

# Progress 2015

## **Strategic Intentions**

So where do we go in 2015? The main effort must be to prepare for the return of the frames, by ensuring that all parts necessary to rewheel in 2015, are available. The cab can then be reinstalled and completed. Furthermore, it will be as well to prepare to start work in earnest on the pistons, rods and cylinders, besides the valve chest components. Work will continue to complete the tender chassis and wheel it, and then start a new workstream for the tender tank, the steel for which is already paid for. Subject to funding, work will be reactivated on the external motion and consideration given to ordering the extension bars and valve rods. And, of course, the strategy for ordering the boiler barrel must be firmed-up.

Achievement of these aspirations anticipates your continuing support in 2015, particularly in the matter of hours worked in the shop. Many thanks in anticipation.

Mike Cooper.

## January and February 2015

This report covers all activity during January and February 2015. Progress is good on the tender underframe and the works at Tyseley proceed according to plan.

Mike Cooper, having been declared fit rejoined the project on 17 January. On behalf of Mike and all the team, our thanks go to the deputy PM, Dicky Boast, for caretaking the project while Mike was hors de combat. KWG had a heavy general operation on his back on 18 February and Roy Frisby had a light repair in late February. Both are healing well and making a good recoveries.

As you will all have noted, the planned Extra Day riveting weekend in February had to be cancelled because of the amount of noise that would occur during a steaming day. Riveting should now take place on the weekend of 14/15 March.

The Project team also wish to express our gratitude to Paul at Fab-Tech for the gift of numerous  $\frac{3}{4}$  drive sockets, bars and ratchet spanners.

## **Locomotive Progress**

During the visit to Tyseley Works the use of trammel bars to check the planed horn guides' alignment was seen. All measurements were satisfactory.



08/01/2015 - lead horn trammel bar in position.



08/01/2015 - View of trammel bar in position between trailing and lead horns on left hand side of locomotive frame.

At present things are relatively quiet on the boiler front. The remaining jobs on the firebox are under way. No date has yet been set for a visit to Crewe.

In conjunction with minor repairs to the chimney, investigations have started as to how the petticoat can be manufactured. It is proposed to metal spin the bells and laser cut the top plate, which will be welded together at DRC. Discussions have incorporated Metspin in Southbourne, near Portsmouth, who have worked for the Society previously. The CADs are being prepared and once a firm price is obtained a works order will be issued.

The first castings of the exhaust steam injectors were completed in late February:



28/02/15 - a complete mould box showing the hollow feeds which also act as expansion risers for the LG4 grade casting bronze.



28/02/2015 - bottom half of the mould box showing the pattern removed and cores placed inside the mould to produce the cavities inside the casting. Hollow risers are added in various places to allow the molten metal (bronze in this case) to flow into all parts of the casting mould.



28/02/2015 - pouring the liquid bronze from the crucible into the mould box..



28/02/2015 - finished rough bronze casting of the exhaust steam injector body, removed from the mould box and yet to be cleaned up with a die grinder.

Live Steam. A number of 10x castings for the live steam injectors have been located, but it is uncertain if they are of the correct specification so they will need to be checked.

In the course of the visit to Tyseley in January, the pistons and rods conundrum was discussed with Bob Meanley. It now transpires that the piston/rod pair in the project's possession came from a 42xx (fitted with front bar frame extensions), consequently the rods are mis-dimensioned by  $\frac{1}{2}$  inch for use on full length through frames such as are found on Lot 354 locomotives. There is also concern over the taper fit to the crossheads. It is intended to overhaul the crossheads and manufacture a piston/rod set to match them. While probably not the cheapest option, it will ensure that everything will fit on assembly and minimal machining of the bores will be required. It is believed the existing piston/rod pair can be used by the 4709 Project.

Both crossheads, it is planned, will move to Geoff Parker's premises at Aldermarston in late March.

Spring Hanger Accessories have all been painted to a colour code to distinguish between those that have been hardened by the project team and the originals.



08/01/2015 - sheave blanks stored at Tyseley.

The eccentric sheaves cast blanks. Machining and other work on them at Tyseley remains paused at the project's request.

The Taylor rings required for the Cylinder Blow Down Cock Gear have been delivered by Heritage Steam Supplies



28/02/2015 - Taylor rings as delivered.

The cab floor is complete. All the chequer plate parts are in process of being cut at Tadleys in Aldermarston.

## **Tender Progress**

Work on assembling the tender proceeds well:

Drilling the tender frame and fitting the horns is complete. The horn gaps have been check measured and axlebox finished sizes specified. These are now being machined by Geoff Parker at Aldermarston, supervised by KWG.

Other work includes:

- Installation of the tender horizontal cross stay brackets;
- Installation of the spring hanger brackets;
- Work has commenced on the machining of the drag links and fitting the drag pins to the clevises;
- Various items of the water scoop gear await fitting;
- The rubber pads and hysteresis plates for the rear draw hook and spring hangers are being specified and will be manufactured in the near future.



14/02/2015 - view of on-going work on the tender underframe from the rear-end



14/02/2015 - rear buffering plate fitted and awaiting riveting.



28/02/2015 - Hammer pin detail.

The rear buffering plate is now fitted. The ends remain to be riveted to the end frame angles. Drive/hammer pins have been located for attaching the step pads to the buffers.

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

The drop valences remain stored at Fab-Tech in Stockbridge. They will be moved to DRC in conjunction with a larger parts move in the near future. They are in two sections, the rear one of which is long and extremely heavy!

The Brake Cross Shaft, Cranks and Bearings/Scoop linkage have been shimmed and free movement tested.

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

Although work on the tank superstructure has not yet started, acquisition of part continues, the latest order being the seal ring on the tank manhole from Fab-Tech in Stockbridge.

## March and April 2015

This report covers all activity during March and April 2015. Good progress continues on the tender underframe, and the works at Tyseley are now complete.

There have been several personnel issues:

Commiserations to Bob Fry on his health issues which it is hoped will be resolved quickly allowing him to be back at DRC soon – his wise counsel is missed.

Keith Gilbert continues with a slow recovery from his operation.

It is to be hoped that Roy Frisby back in harness very soon.

The 'Extra Day' programme was implemented for riveting over the weekend 14/15 March. With 5 or 6 volunteers on both days, the event was judged a success. An 'Extra Day' will continue to be used in this context and suitable weekends in late May or June are being considered.

### **Locomotive Progress**

The horn grinding and axlebox overhaul at Tyseley is complete.

The project received a significant donation towards the axlebox overhaul.

In conjunction with Tyseley Locomotive Co., the most cost effective way of repatriating the frames to DRC is being investigated. However, as road space in the Works is currently at a premium, this could be delayed. Once the frames return to DRC, the axleboxes will have to be lapped in to the axles, a task which could take some time, so the prospect of rewheeling is not imminent.

- Boiler work continues at Crewe:
- Remaining jobs on the firebox in hand and inches towards completion. No date has yet been set for an acceptance visit to Crewe, at which it is also planned open discussions on the costs of a boiler barrel/smokebox.
- The superheater 3D CADs from Julia are still awaited.
- The chimney petticoats turned into a bit of a saga! A second, cheaper, quotation was obtained, but then a third, very reasonable, quotation from Slough Metal Spinners was obtained through Peter Chatman (2999 Group). This procurement was discussed with the Chairman and it was decided that producing the petticoat would be a real indicator that work was starting on the boiler/smokebox. Consequently, orders have been issued for the two petticoats and mounting flange, which will be assembled in-house.

The castings for the Exhaust Steam Injectors have been discussed with PG, and have been accepted. Attention now turn the rear part of the exhaust injector.



02/05/2015 - exhaust injector pattern (red) and casting.



02/05/2015 - some of the exhaust injector 'bits'

A number of castings for Live Steam Injectors have been located in Security but it is uncertain if they are of the correct specification, thus they will need to be checked.

Under KWG supervision, both crossheads were moved to Geoff Parker's premises at Aldermarston over the period Friday 27/Saturday 28 March. Currently, they are being cleaned in caustic soda, after which they will be grit blasted. The gas-axed piston rod in the right-hand crosshead then needs to be removed. Once done, the scope of works for their overhaul/conversion will be agreed.

The cab floor is complete and all the chequer plate parts remain in process at Tadleys in Aldermarston.

The first castings of the exhaust steam injectors were completed in late February:

## **Tender Progress**

Good progress is being made on the tender underframe:

- Detailing of the rear buffing plate is ongoing.
- Installation of the inner buffers has commenced.



*02/05/2015 - rear buffing plate.*



*02/05/2015 - components of the inner buffing plates prior to fitting.*



*02/05/2015 - Cross stay plates have been fitted but the support angles remain to be riveted..*



*02/05/2015 - Various items of the water scoop gear await fitting to the brackets.*



*02/05/2015 - An improved axlebox oil seal arrangement is being developed, intended to replace the Helvetica leather on an elm carrier system, dating from the 1920s. This proposes to use a modern oil seal on a polypropylene carrier.*



*02/05/2015 - George's jig to fit the spring hanger brackets.*

- Work has commenced machining the drag links and fitting of the drag pins to the clevises.
- Hysteresis plates for the rear draw hook and loco and spring hangers have been ordered and the rubber pads will be ordered in the near future.
- Work has started on drawing-up the pipe work. Investigations are in-hand for companies who can use the CAD file to drive a CNC machine that will bend the various pipes to exactly the correct configuration.

The drop valences were moved to DRC together with the cross stays on 25 April. There appeared to be no issues with unloading at Didcot Parkway and First Great Western staff were very helpful. The next task will be to set the valances up correctly and drill all the rivet location holes.

Brake Cross Shaft, Cranks and Bearings/Scoop Linkage have now been shimmed and free movement tested. Regrettably, it will be necessary to dismantle the assembly for final welding of the four crank arms.

Tank Superstructure. The seal ring on the tank manhole has been delivered from Fab-Tech in Stockbridge.

Axle Bearings. Scraping in the axle bearings is ongoing

All wheels are now receiving their final top coat.



*02/05/2015 - the Three Amigos scraping tender axle bearings.*

## May and June 2015

Progress remains good on the tender underframe, and the works at Tyseley are now complete. Remaining work on the firebox has been paused at our request. The County Set were all very sad to hear of the passing of Bob Fry - a kind and good man and a fine locomotive engineer. Our sympathies go to his family and all his friends. Our sympathies also go to Vic Laird on the death of his wife two weeks ago. Keith Gilbert continues with a slow recovery from his operation which seems to be gathering pace.

### **Locomotive Progress**

Investigations are in hand with Tyseley Locomotive Centre to ascertain the most cost effective way of repatriating the frames to Didcot Railway Centre. However, as road space in the Works at Didcot is currently at a premium, this could be delayed.

Once the frames return to Didcot Railway Centre, the axleboxes may have to be lapped into the axles, depending on how accurate our measurements were! This could take some time, so the prospect of rewheeling is not imminent. All good things are worth waiting for!

Although the remaining jobs on the firebox are under way for a variety of reasons work has been paused at our request. A meeting is planned at Crewe in August at which completion of the firebox will be considered and discussions opened on the costs of constructing a boiler barrel/smokebox. To this end major items of the boiler and smokebox barrels are being priced up.

On 28 May Mike Cooper visited Slough Metal Spinners and observed the spinning process for the two chimney bells. These parts are now complete and await collection.



*28/05/2015 - Chimney bell having been spun at Slough Metal Spinners, prior to delivery to Didcot Railway Centre.*

The second set of patterns/cores for the Exhaust Steam Injectors have been sent for assessment and pricing to Hunt castings in Romsey.

Regarding the motion:

KWG is supervising work on the crosshead and a price is awaited based on a statement of work. Our scout is contacting possible sponsors for both the inside and outside motion. Delivery of the vacuum pump via PG is still awaited.

The cab floor is complete and all the chequer plate parts remain at Tadleys in Aldermarston.

The first castings of the exhaust steam injectors were completed in late February:

## Tender Progress

Procurement of low risk parts to create a bank for installation on the underframe is now complete except for some minor items.

Recently the rear dragbox had to be dismantled, not a decision that was undertaken lightly! When the main frameplates for the tender were specified, it was noted that a number of holes at the rear were countersunk. Never having built a Lot A180 before, and having no assembly instructions, the tender underframe was built and started drilling the 1001 holes that are needed to secure the 101 components. An interface issue at the rear only came to light when George Hallett, who was drilling the spring hanger brackets, said that he could not drill to access those at the rear. Red faces all round and the only way to do the job properly and rivet the hangers, was to remove the dragbox, drill and countersink the rivet holes, rivet and dress off and replace the dragbox, all of which is now complete. The delights of new build loco (and tender) engineering!!



*Removal of the rear dragbox in preparation for drilling the holes required*



*Replacement of the rear dragbox following the necessary drilling and riveting.*

The cross stay support angles remain to be riveted.

Various items of the water scoop gear are being fitted.

Installation of the spring hanger brackets has commenced. Meanwhile, the rear brake hangers have been successfully test mounted on the rear drag box.



*04/07/2015 - holes in process of being drilled for Spring Hanger Brackets..*



*04/07/2015 - George drilling holes in the tender underframe for the Spring Hanger Brackets..*



04/07/2015 - Front drag beam showing position of inner buffers.

Installation of the inner buffers has commenced and the correct pattern replacement springs ordered.

Work continues on the machining of the drag links and fitting of the drag pins to the clevises.



04/07/2015 - Gary machining drag links, i.e. the locomotive-tender coupling arrangement.

Various items of the water scoop gear are being fitted. Brake Cross Shaft, Cranks and Bearings/Scoop Linkages have been shimmed and free movement tested. Thereafter, this assembly will have to be dismantled in readiness for the planned final welding.



04/07/2015 - the hysteresis plates.

The hysteresis plates for the rear draw hook and loco and spring hangers have been delivered and the rubber pads will be ordered in the near future.

All wheels have received their final top coat. Meanwhile, scraping-in the axle bearings continues.

Axleboxes and Slide Plates are awaiting attention at Geoff Parker's works in Aldermarston. KWG is supervising this work and a price is awaited based on a statement of work.

In the process of being developed is an improved axlebox oil seal arrangement, which is intended to replace the Helvetica leather on an elm carrier, dating from the 1920s. This proposes to use a modern oil seal on a polypropylene carrier. The parts are now with a timber machinist in Andover for machining and test fitting the seal.

The seal ring on the tank manhole has been delivered from Fab-Tech in Stockbridge



*04-07-2015 - seal ring as delivered.*

The next task will be to set the valances up correctly and drill all the rivet location holes.

## July and August 2015

This report covers all activity during July and August 2015. Progress remains very good on the tender underframe. The works at Tyseley are now complete and the frames have returned to Didcot Railway Centre. Referring to the latter, Mike Cooper expresses his gratitude for the support received from Axle Haulage, MOD, Sparrows Crane Hire, Tyseley staff and, by no means least, all the DRC staff and volunteers who assisted with the inload/unload from West Yard.

Public Relations - An article has been published in Steam Railway Issue 445 about the completion of the frames and progress elsewhere on the project.

A colour drawing of 1014 in BR(W) livery was received gratis from Stuart Black, a commercial artist, who recently completed the attached artwork of No. 1014 'County of Glamorgan' for the magazine 'The Great British Locomotives Collection'. He has also offered us the use of it on the website, which has been agreed:



*1014 'County of Glamorgan' as she appeared post 1960. The recreated 1014 will differ in some of its dimensions to 'fit' modern load gauge limits, but it is earnestly believed the differences will be barely noticeable visually.  
(Courtesy Stuart Black)*

Work week 2015 - Probably the most successful in the project's history. 39 man days over 6 days produced extensive progress on the tender with riveting and the installation of further new and reconditioned parts.



03-09-2015 - Nice riveting! A product of Work Week

With the return of the frames the project team will be split into two - locomotive and tender. As a result the project needs:

- *Machinist. The County Project urgently needs to recruit another machinist who must be able to operate traditional machine tools, without CNC and work with non-ferrous, cast iron and steel to a high degree of accuracy, often without formal drawings. Having a home workshop would be a great advantage. He/she must understand AutoCAD as well as traditional GW drawings.*
- *Welder. To work with our lead welder, the County Project urgently needs to recruit a second welder who must be proficient mainly in sheet steel fabrication, using both rod and MIG, although they would also be required to fabricate, repair and modify non-sheet steel parts. A coded pipe qualification, or suitable experience, would be a bonus.*

*For both:- Ideally living within a sensible commute from Didcot Railway Centre, be prepared to join the Society, commit to the project and to obey certain simple rules, particularly in the area of Health and Safety, and be comfortable multi-skilling and working as a team player. We are looking for attendance at Didcot every other Saturday – sometimes weekly at various times in the project. However, we do acknowledge the occasional need for the other essential events of life! The vacancy is available now. If you are interested, initial contact through the Webmaster please.*

An extra working day for September or October is planned, which will be used to rivet up the remaining tender spring hanger brackets. This will enable the springs to be mounted.

## **Locomotive Progress**

As indicated above, 1014's frames were returned from Tyseley in mid August, a complex operation involving lorry transport to Didcot West Yard, lifting onto a flat-bed railway wagon, a trip working into Didcot Railway Centre, unloading, positioning on the restored front bogie and yam, then removal into the workshop area:



20/08/2015 - frames suspended having been lifted from lorry before being loaded on to flat-bed wagon for removal into Didcot Railway Centre. (Mike Cooper)



20/08/2015 - frames being lowered onto flat-bed wagon. (Mike Cooper)



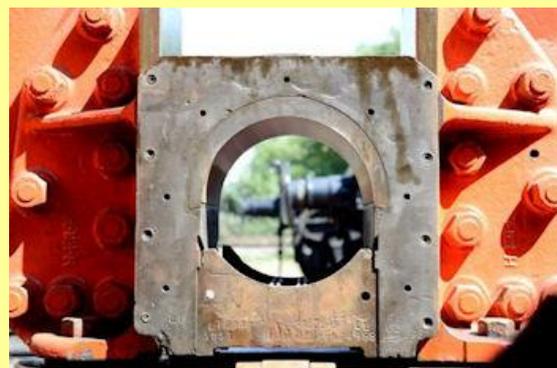
22/08/2015 - frames in lifting shop having been lifted off flat-bed wagon and lowered onto yam. (Frank Dumbleton)



23/08/2015 - 1014 frames on bogie and yam, coupled to flat-bed wagon being shunted into Didcot Loco Shed. (Frank Dumbleton)



20/08/2015 - Close-up of machined and fitted bearings as fixed and trued on the main frames at Tyseley. (Frank Dumbleton)



20/08/2015 - rear view, i.e. from within frames of machined and fitted bearing assembly. (Frank Dumbleton)



22/08/2015 - workshop view showing 1014's driving wheels, tender wheels and to rear tender frames. (Mike Cooper)

In the course of these operations close-up photographs were taken of the bearings and wheels.

It seems, too, that the return of the frames has added an extra 'spring' to the project as other recent developments have also proved fruitful.

The main effort now is to check all the components necessary to rewheel. Rewheeling will follow when all is organised, ready and a slot arranged on the wheel drop. Although possibly a hostage to fortune, this could be achieved by late 2015 or early 2016, as long as the necessary facilities are available.

To protect the frames etc., it was decided in late August to seal and waterproof the axleboxes in the horn guides and added a waterproof sheet and a good dose of WD-40 to reduce water ingress and mitigate its affects.

The Boiler Meeting at Crewe in August turned out to be more successful than expected. A more taut strategy for completion of the firebox was agreed, with work being undertaken over the winter months with completion aimed for Spring 2016.

Regarding the boiler and smokebox barrel work, Crewe appears to have no difficulty with a labour content only contract, with the Project providing free issue parts. This will require more liaison between the two organisations over delivery, specification, demarcation etc., which is no more than an intelligent customer would expect to do. A pricing exercise was completed for the major elements of the boiler barrel and smokebox to support negotiations with Crewe, or other potential providers, over the construction of 1014's new boiler. Version 1 was issued on 21 August 2015.

Having produced a cost table for boiler parts, thoughts have turned to various aspects of boiler construction.

There are three drawings for the smokebox wrapper, which are all basically the same, with minor variations for cutouts. Unfortunately, the project does not have a drawing for a double chimney No 15 OA boiler (with 3 row superheater). In the Project Team's view, use of the No 1000 drawing, would be foolish as it is believed that Middlesex was a poor steamer when first introduced, while the single chimney No 15 OA drawing has a different blower arrangement. Furthermore, the boiler centre-line (1.75 inches) has been lowered, which needs to be taken into account so Herr. Jos Koopmans' strictures on steam flow can be obeyed.

It is proposed, therefore, to use the 4 row superheater No 15 OB drawing, with 15 OB blower arrangement, a 3 row superheater, ash guards etc. and calculate the chimney base (not the petticoat) distance to the blast caps before making the new, cast, blast pipe. But we are quite prepared to debate this!! All that is missing is the main internal steam pipe. Ted Lacey has been asked for the two appropriate drawings; one has been received and the other needs to be scanned. An issue on MATSPECS remains for this critical assembly.

Other boiler related issues include:

- Smokebox Saddle - KWG is checking the AutoCADs to aid pricing this component.
- The chimney bells have been delivered. It is hoped to get the bells welded to the carrier in the near future. In addition, some minor repairs to the blower flange of the double chimney are required.
- The manhole seating for the safety valve has been costed by Premier Patterns. It is intended to cast this and provide it to the selected boiler manufacturer as a free issue. They will machine and fit it to the barrel.
- GW Drawings no 82314A Safety Valve and 82314 Casting for Safety Valve are being sought. It is planned to manufacture this item using South Coast Steam Ltd on Portland.
- The project has received the 3D AutoCADs from Julia for this most complex casting. Procurement is likely to be through 'Boro Foundry, who will be responsible for the sand

mould, casting and machining in order to reduce project and engineering risk to a minimum. To this end Nick Norton at 'Boro has been re-engaged and a drawing CD dispatched.

- A second set of patterns/cores for the exhaust steam injector has been delivered to Hunt castings in Romsey for assessment and pricing.

Work on the motion is presently paused as 'our scout is exploring possible sponsors'.

## Tender Progress

Assembly continues having overcome an earlier set-back.



*03-09-2015 - Valences set-up on frame angles.*

The valances are set up on the frame angles and have been drilled at four locations per side. The next task is to prepare the welds and tack up.



*03/09/2015 - Axleboxes as received from Geoff Parker's works.*

Axleboxes and slide plates have been received from Geoff Parker's works, Aldermarston. The two lead combos have been installed and work is progressing on the centre combos.



*03-09-2015 - de-rusted and painted springs.*

Springs de-rusted and painted, awaiting installation and final riveting of the spring hanger brackets.



*Mike Sawers finishing welding of brake cross shaft cranks*

The brake cross shaft cranks have all been welded in position.



03-09-2015 - view of inner buffers and installed brake cross shaft.



03-09-2015 - Rear step plates fitted and awaiting some minor remedial work.

Other work continues on the tender underframes:

- Cross stay support angles have been riveted.
- Machining of the drag links is complete.
- Various items of the water scoop gear have been test fitted, now removed for access purposes.
- Scraping in the axle bearings remains ongoing.
- Work has commenced to paint the top frame rails, preparatory to fitting the timber packing for the tank base.

All in all, a very busy, but productive period, which has seen significant progress made with the restoration of 1014.

## September and October 2015

This report covers all activity during September and October 2015. Progress remains very good on the tender underframe, and work has now restarted on the locomotive frame. A positive consequence of all the movements within the Locomotive Works is that all the elements of 1014's build are now located on No 4 Road in the Works



*10/10/2015 - locomotive frames relocated on No. 4 road in the DRC Locomotive Works. Note the locomotive frames are supported at the front by the bogie, while to the rear are the tender frames.*

Three County Setters (Cooper, Hallett & Luscombe) will attend Didcot Railway Centre's Mutual Improvement Class on locomotive valve gear on 14 November.

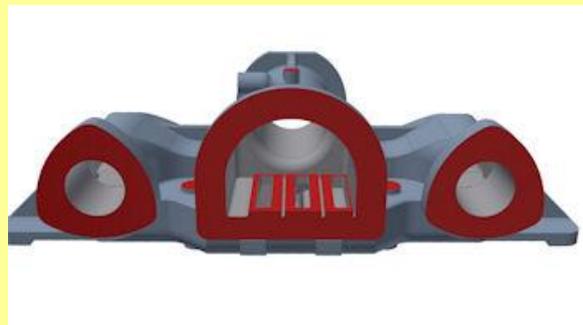
Roy Frisby has returned to duty, while Keith Gilbert is still involved with the medics and likely to require another back operation in the near future. We all wish him well.

The trawl for an additional machinist has, so far, fallen on deaf ears, but Mike Cooper lives in hope of finding a suitable volunteer. More optimistically, two responses were received regarding the welder role. Dicky Boast is now attending a course and a potential volunteer was scheduled to be "interviewed" by Mike Sawers in late October.

### **Locomotive Progress**

Following the Boiler Meeting at Crewe 27 August 2015, costings of a fixed price, labour only contract are awaited. Another meeting, with our insurers, is planned for before the end of 2015. The good news is that there is much back office work continuing on the boiler barrel and smokebox wrapper and our scout is actively involved in speaking to possible sponsors. KWG is producing general dimensional drawings for the barrels and wrapper. The intention is to manufacture the two boiler barrel sections, smokebox wrapper and front tube plate in 2016.

Following production of a CAD 3D image, 'Boro Foundry are actively engaged on the precursor of manufacture of this item. It has been agreed to be associated with a research and development project using sand mould printing techniques, which is similar in principle to a 3D printer on a PC. The Project will be attending a briefing at Pinewood Studios on 12 November. The aim is to achieve the highest quality for this key component commensurate with reducing project and engineering risk to a minimum.



*10/10/2015 - CAD in 3D for the superheater pattern*

KWG has now completed the AutoCADs for the Smokebox Saddle which are now being checked by a third party. We have also measured up and ordered the steel to make a drilling jig for the potential manufacturer.



10/10/2015 - repair to the blower flange of the chimney.

Detailed work continues on the smokebox and blast pipe. A number of drawings have been received from Ted Lacey, which detail the smokebox door and the hinging arrangements for the fastening of the smokebox dart.

The chimney bells have been delivered and the welder has been briefed on the welding requirement. In this context, work has also started on the minor repair to the blower flange of the chimney.

The quest for GW Drawing No 82314 'Casting for Safety Valve' continues. It is planned to manufacture a reduced height safety valve using South Coast Steam Ltd. on Portland.

Delivery of the Exhaust Steam injectors is expected from Hunt Castings, Romsey, by 19 December.

The motion has received varying degree of attention:

- Crossheads - work paused while they are soaked in caustic soda Geoff Parker's premises in Aldermaston.
- Our 'scout' is exploring possible sponsors for both inside and outside motion, as well as the eccentric sheaves.
- Delivery of the vacuum pump is still awaited via PG.

Meanwhile a range of other works continue on the frames:

- The bogie bearing pads remain to be installed:
- Those parts of the frames which will be behind the driving wheels, and thus inaccessible once they are installed, are being prepared for painting in the near future.
- The driving wheels will require some minor cosmetic repairs prior to rewheeling.
- The cab floor is complete and all the chequer plate parts remain in process at Tadleys in Aldermaston.



10/10/2015 - LaDonna working on the bogie bearing pads.



10/10/2015 - Vacuum Release Cocks - as fitted to another locomotive.

Vacuum Release Cocks (one for the loco and one for the tender) have been delivered. Their manufacture was courtesy of 7903 Ltd.

## Tender Progress

Mike Cooper and team are considering a rewheeling method statement using our 6.5 tonne crane rather than the wheel drop. Current calculations show the tender underframe in its present configuration to weigh 4.55 tonne which allows a Factor of Safety of 1.43.

Assembly of the underframe continues to proceed very well:

- The spring hanger brackets have been riveted.
- Scraping in the axle bearings remains ongoing.
- The rear step plates remedial work is complete.
- Drilling and painting of the top frame rails is complete.
- Most of the timber packing for the tank base is complete.
- Installation of the axleboxes and slide plates is complete.



*24/10/2015 - spring hanger bracket riveted in place on underframe.*

The Valences are now welded, await dressing-off, centring and riveting.

## November and December 2015

After October's frenetic activity, work slackened off a bit in November/December. No. 4 Road now looks like a new pin and appropriate to a professional engineering works. All the portable tools are now PAT tested and repaired as necessary, with one new angle grinder purchased to replace that which was condemned.

As usual the County Setters partook of a Christmas celebration. Special thanks to Dicky and LaDonna for helping with the party food and Mike Cooper is really upset that not more was shoved in capacious boilers!! Well done everyone - a good final workday of 2015.

On the personnel front LaDonna has hurt herself - falling off her cycle ... again! Hopefully, she will be fully recovered from her shoulder injury before too long - she is needed! Furthermore, although Keith Gilbert celebrated a notable birthday in early December, he is also scheduled for more surgery - we all wish him well and a speedy recovery.

### **Locomotive Progress**

LaDonna and her team are cleaning and painting the frames to remove the ravages of Tyseley and to prepare the area covered by the wheels for top coat. This work, to paint the frame behind the wheels, which will be inaccessible once they are fitted, made good progress in December. Before Christmas Vic and LaDonna started on the inner loco frames.



*December 2015 - painting the frames - splashers getting the treatment.*

Work to drop off the axleboxes and keeps for cleaning has started. Now drawings for the felt lubricating pads and wicks have been located, materials have been ordered, consequently manufacture of the lubrication pads and gaskets can start. All this is essential preparation for re-wheeling, which regrettably, will not now take place in 2015 - hopefully in the first quarter of 2016?

Gary commenced the repairs to the chimney blower flange, while Joe got stuck in making the saddle jig and mending the loco oil bath lids.



*December 2015 - Gary undertaking welding repairs to the chimney blower flange.*



*December 2015 - welding repair completed - now for fettling.*

The drawings for the smokebox saddle have created a need for significant additional work. GW Drawing no. 118446, for the Frame Stay and Smokebox Saddle, is common to both Lots 350 and 354 but there are differences in both the smokebox diameters and the boiler centre lines. This means a need for checking and rechecking, further complicated by the centre line reduction of 1.75 inches to meet the 3987 mm height gauge.

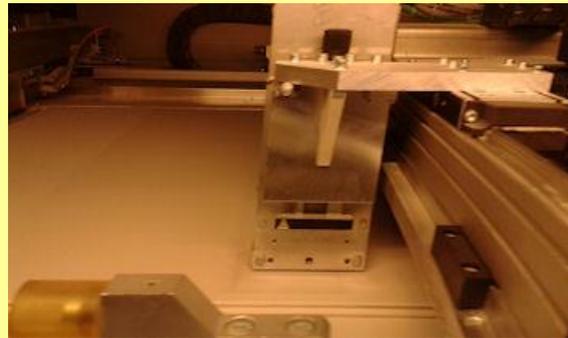
There was a meeting at Crewe on 26 November with our insurers and Crewe staff to discuss the way forward on elements of the boiler barrel procurement in 2016, as well as the fixed price labour contract.

Planning work for the boiler barrel, the front tube plate and the smokebox wrapper is cranking up now funding approval has been received to get these components manufactured.

A demonstration of sand mould printing at Pinewood was attended in November, consequently planning activity for our superheater/regulator has been accelerated, production of which will use this new technology. However, the brief to the insurer on the material for the superheater, prompted some supplementary questions on the heat stability of SGI at 800oF, which is being addressed both with Boro Foundry and in-house.



*12/11/2015 - sand moulder demonstration 1.*



*12/11/2015 - sand moulder demonstration 2.*

## **Tender Progress**

The drop valances are in process of being bolted into position prior to riveting.

The tender tank timber packing is cut and ready to fit.

Some work remains to be done cleaning up threads on the spring hangers before fitting the springs, which have already been overhauled, cleaned and painted. Once completed the four centre and lead brake hanger brackets will be bolted into position. Meanwhile work on the wheel bearing continues.



*December 2015 - brake hanger brackets bolted into position.*



*December 2015 - rear brake hanger bracket bolted into position.*

Having ascertained the weight of the tender when rewheeled, it is evident that this can be undertaken using the 6 tonne crane, with a safety factor of 1.43.

To re-wheel the tender the Bankers have worked out a provisional method statement as to this will be undertaken.

# PROJECT MANAGER'S ANNUAL REPORT FOR 2015

We are now 9 years into the project to recreate No 1014 County of Glamorgan, and are on the cusp of seeing some quite dramatic movements in the project. As usual, it is time to take stock of where we are.

Firstly, it has not been an easy year and we have been beset by personnel issues: my own and those of Keith Gilbert as well as a number of other volunteers. We also continue to miss Mike Sawers, our welder, who is still attached to the Thomas project, now with a completion date in the early New Year! I remain indebted to all our supporters and volunteers for their continuing support of the project and to our Chairman, Richard Croucher, for his sage advice, his fund raising and the financial management of the project and David Bradshaw for his wheeling and dealing for the project. Without this 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 particularly grateful to the Saint and 7903 projects, as well as Bob Meanley at Tyseley, who all continue to help us with technical and practical advice and common items of procurement.

Next, the big headlines. The locomotive frames are back at Didcot after overhaul of the horn guides and axleboxes and the grinding of the valve chests at Tyseley. Work is now in hand to check, paint and mark up all the components for rewheeling, which should be in the first quarter 2016. The firebox awaits the fitting of some stays and is then complete. On the boiler front, we have done a lot of work to confirm the probable cost of the parts for a new boiler and smokebox, which is in the order of £86,000. Subject to an engineering risk assessment, we now propose to engage with potential contractors for a fixed price labour contract in order that we can keep a very tight control on costs.

2015 saw spectacular progress on the underframe of our tender which was enhanced by a most successful Work Week. The majority of components are now fitted, the most recent being the riveting of the spring hanger brackets. The fitting of the brake hanger brackets was recently completed, but the wheel bearings remain work in progress. The springs are cleaned and oiled and the hanger threads are being cleaned up. We are now working towards wheeling in 2016 which will leave the brake hangers and crossbeams to be fitted and piping up to be done. Regrettably, with the absence of our welder, work on the tank and its base has stalled, although the timber packing for the tank base is cut and is being installed.

Loco-wise, work on the extremely complex cab floor is complete. We now have both crossheads which are awaiting conversion to the required specification. We have started looking at the manufacture of our pistons and rods – regrettably those that we had in stock were for a bar frame loco rather than a plate frame one. We have also ordered the main elements of the exhaust steam injector for both ourselves and the Saint project and some parts have already been delivered. We also continue to lever on other projects where commonality of parts procurement exists.

Now that we are working on new components which have a high technical content and value, we must ensure that the drawings that we use to support our procurement process are error free. To this end, we have initiated a check on the checker, which means that any drawing will be checked twice against the GW original drawing of the component. As with everything in the project, the mantra must remain; “Do it once and do it right”.

The good news is that the hours worked statistics have improved from 2014 but they have not yet returned to the heady early days of the project. Initiatives such as riveting weekends and mid-week working have borne fruit, the latter being particularly useful for lone-workers, but it is still essential for us to put more effective works time into the project. As we have done this year, Dicky and I will be trying other initiatives such working every Saturday, working a double day once a month, working selected weekends or simply finishing work an hour later. I will nag no more!!

As usual, some statistics for you. As at early December 2015, 141,591 hits on the website – just over 21,000 hits during the 12 months beginning December 2014, a reduction of 3,000 hits over the last period. Total project spend to date £685009; 2015 spend £46400. Total 1695 hours worked (2014 total 1608 hours), up 4%. Total support hours approximately 650. Average 2015 workday turnout 9.

Finally, my thanks again to all County Setters for your physical efforts in 2015 and I look forward to your continuing support in 2016, particularly in the matter of hours worked in the shop.

My compliments of the season to you all,

Mike Cooper