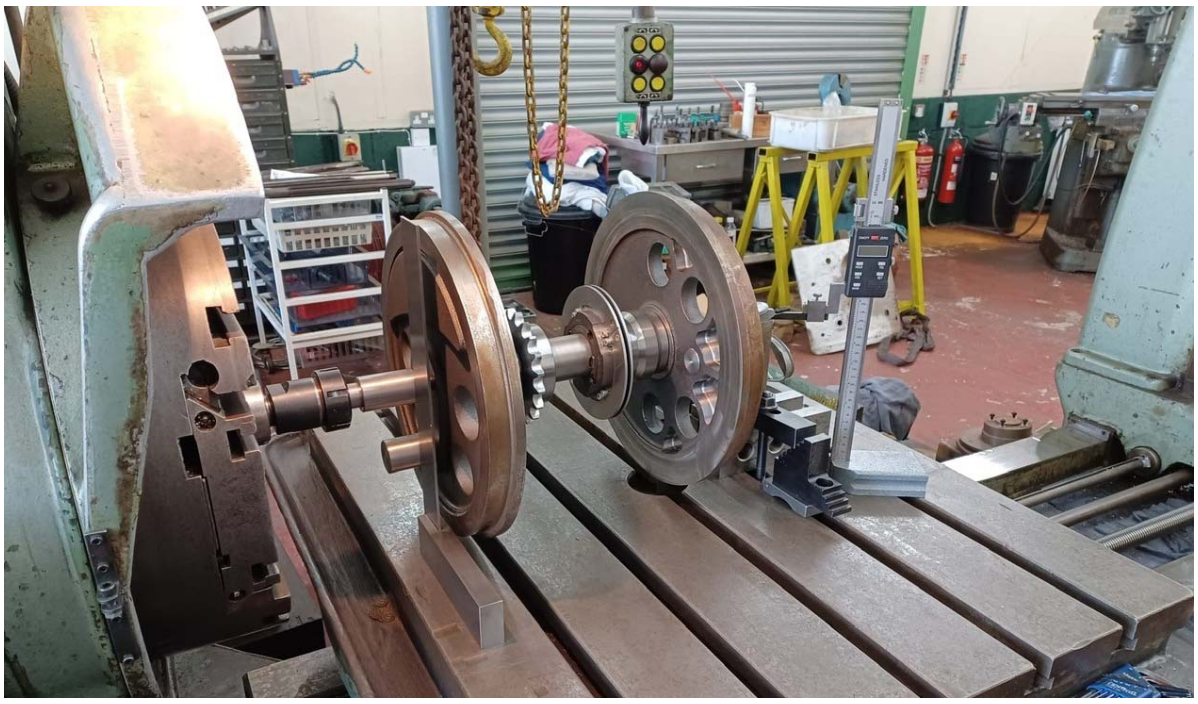
Cylinder and valve chest drawing



Front-end layout

Photos of Manufactured Components

Main frame assembly (upside down)



Assembled wheelset with axle and crank pins, and axle-mounted brake disk.

“Arcor-coated” suspension components.

Pony truck assemby.