



INSIDE MOTION

News and Views from the
TYNESIDE SOCIETY of MODEL and EXPERIMENTAL ENGINEERS
No. 6 August 2020

Preamble

The relaxation of Covid-19 lockdown rules has seen a modest return of activity at the Club over the last four weeks or so. Whilst still required to maintain social distancing and with the Clubhouse presently out-of-bounds, members have none-the-less managed a measure of socialising, benefitting from (mostly) good weather. Not “back to normal” by any means, but very welcome to those who have ventured out thus far. The Club’s current guidelines for attending can be found on the website.

Club matters

Locomotives have been out running on all tracks and the new carriage shed has proved its worth with the easy deployment of riding trucks to the raised track.

With the new shed completed, Team Newby has turned its attention to the alterations to the locomotive “bunker”. The entrance wall has been broken out to the full internal width and the steel frame holding the door has been altered to fit this new aperture.

The gardeners have continued their good works keeping the grounds looking trim.

Good home wanted

Ian Spencer has an air compressor which is surplus to his requirements and he is happy for it to be given a new home, free of charge. It can be viewed in the TSMEE workshop. Ian will answer any questions you may have.

Member’s Musings

A small helping of inertia ...

Jim Scott & Robert Hopper

One of the less desirable characteristics of 16mm scale ‘Garden Railway’ type steam locomotives is their tendency towards Le Mans type starts and emergency stops, as well as ‘lumpiness’ when travelling slowly. Careful setting up of the valve gear and radio control equipment can minimise this but what really helps is a good dollop of inertia. This can be purchased (expensively) from Australia in the form of a commercial offering called a ‘Slo-mo’, a beautifully crafted flywheel device that hides between the loco wheels and is driven from the crank axle. Certainly the various video clips on YouTube show that very realistic slow speed operation can be obtained.

A chance conversation with our Newsletter Editor pointed me towards an alternative arrangement where the flywheel is located under the cab floor. For a home-made device this is an easier option to make and fit and, as grandson Robert was helping construct yet another Roundhouse ‘Lady Anne’ loco, it was thought to be worth fitting at the outset. Moreover, I remember stashing away a

box of 40 DP stainless steel gears many years ago, could I find them and would they be suitable..?

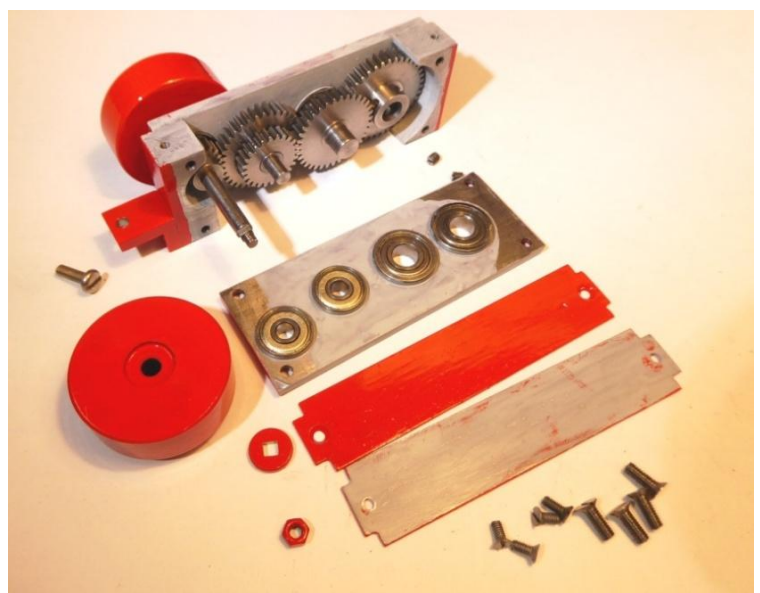
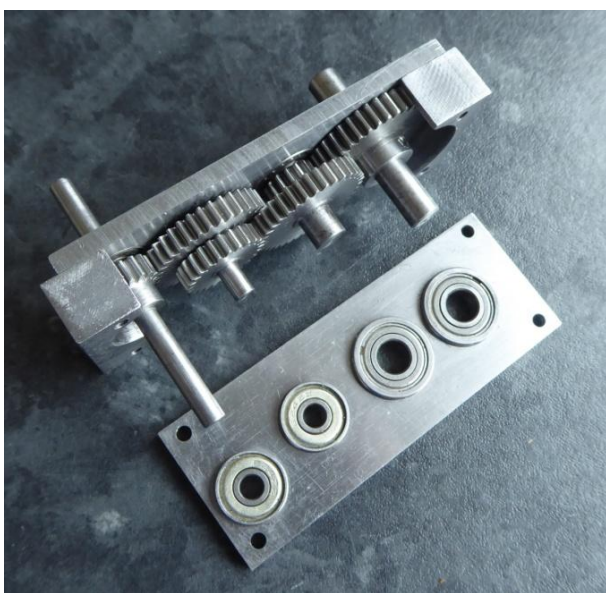
The required inertia is provided by a pair of flywheels driven via three shaft step up gearing from a gear fixed to the crank axle, with the best available combination giving an overall ratio of 1:8.5. Space limitations restrict the maximum diameter of flywheel that can be accommodated below the cab floor but the relatively low gearing also limits the rotational speed which actually has the greater effect. All shafts are ball-raced and the gearbox frame is closed top and bottom by cover plates. The gears are lightly greased in an attempt to minimise noise as well as to provide lubrication. Location of the gearbox at the front is in-between the crank axle wheels, the axle carrying the primary gear passing through the gearbox via ball races. The rear is attached to a repositioned frame stretcher by a bracket and single screw.

The machining of the gearbox side plates is pretty straightforward using a vertical mill. However, care is required when setting the shaft centre distances to ensure that the gears mesh and turn absolutely freely but with minimal backlash. No adjustment is possible...!

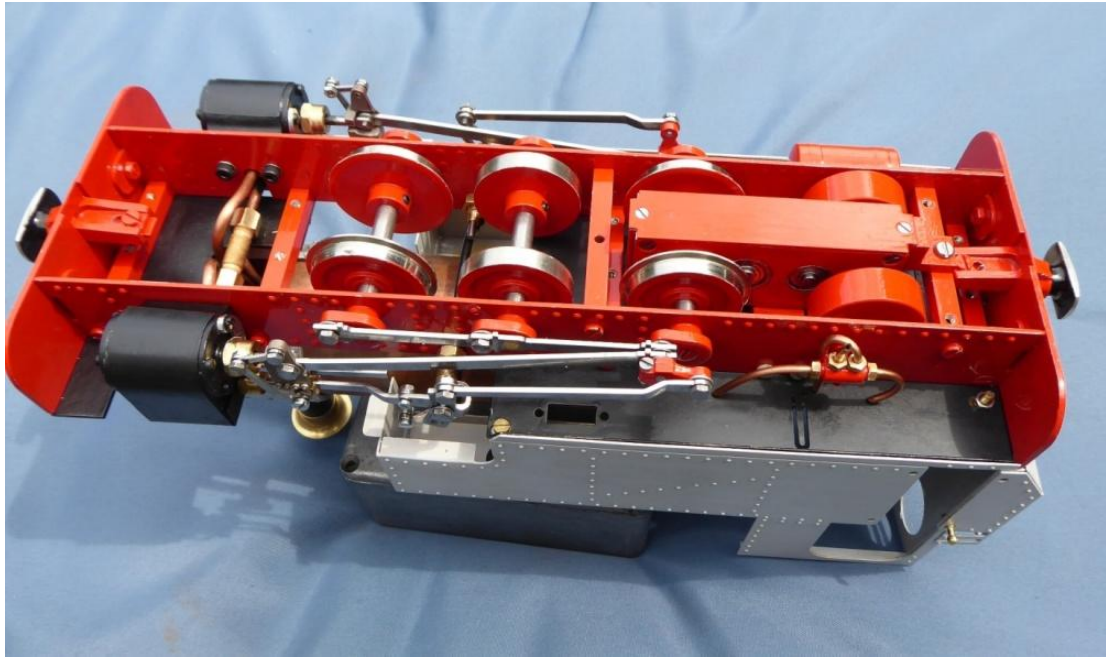
Although the locomotive is as yet unfinished it has been run on air with the inertia device in place. Initial testing was encouraging with very slow speed running being obtained even though the motion is new and not yet run in. It is hoped that the improvement in the operating characteristics of the loco will be worth the time and effort involved in construction. Also very satisfying was the fact that all of the required materials, including gearing and ball races, were to hand and therefore there was no financial outlay – it really was 'for free'!

A secondary effect of the additional inertia is that the exhaust sound is more pronounced at starting. To maximise this, a voice pipe (as produced by Messrs Summerland Chuffers) was added to the twin cylinder exhaust pipes, located out of sight within the chimney.

The engine will be finished in typical German livery of vermillion frames and running gear with the upper-works semi-gloss black.



Inertia Device – Component parts



Inertia Device – side view from below

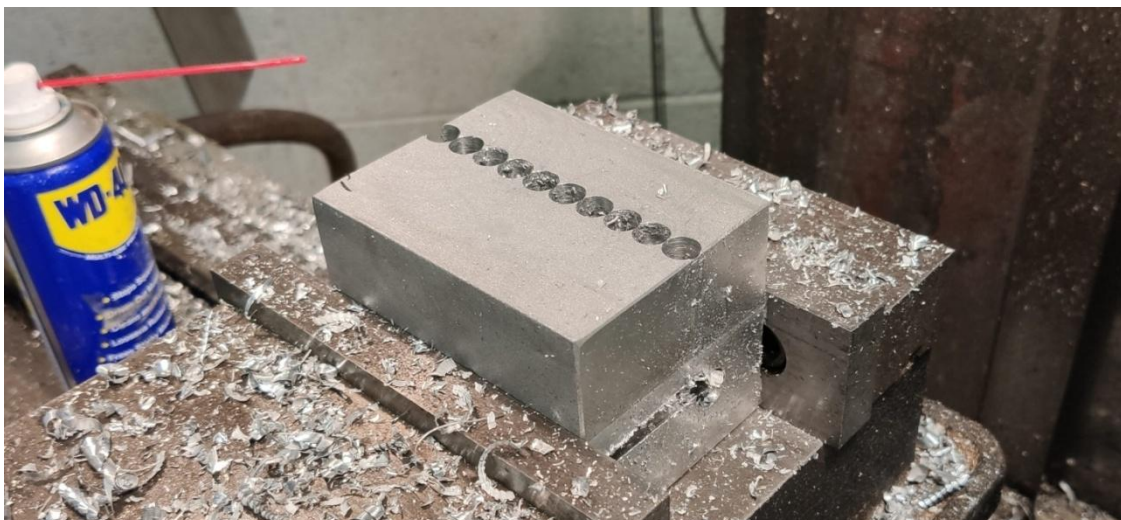
Mounting a Digital Readout (DRO)

Jim Nolan

Most of my hole drilling is through-holes but I do on occasion want a specific depth on the lathe. For some time, I have been thinking of fitting a DRO to the DS&G (Dean Smith & Grace) tail-stock but have shied away from it as I am not a fan of drilling holes in machines.

CV-19 and my hair being longer than it was in 1968 persuaded me that leaning over the chuck measuring the depth with a ruler was not a good idea. So, I decided to consult the oracle, in this case YouTube and thought the following was not a bad idea. Basically, it's all due to the magic of cheap ebay magnets,

I started off with a piece of 3" square aluminium I had lying around, and chain-drilled out a 2" square. I also drilled though a 1/2" hole at the intersection of the cut-out for clearance around the fillets on the tailstock casting.



Chain-drilling the block

This enabled me to get in with a 2" face mill and clean off the chain-drilled faces. I then milled out an 8mm X 2mm dp slot to take the magnets in both faces.



Machining the magnet slot

From there it was on to an angle vice to mill a flat face for the DRO. This was slightly more difficult than I thought. Due to deciding what was the right angle I needed, to clear the tailstock lock handle that would not be so steep that it was difficult to read. I ended up on 32 degrees as my perfect solution, others are available.



Drilling the securing holes

The last job was a couple of holes for the securing 3mm bolts to hold the DRO onto the block. This was surprisingly difficult as the holes in the DRO are only about three threads deep and getting the

bolts to catch was fiddley bought 5, 8X20 X2 mm magnets, four for the block and one to catch the tailstock arbour. They were all secured with super glue.



Magnets secured into the slots

Most of the time I leave the DRO on the shelf, just sticking it on when I need a specific depth. This is handy as it means I haven't added a permanent obstacle onto the tailstock to get in the way of normal use. The only thing I would change is it would have been nice to have a bigger display on the DRO as my lamp oil isn't what it was.



In use - making ladder rungs for the Berkshire tender.

A Pilgrim's Tale

David Dunbar

So in 1972 I expressed my love of steam engines to my then Junior School teacher, the wonderful Mrs. Le-`Patterel. She turned out to be the sister of George Jennings, a long-standing member of TSMEE.

My teacher brought in a wheel and cylinder from her brother's build at the time which I think was a B1, but it was a long time ago.

And so was born my love/infatuation/stupidity/etc for Model Engineering.

Through my teacher I learned of TSMEE and was allowed to take the bus from Wreckenton to the Great North Road bus stop to attend meetings at TSMEE.

Once there I found a wealth of lovely people. I'll mention them, but in no particular order - Jim Stephenson, Steven Lowe, George Jennings, Malcolm Halliday and a host of others. They accepted me and taught me so much when I was but a 14 year old.

Then there was Len Weedon. A man with a vision. He so much encouraged youth to be involved with Model Engineering that I owe him a massive debt of gratitude. He nurtured my love of steam and engineering. He allowed me to prep and steam up his locos and then taught me to drive them. This allowed me to drive other people's locos as I was then trusted.

Several years of brilliant work and running with TSMEE, including portable track and exhibitions. My thanks to my long suffering Dad and also Mum for their help and guidance.

There is lots more

(For those (me included) who don't know, David is a past Chairman of TSMEE - Ed.)

Postamble

Although some Club activity has resumed, there will be members who may not wish, or are not yet able, to come along in these still straitened times. So, please keep stuff coming in - for them, especially, so they feel perhaps a little less detached – as well as the wider readership. Your contributions are much appreciated, even if no-one gets around to telling you so !

Meantime, care and caution are the watchwords wherever you're out-and-about. Keep safe and well.

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Life goes on ...

