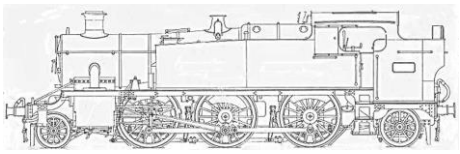
The 4150 Fund 2017 Newsletter



CHAIRMAN'S REPORT – Peter Maddicks

Well what a difference a year makes!

There is a new Manager—Neil Taylor—of the MPD at Bridgnorth. Within a few weeks of his arriving in office, we received an e-mail inviting us to visit Bridgnorth to discuss the future of 4150.

After a long and frank exchange of views, various proposals were put to us. It is very encouraging that Neil agrees that we need to build trust between the Fund and the Railway; he will be giving a talk to you all at our Annual General Meeting.

Work on the locomotive has been progressing well in the last year. Peter Willoughby has given some more detail in his report below, but the bunker is now 95 per cent complete, with coats of paint having been applied. The tanks are bolted together and we plan to complete their riveting later. John Whitcomb gives more details in his Engineering Report later in this newsletter.

On the financial side, we are progressing well but more will be needed in addition to the money we have spent on the locomotive over the years. I would like to pass on my thanks to my Committee for all their hard work, and to all the lads of the refurbishment team for the superb work that they put in. As an electrical man, not an engineer, I am always amazed at the work on 4150 that is carried out by the lads, in such very basic, less than ideal conditions— we do have some very skilled people working on her with us!

As you may be aware, meetings about the Locomotive Running Agreement have been going on for five years now, with little result. Your Committee is keeping a watchful eye on this and we hope to have real progress to report quite soon.

SECRETARY'S REPORT – Peter Willoughby

Welcome to our 2017 *Newsletter*. The restoration of our locomotive 4150 has now reached an exciting stage, and to celebrate this milestone the Committee has decided to send a printed copy of this publication to each of our 400 Shareholders. It will still be prepared in electronic form, readily available on request, and featured on the 4150 Fund website, minus the more confidential information. On 29th November we finally received written confirmation from the General Manager, Nick Ralls, that 4150 has a slot in the boiler shop at Bridgnorth in the last quarter of 2017; this has been confirmed by Neil Taylor, the new Manager of the Motive Power Depot there. Although a little later than originally planned, our small but perfectly-formed band of working volunteers has thus gained extra time to complete other important tasks, so the loco's first steaming date should not be delayed very much. The other positive thing to take on board is Neil's keenness to encourage volunteer input; this not only saves the Fund money but also brings the all-important re-steaming date that much closer. We are now able to plan the next and very significant stage of the restoration. It is intended to remove the boiler from the frames, and place it onto a wagon in late March so that prep work can begin. This will of course need a crane; while this is available the newly-fabricated tanks and bunker plus the cab roof will be lifted onto the frames so that work can continue to finish them. Once the boiler has been removed we can decide during April whether the prep work is carried out at Bewdley or Bridgnorth, because there will be a week of non-running at the end of that month - there are pros and cons either way. Weather and other factors permitting we may be able to complete the riveting of the tanks before the crane lift but this is by no means essential as they are bolted together and can still be craned into position on the frames; there is still plenty we can do to push the project on.

A date for your diary: it is hoped that on the morning of our 2018 AGM we can arrange a shareholders' visit to Bridgnorth Works, and perhaps meet some of those working on our boiler there. This is for Saturday 24th February 2018 (which will be 40 years since 4150 first arrived at the SVR). More about this nearer the time. After seven years as a Group we are no longer going to organise the *SVR Peep Behind the Scenes* event and it is now being taken over by the Charitable Trust, but we do still plan to have a presence on the day. The event has been very successful financially, and has helped raise the profile of our engine, tucked away as she is behind the Paint Shop at Bewdley - but not for much longer before she returns to steam. Many our shareholders have waited over forty years for this moment -Cinderella is finally going to the Ball!

Check your address label. If there is no letter 'e' after your surname on the address label on the envelope this *Newsletter* arrives in, it possibly means we do not have an email address for you—if you now have one please send me details. And please notify me of any change to your e-mail or postal address. pww1946@gmail.com
While I am on admin matters, those who already pay by Standing Order, or who set one up now, may like to know that we send out a Share Certificate at the end of March of each year showing the number of shares accrued in the previous 12 months.
As always, I would like to express thanks to all those contributing to this *Newsletter.*

Shareholder Trip One.

Shareholders' and Friends' events

Evening Social Special—Saturday 27 May 2017

For two years now we have run an evening special train which has proved very popular and enjoyable. We use three fine old Great Western toplight coaches, and provide suitable liquid refreshments (thanks in part to our shareholders and supporters at Bewdley Brewery). Such has been the success of this pleasant and enjoyable evening that we are repeating it for the third year running. It will depart from Kidderminster at 6.30 pm for a leisurely run up the valley with a short break at Bridgnorth for a visit to the Railwayman's Arms, or for the more energetic a quick walk to and from the local chip shop.
We will then run back to Kidderminster in time to make two connections with trains back to Stourbridge and to Birmingham. The cost of the tickets has been kept at £15 per head. Unlike the brakevan trips (*see below*) there is plenty of room, so friends and family are all welcome.
Bookings and tickets can be obtained in the usual way from the team at the engine or email Dave McFall at davidmcfall@blueyonder.co.uk. Also from Dave Adams via the Erlestoke Manor fund shop at Bewdley.

Shareholders and Friends Trip Two.

Shareholder-only event

Brakevan trip Saturday 26 August 2017

Over the last couple of years, we have been developing some events designed to be a bit different and enjoyable.
We started our specials with a brakevan trip, which has now become an annual event. This year it will again be steam-hauled, at a time to be confirmed.
Due to limited space these trips are restricted to shareholders, who may bring only one guest each.

A marvellous experience
These trips really are a great way to experience the line and to view the countryside in a totally different way. We run them on a busy Saturday so that we pass and see several service and other trains at each station. We would like to put on record the excellent support from the SVR which gives us every assistance in the organisation and running of these trips.
Once again bookings and tickets can be obtained in the usual way from the team at the engine or email Dave McFall at davidmcfall@blueyonder.co.uk. Also from Dave Adams via the Erlestoke Manor fund shop at Bewdley.

A new recruit's story
Peter Dodson

I have visited Bewdley whenever the SVR has had an Open Day, to have a look at the work that has been going on in getting Large Prairie 4150 back into steam. I was impressed by what had been achieved in building the new bunker and side tanks, and by the other tasks that were being undertaken.

Now my Saturdays and Sundays are taken up with other interests, but I have most Mondays free. Talking to the regulars of the team it seemed possible that I could give some help on that day, and so my work there started about twelve months ago. I have been helping with completing the side tanks, in preparation for riveting and final assembly. The most time-consuming task so far has been enlarging the rivet holes to 11 mm (to take metric rivets) and in helping with the riveting itself. There are a few more rivets to be installed, which should be very shortly. This will finish that kind of work on the Bunker and Side tanks. I have been promoted (if you want to call it that!) to working on the banding for the outer cover plates of the boiler. This task is becoming important; it needs to be completed before the boiler is lifted out of its frames. The boiler lifting could take place as soon as March, so there is not much time.

Going back to doing real 'work', rather than leaning on the proverbial shovel and telling others what to do, has been quite an awakening. It has tested my memory cells - which are rusty; I'm going back fifty years (now that's telling you how old I am) and my hands are not as work-hardened as they used to be, but they are getting there. So far, I have enjoyed my Mondays and other occasional days, and it is very satisfying to see all the work that has been completed. We can see the day soon when 4150 will be hauling trains train on the Severn Valley line again. I must give credit to the team members whom I meet. I am naming just a few of the regular volunteers but I must give credit to John W (your Hon Treasurer) and to Dave Mc F. These two are the driving forces; there is also Dave L who welds anything to anything, and Steve who keeps polishing and undercoating various things, and who makes a superb cup of tea! If you want to get involved, do please come along to Bewdley, we are there most Mondays. You will be welcome, and you'll have the satisfaction of knowing that you helped with the restoration of 4150 and will feel great when you see her running along the valley.

A photo taken at Bewdley in early 2017. 4150's new left hand side tank soon to be mounted on the frames.

4150 benefits from a Spycam!

Peter Maddicks

As 4150 has not moved for a few years, it was thought that it might be a good idea to check if any nuts, bolts or other debris had got into the steam passages. This was due to the hard-won experience of another group on the SVR, whose engine had an expensive disaster many years ago. When the loco was moved after a long refurbishment, an old nut and bolt was lying in one of the cylinders. As the piston came to that end of the cylinder, there was nowhere for the unwanted loose item to go and it smashed the cover right off!

Technology comes to the rescue

Our first thought was that we'd have to strip down all the valves and pistons to look inside, but having put it all together, this seemed like a lot of work for possibly no gain. But then modern technology came to the rescue. After some thought, I hired a 'cavity wall camera'. This clever little device was put in through the fixing holes for the drain cocks, the pressure relief valves, the exhaust steam passages and the main steam pipes. No nuts or bolts were found, but in the right rear exhaust steam passage there was a slidebar packing plate. It was a good job this packer was found even though it's impossible for it to make its way into the valves and pistons. The worst that could have happened is that it could have been blown up the chimney by the exhaust steam.

Two fascinating photos taken with the spycam hired to look deep inside some of 4150's steam spaces the photograph above shows one of the empty steam chests, while the one on the left shows the slidebar packing plate which had strayed into the right rear exhaust steam passage, with a shiny 20p piece on it to show its size, photographed after being removed from where it should not have been.

Engineering report

John Whitcomb

The first task in the last twelve months was completion of the riveting of the new bunker, principally attaching the front sheet and the tool box shelf to the sections previously riveted. Prior to this, the bunker had been a three-sided open box, with easy access in and out. Putting the front on changed all that, giving us a closed box with access for riveting becoming considerably more difficult. Before the front went back on, we took advantage of the easy access to weld the base angles and strengthening plates into place, and whilst this made the welding much easier, we did find afterwards that the bunker front was somewhat more reluctant to bolt back into position than it had been before. Holes for the rivets in the bunker front had all been drilled previously, and with only a nominal one-third of a millimetre clearance around the bolt in each hole, everything did end up in the right place, but this time only after a certain amount of persuasion! Clearly a small measure of distortion had been caused by the welding, and we made a mental note to try and ensure that any future welding is done with as much as possible of the structure already securely bolted in position. Following that principle, we have prepared the bunker's lower coal plates/ shovelling plate for welding, including holes for plug welds where the plates sit on the vertical baffles, but these will not be finally welded until the bunker is bolted down on the loco frames.

At least we should avoid the problems encountered on another preserved loco, when a new bunker made for it off-site arrived back solidly welded, but sitting far from flat on the frames when craned into position - something to be avoided at all costs! What is reassuring for us is that all the holes for rivets were drilled before any welding was attempted, with the bunker in position on the loco frames, so provided the rivets go into the right holes, the bunker should remain square and level. We'll soon know! New solid handrails were welded onto the bunker back and sides, the old ones being bent in places and heavily corroded, and with five additional coats of green paint culminating in 'half and half' undercoat and top coat, the bunker has begun to really look the part,
as seen below.

Pleased with the way the bunker had turned out, we turned our attention to the tanks. These were assembled under our improvised shelter next to the loco, and far too close to neighbouring houses for us to contemplate doing any noisy riveting. We were however keen to keep up the riveting momentum, and decided that one part of the tanks which could be riveted were their bases. Anything more would create a structure which would rapidly become very heavy and unmanageable, but we were able to move the bases one by one up to the goods shed adjacent to the bunker, then set them up at an ideal waist - height, and rivet the inner and outer angles onto them. Quite a number of these rivets had to be countersunk, in places where they sit on the tank supporting brackets attached to the mainframes.

Below: Riveting the bunker front sheet

Careful measurement was needed to ensure the right ones were countersunk.

Dismantling the tanks, after a lot of work fabricating and drilling them, must have made it look as though we were going backwards, but it gave us the opportunity to turn over the tank bases in order to weld in place and drill the heavy strengthening plates for both the tank-to-bunker balance pipes and the vertical through pipe for the water feed up to the boiler. The strengthening plates (only slightly less heavy) for the balance pipe near the front of the loco, which allows water to flow across between the side tanks were also welded onto the tanks' inner side

sheets. Still to be completed is the riveting of the outer side sheets to their top and bottom longitudinal angles, and to the vertical baffle angles, and also the 10.5 inch wide 'box sections' where the tanks extend into the cab. Most new-build tanks seem to have been welded in this latter area, but we concluded that we really ought to drill and rivet it, as we're trying to achieve the maximum degree of authenticity.
Below: *Setting up the magnetic drill for countersinking the right - hand tank base*

As with the bunker, the strategy is to rivet all parts of the tanks which will be visible, and to weld those parts which won't be seen when the tanks are on the loco. The bunker front in the cab is riveted, as it should be—so, we thought, it would be a shame if the tanks didn't match it! The riveting will certainly be tricky, involving the use of jammers, but we hope we won't end up regretting our decision too much, and that it will all be worth it for the end result. Again, time will tell! The rivets on the outside side sheets, on the other hand, should be much more straightforward, as the inner side sheets (to be welded later) can be removed to provide easy access. At a rough count, we've so far put in 2,000 rivets altogether, with about another 1,000 still to go. Cladding has been the other area we have concentrated on in the last twelve months, with a lot of work going into the difficult valve and cylinder end-cover cladding,

Below: *Tricky welding of flanges onto the cylinder end-cover cladding*

most of it having to be made new, and involving some ingenious methods of forming tight radiuses round the edge of the flat sections, to which flanges could be welded. Imagine a series of saucepans of varying depths, some with very large diameters, and you'll get the picture. Equally challenging is the cladding around the steam pipes between the valve chest and the smokebox, which is fabricated in four sections which must match exactly the angle of the steam pipes to the running plate and the radius of the smokebox. At least the steam pipes themselves are straight—just as well we're not making cladding for a Castle or a King, with its 'swan-neck' curves!

Numerous other jobs have been tackled and ticked off the 'to do' list during the year, including new handrails on both sides of the smokebox, *shown below,* although we were fortunate in being able to rescue the very awkward curved sections round the front by means of some judicious welding. The old chimney was removed amid showers of rust and soot, and although the casting is cracked, it might someday make a very attractive garden feature (or even a lounge feature if you could get permission!). When we get more time, we might restore it to a presentable state and invite bids. If you might be interested in bidding, please let Peter Willoughby know. Our new chimney and blower ring remain at Bridgnorth of course, awaiting arrival of the boiler.

A new water valve operating rod has been made, with just the top bearing still to be machined. Our new casting for the steam heat elbow which mounts on the steam fountain has been machined and is ready to fit. Castings were acquired for the steam heat valves mounted on the front and rear buffer beams, the rear one incorporating a safety valve for which the internal fittings have been machined. Machining of the bodies should take place shortly. We also now have a full set of six cylinder drain cocks, fully machined and complete with tailpipes (one is shown below). We recently took the opportunity to purchase 4150's original vacuum pump operating arm, which was no doubt removed at Barry as a spare for another loco. With one already fitted, we may not use the new one initially, but we will certainly store it carefully for future use. The engine hasn't moved for several years, so considerable effort in the summer went into lifting parts of the loco for inspection of the axlebox bearings and journals. Everything was found to be in good order, and the boxes were fitted with new oil filler pipes allowing easier access than the originals. The pony truck and radial truck wheelsets were able to be rotated in situ, though only after the command 'turn clockwise' was changed to 'right wheel clockwise, left wheel anti-clockwise'!

At the cab end of the loco, the top firehole door slider was welded and machined to reinstate the groove into which the cladding fits, which had broken away over much of its length. A couple of new sections were made for the backhead cladding, and the fixings for all of the cladding were overhauled, involving re-tapping and the welding on of caged nuts where necessary. A new strengthening plate to which the safety valve bonnet will be attached has been rolled and fitted to the crinolines which are now in place over the firebox and most of the boiler barrel, and a start has been made on fitting the boiler and firebox cladding sheets. Two of the four firebox side sheets (*photo on the left*) have been rolled, the heavy gauge sheet for the top of the firebox cut to shape, and the boiler bands are in an advanced state of manufacture. The sheets for the boiler barrel are already shaped and rolled, but not yet fitted—a certain amount of plasma cutting will be required to fit them around the motion brackets and safety valve. Preliminary work is under way on the means of locating the cab roof correctly on the tanks and bunker. Alignment here is critical, with any imperfection being glaringly obvious in the form of gaps and offsets in the beading which surrounds the cab area. Another challenge!

Our grateful thanks to all who have worked on 4150 during the year, and to those who have supported us financially, without which the work couldn't go ahead. And with the boiler repair getting closer, we can't miss this opportunity to ask you all to consider increasing your shareholding if at all possible – we're now not that far away from steaming!