TSMEE

TYNESIDE SOCIETY of MODEL & EXPERIMENTAL ENGINEERS LTD
Headquarters & Multigauge Track at Exhibition Park, Newcastle upon Tyne

TSMEE BULLETIN No.4 June 2020

LOCKDOWN SPECIAL III - KEEP CALM AND STAY POSITIVE

Preamble

While HM Government takes some tentative steps to get the country moving again, the problem of contagion remains. This core issue will colour the way we interact with each other for some time to come. Enclosed spaces are particularly difficult environments for managing social distancing and so, for the time being, TSMEE remains closed.

In due course, and at an appropriate time, the Committee will put measures in place for compliance with social distancing rules so that some activities can re-commence. Sadly that time is yet to come.

In the meanwhile, here's another good read for you.

People

A very warm welcome is extended to Robin Hedley and Adrian Morley who joined us recently. They are also both members of the Beamish Model Engineering Group.

Adrian Morley and Stu Davidson with a brace of "Wrens" at Beamish

Club Matters

Grounds Covid-19 has not stopped the grass growing, nor has it got other important tasks done. Ian Spencer, Dave Nesbitt & Jim Scott are co-ordinating maintenance visits to the site. A special Risk Assessment is in place for these very limited activities. This is NOT to be seen as a partial re-opening, so Members must please not presume they can start turning up again.

Club Sign Peter Newby reports ..

Just an update on the sign. I have had some correspondence with John Mills - the delay is that he is trying to get the stainless at a sensible price. I have put him onto M-Machine - maybe they can do something. He intends doing a mild steel test piece first and it will be part of a Sunday Night Night-Cap so that should be interesting.

The video is here https://www.youtube.com/watch?v=A9kx70i7c7A , 4 minutes 57 seconds in if you don't want to watch the whole thing.

AGM

Because of the lockdown, the 2020 AGM was held on-line and by post. Closing date for voting was 5th June. Thirty-five voting papers were returned. The proceedings are thus deemed to be quorate. The outcome is as follows …

Committee

Chairman – Peter Newby, Treasurer – Ian Spencer, Secretary – Linda Nicholls, Site Managers (Joint Posts) – John Lazzari & Norman Blacklock, Workshop Manager – Steve Lowe, Programme Manager – Malcolm Phillips, Lay Members – Brian Benton, Stu Davidson, Robin Evans, Brian Nicholls, John Rowley.

In support

Newsletter Editor – Mike Maguire, Webmaster – John Rowley, Librarian – Stu Davidson, Assistant Librarian – Helen Yeeles, Accounts Examiners – Diana Blackburn & Peter Dawes.

Member's Doings

Many Members will know about and have seen Mick Jordison's K1 Garratt. Here he tells us a bit about his experience with painting it …

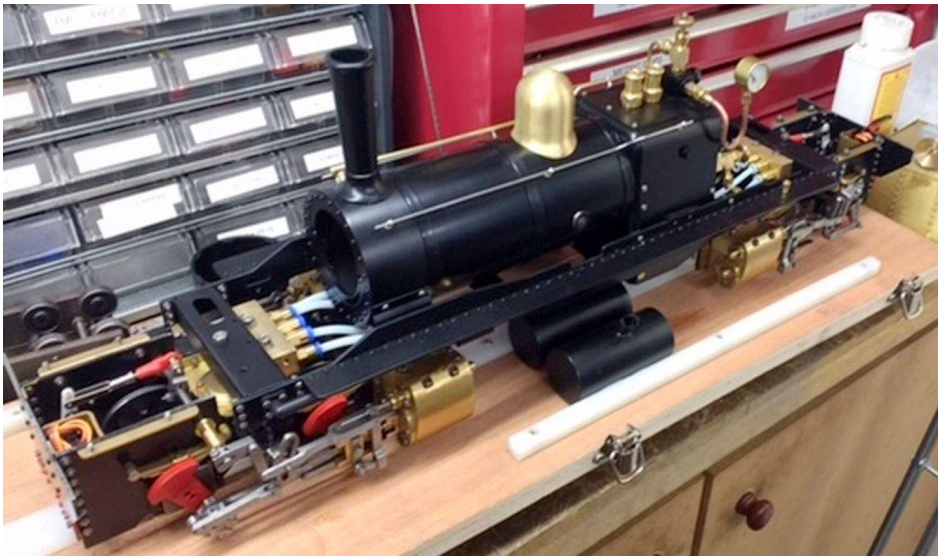
It's painting time again and it's my worst nightmare. I have always ended up basically spoiling my projects with painting. This time I assumed it would be more of the same.

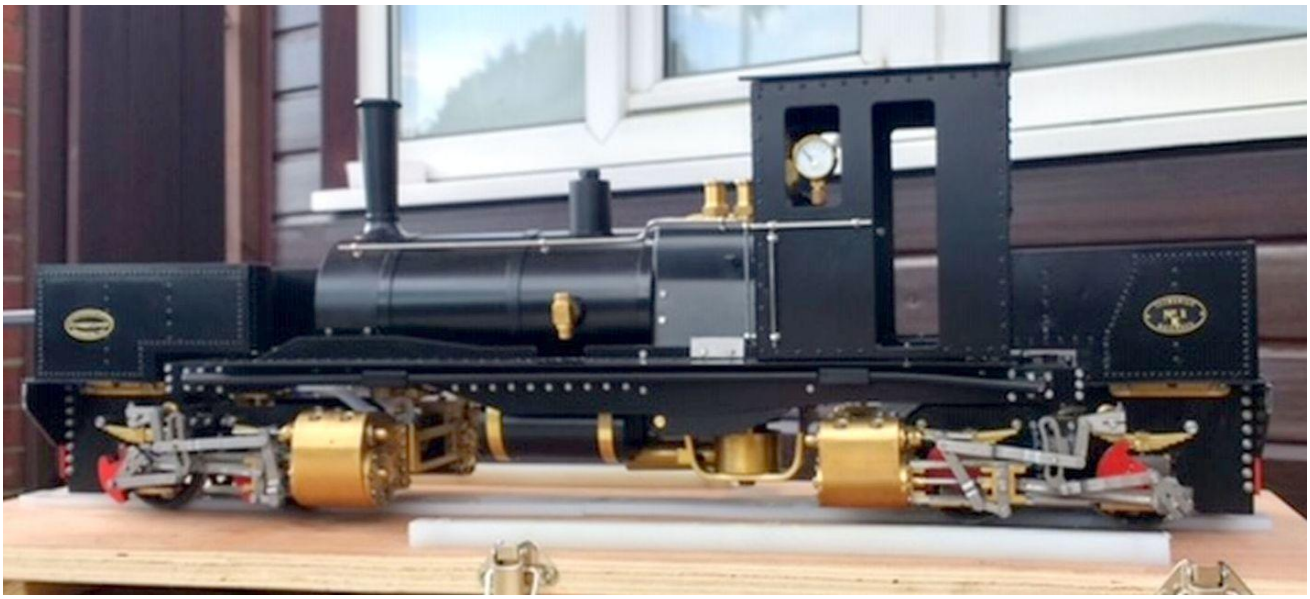
I get my supplies from Auto Panels in Birtley, I tried to buy some cellulose thinners but they said "no - use acetone" and this changed everything. When I started it was painting as usual - a total disaster, and it went from bad to worse, a total mess.

I remember Ian Spencer saying you can take the paint off with cellulose thinners so I put the parts into acetone, brushed them clean and 30 seconds later I was painting them again.

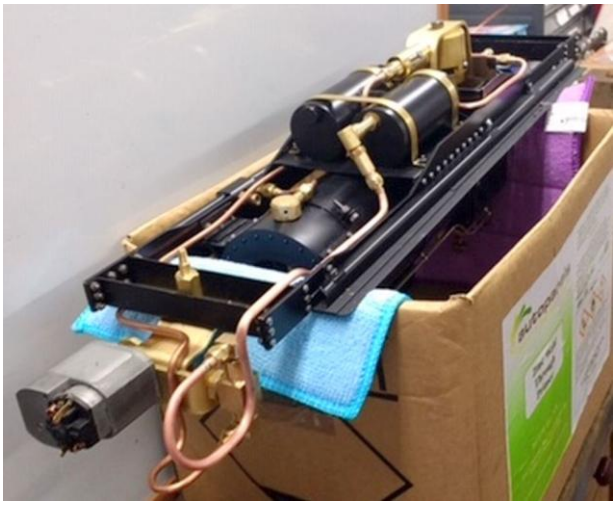
There must be other members who have the same problems as me when it comes to painting, so acetone gives you the confidence to keep putting wet coats on without the fear of runs or whatever else that you have to deal with before continuing.

My first six or seven attempts I had to strip off, but by then I was getting the hang of it and it then went from strength to strength. For me I think it's the best I have achieved in paint spraying. The preparation let's it down (I didn't do any) so I hope anyone who struggles like me, the use of acetone makes the same difference, it gives you the freedom to just go for it knowing you can remove every trace of paint in about thirty seconds.





Mick has since sent this update … *I've re-designed the feed pump, water tanks and pipe-work. The gas burner is set to produce a blue flame, and the pipe-work is complete to connection in the cab.*



Underside

Topside

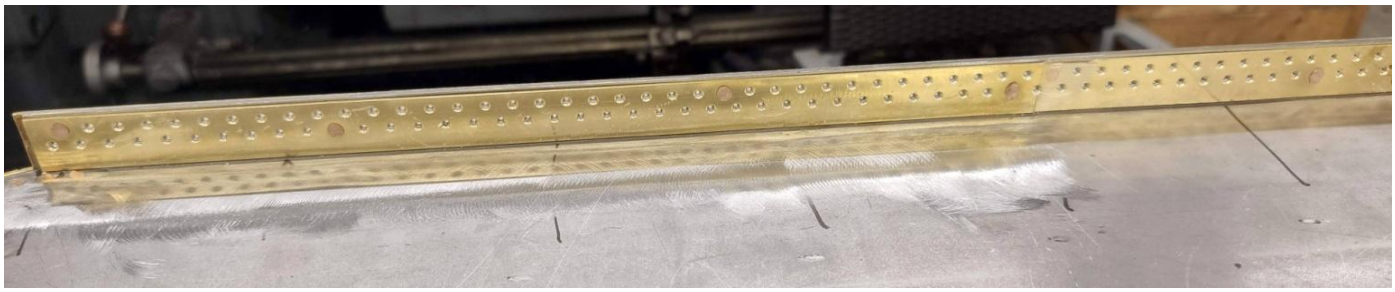
In a follow-up to his featured article in the Spring Newsletter, Jim Nolan has a tender tale to tell …

The Berkshire tender comprises an aluminium cast tender bed running on two six wheel buckeye trucks. The tender body itself is a CNC punched and folded kit some 5 ft long by 14" high and 16" wide and of riveted construction.

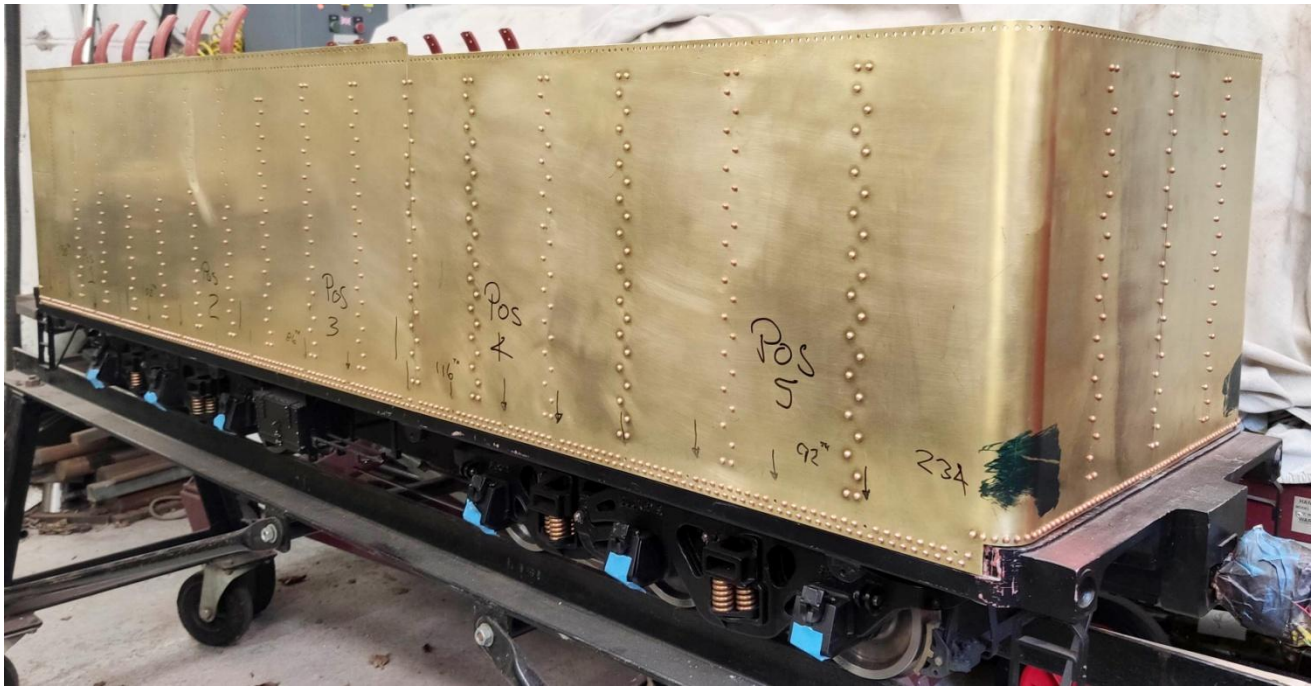
I knew that there was a slight gap between the aluminium bed and the folded tank floor that would need shimming at some point. I decided, before the tank got too heavy, I would address the fitting issue.

First job was to sit the tank on the bed and measure along its length to establish the gap.

12" shims where then made up at various thickness to fill the gap. Then the shims and tender sides were riveted to the tender floor. All 800 holes were transfer drilled, separated, de-burred and the inside of the shim countersunk to take the 3/32" roundhead rivets.



Once all rivets had been set, the now fully-riveted floor and tank was tried on the tender bed. Everything fitted fine, nearly, but the rear shim was too tight by what turned out to be 30 thou. While it is relatively painless to shear the heads off the rivets and punch them out, there was no chance of saving the shims, so new ones were made 15 thou per side thinner and this time, with a few helpful knocks with a rubber mallet, the tank fitted fine.



The tank is secured to the bed with 3-48 round-head screws which closely match the rivet heads, placed along the side about every 10 rivets. That will be the last job to do when the tank is completed.

This piece was sent in by Dave Henderson. You might want to get a cuppa first …

A 7.25" BFG Riding Truck

I thought there might be scope for an article for those of us not quite as accomplished yet as some of the wonderful model engineers we have in the Club, so here's my journey from Dullard to completing a BFG (with apologies to Roald Dahl) Riding Truck.*

A little about myself.
I first came across TSMEE when I spoke to Brian and Linda Nicholls, who were on the Polly Model Engineering stand at the NRM 2012 Steam Fest event. Their sales pitch must have been good because I ended up buying a Polly 6 loco kit and joining TSMEE. My background isn't engineering. Forty years of Telecoms, from open wires when I started, through to fibre optics when I retired. For the best part of the first 10 years I was a 'one man installer'. As the job title suggests you were on your own, nobody to ask for help, advice or get a second opinion. You soon learnt to 'walk ' through a job carefully and thoroughly before starting work, nothing worse than spending hours cabling only to find an insurmountable obstacle that you hadn't spotted initially and having to start all over again from scratch. I like to think those hard-earned lessons have stood me in good stead when I finally tried my hand at "shaping" metal.

Building the Polly taught me a lot about how a steam locomotive fits together and the methodology of its construction, even if I was putting together ready made parts. In due course, in 2015, I purchased the 7.25" Romulus, "Angkor Thom" (AT), with which a lot of you will be familiar. Running and maintaining AT also helped with my growing knowledge of mechanical engineering. Come 2016 and I got caught up with 'Flying Scotsman' fever. Now the A3's in their final form were my favourite class of engine. I am old enough to have seen them working in 1964, their final year in the North East, and they are my abiding memory of the last days of steam on Tyneside, (it's never a J27, Q6, K1 or B1 that springs to mind but Blink Bonny, Tranquil, Manna, Captain Cuttle, Dick Turpin, Trigo or Fairway). I purchased a full set of Clarkson's 5" A3 castings and acquired drawings for Clarkson's, Don Young's and Michael Breeze's designs, (I used to be indecisive but now I'm not so sure). I also obtained laser cut frames for loco and tender along with a tender body kit. I had a lot of parts. I needed somewhere to work on them, (I'd outgrown the garage already

without a piece of swarf being generated)! I duly built a workshop in the back garden and equipped it with lathe and milling machine and started 'tooling up.

Now, I'm not without some skills. I like to think of myself as a competent DIY'er, I've fitted kitchens, built units, rewired and sorted plumbing in our own, friends and relatives houses and having only drowned and electrocuted the odd person during these activities felt reasonably confident I could master metalworking, (do I hear the Doobie Brothers 'What a Fool Believes' in the background at this point?). Advice was sought and duly given. At this point I would like to thank those members who were able to refrain from laughing out loud when the questions were asked and managed to control their emotions and not fall around helpless as they responded. I started on the castings. Now I've précis'd these events as it probably was about 15 months from obtaining the castings to actually starting machining them. During this period a little niggling doubt had started to grow. Even at 6' 2" I was finding the stretch over the tender to drive the Polly 6 quite taxing at times. The crunch had come during the 2017 Stephenson's trials at West Cumbria's track at Workington. The day before, I'd done the 'Via Ferrata Extreme' at Honister Slate Mine (if you've got a head for heights and have Trapeze Artists in your ancestry, it's brilliant). Not being in the first flush of youth it had left me, as you might expect, as stiff as a board. The 20 minute non-stop run required for the Trials had been excruciating to the point that with five minutes to go it was touch and go as to what would give out first, water in the boiler or my back. As I rolled off the riding truck at the finish I knew the A3 was a non- starter.

By now, you may be asking "This is all well and good but what's it got to do with a giant riding truck?" Ahh - patience Dear Reader (after all there's not much else going on at the moment).

As well as the above, I'd ventured farther afield with AT. Advised by a fellow competitor at the 2016 Stephenson's Trials that I should take it to the Millerbeck Light Railway, near Newby Bridge, I had contacted them and gone there in Aug 2017. AT had come with a well-engineered and constructed riding truck but there was a problem emerging. Harold Pearson, the builder, is a good seven inches smaller than myself. The height difference meant that there was a difference in body positions, and comfort, sitting on the truck. This wasn't significant on the TSMEE track - 4 or 5 minutes, then get off if needed - but at Millerbeck it was 15 minutes at least. This may not sound a lot, but when you've been running for a few hours it starts to have a cumulative effect, which was compounded at Millerbeck because when they're open they run over two consecutive days, (think Honister Via Ferrata and it might become clearer). It was made absolutely clear it wasn't just me when one of the relief drivers finished a turn on AT and said, and I quote, "It's a bit like driving with your knees around your ears"!

Something had to be done. I'd also noticed how big and roomy the riding trucks of the resident engines at Millerbeck were. I returned home determined to do something.

Is that someone laughing at the back?

Armed with some dimensions from the builder of the riding trucks at Millerbeck I made a start at converting AT's existing truck to something more befitting a taller person. This is where the old Post Office Telephones methods kicked in. I didn't want to burn my boats. I had to create something that could be returned to what it had been if it all went wrong. Suffice to say after a few modifications as the rebuild was tried out I ended up with what I think turned out to be a relatively good and certainly more comfortable riding truck.

Right wake up at the back - we're getting to the nitty-gritty!

So how did we end up with a BFG riding truck? Sorry but it's back to Millerbeck again.

A group of us was gathered at the Engine Shed at the end of the day's running last summer. One of the group, who'd bought a non-running Romulus 0-4-2 the year before and had driven AT every

chance he'd had, asked me "what would you change about AT if you could"? "I'd add another wheel-set and increase the adhesion" I replied. This is because the Millerbeck track, and also the Scottish Model Engineer Trust, (SMET), track, which I'd also been running at as our daughter was working near to it at Perth, all have 1 in 50 gradients and are prone to damp rails – lots of trees. I'd soon found out that even with just one passenger truck we'd slip to a standstill on the slightest incline (the engines permanently based at Millerbeck all have working sanders). Another member of the group, Paul Frank, who to the best of my knowledge has built over twenty 7.25" narrow gauge engines, six of which I am familiar with, said "you want something bigger". This immediately connected with the small boy buried somewhere within me and let's be honest we all look at the real thing and think 'I'd love a go at driving that'. "Yes" was my reply. It turned out he'd been looking at a 2ft gauge, 0-6-0, fly-cranked Hunslet that spent its working life in a quarry at Groby in Leicestershire, "it's like a Quarry Hunslet on steroids" was his description." There are no photos of it but we have a drawing which we think we can make plans from". 'Wait a minute' I thought, 'that means nobody can look at it and say smugly "Ha, you've got that wrong'! "Sounds interesting" was my reply, there was just one critical criteria it had to meet. It had to fit in the back of a Ford Transit Custom double cab. Those of you who know me will be aware I've spent rather a lot of money on vehicles suitable to transport miniature steam engines since acquiring AT and the brownie points I'd earned from my wife after the last kitchen upgrade were now exhausted.

*About a week after we got home I received the email I'd been waiting for. Paul's collaborator, Gerry Clarke, another well regarded model engineer with a lot of 7.25" narrow gauge designs to his name, had worked out the critical dimensions and in the immortal words of Cinderella "it fits"!! Paul and I met up again about six weeks later and more information on the prospective build was clarified, it was time to start doing something about it – could I build a bl**dy big riding truck to match the size of the prospective loco?*

After the initial excitement and enthusiasm wore off, reality started to kick in. I'd happily rebuilt AT's original riding truck because, basically, I'd had a starting point and I'd done it knowing everything could be returned to the way it was if it didn't work. This was different - there was nothing but what I envisaged to work with (did I hear the Doobie Brothers again there?).

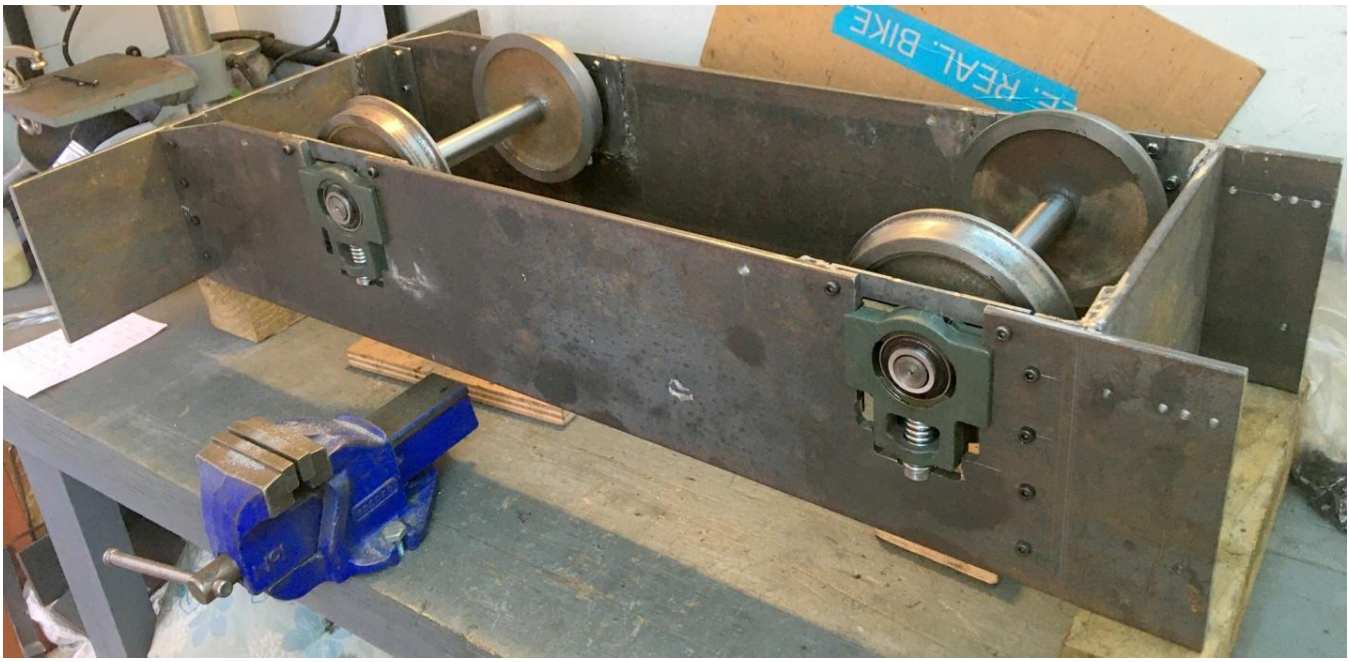
Right - pay attention at the back ! Now we're getting in to it and I'll apologise now to all those expecting data and dimensions, etc. It was, and still is, all in my head, well - almost.

The loco isn't hugely bigger than AT, a few inches longer, almost the same height, but, critically, almost four inches wider. This meant the riding truck really had to be something close to the scale of the new loco or it would look wrong. For me the most significant dimension was width. Even with a medium sized van there are certain limitations, (if you think this is long winded and boring don't ask me to talk to you about the interior dimensions of the average UK medium sized van)! The key internal width is that between the wheel arches. I worked out I couldn't make the truck the same width as the engine – just not enough leeway if I hit a hump at speed. It's happened. Caught out by a dip in a good road doing 50mph, closed my eyes and held my breath as I heard an almighty crash in the back, stopped and found AT upright, but despite being strapped down, all four wheels were off the track in the back of the van. So the first dimension was settled, the width was to be 550mm. You may also note I have a bit of a cavalier approach to what dimension units I use, sometimes it makes more sense in imperial, at other times metric.

I had been advised not to make the wheelbase longer than 500mm – so that's what it is. AT's rebuilt riding truck had a forward extension but this was fixed on to the front of the existing chassis resulting in drivers unfamiliar with the truck standing on the extension and tipping the rear up. To avoid this the frames had to be substantial and the foot extension had to start within them. This also necessitated the front wheel-set to be positioned as close as possible to the front draw beam. I used 8mm steel plate for the frames. Commercially sourced 20mm diameter take up bearings were found along with a stroke of luck in obtaining wheels. I had visited a website looking for some suitable brake blocks, which they had, but, they also had a set of second hand, un-machined

10.25" wheel castings, just right for a 7.25" narrow gauge riding truck. Some 25mm bright steel bar from a steel stockholder friend and I was in business. I settled on a length of 3' for the frames, (told you I was cavalier about measurement units), which with a foot extension of 14", 3" of which is recessed between the frames, gives an overall length of 47".

The first set-back was after I'd machined the frames. I had some 6mm angle iron to attach the draw- and drag-beams, but after fixing the angle iron in place on the frames with bolts I found the angle iron was nowhere near 90 degrees on the external faces. Having acquired a small inverter arc welder I decided to square it all up and weld the angle iron to the draw- and drag-beam, (I probably should have used the word join there instead of weld, another skill I am gradually getting to grips with - on the other hand I have become an expert at hiding unsightly welds with filler). Despite appearances, I was quite happy with the welds until lying in bed one night, near the end of the build, I had this sudden vision of me sitting proudly on the riding truck, with a rake of coaches in tow, opening the regulator on AT and hearing a loud crack and watching AT and the draw-beam disappearing down the track. So the next day I put four M5 bolts in at each end just to make sure.

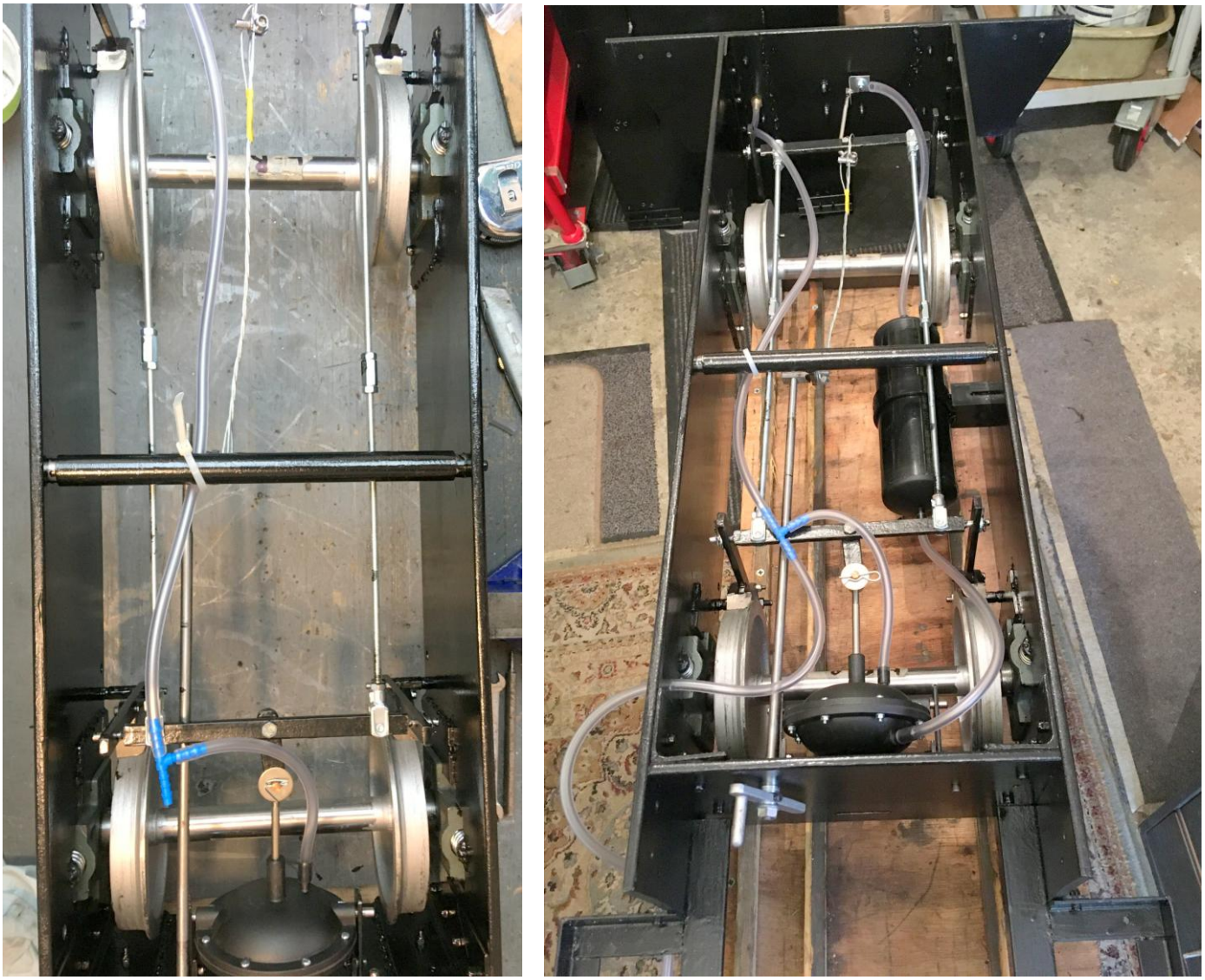


Frames first fix – note the welds

With the frames, bearings, wheels and axles done, the next step was brakes. I wanted vacuum brakes on the truck and a wind-on hand brake. AT's original riding truck had a friction brake fitted with brake rodding working from the top of the chassis rather than the bottom. I had adapted this to use with a vacuum cylinder, but later reconfigured it to work through pivots from the bottom of the chassis. Despite being sounder in principal, the rodding was never as efficient configured from the bottom. So the brake rodding was to be configured from above on the new truck. One of the drawbacks I encountered with the 'make it up as you go along approach' was no matter how much I'd tried to anticipate and envisage where I would need holes drilled in the frames, they either weren't there or were in the wrong place. By this time the frames were a hefty piece of kit so drilling new or replacement holes became a real chore, many a 2mm pilot drill has hit the dust during the truck's creation. Brake pivots and rodding are mostly M6 rod, bolts, nuts and collar nuts. I had intended to machine the pivots out of bar and thread the ends but soon realised I needed wiggle room with each brake block and wheel so used a combination of bolts, nuts, washers and collars so that I could position each brake block accurately and then nip them up. I was still left with the wind-on hand brake problem.

One thing I had learned from the rebuilds of AT's original riding truck was it was very beneficial to be able to split the body from the chassis as easily as possible. This meant a self-contained chassis with no parts of the brake-gear mounted on the body. This ruled out a vertical hand-brake handle and rodding. I cycle a lot, and it's surprising how many times a solution to a problem has

come to me when I've been out and about. In this case quite appropriately the solution involved a bike brake cable. It occurred to me that the vacuum brake worked on the rodding of the front wheel-set, so if I attached a bike brake cable from a pivot bar and threaded spigot, mounted between the wheel-sets, which operated on the rear wheel-set rodding via a threaded bar and handle set horizontally in the recess of the foot extension, between the frames, it all should work without the two brake systems interfering with each other and would still allow the body and chassis to be split easily. Confused – you will be. I'm happy to say it works.



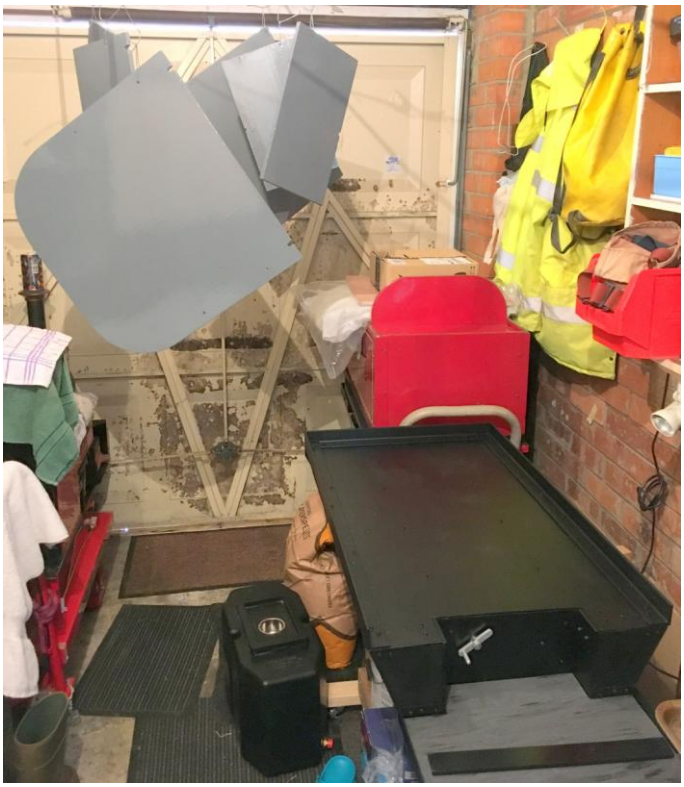
Brake rodding and fittings

The body panels are made of 12mm external hardwood ply. This is for two reasons - I don't have the wherewithal to work metal panels that big, and weight. The truck was now considerably heavier than the rebuilds. It was a serious two man lift even before the body was mounted. There was another factor to consider. The Hunslet loco was a saddle tank. At an early stage in the discussions it was decided that to simplify matters the saddle tank would be a dummy and the water supply would be carried in the riding truck. I had found an enclosed 4 gallon plastic central heating header tank which fitted nicely into the body of the truck. Two 15mm tank connectors fed two 15mm to 8mm reducers. 8mm copper pipe then feeds two small ball valves mounted either side of the foot well. From these more 8mm pipe feeds to fittings I made which brings the diameter down to 6m. These are located under the foot extension to keep them out of harm's way. Silicone tube will then connect from there to the injector water feeds on the loco. By now the chassis was basically complete and painted. The body panels were all cut and fitted, the tank and pipework were in place so it was time to take the body to bits, paint it all and do the final fix. There was only one more issue that troubled me. Filling the tank was, on the face of it, simple enough. The tank comes with a snap-on lid about 200mm x 120mm (there goes the cavalier approach again). In to

this I had fitted a recessed filter, approx. 70mm in diameter. However the top of the tank was below the level of the bodywork and without some protection any overzealous filling would end up soaking everything. Once again, the solution came to me whilst out on the bike. The plan all along had been to mount a wooden cover over the tank, almost flush with the top of the sides of the body. If I made an open-ended metal rectangular box, fitted that into the top of the snap-on lid, sealed it in place with silicone and made it tall enough to project up and through the wooden cover, then, with a suitable metal lid, it would look more like a prototypical tender tank filler (well, in the dark, from a distance, with your eyes shut), and it would give me a litre or so of overflow space. So the strip-down and painting began. After five days of parts suspended all over the garage and workshop, the final assembly began. It all went back together quite well. I had intended to paint it the same red shade as AT, given that it could run behind AT for years before the new engine is ready, but after I'd undercoated all the body parts grey I quite liked the idea of leaving it grey and black, (always did like those photos of new engines in works grey livery), until I know what the livery of the Hunslet would be. Some brass beading to protect the exposed top edges of the ply, a successful vacuum test in the back garden and it's all ready to go.

Final trial body assembly

Fruit bats



Panels painted, Chassis & Water Tank

Water & Vacuum fittings

Water Tank filler & overflow

All ready to rock …

Ready for the vacuum test

So there you have it - my first self-made creation. Now I just need somewhere I can run it, although by the time you've finished reading this, the lock-down might be all over and we could be back on the track, yippee!!

I'd just like to add, in conclusion, that no members of the Committee or members of the public were harmed during the writing of this tale – unfortunately several HSS 2mm drill bits did meet their maker. Official figures exclude drownings and electrocutions.

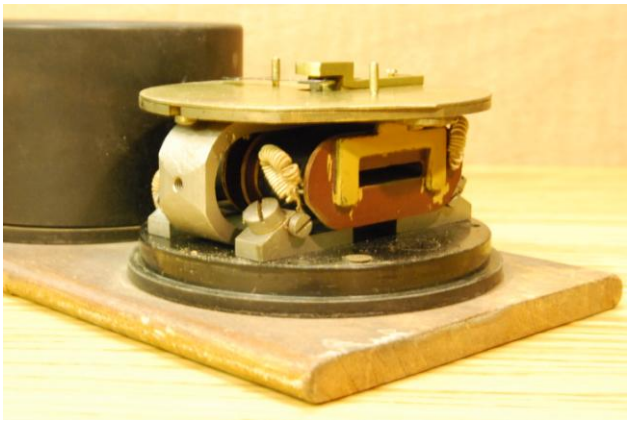
(* In case the literary allusion was lost on you (as it was me), BFG is for "Big Friendly Giant". Ed.)

QI

Engineers can be curious creatures, in the sense of being inquisitive rather than weird (though they can be that too !). Manifestation of this trait can sometimes be seen in the strange or wondrous objects some have around their homes or workshops. They find them interesting, either because of some special significance or just for their own sake.

After reading Lindsay Oliver's item about a piece of WWI trench art (Bull. No.3), it occurred to me that others might find these things quite interesting too. So, shamelessly plagiarising the title of the eponymous BBC TV show, I'm giving space for an occasional **Quite Interesting** feature where these things can be shared.

By way of example, I'll kick off with a pair of railway signalling instruments. These came from a derelict ground-frame which once operated the crossover just south of South Gosforth Station. After BR abandoned the North Tyne Loop and its subsequent conversion to the Tyneside Metro, the redundant and up-ended frame mouldered in the line-side undergrowth by Stoneyhurst Road bridge for many more years. The remains finally disappeared in the 1990s.



On the left is a two-position indicator for Locked / Free and the right is a three-position indicator for Train on Line / Line Blocked / Line Clear. The original labellings were on thin card and so mildewed as to be almost unreadable. They disintegrated when removed and I never got round to making new ones. QI ? Now, what have you got … ?

Postamble

"Newsletter" or "Bulletin" ? Various people have asked me what the difference is. In truth, there's not much now ! The title "Newsletter" was inherited from my predecessor, and there seemed no good reason not to continue with it as it concerned itself almost wholly with Club News. However, when a couple of Workshop items came up for disposal, it was felt that a Newsletter wasn't quite the right thing for just a single announcement, so the "Bulletin" was born. It was anticipated that this title would appear only very occasionally, in similar circumstances.

Fast-forward to Lockdown, and the idea of Members sharing their activities in print. As the content was expected to be anything but Club News, the "Bulletin" seemed to be the right vehicle. Unfortunately, this distinction is breaking down, as evidenced in this issue.

Casting around for a way out of this titular dilemma, I was aware of the Ffestiniog Railway's on-line news sheet, rather cleverly called "Inside Motion". As I'm sure they don't have exclusive ownership of the words, I propose to adopt them here for future issues. Grateful acknowledgement is given to the FR for the inspiration.

So, there will now be just a single publication, produced on an ad-hoc basis, carrying anything and everything about the Club's or its Member's activities.

Of which, thanks and credits to the contributors who have made this issue possible. To the rest of you – get writing !

Finally, to those who get this via snail-mail, spare a thought and a thankyou for your long-suffering Secretary, Linda Nicholls, who does all the print-work and mailing for you at home.

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Website – www.tsmee.co.uk Webmaster – John Rowley – webmaster@tsmee.co.uk

WOMBLES

Goings-on at the Site under Relaxed Lockdown Special Arrangements

Grass and gardens looking trim
Ian Spencer, Dave Nesbitt, Jim Scott

Raised Track Carriage Shed additional retaining wall completed
John Rowley

Raised Track Carriage Shed roof prepared for fitting Shingles
Peter Newby, John Lazzari, Norman Blacklock, John Rowley