

Sussex Miniature Locomotive Society Ltd

Issue No. 446
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BEECH HURST NEWS



Cover picture: -

Before: A week or two before work commences on the clubhouse roof, the photo above depicts the building as of now and by the time the October newsletter is due I should have an 'after' photo!

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Editor's Notes

Now in mid-September, and currently enjoying a few days of 'Indian Summer', meteorological autumn has begun and the Equinox is just around the corner. I hope all members are keeping well and with a careful approach we can hopefully ride out any second wave of Covid-19, while maintaining a degree of social freedom but most importantly making sure the vulnerable stay safe and well.

Normally at this point of the year we could look back on reflection as another operating season draws to a close, but not during 2020 – a season written off by a virus that will be talked about for generations to come. Despite all the disruption, stories of achievement continue to shine through and in the model engineering world there must be many busy workshops. I know of at least a dozen where a considerable amount of work has been undertaken during the past six months, mine included. I will review some of my projects in the December or February editions but for now I am indebted to Roy P for supplying me with a detailed two-part update on his 'Standard Class 3' project, part-one of which can be found later in this edition. I had hoped to include an update regarding the planned re-roofing of the clubhouse but this has been pushed back to later this month, so I will duly update members when the October edition lands. In the meantime I would like to express my thanks to Mike W for continuing to produce the weekly 'Wharfedale News', which last week reached a milestone 25th 'Silver Jubilee' edition. This publication is another achievement to shine through, amongst the many others!

From the June edition of Beech Hurst News I would like to thank Steve T for providing the interesting articles about the history and development of our signalling system as well as his offer of information from the archives.

This edition contains the aforementioned article by Roy P, as well as an update on the preparatory work for the re-roofing. In addition, there are the usual writings and the Diary which is largely unchanged from June with further details of future dates to be released based on government guidelines during the coming months. In the meantime stay safe and well, and keep those workshops busy!

Andrew B

Chairman's Notes

Dear all, having just collated the 25th edition of the 'Wharfedale News' you will be up to date with most of the club news. I guess we had all hoped that Covid-19 would slowly go away but it is looking as if we are heading for another lockdown for vulnerable people.

I did manage to get up to the clubhouse today (Monday) and meet some of the working team on what was a glorious day to be out in the open. We sadly appear to be way off reopening the club at the moment but we will continually watch the changes in the government guidelines with the intention of opening as soon as conditions allow.

A limited number of you have taken up the offer of having a run and that is still possible although it will be limited during the re-roofing of the clubhouse. So give Andrew Strongitharm a call if you want to have a fun run.

The place is ready for the roofers and if you have a loco stored in the club engine shed you will have received a communication from Andrew Strongitharm about the security in place during this operation, reminding you that the club insurance does not cover theft of your locomotive on site and that you may need to check your personal locomotive insurance does cover your locomotive during this time. Alternatively, arrangements can be made to remove your loco from the site.

Moving on other projects in the club is difficult at this time but we are still aiming to hold virtual committee meetings when decisions requiring committee approval have to be made.

Ideas for our 70th birthday celebrations have started to be created by the birthday sub-committee but as of yet have not been costed and finalised for submission to the committee for approval. We have written to MSDC seeking permission to erect a marquee for displays and to find out what else they will allow us to do in the park before we finalise our proposals.

We now have a massive amount of our history on computer thanks to Steve Turner busying away in the background and I would like to see that data made available to all of our members. It includes copies of many photographs of us all. I am in discussion with Steve to see how best we could achieve this.

Many thanks to Graham Miller, Adam Cro, Nick Edwards, Dan Evans, Andrew Strongitharm & Marc Fenner for the hard work clearing the roof and Mike Porter, Graham Miller, Dave Mattingley, Andrew Strongitharm, Roy Preston, Sam Hope, Mick Robinson & John Green for continuing to offer their gardening services to maintain the site.

Thanks to Tom, Andrew Strongitharm & Andrew Brock for continuing to maintain the security patrols.

In the meantime I will continue to produce the weekly 'Wharfedale News' but I am hopeful I will not have to collate the 'Golden Anniversary' issue! If you would like to receive a copy of the electronic weekly 'Wharfedale News' then please let us know your email address and we will add you to the circulation.

Stay safe...

Mike W

Summer Work – By Andrew B

Since the June edition, the regular gardening team have been keeping the grounds in good shape and thanks again to those members listed above in Mike's Chairman's Notes for their continued efforts.

In addition, and in recent weeks, Roy P has also undertaken a small amount of track work on the gardening days.

With the re-roofing work pencilled in for late August (now circa. late September), two teams cleared the loft during mid-August with some of the contents now in the snug area of the clubroom and most filling the two workshops. It is amazing how much has come down and how little is left up (**see photos next page**)! Thanks again through these pages to those members mentioned in Mike's Chairman's Notes for their time to clear the loft and I am sure the joists are breathing a much needed sigh of relief with that amount weight off their minds!

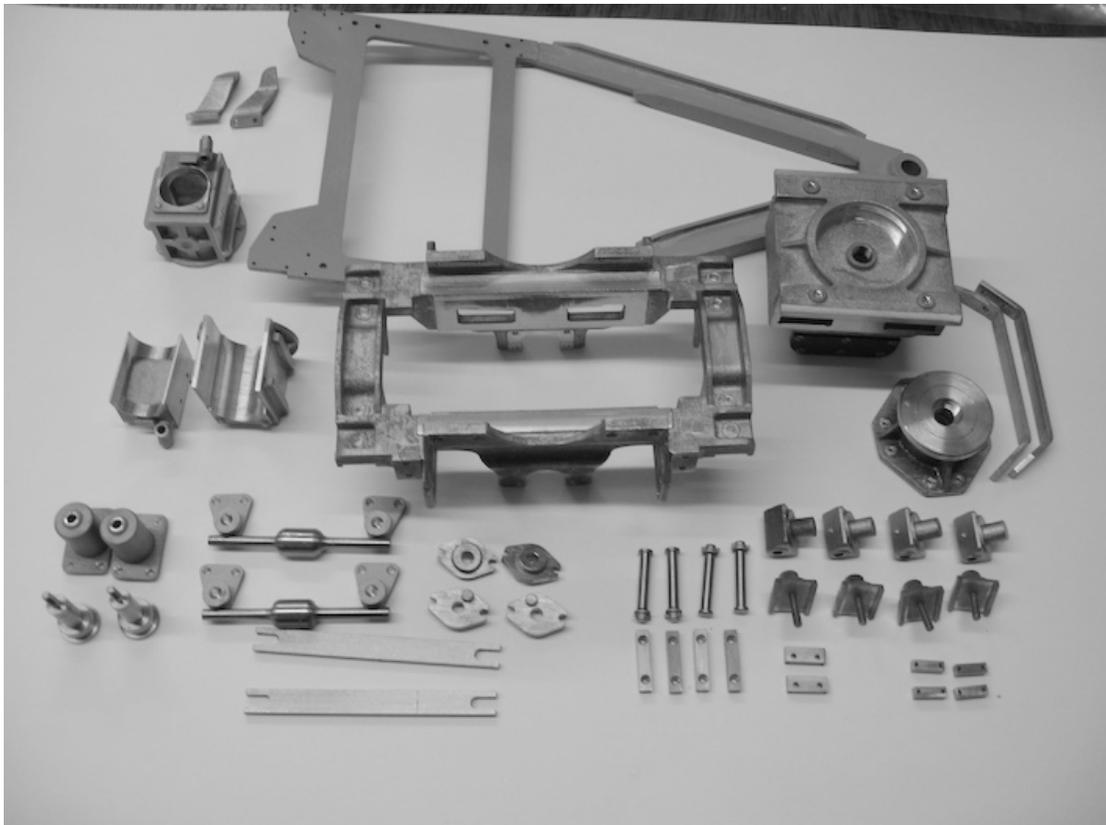


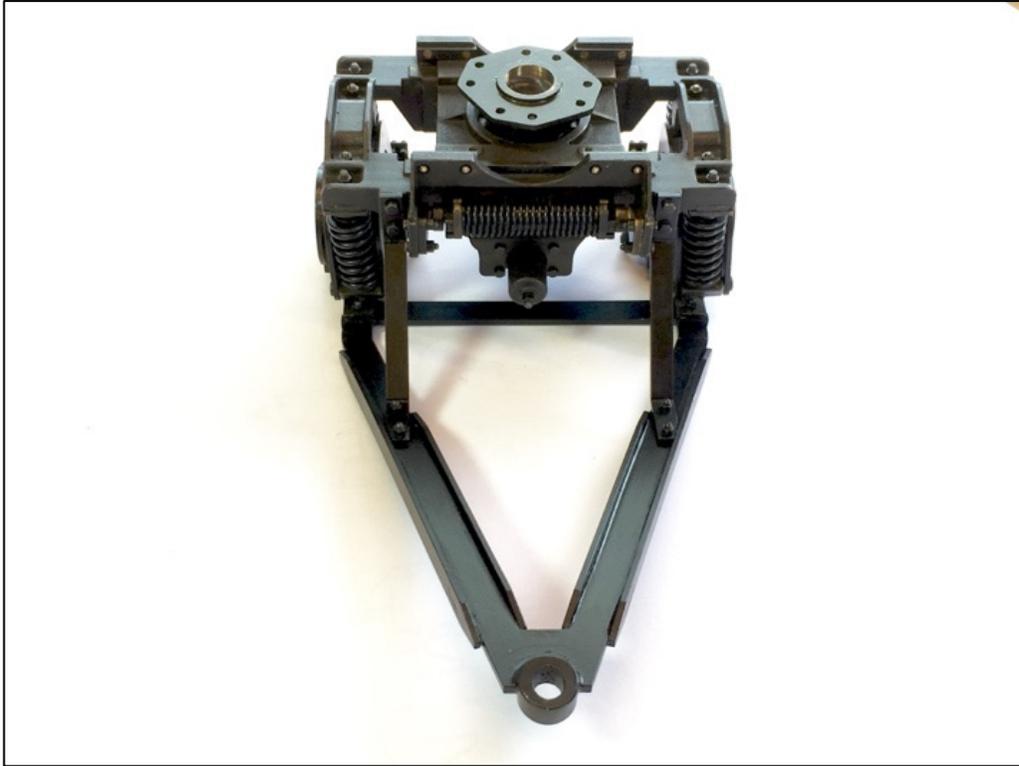
A Summary of Progress on the BR Standard Class 3 2-6-2T Project

Part 1

As many of you know, I have been working for some time with Mike Jack from New Zealand building what is effectively the prototype 5" gauge model to his design of the BR Class 3 2-6-2 tank locomotive to as close to true scale as possible. This is a summary of progress to date. Ben Lyons of GL5 fame is also making one to Mike's drawings although he is not quite as advanced as I am.

My first involvement with the project was to do some calculations to ensure key dimensions were suitable for a practical running model locomotive and since then I have undertaken other calculations where necessary. The initial build activity was to construct the two pony trucks. The **photo below** shows the components for the front pony truck, excluding wheels and axle. Machining the central frame was difficult because of its slender construction. All of these, and many of the castings made by Mike, are in silicon bronze which is a tough, difficult to machine material requiring carbide cutting tools. The **photo next page top** shows the finished front pony truck without wheels and axle. Sideways springing is achieved with side control springs whereas the **photo next page bottom** shows the rear pony truck fitted with its wheels and has proper swing links as per the full size locomotive. For both pony trucks, the axles were machined to be a nice light push fit in the wheels and a central portion machined with a rough surface 0.1mm deep to act as a key for Loctite. Springing is as per full size with an inner light spring and outer strong spring.





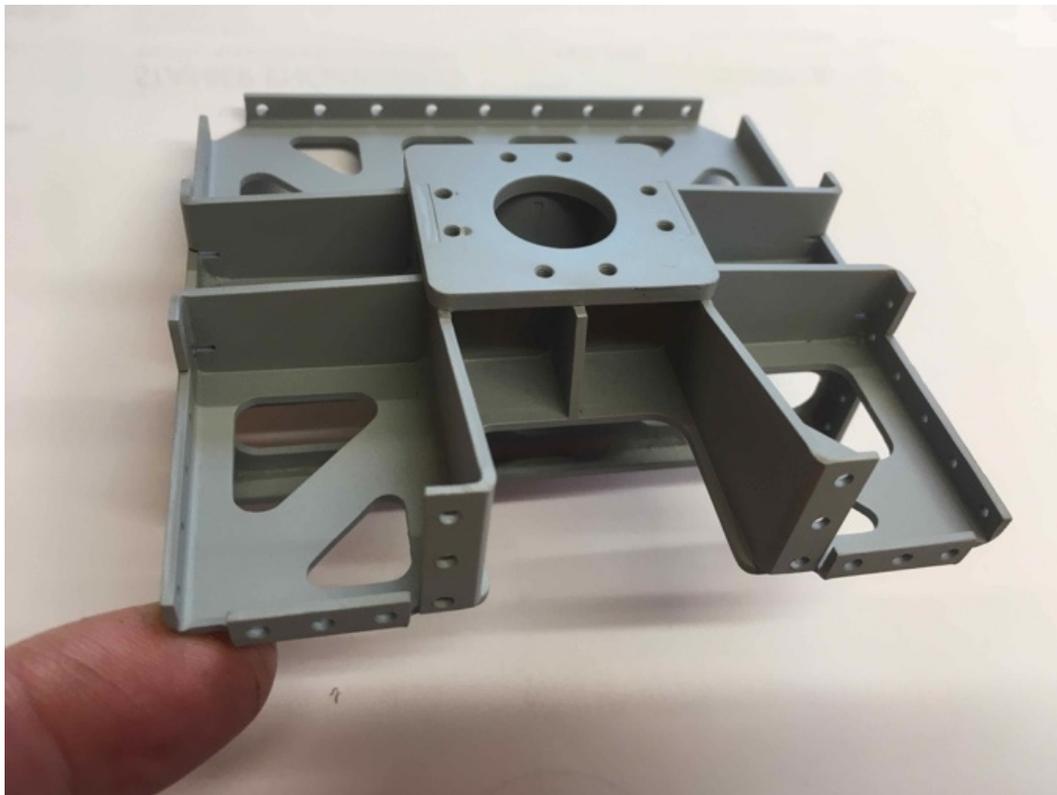
One of the first components made for the frames were the buffers. Mike provided a casting of the stock and the rest was made from mild steel including a special spanner for the castellated locking ring (see photos next page top & bottom).



The frames had a series of horizontal and vertical stays together with both front and rear (drag) box stays which provided the central pivot for the pony trucks.

All stays were provided by Mike as laser cut steel sheets with tabs and slots for assembly, all of which had to be carefully cleaned up and fettled to obtain a nice push fit. The tricky next stage was to bend many of the edges through 90° along bend lines that then allowed for all the bent faces to be machined by about 0.2mm on each face. This was to square the sides and correct the width dimension to better than 0.05mm (0.002"). For the bending, I made up two dowelled bending bars from 1" by 2" steel bar with radius corners and calculated the amount the plates should protrude and clamped in the bars, using slip gauges to get the protrusion correct. This worked incredibly well and I loaned the bars to Ben Lyons so he could do the same. Once the stays were assembled and the dimensions checked against the drawings, they could be silver soldered. Whilst they could be soldered using a torch there is a danger of deformation, so I used a small electric furnace. With 'Tenacity 5' flux, which is long lasting and applying the flux and embedding 0.6mm diameter silver solder wire along the joints they were left overnight for the flux to dry. On the following day, they were put in the oven and left for about 8 minutes after the set temperature was reached. For the front and drag box stays, I used a two-stage process. The vertical ribs were soldered with a high temperature silver solder and then cleaned up and attached to the main horizontal plates for the remainder of the soldering. This furnace technique produced soldered joints that needed no cleaning except for sand blasting in readiness for primer paint. After soldering and sand blasting, the outer edges were machined and the bolt holes accurately drilled.

The first photo (**see below**) shows the front main stay and the second photo (**see next page top**) a number of other stays associated with the buffer + drag beams.





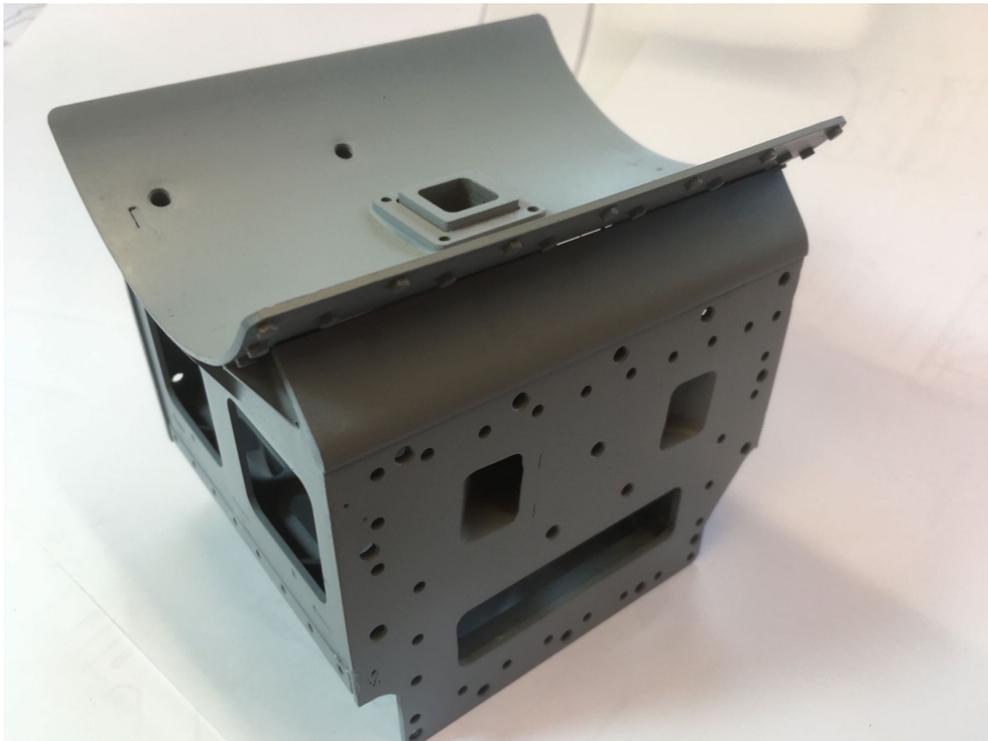
The third photo (**see below**) is the rear drag box and the other horizontal stays.



The fourth photo (**see below top**) are the vertical stays and running board supports before being primed, showing the clean silver soldered joints.

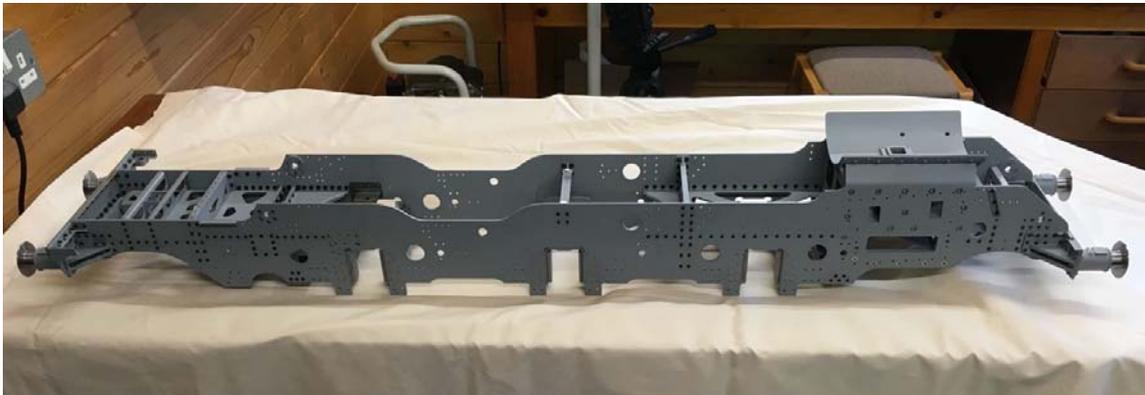


One rather more complicated stay is the smokebox saddle (**see photo below**).



Although not obvious, in the centre of the saddle is a complex exhaust chamber casting funnelling the two exhausts from each cylinder into a central chamber and then to the vertical outlet as shown by the square hole in the top. The whole assembly was very rigid with tight tabs and slots. Rather than risk distortion trying to silver solder this assembly, I welded the outside tabs that face the frames and soft soldered triangular fillets against the underside of the curved top plate because, unlike all the rest, these fillets are not locked in place. The sides were then machined to the frame spacing with a top register for the top of the frames and all the bolt and stud holes machined for the cylinders and the stretchers. What was very pleasing was that it fitted perfectly in the frames with all the bolt holes lining up with the frame holes and stretcher holes, a great credit to the accuracy of Mike's excellent drawings.

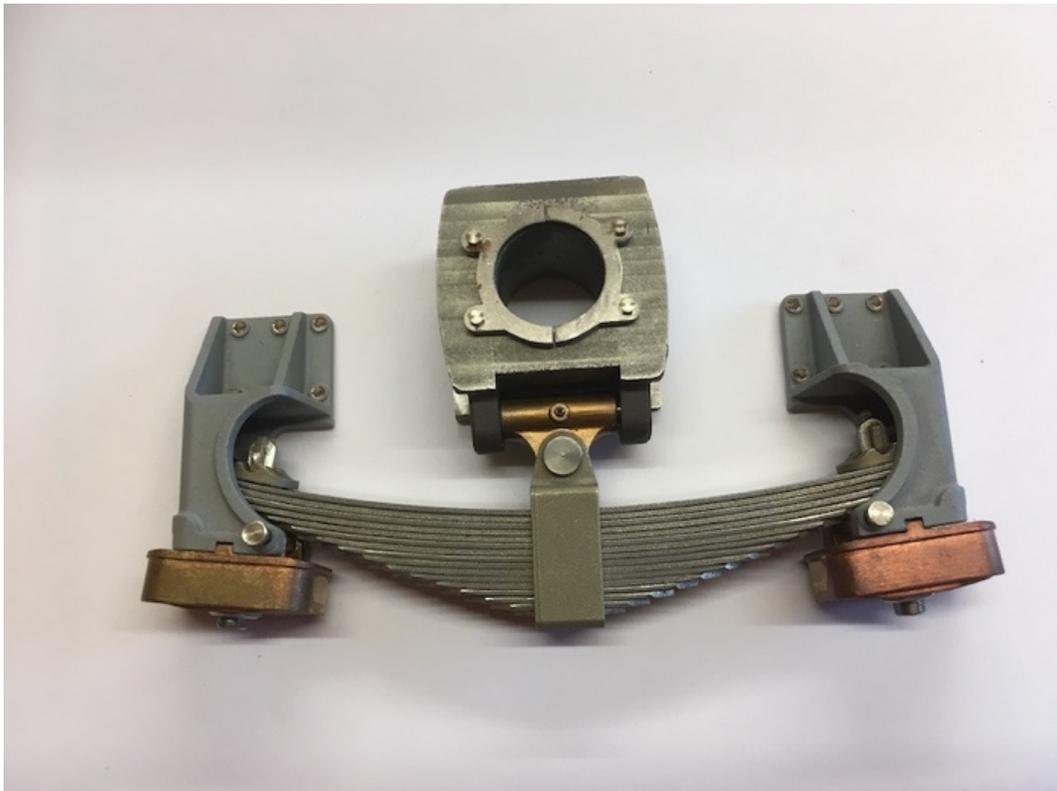
The frames were also laser cut requiring most holes to be opened to the correct diameter and edges to be machined together with the cut-outs for the horns. Overall, for each frame there are about 400 small holes of which about 330 are simulated with specially made rivet head slot-less screws holding everything in place. There are an additional 60 for each buffer beam and 120 bolting the stays together making a total of about 570. These are all 8BA with nuts on the inside. Whilst the full size was all riveted, both Ben Lyons and myself felt we preferred to be able to take it apart although with this large number of screws, and some nuts in very difficult places to access, it is not a nice job to have to take it all apart! The photo (**see below**) shows the frames with the smokebox saddle and all the stays in place.



After the frames were completed, the horns were machined to fit and attached to the frame using special tapered fitted bolts and nuts as per full size practice. The only additions are split locking washers. The photo (**next page top**) shows the axlebox horns attached to the frames. The frames were bolted together and the horns machined to take the axleboxes using a test block to achieve accurate fitting. The axleboxes were then machined from cast iron castings as split axleboxes.



The axlebox suspensions were then made including working leaf springs (see photo below and further description next page top).



After some initial trials and minor modifications, working leaf springs using tempered steel plate were made by Mike Jack. They have the correct number of leaves and correct external dimensions and curvature. Normally, such springs would be far too stiff for a model. The correct and appropriate spring rate was mainly achieved by laser cutting a central rectangular slot each side of the centre buckle area. The photo (**previous page bottom**) is one of the finished split cast iron axleboxes, leaf springs, hangers and rubber dampers. The retainer shown on the axlebox will be used to house a 1mm section 'O' ring as a dirt seal. Apart from the plate stays, there are 7 cross stays and pins associated with the frame horns, one between the toe of each horn and one above the central axlebox (**see photo below**).



To be continued...

Roy P

Work in Progress – By Andrew B

Since the last edition, my daily visits to the workshop have continued with some pretty long days spent either machining, fitting, painting or a bit of each! Because of the time spent, I have been moving between various projects to keep my enthusiasm going and this has been helped in no small way by my neighbours or the numerous passers-by who live on the estate stopping to have a catch up and finding out what I am working on. This social element has really been a god send!

The new regulator for 'Railmotor' has been finished, fitted and steam tested. Although not 100% perfect it is an improvement on the 'Stroudley' type original. **(See picture below:** The new regulator for 'Railmotor'...). Painting of other components continues and with the 'Indian Summer' heat wave of this week I am going hell for leather to prime and paint as much as time and my body will allow! In between continuing my own projects I have also undertaken a number of small commission jobs for other members to keep their own projects rolling...



Forthcoming (including 2021) & Diary of Events – By Andrew B

With the continued Covid-19 restrictions **our club activities remain suspended** and the committee will keep members abreast of developments.

At the time of writing the next Diary item is April 2021, however future dates in 2020 or early 2021 may be added subject to government guidelines at the time.

As of Wednesday, the organisers of the London Model Engineering Exhibition at Alexandra Palace in January 2021 have sensibly cancelled the show due to the ongoing uncertainties surrounding Covid-19 and their responsibility to keep all attendees safe. They have already pencilled January 2022 in the diary and fingers crossed will go ahead as planned...

3rd – 5th April 2021 – Easter Bunny Competition – Details TBC

2nd May 2021 – Under 30's Day – Details TBC

29th – 31st May 2021 – 70th Anniversary Gala Weekend – Details TBC

19th June 2021 – Open Day & Mid-Summer 'Bring Your Own' BBQ – Details TBC

9th – 10th July 2021 – 24-hour Run – Details TBC

7th August 2021 – Teddy Bears Picnic – Details TBC

28th August 2021 – Double Heading & 'Bring Your Own' BBQ – Details TBC

25th September 2021 – Late Evening Run – Details TBC

NB. Certain events may be organised at short notice and will not therefore appear in the newsletter. Please check white / notice boards in the clubhouse for details of such events.