

Progress 2014

Strategic Intentions.

So where is the project going in 2014? Having paused the work on the boiler barrel until 2015, 2014 will be the year of the tender. Once the assembled tender underframe can be moved back to DRC and get space in the Works, we will fit the horns, axleboxes, wheels, brake gear, buffing plates and internal buffers as well as procuring more tender underframe parts. A major aim is to set up the tender superstructure workstream, now two years late, again subject to space in the Works.

That said, the main effort for 2014 must be to get the main axleboxes overhauled, locomotive horns ground and wheels fitted. With these tasks complete, it is hoped that rolling chassis can be created by Work Week 2014 after which a second County Day will be organized to present 1014 on her wheels, to the public.

Delivery of four new eccentric straps and their rods is expected in 2014, as well as the lead coupling rods. Work will continue on the design, and possible manufacture, of the 3-row superheater; as well as specifying the double blast pipe, now the boiler centre line dimensions have been confirmed.

January & February 2014

Progress remains steady, albeit slow, with forward movement on the firebox, tender parts, cab floor and cylinder blow down gear and measurement of the cylinders/valve chest.

Gary Davies informed Mike Cooper and the Team of the death on Saturday 1 February of Peter Rich, after a long period of multiple illness bravely fought. He was 72 years old. Peter did a lot of work for the County project at its inception, mainly to do with the frame conversion, the new splashers, the running plate and footplate, where his knowledge of GWR engines and ability to produce detailed drawings proved to be invaluable. Mike and the Team are indebted to him for this and their commiserations go to his family and friends.

Locomotive Progress

A visit to Crewe on 15 January went well. The firebox makes satisfactory progress and is expected to be finished in April.

The firebar bracket patterns are now complete and have been consigned to Crewe by Johnson-Porter.

An exercise to identify how much the parts element of the boiler barrel/smokebox build will cost has been completed. Given that the barrel and smokebox are all new work, and should be at a fixed price, this should permit better control the finances. Having now a good feel for prices, it would appear that a new welded barrel and smokebox will cost in the



15/01/2014 - Firebox backhead at Crewe.

order of £175,000. There is still debate about the efficacy of welded butts on the boiler barrels, given the likely frequency of weld inspections, which will necessitate removal of the boiler cleating.

Machining of the steam fountain manifold has been completed. This item will be sent to Crewe for fitting on the new boiler barrel.



01/02/2014 - completed and machined steam fountain manifold.



08/03/2014 - Fire hole doors, firebox hole and runners.

The pattern for the exhaust steam injector is almost complete. Subject to agreement with PM 2999, it is intended to get this cast in LG4 by David Hunt Castings in Romsey. A radiograph of the castings will be supplied.



08/03/2014 - Exhaust steam injector.



01/02/2014- Four cone ejector.

Measurements of the cylinders and valve chests on the loco and of our pistons in Security have been completed.

The pistons are a nominal 18.4 inches in diameter while the cylinders are a nominal 19.1 inches. We therefore need bigger pistons or smaller liners and we are carrying out an investment

appraisal on this.

The valve chest measurements vary by about 0.25 inch from one side to the other and discussions are underway to ascertain whether we really need to bore to a common diameter. This will be considered in conjunction with the availability of the piston valves in Security.

Subsequent re-measurement of the pistons in Security by another, more accurate, method, indicates a diameter of 19.136 inches. These pistons are almost unworn. As a result the in-place liner in our cylinders will be bored circular and the pistons will be overhauled by fitting new rings and trueing the rods. This will make the locomotive about 9% more powerful than projected using 18 inch pistons.



08/03/2014 - cab floor structure - almost complete.

The cab floor structure is substantially completed and awaits ordering and cutting of the timber floor and finalizing of the chequer-plate templates.

The roof has been fettled in-situ and, while still not perfect, will be easier to complete in the future when transferred to the steel slab at the rear of the Works. The roof strap is ready for delivery.

Regrettably, the cab riveting weekend on 1/2 March had to be postponed because it coincided with the Thomas Day and will now take place on 15 & 16 March.

Work continues to fit the cylinder blow down cock gear including the cab gear and crank, besides threading the rodding through the frames to the cross rod and actuators. Suitably sized Taylor rings have still not been located.



08/03/2014 - Cylinder cock gear.



08/03/2014 - crank linking cab gear and rodding to the cylinder cock actuators.



08/03/2014 - cylinder cock gear rodding passing through frames.



08/03/2014 - view of rodding passing through frames.

Access drawings for the grinding of the main frame horn guides have been passed to Nichol & Andrew. KWG has crunched all the numbers and is working on a simplified presentation of the machining requirement so that there are only two dimensions per guide, the start and finish. All horn guides are now marked up, all measurement taken and are ready for grinding.

A major move of parts from suppliers to DRC and thence to Llangollen was planned for Sunday 16 February 2014, including our axleboxes, tender parts, buffers for 4709 and parts purchased by the Betton Grange project. Unfortunately, mainly because of the effect of the weather on FGW operations, it was necessary to cancel the major move of parts from suppliers to DRC and thence to Llangollen when all our plans were in place. Hopefully, this important move for rewheeling the chassis etc., will occur on the weekend of 12/13 April 2014.

A full audit of the brake parts required to create a set for the loco and a set for the tender has been undertaken. The major items are seven of the screw adjusters, 3 with a left hand (anti-clockwise) thread and 4 with a conventional thread (plus their nuts and locking washers), and one of the primary tender pull rod from the brake shaft lever, plus some parts of the locomotive equalisation gear.



01/02/2014 - brake screw adjuster.



01/02/2014 - primary tender pull rod.

The project did not escape the effects of the winter storms - the shelter containing the drive wheel sets has been ripped by wind and needs replacement - a new cover has been ordered. Once the wheels are moved from the shelter, we will overhaul the tender wheels in it and use it as a workshop for the tender underframe.

The left hand crosshead has been released from Security. It is undamaged, but needs a good clean. There is a possibility that the little end of the Lot 354 connecting rod (total width 4 3/8 inches) is too wide for the gudgeon pin slot location in the crosshead (4 inches) and some machining may be required.

A contact believes he may have located a right hand crosshead, for which an expression of interest has been made. NB. Guide price for making a new crosshead is £4,675.



01/02/2014 - left hand cross head as released from Security.

The option of using the left hand crosshead from Security combined with a procurement of a matching right hand crosshead has been examined. It is confirmed that the little end of the Lot 354 connecting rod is too wide for the gudgeon pin slot location in the crosshead. However, following an engineering risk analysis, the VAB representative has agreed

that the Lot 354 pattern connecting rod can be used in the Lot 350 pattern crosshead by machining the conrod small end to fit. Our scout is now seeking to agree a price on the right hand crosshead.



15/01/2014 - 'original' eccentric rod (green) alongside a new example at Arthur Stephenson Engineers.

Arthur Stephenson Engineers has identified that the 'original' eccentric rod provided as a pattern is undersized in cross section compared with the one that they have forged and finished machining. There is concern that the greater dynamic stresses created in this rod at 75 mph might cause failure in the undersized part and so a fourth eccentric rod has been added to the order, to create a full set.

Tender Progress

A price for the assembly of the tender underframe has been received, which appeared very reasonable. The works order was issued on 11 February for completion by the end of March 2014.

Most of the brakeshaft cranks are completed but not yet delivered. They will be welded to the cross shaft by the project team welders.

KWG has completed the 2D drawings for the drip trap, which will be passed to Julia Adams to complete the 3Ds. The intent is to get a poly pattern made and cast in cast iron.



08/03/2014 - an example of the drip trap to be produced.

Overhaul of the brake hangers continues in the same fashion as those for the loco.

Machining the rear brake hanger brackets is complete.

Work has started to specify the sizes and quantity of the brake gear pins required to secure all the brake rigging.

March and April

As there has been less to report and illustrate, plus both the Project Manager and webmaster have been preoccupied with other relevant matters, this report and all reports for the foreseeable future, covers activity during a two month period, in this instance March and April 2014.

Progress remains slow, but steady with forward movement on the loco horns, the cylinders/pistons/valve chest, tender under frame and parts, cab floor and cylinder blow down gear.

Locomotive Progress

Work on the firebox at Crewe is proceeding slowly at our request.

After a cost/benefit analysis and an engineering risk assessment, it has been decided to place the whole job of horn grinding/repair/replacement and consequent axlebox overhaul with Tyseley Locomotive works. This decision has been made easier by the emergence of a backer for the axlebox overhaul. Tyseley can start work in July so the loco frame will have to be stripped for movement and be moved in late June. As a result the axleboxes have been replaced in the guides ready for shipment.



April 2014 - re-fitting axleboxes into horn guides.- preparing the lift.



April 2014 - axlebox re-fitted into horn guide.

In March the long-planned riveting of the cab took place with seven volunteers given experience of riveting. The Project can now field a full team who will get further experience on the cab and tender under frame.



15 March 2014 - getting ready to rivet - furnace being tended after lighting-up..



16 March 2014 - riveting team in action on the cab.

Given that the loco frame will be moving in late June, the cab has to be dismantled along with any parts that will interfere with movement. The cab will then be reassembled on the steel slab in order to move on with the final fit-up of the roof and riveting.

The replacement roof strap has been fitted with no trouble, consequently placement of the roof is now accurate and sits in exactly the correct position, with no apparent load on the weatherboard or side sheets.

Completion of modifications to, and trial fit of, the new rear step braces on the frame is also planned for this phase.

The timber has arrived at Carriage & Wagon department and chequer plate to complete the cab floor and fall plate has been delivered to Tadley's works for cutting to size.

The cab mechanism for the cylinder blow down cock gear is complete, but fitting is being delayed in view of need to dismantle the cab for the frames to be removed. The mounting and actuating levers are waiting to be plated and passivated. Frustratingly suitably sized Taylor rings have not yet been located.



The wheel shelter damaged during the February gales has been replaced and erected.

April 2014 - erection of the replacement wheel-shelter.

Also postponed until the return of the frames is the removal of the pistons from Security, besides the placement of a rear cover on the right hand cylinder and bore to circular.

Meanwhile work continues on the motion. Regarding the right hand crosshead needed, our scout is still on the case to agree a price.

Completion of the outside motion will, hopefully, benefit from the proceeds from this year's Summer Draw, which is targeted at completion of all outstanding tasks relating to the outside motion. So please buy/sell all the raffle tickets you can!

Progress continues on the inside motion, with forging and machining of the eccentric rods continuing at Arthur Stephenson Engineers. However, work on the eccentric sheaves at Tyseley has been paused at our request.

De-rusting and priming of all the brake parts is ongoing.

After much negotiation and deliberation, the movement of parts, including some for 6880 and 4709, into and out of Didcot Railway Centre to Llangollen took place over the weekend 26 and 27 April. No problems were experienced, particularly at Didcot Parkway, where the staff were extremely helpful.



26 April 2014 - some of the parts subject to removal to Llangollen.

Tender Progress

To view progress on tender under frame assembly, Multi-Tech in Ferrybridge was visited on 15 April. Progress is very pleasing, especially as great care is being taken to ensure that all is fitted to line and level. A further visit will be arranged when the eight support frame angles are in position to ensure they are all positioned correctly in relation to the top of the frame.



20 May 2014 - assembly of the frames at Multi-Tech.

Delivery to Didcot Railway Centre is planned for late May, though there are short-term locational problems for what Mike Cooper has called the 'beast'! The final location of the tender under frame (and its superstructure) will depend initially on the move date of the loco frame to Tyseley.

The next task is to work out how best to produce the side valences, which support the tank. These were originally 5 x 3½ x ½ inches (125 x 89 x 12 mm) in section and 22 ft. 6 ins (6.9 m) long with another similar sized section on the rear buffing beam. Not only is this section non-standard, but it is slightly over the standard production length of 6.1 m, which currently necessitates the purchase of 12.2 m lengths.

Procurement of low risk parts to create a bank for installation on the under frame. during 2014 continues. To date the pipe support brace and front step plates have been received and the steps are in production.



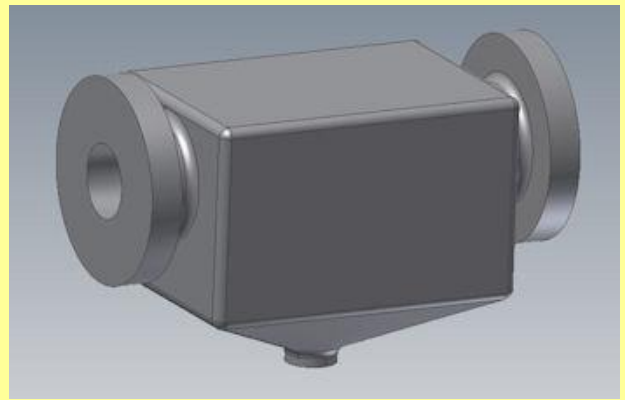
April 2014 - pipe support brace suitably primed.



April 2014 - brakshafts hanging out to dry having been primed.

The brakshafts are completed and delivered. The order for the brake cross shaft has been cancelled as Southern Engineers defaulted on a second delivery date. Discussions are on-going with other suppliers.

The 3Ds are complete for the drip trap and an order has been issued to Premier Patterns in Birmingham for the production of a poly-pattern and then a raw casting in cast iron. This can be machined in-house. The drip valve has already been completed by Chris Denton.



April 2014 - 3D plan of drip trap.

May and June

This report covers all activity during May and June 2014. Progress remains slow but steady, with the main focus on preparing the underframe for the move to Tyseley early-mid July, completion of the tender underframe and eccentric rods, plus acquisition of additional, but necessary components.

Locomotive Progress

The last report indicated, it had been decided that the horn grinding and axlebox alignment would be best undertaken on the frames at Tyseley. As a result recent work has been directed at preparing the frames for this move. The frame is now mounted on Yams, ready for the journey to Tyseley via the Lifting Shop and West Yard.

It is planned to in-load the tender underframe to West Yard in conjunction with, but prior to, this move. Currently, the plan is for Axle Haulage to undertake the move from West Yard, all being well, during the week commencing 14 July.

Mike Cooper would like to record his gratitude for the assistance of DB Schenker Rail UK to facilitate this movement.



05-07-2014 - frames prepared for the move to Tyseley. The cab has been removed, along with other fittings and links. For the move, the frames will be removed from Number 4 road in the works at Didcot Railway Centre to the Lifting Shop, where it will be loaded onto a rail flat for the move to West Yard.

A major part of the preparation process was removing the cab from the frames. The four major components (cabsides, main roof and roof extension) are now dismantled and stored and/or sheeted. Once the frames are moved, work will concentrate on putting the cab together and completing the riveting. The complex floor structure has received several coats of paint and the floor timber is curing. The checker plate for the cab floor and fall plate is in process of manufacture and cutting at Tadley's works.

Meanwhile work has progressed on other significant components:

Boiler/firebox - Work at Crewe continues to proceed slowly at our request.

Smokebox Saddle - Design work on the smokebox saddle has started which will reflect the lower boiler centre line. It is intended that this be procured as a kit of ready-to-assemble parts, fabricated by our own welders.

Options for casting the superheater, a complex component, by poly-pattern have been discussed with Boro' Foundry. KWG has confirmed the AutoCAD and has passed it to Julia Adams to convert to 3D. It will then go to Boro', where a meeting will be convened with Nick Norton to consider the best, lowest risk, way forward.



05-07-2014 - pattern for an exhaust steam injector.

Cylinders & Valve Chests. The next steps will be to move the pistons from Security, place a rear cover on the RH cylinder and bore to circular. This will have to be postponed until the return of the frames from Tyseley.

Derusting and priming of all the brake parts is complete.

Our scout has located a right hand crosshead from a 41xx and which it is believed can be converted to a suitable configuration for 1014 with some careful machining. Some dimensions still have to be checked but images of the offered part indicate that this is all doable. Work has already started by machining off the square shaft studs that secure the air pump bracket to the crosshead.



05-07-2014 - right hand cross head as found.

Forging and machining the eccentric rods has been completed at Arthur Stephenson Engineers. Acceptance will take place on 9 July. Discussion now considers the manufacture of the extension bars and valve rods, which have already been costed.



05/07/2014 - plated cylinder blow down cock gear.

The mounting plate and actuating levers for the cylinder blow down cock gear have been plated and passivated by Williams Plating in Alresford.

Suitably sized Taylor rings are still proving difficult to find.

Tender Progress

Procurement of low risk parts to create a bank for installation on the underframe during 2014 continues. The front steps have been received and a replacement contract for the brake cross shaft has been let. The brake shaft accessories are now complete.

The tender underframe assembly was completed, with the eight side frame angles fitted, on 16 June. The frame has since been shot blasted and undercoated. An acceptance visit will occur on 8 July when arrangements will be made for this 4.2 tonne assembly to be moved to West Yard. The aim will be to have the frame on No 4 road for the start of Work Week 2014.

A tender horn placement jig, to ensure the tender frame can be drilled accurately for the tender horn placement jig, has been ordered from Geoff Parker who made the hornguide jigs. This will ensure that the tender frame can be drilled accurately so that the horns can be placed exactly parallel on the frames.



20/05/2014 - tender underframe being assembled.



16/06/2014 - tender underframe fabrication completed. Derusting and priming to come before delivery to Didcot Railway Centre.

Work is now in hand to prepare the steel to complete the base and start the superstructure.

The management issues relating to the drop valences, which support the tank, have been resolved. As a result appropriate quantities of steel have been ordered from FabTech in Stockbridge.

Preparation of the brake hangers have been completed, including painting.

The drawings of the brake gear pins are complete and have been passed to the machinist.

The drip trap has been cast by Premier Patterns in Birmingham and machined by the machining team. The drip valve has been completed by Chris Denton and will be fitted once the correct tap is obtained.



05/07/2014 - drip trap casting as received.

July and August

Progress remains slow but steady, this time period encompasses two major milestones:

- 1) move of the loco frame to Tyseley;
- 2) completion and delivery of the tender underframe and eccentric rods.

Mike Cooper has voiced concerns that too few hours are being put into the project. Following discussions with the volunteers, a consensus emerged: “Working a Saturday and Sunday is domestically better than working every Saturday. With one extra day's work per month, with full manning, something approaching 50% greater output could be achieved. However, realistically, only a proportion of the County Set would work on a Sunday, but even with this it is believed a 30% increase in productivity was possible. The proposal, therefore, is that one working day per month should become a working weekend, with all the other workdays staying on the programmed Saturday.

This proposal does not include the intention to run occasional weekends totally for riveting, including that already proposed for 18/19 October.”

Locomotive Progress

The loco frames are now at Tyseley thanks to Axle Haulage and the DRC staff, where the horn guides and axleboxes will be aligned and ground.



19/07/2014 - frames in lifting shop being readied for transfer to flat truck.



21/07/2014 - 1014's frames on the flat truck in readiness for movement to Didcot West Yard for transfer to road vehicle.



05/08/2014 - 1014's frames having safely arrived at Tyseley Works.

Design work on the smokebox saddle has started, to reflect the lower boiler centre-line. A ‘kit of parts’ strategy has been discussed with Arthur Stephenson and, on their advice and experience with a similar fabrication for 4472, now think that they might be asked to make the whole thing.

Initial drawings for the blast pipe are complete. The blast pipe end caps will have to be shortened to reflect the centre-line reduction.

The superheater 3Ds are awaited from Julia Adams, whereupon it will go to Boro’ and where a meeting with Nick Norton will be convened to decide the best, with lowest risk, way forward.

Two exhaust steam injector castings, one for 1014 and the other for 2999, have been ordered from Hunt Castings.

Negotiations are in hand to purchase the crosshead previously referred to, but these are complex because another item is also involved.

Delivery of the eccentric rods to Didcot Railway Centre was accepted on 9 July. Ordering the manufacture of the extension bars and valve rods, which are already costed, has been deferred.



30/08/2014 - the new, unpainted eccentric rods as delivered to Didcot Railway Centre, with the master rod.



30/08/2014 - detail of the quality of engineering applied to eccentric rod.



30/08/2014 - start of fitting timber into the cab floor frame.

In spite of the cab being dismantled, the removable timber floor is being fitted to the cab floor frame. Once the floor is complete, the carpenter will move on to the timber pads that support the tender tank.

The cab will eventually be re-assembled on the steel slab to complete the riveting. This, plus the tender underframe riveting will become a major activity in the near future, the start being scheduled for October 18th/19th.

Tender Progress

The tender underframe was delivered to Didcot Railway Centre, via West Yard on the transport which took the locomotive frames to Tyseley. Thanks to the Didcot Railway Centre staff who unloaded it from the yams into its present working location at the Bristol end of No 4 Road, shared with King George's, also known as Thomas', boiler. All was in position for Work Week.



22/07/2014 - completed tender underframe.

For September, the main effort will be to fit the horn guides to the correct spacing and start fitting all the reconditioned parts from the donor Collett tender. Many of the assembly hexagon head bolts will need to be replaced with the correct round headed types and add the drop angles to the sides and rear, and other parts where appropriate.



30/09/2014 - helped by the tender horn placement jig, drilling of the bolt/rivet holes to fix the horn guides in place is underway.

The tender horn placement jig, which is to ensure that the tender frame can be drilled accurately in order that the horns can be placed exactly parallel on the frames, has been delivered and was in action during Work Week.

An early discovery was that the horn location bolt holes were marginally out of position, thereafter, installation became boringly repetitive and remains ongoing. Purchase of an 1800 watt multi-speed magnetic drill has eased the heavy duty drilling of the 72 horn bolts.

The rear buffer beam is removed and is being drilled for the tank support angles that are fitted either side of the vacuum swan neck. Once these are drilled and some additional brackets made, it will be refitted with a combination of rivets and round headed bolts.

All the steel corners and sides/ends for the tender underframe are complete. Now the shelter has been moved, the tender tank base must be moved onto the steel slab (expected to be done in the next 3/4 weeks)

so that the final welding can be finished, ready for test fitting and location bolt drilling onto the underframe. If the carpenters have sufficient wood they will make the pad frame for the tank superstructure.

Meanwhile, work continues to derust, rub down, fill and painting the tender wheels. In parallel with this, all the axle bearing pads need to be located, dimension check them, white metal where necessary and machine them to fit the stub axles.

Finally, with the delivery of all the components of the main brake shaft (brake cross shaft and cranks), they have been 'dry' assembled. The crank arms fit the shaft well and now the cranks have to be accurately located on their respective centre lines and tack-up before welding the whole assembly. All the support brackets and hangers have also been delivered.

Brake Gear Pins. A slight problem has arisen with regard to the manufacture of brake gear pins in that the volunteer machinist's lathe headstock is too small to take the 80 mm diameter EN 3 steel bar. Having procured the steel, we are now completing the machining for cost.

September & October

This report covers all activity during September and October 2014. Progress remains slow, but steady, with efforts being concentrated on the tender underframe, while the works at Tyseley proceed according to plan.

Following a serious bout of pneumonia, exacerbated by overdoing things Mike Cooper decided to stand down temporarily from the role of on-site Project Manager. Dicky Boast is substituting, although Mike remains responsible for the strategic direction and decisions on the project. He expects to rejoin the project in the New Year, by which time we hope he will be returned to full fitness. All the best Mike!

Dicky Boast believes that he may be able to recruit another welder. The team welder has been redeployed onto helping build the Thomas side tanks, consequently a second welder will enable progress to be maintained on 1014's tender.

The need to put in more time on the project is well documented. Dicky Boast has been asked to try and implement the 'Extra Day', which will involve volunteers working a weekend (on the Sunday after the first working day of the month). Currently, four volunteers appear supportive of this proposal, which will help the project considerably.

Owing to Mike Cooper's absence, the riveting weekend for 18/19 October was a non-starter. Although the project has experienced riveters, difficulties have arisen by their unavailability for a whole weekend, which is the only efficient way of organising the task.

Locomotive Progress:

Sorry, there are no images relating to the locomotive overhaul in this update.

At Tyseley, work on the frames has seen the completion of the horn grinding, while the axlebox overhaul remains ongoing. To date, no issues have been reported.

Meanwhile at Crewe the firebox underwent Non Destructive Testing on the copper welds (8 off) and a complete survey of its steel structure on 27 October. Some remedial action is required on the copper butt welds, which is progressing. This will need to be re-examined on completion, prior to the wrapper plates being fitted, but does not require further NDT. Minor corrective work also needs to be undertaken on some weld pitting.

Design work on the smokebox saddle and blast pipe have been completed and subsequently blast pipe end cap castings have been ordered from Tyseley.

When the frames are returned from Tyseley, the next step will be to claim the pistons from Security, place a rear cover on the right hand cylinder and bore to circular. It is hoped that in the near future, a start can be made on checking the rods for straightness.

Negotiations on the purchase of the right hand crosshead are almost complete. Thereafter both crossheads will be transported to Geoff Parker for blast cleaning and the conversion of the right hand crosshead air pump bracket. Work is in progress to draw up the gudgeon pins, but it is acknowledged that some remedial welding might be required on the crosshead tapers, something the cleaning will show up.

Piston rod wiper castings have been delivered to PG, courtesy of Peter Chatman of 2999.

At last a company has been located who are able to supply suitable Taylor rings, thus enabling the completion of the cylinder blow down cock gear.

Twenty sets of spring hanger accessories have been ordered from Boro Foundry and will be case hardened by Merit Heat Treatment of Twickenham. These are on the critical path for rewheeling and hopefully they will be delivered by the end of the year.

Tender Progress

As ever, the present strategy involves procurement of low risk parts to create a bank for installation on the underframe during 2014.

However, the main focus has switched to assembly of the tender.

Drilling the tender frame and fitting the horns continues.

Drilling of the rear buffer beam tank support angles fitted on either side of the vacuum swan neck is complete.

The tank support angles for the main frame have been delivered to Didcot Railway Centre and fitting has started. The tender horizontal cross stay brackets have been accepted and are stored at FabTech. Now the two cross stays are being costed.



08/11/2014 - the rear buffering plate showing drilled holes.



08/11/2014 - fitting the tank support angles to the tender main frames.

The tender tank base is now on the steel slab and the majority of the steel corners and sides/ends have been tacked into position.

The drip trap has been completed.



08/11/2014 - tender tank base now on steel slab, showing the steel corners and sides/ends tacked into position.



08/11/2014 - completed tender drip trap.

Machining of the brake cross shaft, cranks and bearings continues. The cranks are tack welded to the cross shaft.

Twenty two brake pins of various length have been produced by Engineering Solutions in Newbury. The 80 mm diameter EN 3 steel bar was supplied as free issue. A supply of the necessary nuts and locknuts from RCF has been received and the Form A washers have been purchased.



08/11/2014 - cranks tack welded to the brake cross shaft.



08/11/2014 - some of the beautifully finished brake gear pins.

Derusting, undercoating and top coating of all three wheelsets is ongoing.



08/11/2014 - number 2 wheel set having been derusted is receiving a coat of primer.



08/11/2014 - one side finished only another five to go! View of the 'stub end' of the axle.

The stub ends of the tender axles are being measured in preparation of the remetalling of the axlebox bearings.

November and December

Progress remains steady on the tender underframe and the works at Tyseley proceed according to plan.

Following his recovery from illness, Mike Cooper anticipates rejoining the project on 17 January. Regrettably, Dicky Boast's quest for another welder came to naught, but the good news is that Barrie Pickup is expected to return to the fold in the New Year.

Locomotive Progress:

The horn grinding has been completed and the axlebox overhaul is almost complete at Tyseley. It is intended to visit in the New Year, to inspect the work and fix a date for the return of the frames to Didcot Railway Centre.



20/12/2014 - view of a horn block following alignment grinding to true.



20/12/2014 - axle box prior to final machining at Tyseley.

The pistons have been accurately measured and compared with the cylinder dimensions. Consultations with Ron Hows are in hand on the piston to cylinder walls clearance and the size of piston rings. The results will determine the strategy for overhaul, which will be subject of a short 'mind-clearing' paper in the near future.

Tyseley are boring the valve chests whilst the frame is with them.



20/12/2014 - boring the right hand piston valves at Tyseley.



20/12/2014 - interior view of valve following boring.

Negotiations relating to the purchase of the right hand crosshead have been completed. Measurements and assessment of the left hand crosshead already in our possession indicates the critical area of rusting on the tapers can be cleaned up with judicious use of hand tools. It is planned to move both crossheads to Geoff Parker's premises at Aldermarston in the New Year, initially for blast cleaning and then for conversion to County specification.

Boro' Foundry have completed the casting of 22 sets (2 more than ordered) of spring hanger accessories. These were collected, along with the pattern, on 18 December. Once a single hole has been drilled in them, and they have been check fitted, they will be case hardened by Merit Heat Treatment of Twickenham.



The piston rod wiper castings have been delivered to PG, courtesy of Peter Chatman of the Saint project.

Having found a supplier, the Taylor rings for the cylinder blow down cock gear has been ordered from Heritage Steam Supplies.



20/12/2014 - the completed cab floor, as fixed into the metal framework.

The carpenters have completed the woodwork forming the cab floor - this will be fitted into the cab when the cab is refitted to the underframes when they return from Tyseley.

That being done, a start can be made on the tender tank superstructure pad frame. Once that is ready it is likely the tender tank base can be fitted.

The works have reached the stage when work on the boiler and firebox can be resumed. Instructions have been issued for the remaining work on the firebox to be completed at best speed. This will involve fitting the lower outer sides of the firebox, fit the side stays and drive a small number of rivets. The Chairman, Mike Bodsworth and Mike Cooper expect to visit in the New Year.

Following extensive researches, Mike Cooper now has a very good idea as to the likely cost of the boiler barrel and smokebox. As a result meetings with potential suppliers will take place in 2015 for a fixed price contract.

Following discussions at Boro Foundry on 18 December, regarding the superheater, the .dxf files have been sent to investigate sand mould printing of the pattern. MATSPEC is BS 3100 - A3.

Tender Progress

Procurement of low risk parts to create a bank for installation on the underframe during 2014 remains ongoing, but should be complete in early/mid 2015.

Drilling the tender frame and fitting the horns is complete. The horn gaps will now be check measured so that we can specify the axlebox finished sizes. Thereafter, the keeps will be placed and drilled.



20/12/2014 - horns in place in the underframe.

The buffer and drag beams have been bolted on and remain to be riveted to the outside frame angles.



20/12/2014 - completed horizontal cross stays.

The brake cross shaft, cranks and bearings, plus the water scoop linkage have been test fitted.

Derusting, undercoating and top coating of all three wheel sets remains ongoing.

The key diameters of the tender axles stub ends have been measured. Whether the axlebox bearings should be remetalled is a matter of ongoing debate, it is felt they should and bearing metal has been procured.

The tank support angles for the main frame are being fitted. The tender horizontal cross stays have been accepted and are stored at FabTech.



20/12/2014 - Gary trial fitting the brake cross shaft, cranks and bearings, plus water scoop linkages.



20/12/2014 - mud hole door in its present condition.

The drop valences remain stored at Fab-Tech in Stockbridge. They will be moved to Didcot Railway Centre in conjunction with a larger parts move in the near future.

A repair method is being formulated for the seal ring on the tank manhole, which is badly corroded and would damage the cover seal.

PROJECT MANAGER'S ANNUAL REPORT FOR 2014:

We are now 8 years into the project to recreate *No 1014 County of Glamorgan*, which started in June 2007, and the various elements of the locomotive are now starting to come together. It is time, as is usual at this point in the year, to take stock of where we are and where we want to go in 2015.

Firstly, I am particularly grateful to Dicky Boast for agreeing to act up as deputy Project Manager during my indisposition – not an easy job when I could be considered by some to be a control freak!! I am also indebted to all our supporters and volunteers for their continuing support to the project. Without their personal, material and financial support, we would just not be able to do the work and procure the new parts that we are currently doing. I am also very grateful to the Saint project, who have helped us with advice and common items of procurement.

Now, the big headlines. At Crewe, our firebox is almost finished. The manufacture of free-issue parts such as the steam fountain bracket and the fire bar brackets is complete and Crewe have installed them on the firebox. We have also done a lot of work to confirm the probable cost of a new boiler barrel and smokebox, which is in the order of £132k. Subject to an engineering risk assessment, we now propose to engage with potential contractors for a fixed price contract. Planning is complete for the safety valve manhole, the superheater header and the revised height smokebox saddle. We have also looked at the design specification for the blastpipe and the caps are on order.

Regrettably, we missed, for the third year running, our main target of re-wheeling, mainly because we had no concept of how much work was necessary, nor how difficult its co-ordination would be. After measuring our horns and pricing their regrinding by a site machining company, as well as getting a price for the axlebox overhaul, we decided, based on both a financial and engineering risk assessment, to place the whole job, grinding and overhaul, with the Tyseley Locomotive Company. This meant the frames going out from Didcot Railway Centre in July and much of the new cab assembly had to be undone and other components removed. However, as part of this job, Tyseley are also grinding our valve chests whilst the frame is on its holiday in the Black Country.

We made 2014 the year of the tender and we met our target. We took delivery of the tender underframe in July and work was carried out on it during Work Week, mainly to commence the fit of the horns using a horn gauge and clean up the inner faces of the buffing plates. Throughout the year we manufactured a bank of tender components such as the drop valances, tender tank support brackets, the two large cross stays and their support brackets and work is currently ongoing to fit all these parts. The brake cross shaft and its 4 crank arms were also delivered, are assembled and the bearings completed. We have located six wheel bearings and six horn keeps that are currently being worked on. The majority of the wheels are fettled, painted and ready to fit and work is complete on the overhaul of the tender brake hangers with new bearings and anti-rattle shims as well as the hanger brackets. We are also completing work on the tank base, preparatory to creating a superstructure workstream.

Work on the extremely complex cab floor is ongoing. Our carpenter is cutting and fitting the hardwood, and the steel components have been ordered. We located a crosshead in stores and have contacted to buy a second which will be converted to 4-6-0 specification. Work is ongoing to draw up the gudgeon pin and its associated parts. The four eccentric rods have been delivered and we have started looking at our pistons and rods. We have paused production of a number of

items such as the lead coupling rods and eccentric straps but have ordered the main elements of the exhaust steam injector for both ourselves and the Saint project. We have accumulated 7 slidebars and, finally, as a *quid-pro-quo* for a casting supplied, we have acquired a vacuum pump.

On the personnel side, we welcomed Roy Frisby to the project as a County Setter. Roy is a draughtsman who worked for the Government drawing aeroplanes at Boscombe Down. I have been away from the project for 4 months suffering from pneumonia, its after affects and recovery. Other volunteers have suffered from injury, afflictions or a priority need to run self employed or freelance businesses. Some of our volunteers have not been heard from for 2 years and I intend to remove them from our books. As far a recruiting is concerned, at this stage in the project, we are only interested in talking to potential volunteers who have transferable skills such as fitters, machinists, welders or CAD design competencies.

I continue to remain acutely conscious that every element of our activity from design, manufacture, machining, assembly and painting needs to be of the highest standard and with a gimlet eye for detail as we will be subject to critical scrutiny from the appropriate authorities when we deliver 1014. To pre-empt adverse reactions from them, as we start to assemble the locomotive and tender, I will have no hesitation in requiring sub-standard work to be redone. The mantra must be; “Do it once and do it right”.

The bad news is that that the statistics for 2014 show that we continue to not put enough works time into the County project. This is unsustainable in a project like ours and will move the project completion date so far to the right from the expected 2021 that many of the project team will not be around to see 1014 completed. So, we need to look at innovative ways of putting significantly more time into the project, and volunteers need to step up to this. These could include working every Saturday, working a double day once a month, working selected weekends or simply finishing work an hour later. I and Dicky Boast, the deputy Project Manager, will talk to volunteers in the early New Year but, if there is no progress on this, we will have to stagger forward on the current default position.

As usual, some statistics: As at early December 2014, 120,418 hits on the website – just over 24,000 hits during the 12 months beginning December 2013. Total project spend to date £630,196; 2014 spend approximately £130,000. Total 1608 hours worked (2013 total 1956 hours), down 16%. Total support hours approximately as 2013, about 650. Average 2014 workday turnout 8.3.

Finally, my thanks again to all County Setters for your physical efforts in 2014 and I look forward to your continuing support in 2015, particularly in the matter of hours worked in the shop.