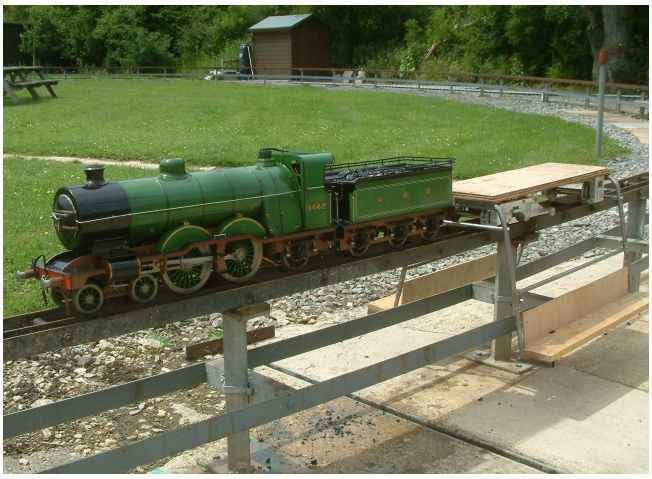
West Wiltshire Society of Model Engineers Newsletter

Issue No. 15 July/August 2020



Calendar

July

4th - Saturday Steam Up. 10am-4pm
18th - Saturday Steam Up. 10am-4pm

August

1st - Saturday Steam Up. 10am-4pm
15th - Saturday Steam Up. 10am-4pm

September

5th - Saturday Steam Up. 10am-4pm
19th - Saturday Steam Up. 10am-4pm

News

Club Trial Re-Opening

The club is trialling limited re-opening and if this is successful we can progressively get back to normal through the summer.

Members will need to follow proper social distancing so that the site remains safe for all. Please note the following restrictions that are needed until further notice:

1) The clubhouse will remain locked. Please bring your own refreshments and take away any litter you produce.

2) Members only – no guests.

3) The gents toilet block will be kept open, the key to the ladies will be in the gents.

4) The first aid kit will be kept in the toilet block.

5) Please use gloves when operating the traverser or opening/closing the gate lock.

6) Limited running is available on both 5" and garden rail lines, one operator per line at any time.

7) Models to be run should be limited in size to those that can be handled by members from the same household on site.

8) Where possible please bring your own garden chair.

9) Every member using the 5" track should inspect it prior to operation to ensure it is safe. If there is any problem do not run and please notify a member of the committee as a matter of urgency.

10) Do not congregate in groups of more than six people, and do not move between groups. Keep 2 metres from others.

For Sale

- Stuart twin Victoria mill engine.
- Stuart single Victoria mill engine.
- Bristol Model dockyard vertical engine.
- Freelance vertical engine- worn but runs.
- Stuart 500 boiler- all fittings included, no burner.
- Stuart 500 boiler- most fittings there, no burner, boiler needs a couple of holes threading.
- Stuart 10v- all parts there, needs valve gear assembling, comes with spare cylinder block casting.

For prices & pictures please contact Dan Jones.

Peter Jones

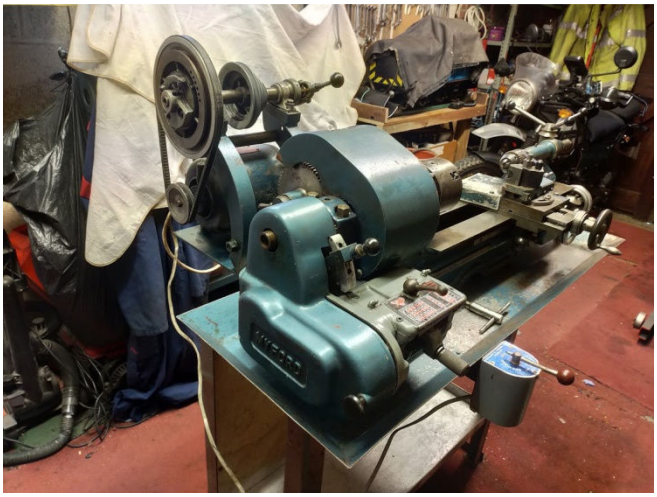
By Keith Shephard

The year 1972 was very special, for that was the year I first met Peter and Mary Jones and their wonderful family, Menna, Alun and Tim. It was a strange encounter as I was then living in Westbury Leigh and an unmistakable and strange car was parked in the street opposite the Baptist Chapel. It was a red 1935 Aston Martin 1.5 litre. It was Peter and Mary's steed and they had come to view 145 Westbury Leigh which had been in my family for more than 70 years. That was the start of a firm friendship which my family and I have valued immensely. I recall Peter buying the battered remains of a very incomplete vintage Lagonda 2 litre chassis from one of the villages nearby. This was completely rebuilt to a superb standard and used until replaced by another Lagonda and then another! Peter was an amazing engineer with astonishing knowledge and moreover unique skills to match. His restoration of the Westbury Leigh home (built in 1591) and the research into its history is worthy of an article on its own. Peter's skills have been passed to his two sons and as we know to Dan his grandson who is an inspirational member of the WWSME Club. We did buy a couple of vintage cars together including a 1930 Belgium Minerva from near Heathrow and I recall the challenge of dismantling the shed in which it had laid since 1939. We will all miss Peter but it has been a huge privilege to have known him and his wonderful family. RIP Peter.

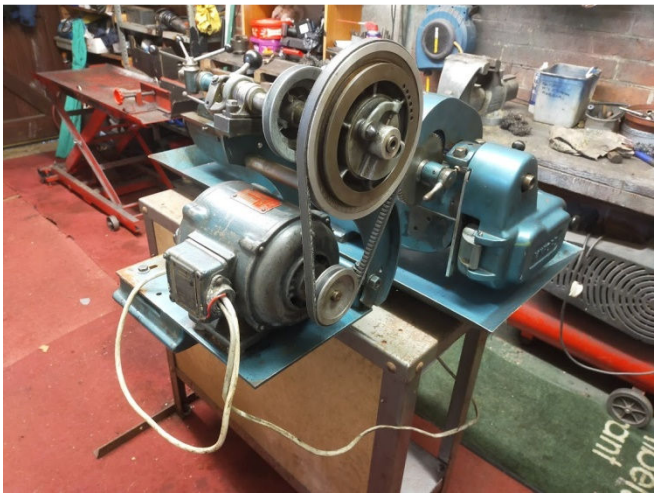
Mystery Lathe

By Peter Fielding

I would appreciate help in identifying a lathe I just bought.



As you can see from the pictures it has many features in common with a Myford. However, the cast in Myford name on the end cover is probably a red herring as I suspect it relates to the gearbox rather than the actual lathe. Though painted blue on the outside to match the rest of the lathe, the inside is the same grey colour as the box.



It had been standing dismantled in an open shed for many years so has needed a lot of cleaning and a bit of inspiration on how to put it back together but overall it seems to be in sound condition, the motor works and it does have some nice fittings and extras.

Not yet run the lathe itself as I am awaiting a suitable drive belt but I am hopeful it will work ok. Assuming it does I would like to keep it as well as my existing lathe which has a mill attachment. You can never have too many lathes but finding a suitable space in the workshop is presenting difficulties as it is very deep due to the huge cast iron motor mounting.

The big difference between this lathe and every Myford I have seen pictures of, going back to the earliest days, is the full length bed.

Roller Rebuild *(Part 7)*

By Dan Jones

'Rebuilding an Aveling and Porter Steam Roller No. 11296 of 1925'

We left Part 6 with finishing the outer wrapper preparations and making/fitting the cross-stays which go between each hornplate above where the firebox sits. Since I had already completed the assembly of the firebox, it was time for the simple job of fitting the box in the hole. For the firebox to be fitted into the outer wrapper, the foundation ring (restored in Part 5) must be fitted to the firebox. But before that can happen it's important to remember to fit the "feathers" to each corner of the firebox. The purpose of these "feathers" is to close the small void between the internal radius of the foundation ring corners and the joint of the flanged firebox edges.

Figure 1 - Feather welded to the firebox corner at the correct height. Note the rivet ring showing through after having the head ground away to let the foundation ring pass over the top. This rivet is countersunk so has a head formed within the plate to retain strength.

Don't worry if that's difficult to read/picture in your mind, the pictures describe it far better than I can with words!

All I had to do was cut 4 pieces of plate (boiler-grade material) to the right shape, chamfer along the edge as a weld prep then weld them in position perpendicular with the firebox wrapper **(Fig 1.)**. Once attached to the firebox I heated them until red hot and beat them round to tightly match the radius of the firebox end plates **(Fig 2.)**.

Figure 2 - A product of the "heat and beat" technique- the formed "feather" now matches the radius of the firebox end plate.

I then had to grind the "feathers" to match the gap between the foundation ring and the firebox **(Fig 3.)**. This task is known as feathering (where you blend one thing into another), hence the origin of the term in this application.

Figure 3 - After "feathering" has taken place, the "feather" now matches the gap.

Originally the "feathers" would have been part of the firebox wrapper and hammered flat to match the radius of the end plates rather than being separate pieces welded on, but this is one example of process improvement made possible by using modern methods, i.e. the invention welding.

With the "feathers" formed and the foundation ring fitted to the correct height on the firebox using measurements copied from the old firebox

(Fig 4.), after all, what comes out has to go back in again!

Figure 4 - The "feather" fitted nicely in the gap.

The outer wrapper was tipped onto its back and the fire box was lifted into place using a forklift. Unfortunately, the forklift could only get the firebox in the hole and the foundation ring started, the last couple of inches had to be beaten in using a sledgehammer. Once the firebox was adjusted so it sat square in the outer wrapper it was held in position using boiler makers clamps (g-clamps on an industrial scale!).

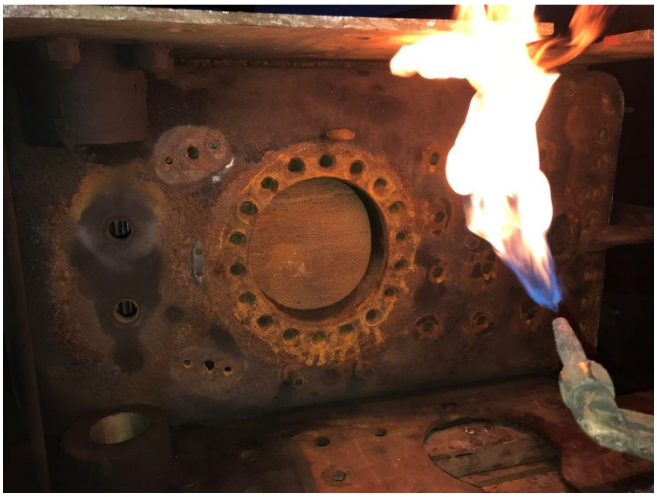


Figure 5 - Sam using a gas torch to cut out the fire hole.

With everything held in place, the assembly was rolled onto its side and the fire hole was cut out of the back head **(Fig. 5-8.)**. The outer wrapper/firebox assembly was placed under the radial and the holes were drilled for the rivets and stays, using the original holes in the outer wrapper as a template to drill through into the firebox. A Ø20mm 3-fluted drill was used to clear through all the rivet holes for Ø¾" rivets and a Ø13/16" drill was used for the stay holes (tapping size for 15/16" x 11tpi stay thread).

Figure 6

All of the rivet holes around the firehole were countersunk so that once riveted the firehole door will shut flat against the backhead and prevent any cold air from being drawn in.

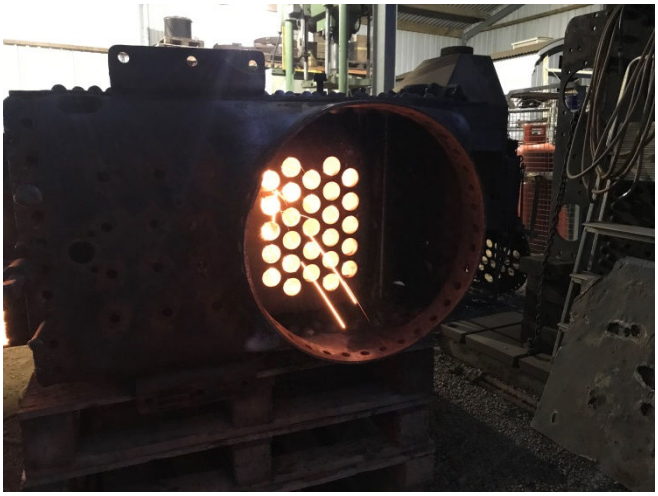


Figure 7 - The first "fire-in-the-hole".

Figure 8 - The rough-cut hole with more clamps fitted to hold the firebox tight against the backhead/firehole ring

All of the rivet holes had to be deburred, cleaned of swarf and bolted alternately in preparation for riveting together **(Fig 9-10.)**.

Figure 9 - Backhead rivet holes all drilled, prepped and bolted. Stay holes to be drilled next.

An interesting thing I learnt about boiler making at this stage was that the corners of the outer wrapper/foundation ring are not riveted right the way through into the firebox.

Figure 10 - An internal view with the stay holes drilled. Note the wrapper has been roller onto its side and the hornplate side has been drilled.

They are in fact blind holes which are drilled, tapped and screwed from the outside. The reason being for this is that the rivet heads would overlap themselves into the corner of the firebox. Instead of a through rivet, a screw is wound in tight, caulked in with a pneumatic chisel and hammered over to form a domed rivet head on the outside **(Fig 11-13.)**.

Figure 11 - Foundation ring corners drilled and tapped.

Figure 12 - Screws wound in hard.

Figure 13 - Domed heads formed.

With the corners completed, the rest of the foundation ring could be riveted in place **(Fig 14.)**.

Figure 14 - Foundation ring riveted in place. Note the corner screws are visible as the boiler has just been turned over to the other side.

Once the four sides of the outer wrapper/firebox had been drilled, the stay holes could then have the stay tap pushed through. A stay tap is different to your regular screw cutting tap whereby it has a long nose (unthreaded), a long shallow lead and a long cutting portion, and a long tail (also unthreaded). This allows the tap to be located in both holes in both the outer wrapper and the firebox whilst only cutting a thread in the outer wrapper and then progressing into the second hole. The key part of the stay tap is that it starts cutting a thread in the second hole before it exits the first hole. This way it can be ensured that the threads line up between both plates, spanning a gap of perhaps 4-6". Now considering there are 104 stay holes to be tapped it would take forever and a day to do all of that by hand so I used an air drill with a square socket drive and powered the tap through that way.

Figure 15 - Winding stays into the hornplate/firebox.

With all the holes tapped, it was time to make stays. This is quite a simple task really where I ran a die, calibrated to the threads after a couple of testers, along 9" of stay material (particular grade of steel used for stays). This 9" length of studding would then be screwed into the plates, and after leaving enough material for a head on both sides of the plate, could be cut off using a cutting disc in a grinder and the excess screwed into the next hole and the next until the length has been used **(Fig 15.)**.

Once all the stays were screwed in, they could be caulked around with a pneumatic chisel to make them watertight both inside the firebox and outside on the hornplate. The stays were then hammered over once caulked, this is all done with a shallow rivet snap in a pneumatic rivet gun. At this point it's pretty definite that the firebox isn't going to move anywhere inside the outer wrapper so the ends of the firebox were then trimmed flush to the foundation ring and caulked in to be water/steam tight **(Fig 16.)**.

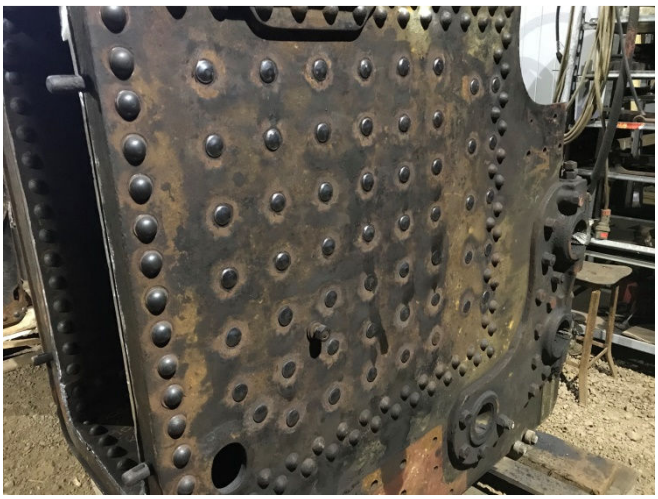


Figure 16 - Stays hammered over and firebox trimmed to length.

…Crown stays, nuts and barrel to come in ***Part 8!***