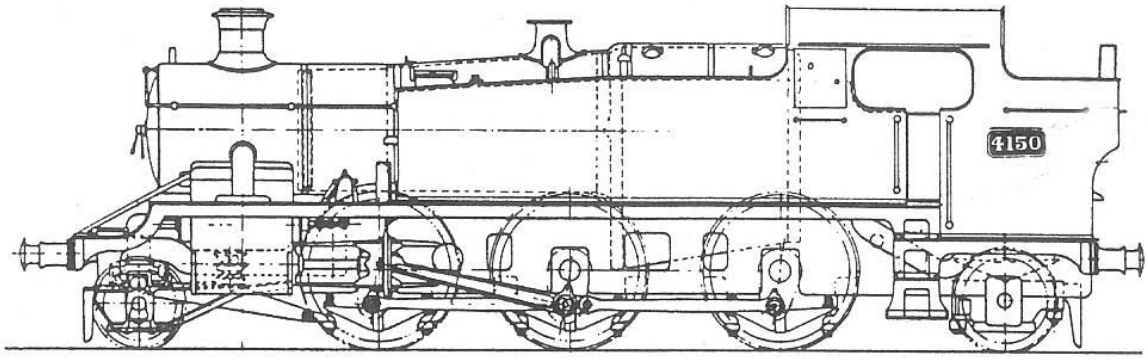
The 4150 Fund



Newsletter 2013

Including notice of the A.G.M. on 23rd February

Chairman: Peter Maddicks
Treasurer: John Whitcomb
Secretary: Peter Willoughby
Committee: Derek Brixey-Mike Hutt
Dave Massey - Dave Insull - Frank Walker

The bunker nears completion as work on the tanks begin - June 2012 - Tony Summerton

CHAIRMAN'S REPORT

It is with great sadness that I must report the death of Richard Eagle on 27th January 2012.
I have personally known Richard for many years having first met him while working on Erlestoke Manor which incidentally came out of Barry with 4150. He became one of the early shareholders of 4150 and carried out overhauls and repairs of many components during his time as a Lab Technician at Nash College Newport.
Richard was one of life's consummate gentlemen and was born 30 years too late, always smartly dressed and polite even when under great provocation.
We extend our condolences to all his friends on the Dean Forest and Severn Valley Railways and especially to his sister Kathy at her sad loss.

Now down to other business.

Last year was a busy one for the fund, with work progressing at quite a rate, on the bunker, tanks, fittings, cladding, steam and vacuum pipes, whilst more fittings have been purchased and completed. (More detail on this will follow in the engineering report)
Fund raising is doing well and keeping ahead of expenditure, but again more on this in the treasurers' report.
Your committee is keeping a watching brief on the new running agreement between the SVR and the Loco Owners. This appears to be dragging on as the Railway wanted this sorted early last year but as I am sure you will appreciate our Loco has never had a full running agreement so we are awaiting developments on this and will report when more information is available.

Peep behind the Scenes
The Peep behind the Scenes last year was fairly successful and I would like to put on record here our sincere thanks to all the staff both volunteer and paid who rallied round to make the event the success it was despite the SVR. This event puts a tremendous strain on the fund and other small dedicated groups that run the event. It would be gratefully appreciated if any of the fund shareholders who could spare a day please contact Peter Willoughby and we will find you a job. This year's Peep is on Saturday the 20th July.
Look forward to seeing you all at the A.G.M

Peter Maddicks
Hon. Chairman
4150 Fund

SECRETARY'S REPORT

A date for your diary is **Saturday 20th July "Peep Behind the Scenes".** This is a major fund raising event which also elevates the profile of the SVR and **4150.** Any help on the day will be welcomed - please get in touch as soon as possible, as we are always pushed to the limit. You will notice the event is being run for one day only this year. The reason for this is having so many of the Railway workshops closed to active works for the two days proved disruptive, Saturday has also been by far the more busy of the weekend. 2013 is the 40th anniversary of the formation of The 4150 Fund so it is very fitting that the tank bases are being placed in position ready for work to begin on their construction. At a recent Committee meeting we discussed the possibility of having a new chimney cast, the cost of this will be in the region of £1000. If any shareholder or group were looking to make a one off donation what better choice could there be than sponsoring the prestigious chimney.
We now have one third of our Shareholders receiving their Newsletter by email. A great effort, but postage this year is still a mighty £70 plus printing and next year will no doubt be still higher unless if you are receiving your Newsletter through the post and have an email address you let us know. To receive your Newsletter this way just email to info@4150.org.uk with the word Newsletter in the subject box. The Committee do realise that not everyone has internet access but every £1 not spent on postage is another £1 towards the Locomotive restoration; "every little helps" now where have I heard that said before?

Mugs & Caps

We now have **4150** Mugs and Caps for sale
The Mugs are £8.00 including Post and Packing
The Caps are £12 again including P&P
or both for £17.50 delivered to your door
Orders to The 4150 Fund
8 Bewdley Hill Kidderminster DY11 6BS
Cheques payable to: - The 4150 Fund

Limited stock of Green Polo Shirts are available, but can be supplied to order £15.00 inc. P&P

ENGINEERING REPORT

The main focus of attention during the last 12 months has been the fabrication of the new bunker, and it's pleasing to be able to report that it is now substantially complete. The baffles and coal plate which form the internal structure of the bunker are now all in place and temporarily bolted in position, and we can say with some relief that it all fits together very well. It's rather like a jigsaw, with the fit of every piece affecting the fit of the other pieces, and it's only when the final piece goes in that you can be certain it's all ok. In our case this was the right hand side of the lower coal plate, and there were a few anxious moments before it dropped nicely into place. The four sections of the coal plate, and all of the baffles will be welded into position ultimately, but that can only be done after all of the external structure of the bunker has been riveted. The principle at that time will be to keep the water space as an open box for as long as possible to enable riveting and painting to be done in as open and airy an environment as possible, so the last sections to be welded in at the end of the process will be the two rectangles which form the two halves of the lower coal plate. These should be able to be welded in place from the coal (i.e. upper) side, so there won't be a need for any welding to be done in the close confines of the water space. An access hatch in the upper coal plate does provide a way down into the water space, and once inside, there are holes in the baffles to crawl through, but it's definitely not somewhere for the claustrophobic, and not somewhere you'd want to spend any great length of time!

A view inside the coal space, showing the upper coal plate, the curved centre section, and the two rectangles forming the lower coal plate.

The upper coal plate, showing the access hatch with reinforcing plate underneath. The holes drilled in the corner are for the breather pipe

The now-hidden water space

One thing we'll have to be very careful about is specifying the exact order in which the final riveting and welding are done, so that at all times you're not doing anything which restricts or prevents access to the next part of the job. Flowcharts definitely have their place!

Earlier in the year, Bob Russell made a beautiful job of welding together the box section which covers the sloping section of the loco frames below the coal door, and Bob and Dave Link welded in the multi-radiused bunker corners which we had removed from the old bunker. These were the only sections of plate we felt we could re-use from the old bunker, which was very fortunate, as replacements would have cost us a hefty four-figure sum. Another awkward job was making the strengthening angles which follow the very curvy profile of the bunker back. To do this, we acquired two large horseshoe-shaped lengths of 8mm angle, rolled to a radius of 18 inches. These caused a lot of interest and puzzlement at the time amongst onlookers, because no-one could quite work out where we were going to fit them. In the event they were cut into lengths to fit the large-radius curve at the back of the bunker, and two lengths were then welded back to back to form the 'T' cross-section required for the strengthening angle. Similar lengths were cut to go either side of the central baffle, and in all cases they were then welded to flat sections of angle above and below.

Parts of the upper and lower longitudinal baffles and their locating angles

The flat angles above the curved sections weren't of course completely flat, as they had to include the far sharper radius at the top of the gently curved section, but these we were able to do ourselves with a certain amount of heat and much hammering.

Still to go on are the back and side handrails, the footsteps and the lamp brackets, but on 41xx's these are all welded on, so they won't be attached until the rest of the welding is completed. Also still to be welded in are the strengthening plates to which the heavy balance pipes between the bunker and the tanks are bolted, but these will be done at the same time as the tank ones once the tank bases are in place.

A couple of times I've threatened to work out how many holes we have drilled in the angles and sheets which make up the bunker, and I finally managed to find the time to do so – it came to the staggering total of 2,600, no less! That's not to say we need 2,600 rivets, as the rivets go through 2 or sometimes 3 holes, so we're looking at possibly 1000 plus. Angles have generally been drilled on the radial drill in Bewdley's machine shop, and holes in the steel sheets have generally been drilled through the angles using our magnetic drill – a fantastic piece of kit which has saved us a huge amount of time and hard work. The drill has proved to be very reliable, but we have in the process worn out one of the drill bits we use for our smaller 3/8" rivet holes. If anyone has got a good quality 13/32" Morse taper drill bit they don't require, we can make very good use of it on the tanks.

The tanks, then, are the next major item on the agenda, and we hope to complete them more quickly than the bunker, which was delayed somewhat by the change of tack en route when we were advised not to re-use a substantial chunk of the old bunker, and by the complex radiuses which Mr Churchward incorporated in its design. The tanks are more straightforward and will be built from all-new material from the outset. The plan is to build them off the loco on a flat base next to the Carriage and Wagon paint shop. The bunker was built in situ on the loco, but we believe this to be impossible for the tanks for three reasons – 1) the height off the ground of the running plate on which the tanks sit, both in terms of avoiding working at height and to avoid having to lift heavy steel sheets up and down when they're being worked on; 2) the close proximity of the boiler would make working on the inner sheets virtually impossible; and 3) work on the boiler and firebox cladding will be taking place simultaneously, and there would inevitably be conflicting access requirements.

The structurally-complete bunker on 6 Jan 2013, shortly after the bunker side was re-installed

Having said that, extreme care will have to be taken to ensure that the tanks line up precisely with the bunker and the cab roof, and sit absolutely flat on their supporting framework. The whole structure is interconnected and there's no scope for alignment error, either laterally or longitudinally. A lot of careful measurement will be required, and we're contemplating fabricating a 'virtual' cab roof made up of either wood or metal strip, with holes drilled to match those in the cab roof itself but having a fraction of the weight of the real thing. The outer angles at the base of the tanks will certainly need to be drilled on the loco, to ensure that the bolting down holes are in alignment with those in the supporting angle. The tanks are supported on a number of hefty steel brackets riveted to the main frames, and heavy L-shaped angles are riveted to the outer edges of these brackets. It is to these angles that the tanks are bolted down, there being no permanent attachment at all to the loco's main frames below the inner faces of the tanks. What then, you might ask, stops the tanks from falling off the loco sideways when subjected to lateral forces at points, curves etc. Don't panic – there's a very solid (4”x1/2”) flat steel 'hoop' which straddles the top of the boiler in front of the safety valve and is bolted to the top of both tanks to prevent any such movement. In addition, there's a well-hidden solid round bar which passes behind the firebox backhead cladding and links the left and right tanks at the cab end. We have already acquired the two tank bases, and all of the angles we'll need for constructing the tanks. The inside and outside angles which go along either side of the base of the tank sides have already been drilled (a mere 560 holes, out of the 1800 or so we reckon we'll need in total for the tanks!).

A new section of cladding for the valve chest. The upper edge has had to be cut, bent, welded and ground to produce the end result

These notes have concentrated heavily on the tanks and bunker, but a lot of other work has been going on in parallel. Alan Atkinson is doing a brilliant job of making the cladding which goes round the cylinders and valves, though during the coldest part of the winter he has had the good sense to adjourn to the warmth of the Fruit D and is fabricating the two 'swab boxes'. These are the frames which hold in place the felt pads which lubricate the piston rods, and are one of the few items for the loco we currently don't have. A number of other fittings we didn't have are being acquired in an exchange deal for some duplicated spares which we were able to dispose of. The items we're getting include a lubricator warming cock, and various adaptors and large nuts needed for attaching cab fittings to the steam fountain. The only cab fitting we're short of now is the steam heat elbow casting, a spare example of which has been located and should be acquired shortly. We are fortunate to have had Carl Jones helping us recently, applying his engineering skills to machining the casting for the coal watering cock.

A major item of expenditure this year has been the machining of the sight feed lubricator, now fully assembled and ready to fit, and looking magnificent. We've also had a new condensing coil made, complete with fittings – photos of both are above. Paul Mason has continued his excellent work on the pipework under the loco, having completed the new steam heat pipe apart from the section up into the cab, and being well advanced with the new vacuum pipe. We've recently placed an order for a set of new superheater elements. These will have cast Swindon-pattern 'bullet' ends, rather than the plain curved ends which have proved troublesome on some locos in the past. As these are boiler-related, they will be bought from the proceeds of the SVRA raffle – our first purchase from this source.

A final view of our old bunker en route to the scrapyard

We've continued to build on our stock of tools, having bought during the year a plasma cutter and compressor (half-share with Erlestoke Manor Fund), and a bargain price arc welder from none other than Aldi – the first time we've acquired anything from a supermarket! This is a heavy piece of kit, but much lighter and more portable than the old super-heavy SVR machine shop welder that we've had to use in the past. For welding of lighter gauge material, we're continuing to get sterling service from Dave Link's MIG welder. Terry Howes has designed and made an ingenious jig for cutting smooth radiuses (radii?) with the plasma cutter, a device which will be extremely useful for cutting the large holes in the many tank baffles. The SVR diesel groups at Kidderminster kindly gave us a Fobco pillar drill which is now set up in our Fruit D workshop. We had to buy a new motor for the drill, and are still looking for a suitable drill vice, but when fully operational it will be useful for drilling smaller holes, related to the cladding for example, and should save a lot of time spent trailing across to the machine shop – it's strange how whenever we have to go across there, there's a train approaching and we have to stop and end up chatting to someone or other at the crossing. Productivity should increase enormously!

41xx and 51xx on the Severn Valley line

Observations by Adrian Turley

41xx and 51xx prairies were regularly used between Kidderminster and Bewdley and Hartlebury to Bewdley from the late 1930s. Due to the line north of Bewdley being a yellow route the large prairies were restricted beyond Bewdley. During the war the restrictions were eased subject to a speed limit of 25 m.p.h.

Passenger services

Weekday workings:

The early morning trains from Bewdley to Birmingham Snow Hill departed at 7.30am and 8.00am these were both worked by Tyseley 41xx and 51xx prairies until they were replaced by the DMUs in the early 1960s.

The 8.15am from Shrewsbury to Birmingham Snow Hill via the SVR was worked alternatively by SALOP and STB. The return working was via Hartlebury (6.00pm) and the SVR.
From 1945 large prairies began to replace the 4-4-0s and 0-6-0s on this service. Regulars noted were:
4118, 5154 and 5168 SALOP - 4146, 4149, 5105, 5180 and 5191 STB
This arrangement lasted until about 1950 when it was worked daily by SALOP 2-6-2T, the return service being a 4.18pm from Kidderminster to Shrewsbury.

The 6.55am from Worcester to Shrewsbury and the return working to Hartlebury was regularly worked by WOS large prairies replacing the 45xx.
4114, 4139, 5173 and 8106

Specials to Stourport:

Special trains from Birmingham and Wolverhampton to Bewdley and Stourport were a regular feature of Bank Holiday Mondays, also on other days during the summer months. These were usually hauled by TYS or STB prairies sometimes loaded up to 12 coaches,
4150 STB was noted on specials from Birmingham to Stourport on 2nd August 1948, 24th July 1949 and 30th July 1952

On August Bank Holiday Monday 7th August 1950 the following were noted on specials to Stourport: 4100 KDR, 4116 TYS, 4165 STB, 4170 TYS, 4173 STB, 5101 STB, 5105 STB, 5107 STB, 5147 STB, 5152 TYS,5163 LMTN, 5175 TYS, 5180 STB and 5197 STB.

Sunday Workings:

Tyseley 41xx and 51xx were regular on the seasonal 7.30am fishermen's train from Birmingham Snow Hill to Bridgnorth.
Stourbridge 41xx and 51xx were used on the 8.00am Birmingham to Stourport train; presumably an engine change was made at Stourbridge Junction.
4150 had only arrived at Stourbridge new from Swindon a few days before when it was noted on this train on Sundays 22nd and 29th June 1947.
5182 TYS was noted on an additional fishermen's special to Arley on Sunday 2nd July 1949.

Goods train workings

9.50am Kidderminster to Build was goods and 12.30pm return.
Kidderminster prairies usually worked this train including 4100, 4114, 4129, 4147, 4153, 4175, 5151 and 5153.
After Kidderminster shed closed on 8th August 1964 and its remaining engines transferred to Stourbridge 41xx could still be seen on this working.
On Friday 28th August 1964, 4175 was involved in a fatal accident at Northwood Halt when it collided with a car on the crossing two of the car passengers were killed.

The Hartlebury to Shrewsbury goods was a KDR mogul turn, but when one was not available a 41xx prairie would be substituted.

Probably the last working of a 41xx on the full length of the line was 4114 KDR on Saturday 30th November 1963, it having worked the final 10.25am Hartlebury to Shrewsbury goods train.

Other local sightings of 4150

4150 was on a football special from Stourbridge to Kidderminster on 24th September 1949,
4150 was noted on pilot duties between Kidderminster and Blakedown during single line working on Sunday 22nd February 1949.

Progress on Cab Fittings by Dave Insull

Cab fittings are one of the last things needed to finish an engine. So why, you may ask, are these fittings being worked on now? To those who have looked on the footplate of a Western engine the fittings do not look much but believe me when I say that is not true. It is easy to look at them and not realise how many individual pieces go into creating just one, e.g. a brake ejector has approximately thirty individual parts. I mention this fitting in particular because it is one of the parts nearing completion.
We have drawings for the components taken from Great Western originals which are often difficult to read due to their detail. When you have spent time studying them they are not too bad to use, however they can still take a bit of time to get your head around even for a railway enthusiast! Once we have a drawing the details are on it of what the piece should be made from, if it is produced from bar material or casting, bronze or stainless steel, it is all listed. Then when it comes to the machining everyone has their own individual views on how best to machine the job and which machine is best to use. Setting up a machine can take anything from ten minutes to set up a small job in a lathe to a couple of hours to set up a casting on a machine (these being more complex). Then you have to set up the machine tools you are going to use (e.g. lathe tools, milling tools). Once a tool has been chosen it is necessary to consider the speed and feed you are going to use depending on the finishes or threads required for the piece. Some of this I have glossed over or cut down but this is the basic process.
As cuts are taken there is a need for measurements, using verniers and micrometers, galore. These are needed for taking the fine measurements necessary to follow drawings and ensure accuracy so all will fit precisely together at the end. When the cuts and measuring are finished and the job has been cleaned up you can finally try the components together. If measurements are correct they should all fit but it is always good when the pieces finally come together.
This is just what is involved in one piece and now you can see why we have started on the cab fittings already! They are now progressing well with several components underway in the machining process. The fact that we can no longer go to Swindon and just pick up new ones off the shelf makes progress slow but it is a great sense of achievement as pieces are completed. If anyone is interested to learn more please come along to Bewdley and speak to someone working on the engine.

The brake ejector and blower valve minus a couple of handles temporarily in position on the backhead during the SVR Autumn Gala Weekend.(High value items like these are not kept on site)