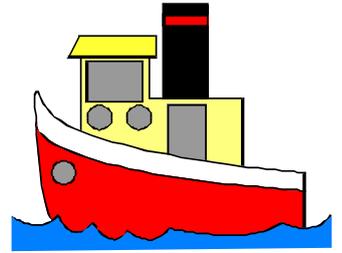


Wheels and Floats



Newsletter November 2017

TAURANGA MODEL MARINE AND ENGINEERING CLUB INC.

The Secretary
PO Box 15589
Tauranga 3112

Palmerville Station Phone 578 7293

Miniature Railway Memorial Park
Open to Public, weather permitting
Sundays in Summer: 10am to 4pm approximately
Winter: 10am to 3pm approximately
Website: www.tmmecc.org.nz

MEETINGS

General Members Meeting every first Tuesday 7pm.
Committee Meeting every second Thursday at 7pm.
Maintenance Tuesday mornings from 9am.
Engineering discussions Tuesday evenings 7.30pm.

COMMITTEE

President: Peter Jones 543 2528
Vice President: Russell Prout 5482881
Club Captain: Bruce McKerras 5770134
Secretary: Rachael Duncan
Treasurer: Owen Bennett 544 9807
Committee: Warren Belk, Shane Marshall,
John Stent, Jason Flannery
Bruce McKerras.
Boiler Committee: Peter Jones, Bruce McKerras,
John Heald, Paul Newton.
Safety Committee: Warren Karlsson, Bruce Harvey,
Peter Jones, Russell Prout, Mark
Duncan
Editor: Roy Robinson 07 5491182
royrobkk@gmail.com

CONVENERS

Workshop: John Nicol
Track : Bruce Harvey, John Stent,
Russell Prout
Marine: Warren Belk
Librarian: John Nicol
Rolling Stock: Murray de Lues
Website:
Driver Training: Bruce McKerras
Club Captain:

OPERATORS 2017

11 November W Karlsson
12 November R Salisbury
19 November B McKerras
26 November M Duncan
3 December G Barnes
10 December N Bush
17 December M DeLues
24 December B Fitzpatrick
31 December B Harvey

Presidents Report

Greetings members

Sadly I must start this months notes by advising that Mike Treloar has passed away after a long battle with cancer. Our thoughts go out to Kaye, Sarah and Eleanor during this difficult time. The service for Mike was very well supported by club members, I was asked by Eleanor to pass on the families appreciation.

Clive Goodley and John Stent are on the sick list, best wishes guys.

Our open weekend was successful, thank you to our visitors from Wellington, Auckland , New Plymouth, Cambridge and Hamilton. The new catering system worked well with members getting involved, thank you to those who provided baking for the event. The crowds certainly supported the weekend, unfortunately rain Saturday afternoon slowed proceedings and prevented the Big Boy Show. This year a display of members work took place both days with plenty of interest shown by the public, thank you to those who manned the stand, hopefully we will get some new members.

The Norm Decke Trophy was presented to Peter Lawn for his 2" scale traction engine, and the Ron Salisbury Junior Tropy was presented to Oliver Duncan for his display of lego loco's and for his support during the 2017 National Tect Volunteer awards in Rotorua. Next event of note is play day/training day 9th December, we will be celebrating a special birthday and a presentation also, so try and get along and make it a special day.

The round house committee presented the club committee with their first recommendations for a storage building between tunnels 1 and 2. Two options were tabled and briefly discussed and both structure options are in the process of being priced before being presented to members.

Last month a proposal for an extension to QE2 was released to the press by BVL (Bay Venues Limited), a commercial arm of Tauranga City Council, which showed a ambitious \$30m external pool, spa and fitness development taking up the central car park and a portion of our leased area which includes our station. Memorial Park is only one of the likely sites proposed, but it is also the only site specifically and graphically mentioned. This will have an influence on any future development we propose for our club if the BVL development goes ahead. Our club had no idea this proposal was in the wind, we wait now for the 18 month consultation process, we have not been told officially about this either. Our association with Council over the past years has been excellent, however, how the news was released does demonstrates to our club and our miniputt neighbour that a little PR by the current administration would be to everyones advantage.

Happy modelling

Peter Jones.

Mike Treloar





Open weekend November 2017

From the Editor

No apologies for the size of this months mag!!!!!!!!!!!!

For those of you who attend the monthly Club "Show and Tell" you will be aware of Geoff Hallam's progress in constructing the Double Fairley. There would be no one who would question the workmanship that Geoff has shown in the production from somewhat poor line drawings to the all but completed model which he presented to the Club the other night. His article clearly describes the story behind the construction. Geoff's skills extend far beyond just model engineering as he is the Editor of the New Zealand Group Gauge 1 Model Railway Association and produces what I would call a book not a just a magazine!!

By the time you get this mag out Open Weekend will have come and gone, watch next months mag for a review of that weekend.

Still looking for a fixed and traveling steady for a Myford. I would love to hear from somebody....

Roy

TAMAR LOCOMOTIVE NAME

The question has been asked as to how the Tamar engine got its name 'Basseterre Sugar Estate'. The name came from the small township of Basseterre on the island of St Kitts in the Caribbean Leeward island group. Only a small island with a coast line of about 80ks with Mount Liamuiga at 3792 feet dominating the island.



The low lands round the island gave a good climate for growing sugar cane and thus sugar cane became a dominate feature for income for the islanders.

In 1911 it was decided that enough estates growing cane could support a sugar factory at Basseterre. It was a kind of set up to how Fonterra operate in New Zealand. This lead built all the way round the coast line with pick up points in the harvest season. to the problem of getting the cane harvest to the mill within 10 days or the cane stems start to dry out. Thus a 2' 6" gauge 50k railway was

The first engines purchased were Kerr Stuart Brazil class 0-4-2 saddle tank engines with inside Stephenson valve gear. Later engines were fitted with Hackworth. In all 7 were purchased from 1911 to 1922. The Tamar is a Brazil class engine fitted with side tanks. Side tanks were fitted to keep the centre of gravity lower on the model and give a larger water capacity, although they were produced the same way in full sized engines,

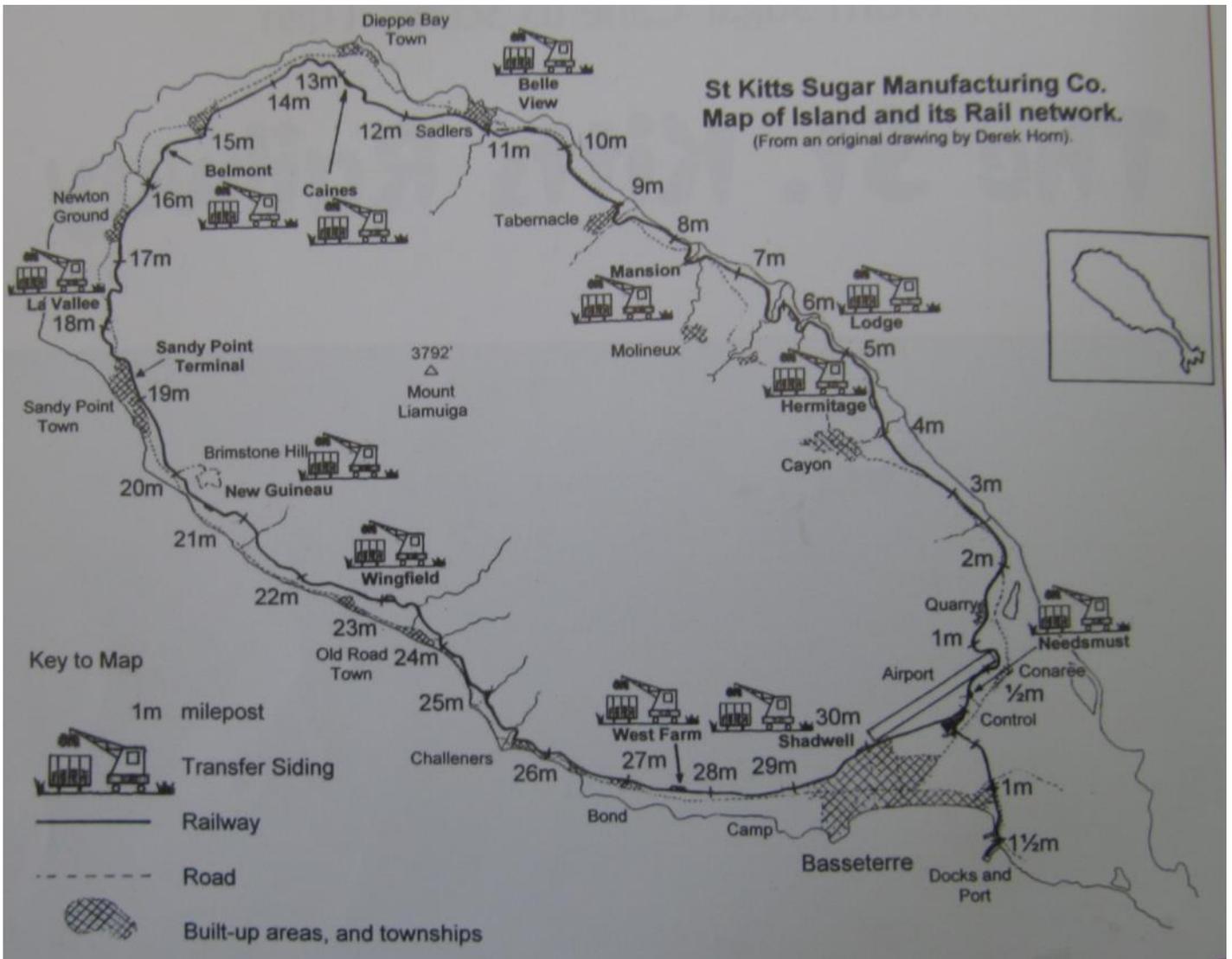
thus having the designation of 'Tamar'.

These engines did sterling work up to about 1970 when they were all eventually scrapped, with diesel units taking over.

In 2002 with the mill requiring much upgrading and sugar prices dropping it was decided to close the mill, the sugar cane plantations were left to gradually disappear.

However the track stood dormant for awhile until the Whitepass and Yukon preservation group from Alaska took over and decided to make a trip round the 40k line a tourist venture. After several years the venture has been successful with cruise ships producing large passenger numbers.

Trains are diesel hauled with double deck carriages. So the future for this railway looks good and with a good income improvements will probably increase over time.



John Heald

A new winter project

By Geoff Hallam (2403)



I first saw the Festiniog Double Fairlie locomotive whilst on holiday in North Wales in 1968. I thought it was a strange looking beast but in reality it was the first real steam locomotive that I had come into close contact with. I suppose that is why it made a lasting impression on me. On a trip back to the UK in 1985 I saw the same locomotive again and it inspired me to build one in 5" gauge. After searching for drawings (even Boston Lodge works couldn't help me) I decided to try and design it myself!! I managed to obtain a basic outline drawing through a good ex British Rail friend in the UK which gave me something to work on. I got motivated to scaling it up to 5" gauge and drew it out on the back of an old roll of wallpaper. It was approximately one fifth scale of the real thing so it ended up being 72" long x 15" wide and 19" high. Was the Myford lathe going to be up to this project? Only time would tell. My previous model of a 3.5" gauge Southern Pacific was going to be dwarfed by this new creation. We had another trip to the UK in 1987 which Sue had organised the first 2 weeks as a working holiday in Boston Lodge works for me, a holiday I will never forget.

My 2 weeks were spent rebuilding the suspension of the Double Fairlie "Earl of Merioneth". I was able to run a tape measure and take many photos under the covers of the power units. This would have been an impossible task out on the track side while a Fairlie was in steam. I was also given the chance to fire the Double Fairlie "Merddin Emrys" on a trip up to Bleanau Festiniog and back. This was a chance in a lifetime and still stirs me to this day when I think of the sound of those two out of synch power bogies, beating away on the steep gradients.

That holiday was a great help to the 5" gauge project and it spurred me on to design more of the working details. There were no castings available that I could use other than "Beejax" horn cheeks for the axle boxes. I decided to machine wheels, cylinders and valve chests out of centrifugally spun cast iron, rather than try and make patterns for castings. I still wonder which way would have been the quickest!

I purchased an 8" diameter x 24" long billet of cast iron and cut it up with the drop band saw into slices for the 8 wheels. This work seemed to take an eternity. The two blocks for the cylinders were then cut to length. I mounted the blocks on the band sawn face and cut across the middle, giving me two cylinders per block. I used to come up from the workshop in the evening looking as if I had been working down a coal mine!! Machining the wheels did push the Myford beyond its limit. There was nothing I could do to stop the tool chattering on the wheel rims which were 7.25" diameter. In the end I had to manually rotate the chuck by pulling on the drive belt for turning the tread and flange of every wheel. The wheels took 12 hours each to machine. This included profiling the crank and inner wheel rim with a ball nosed milling tool. The cylinders were next on the list with a bore of 2" and a 3" stroke. The blocks were externally profiled on the rotary table mounted on the milling machine and then bored in the lathe using a boring bar between centers. Progress was very rapid in the early days when I had a job that I could leave at 5:30 pm and forget about work.

Soon I had 2 rolling chassis with coupling and connecting rods. All axles are run in needle roller bearings and the same for coupling and connecting rods. The locomotive sub frame was made out of 6 mm steel and pieces of machined angle iron. Things were now starting to get very heavy to lift and move about.

I decided to get a Briggs steel boiler made by Harold Sinclair in Wellington.

This arrived in 1987 and I could hardly lift one end off the ground. I had looked at making it myself in copper but after seeing how much heat was needed for a 3.5" gauge boiler I chickened out.

Unfortunately promotion in my job changed the amount of spare time available and the project rested in the workshop for many years covered in oily rags. In the intervening years I bought a book on designing Stephenson's inside motion. In the end I found I just couldn't spend the time needed to design and make it.

So, many years ago a very good friend offered to design it for me. When he offered to build the parts and get it running on compressed air as well I just couldn't refuse. I had since left IBM and started our own business which demanded even more of my time. I used to think that I worked hard for IBM!! I could see that the project would never get completed in my lifetime if I didn't accept his kind offer. His excellent workmanship has created two running chassis, one of which I ran briefly on compressed air at a Tauranga Model Engineers club meeting. There was a faint squeaking noise from one of the cylinders when I demonstrated it running. As one member commented "things never go as you want when demonstrating to other members". This was so true, as it had run perfectly on my bench a few hours earlier. I later poured some CRC into the intake when I displayed it at one of our Garden Rail get togethers the following weekend and it ran as smooth as silk.

Several of my engineering friends thought I was mad to start a project from scratch with no drawings and after 30 years and well over 2,000 hours work I was beginning to question my sanity. I thought retiring early would have given me more time to work on it (many retirees told me it wouldn't and they were right). After 14 years of retirement I still can't see when I will start working on it again. I had hoped to get it finished before I was too old to enjoy running it.

Then came along our group member Andy Whyman.

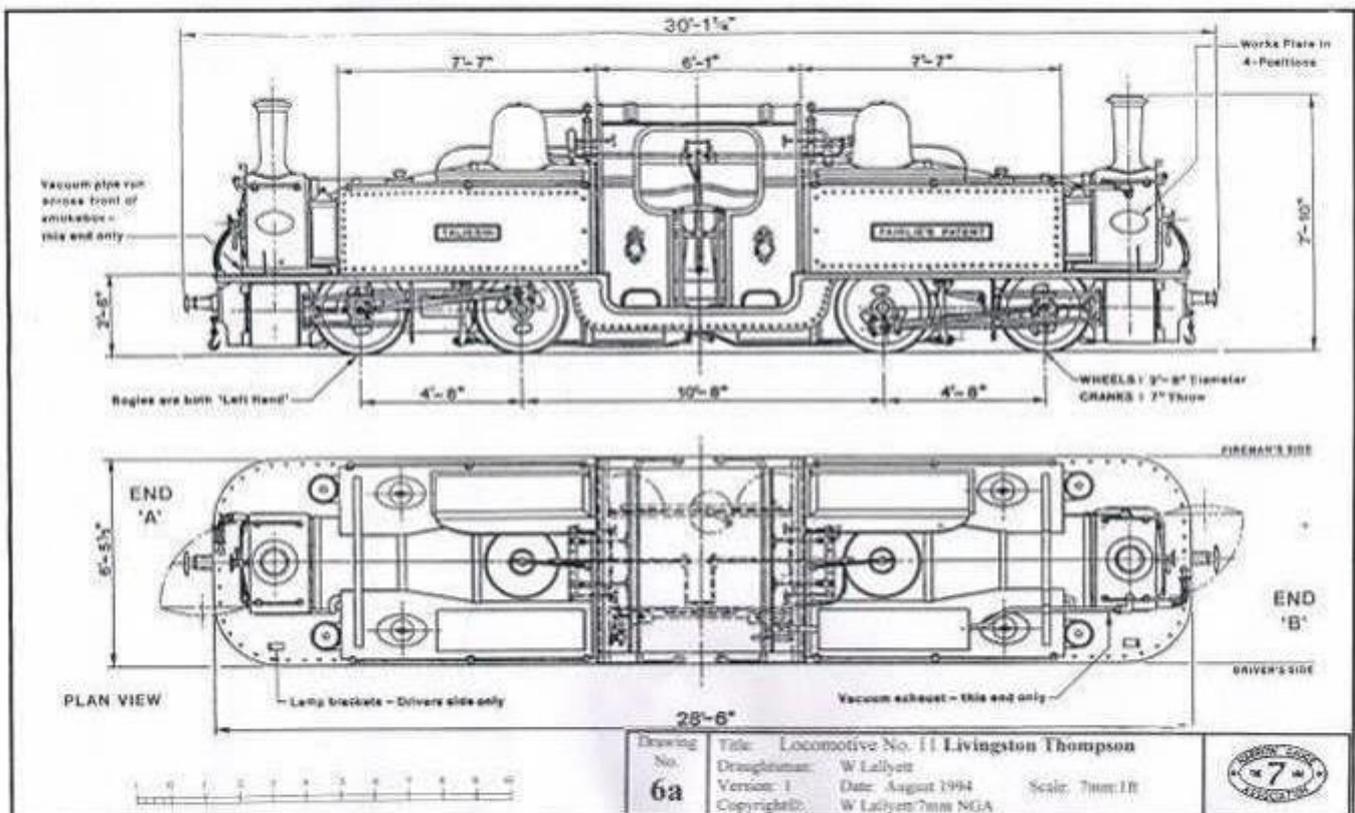
Andy is also a member of the 16 mm Association and he has lent me many copies of their interesting magazine over the last few years. He pointed me to an excellent article by Geoff Munday in 16 mm Today on Modelling Double Fairlies.

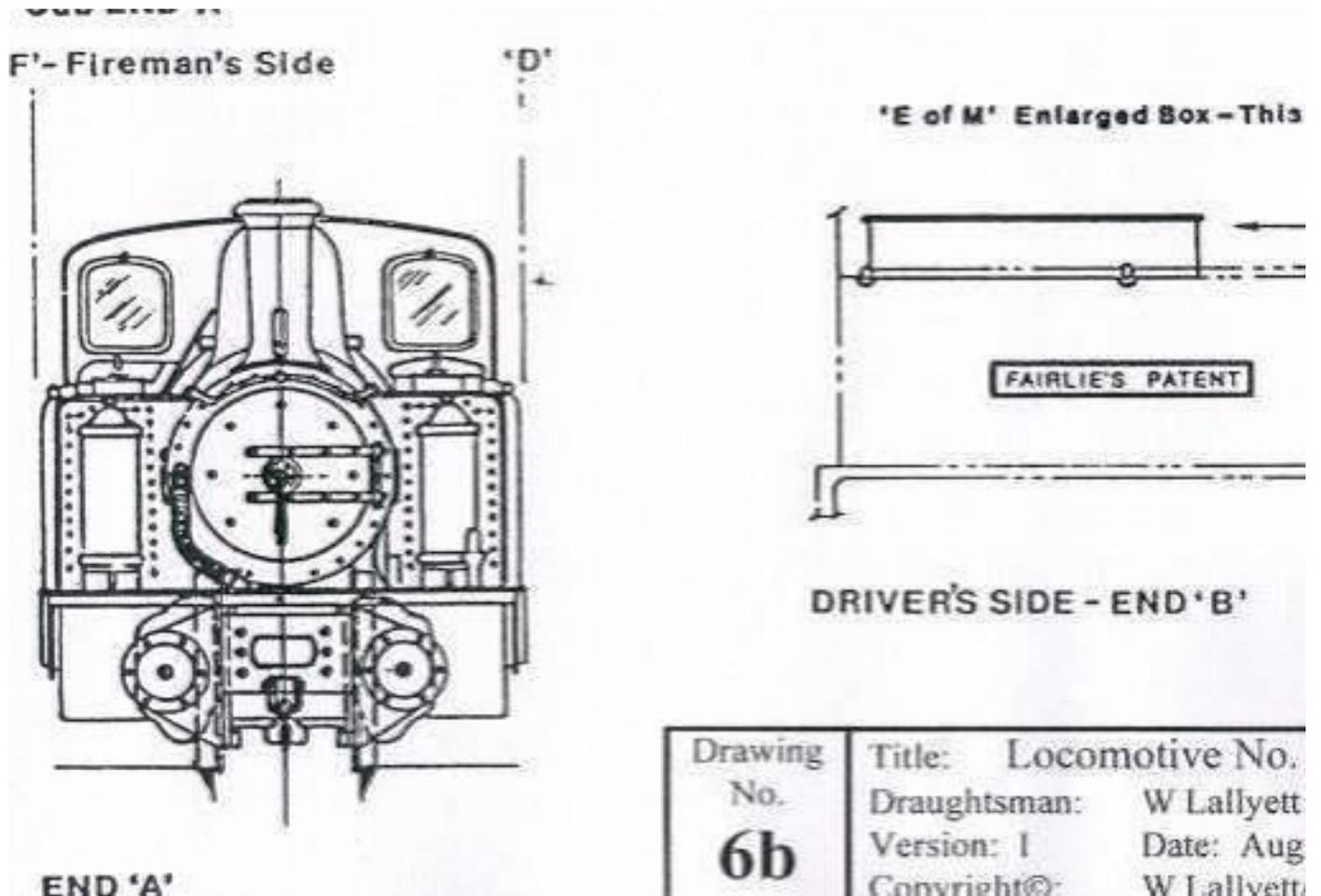
Oh dear, I was hooked again!

Geoff Munday had used two power bogies supplied by Roundhouse in the UK from their single Fairlie and the end product is a superb looking live steam model. Roundhouse had stopped production of their single Fairlie 'Taliesin' a good few years ago, so I wasn't sure if they would or could still make the power bogies for me. There was only one way to find out and that was to give Chris a call in the UK. Chris said they could make a couple of units for me as they were still available to order with a delivery time of six weeks. An order was placed that night for two units and a few other parts that would make the loco's construction a little bit quicker.

The power units arrived and scale drawings were started on in May, hence the title "A new winter project".

I had some excellent Double Fairlie scale line drawings from a 7mm Narrow Gauge association book of Festiniog Locomotives and rolling stock. After much paper wastage and efforts of trying to scale them on the PC to 16 mm or 1:19 I had a set of plans that I could take direct measurements from.





I hadn't designed or made anything that involved such a great deal of my model engineering skills for a very long time. The project was really starting make me think on the best way to make the components required.

The first parts to be made were the sub frames to support the two power bogies and boiler. I used 1.0 mm thick nickel silver sheet as it is considerably stronger than brass and much better to work with. The running boards and footplates are strengthened on the underside with 1/8th square brass bar. A former had to be made to bend the bar to the desired radii. In the end there was a bit of



trial and error before the curves were right. The brass bar tended to spring back when removed from the former.

Sub frame and running boards

I used all the materials I had on hand, so some dimensions of the model vary from the drawings namely the boiler tube and smoke box diameters. To make them to scale would have involved importing copper tube from the UK as the sizes were not available here in New Zealand. This would have been silly when I had metres of 54mm diameter that would be a little over scale and give me more steam space. The boiler and gas tank still have to be made; they are just dummies at this stage to prove that everything will fit together.



Boiler and gas tank assembly

I am making a single boiler from the rear of the cab to the smoke box of the "top" engine.

This is the term they use for the smoke box pointing out of Portmadoc station towards Bleanau Festiniog with the driver on the left hand side of the engine. This is the style of boiler that Geoff Munday used and his engine worked so why try and be different. The main difference will be that I will be using a 50mm x 50mm ceramic burner, Geoff used a poker burner. Trying to make true wagon top double boiler with two fireboxes would have been almost impossible in this scale. The boiler will have two diameters for the barrels, simulating the 'wagon top' boiler.



Boiler and smoke box.

The rear "boiler" is going to be the gas tank and not connected to the front boiler. It will be filled through a filler valve in the rear dome. My only concern is that the cladding will keep the gas tank chilled after filling and during the run, causing the gas pressure to stay low. I could try and use liquid for the burner feed but have decided to build a steam heating loop in the tank. I will be able to control a short burst of steam via an R/C valve through the heating loop to exhaust through the rear dome. This will simulate the safety valve blowing in an otherwise "dead" dome and take the chill off the gas. Well that's the theory anyway.

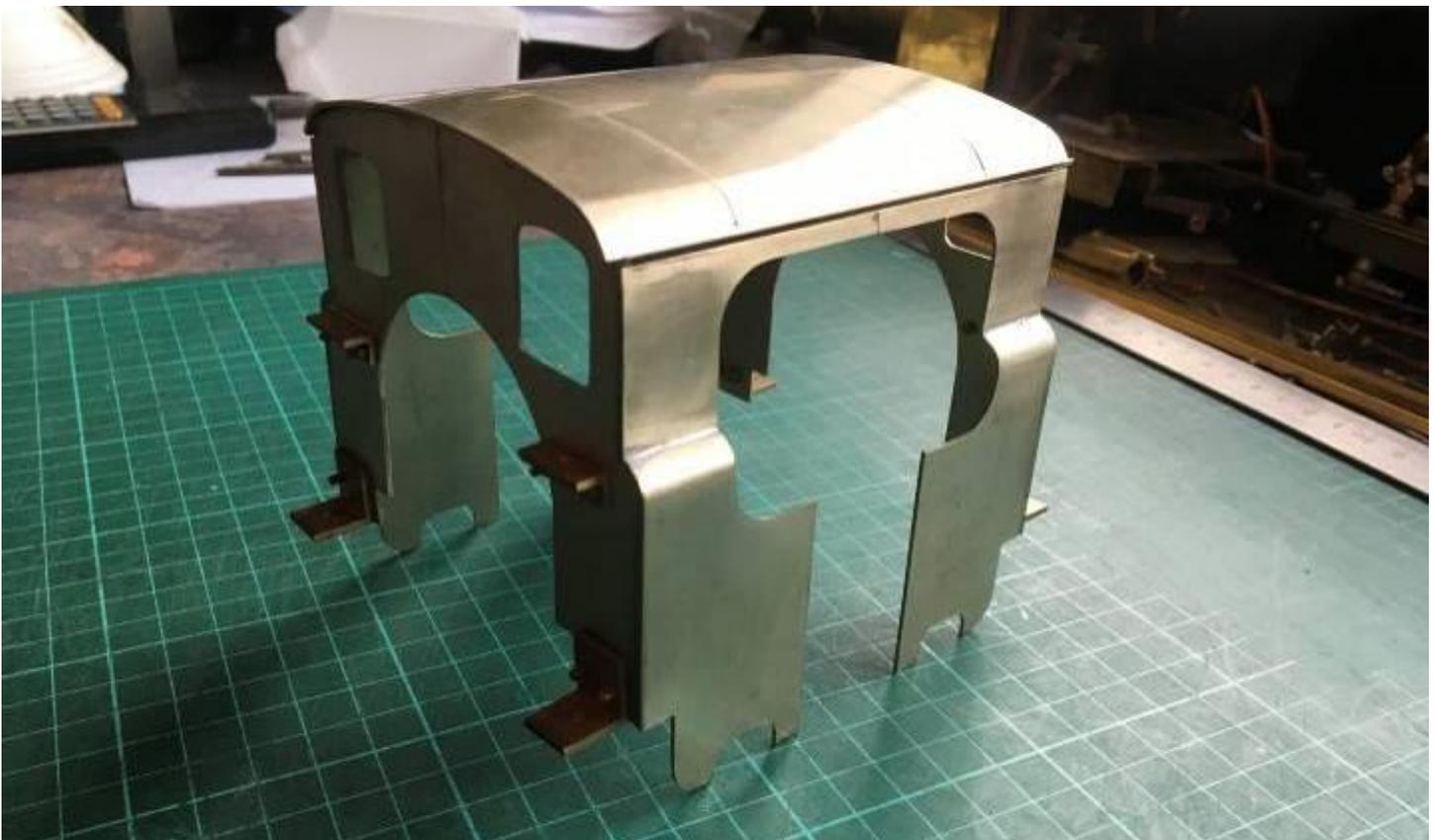


Gas tank and smoke box. The black delrin is just a temporary joiner to keep it in line with the boiler.

This photo shows the power bogies sourced from Roundhouse in the UK. I have installed the two reversing servos which are high torque and have metal gears. As the valve gear can't be notched up, I will be using a 3 way switch on the R/C to change from forward/neutral/reverse. This will free up the other joystick to operate the two separate throttles.



Power Bogies with Kadее couplers installed to match my rolling stock.



The cab and roof are made from nickel silver sheet.

The cab was the first part of the project where I had to put my thinking hat on. There were a few tricky curves to bend into the roof and side panels. I experimented with an off cut of the nickel silver sheet for the roof and rolled the main curve in bending rollers. The tricky part was to form the ends of the curved roof downwards.

Vee former for the roof profile showing the test strip

A short piece of brass was turned to the exact diameter of the curve and mounted on a spigot so it could be held in the drill chuck at 90 degrees. For the former I used a short length of 0.75" steel angle. One side of the angle was reduced in the mill to give me 11mm across the Vee. The other side of the Vee had a small groove milled along its length so I could accurately locate the sheet to be formed. A quick press using the quill of the mill drill formed the desired curve and it could be repeated exactly. The roof is made of three pieces of sheet so there were 6 curves to press into shape and they all needed to be exact. The centre section of the roof was hard to press and I had visions of sheering a tooth off the quill!!! I really should have used a bench press (if I had one).

I am waiting for some thin strips of nickel silver to come from Eileen's Emporium in the UK to solder over the roof seams.

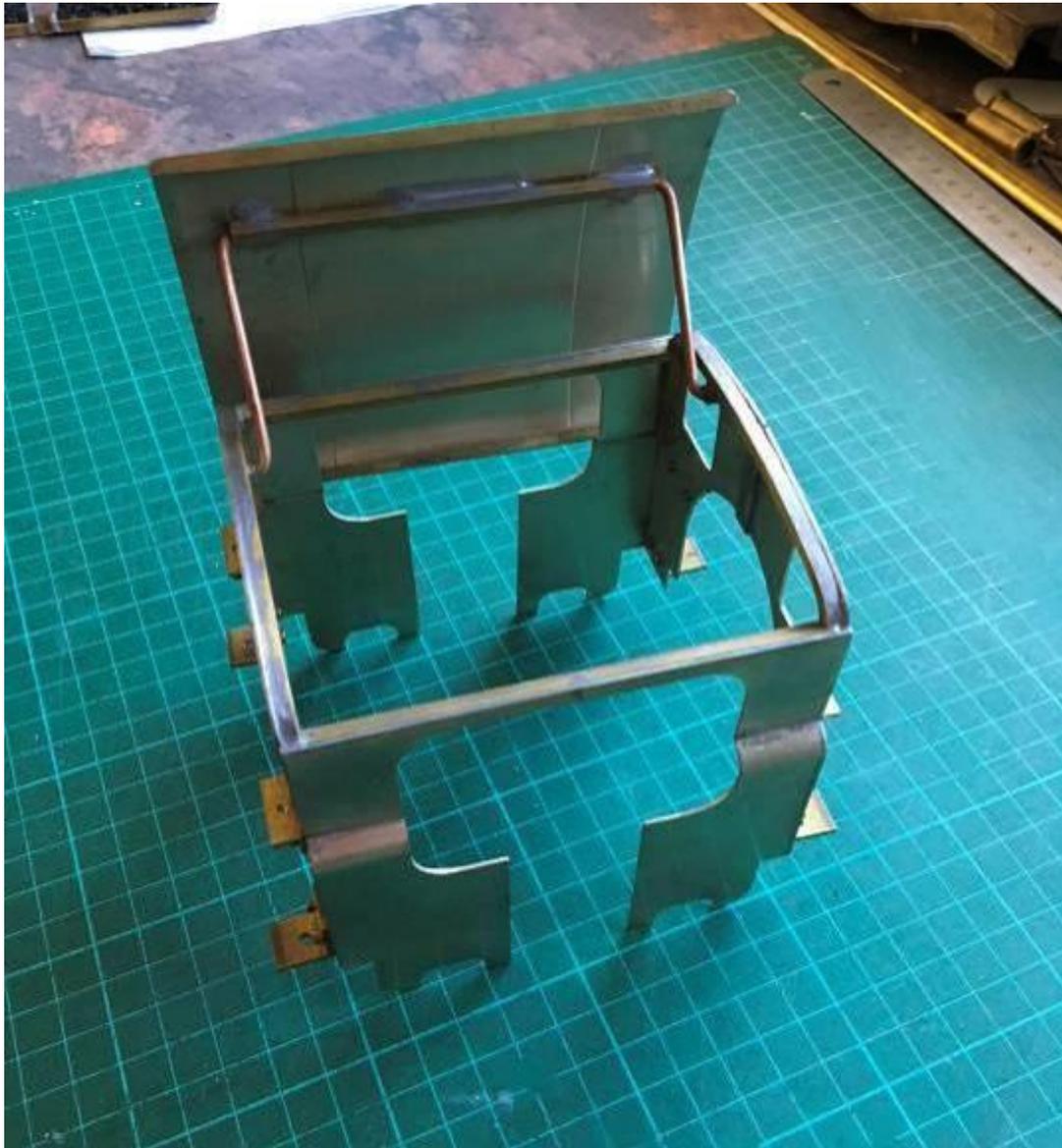
Feeling flushed with success, new jigs were made for the side panels on the cab as these had to be formed to a smaller radius. The bending process was repeated for the cab sides. Another benefit I found of using nickel silver sheet is that it doesn't spring back after being formed.

I wanted the roof to hinge to one side to give me access to the Enots boiler filler valve and two lubricator filler caps. I also envisaged using the centre cab to lift the engine as it would be the coolest part of the engine when in steam. This meant that the cab superstructure needed strengthening, so 1/8th inch square brass bar was used again. I couldn't get the brass bar to conform exactly to the



spectacle shape. In the end had I spent far too long trying to get the shape right! I had to say to myself "this detail is out of sight when the engine is running, so why bother"!

The hinge of the roof was a bit of trial and error to solder in the correct place. In fact it was a real juggling act to get it to open properly and then shut down so the roof sat down square on the cab spectacle plates. Perseverance prevailed. The roof can be easily removed by squeezing the wire supports together so they pop out of the pivot points.

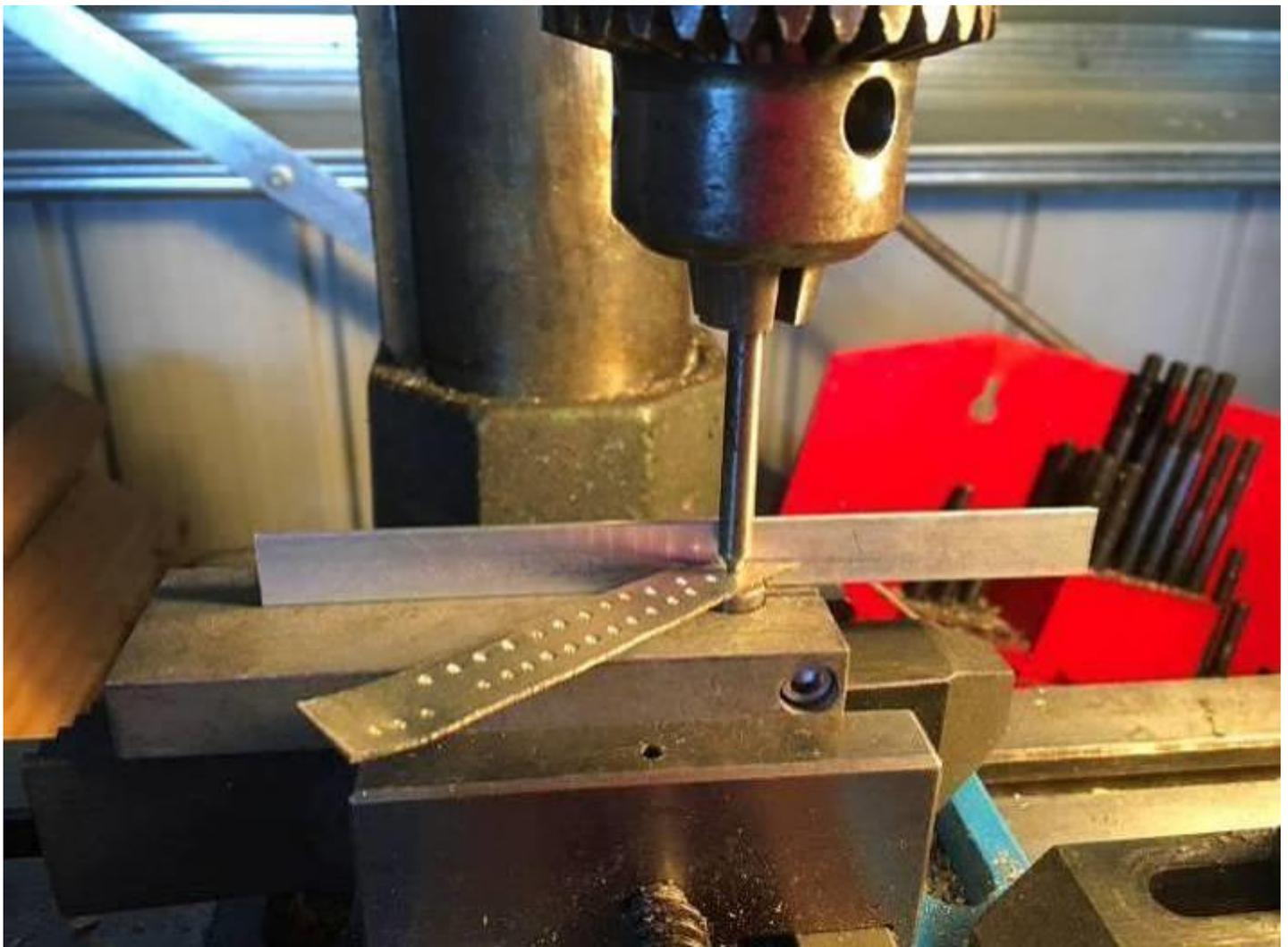


Cab roof hinged back showing the strengthening

The four side tanks were the next part of the project. I realised that the quill on the mill/drill wouldn't be up to the task so had to think of a different way. I bought a Bramley sheet metal folding tool over 30 years ago and deformed the bed with its first job of trying to bend some 1/16th copper sheet. It was supposed to be able to bend that thickness in steel, so why it failed with soft copper I will never know. To fix this problem I had to make up a packing spacer and insert it between the bed and the work bench. Thankfully this brought the bed back into alignment. My plan to put a 6mm radius on the top corner of 4 tanks was to use a 6mm thick piece of steel as the former and use the Bramley to do the work. A radius was ground on the former with the lisher using a ra-

dial gauge to check it was correct over its length. I then drilled and tapped the Bramley bedplate to allow the former to be screwed down 0.75 mm away from the front edge of the bed (the thickness of the brass sheet). To give the desired accuracy for 4 bends a 0.5mm strip of brass was attached to the underside of the former, square to the front edge and 40 mm away. Testing with a scrap piece of brass gave me the confidence to tackle the 4 side tanks.

I had already made and successfully used a rivet press for the dummy tank fascias under the foot-plates. The die was made by drilling a stub of silversteel with the tip of a small centre drill. The rivet shape was then ground using a small round diamond tipped burr in the Dremel. Silversteel was also used for the punch. An aluminium fence attached by a couple of screws to the die holder made it easy to produce a straight row of "rivets".



Riveting set up using the mill/drill on a scrap piece of nickel silver sheet

The rivet spacing was done with a pair of dividers and a lightly set automatic centre punch. This made aligning the rivet punch easier on the mill/drill. Three differently spaced aluminium fences were made to complete the riveting on the tanks.



One set of side tanks complete with sandboxes and filler lids

The cab windows and clear inserts have been milled on the CNC machine. A test run was first done on sheet styrene to make sure the finished article looked right against the cut out in the spectacle plate. All looked good so 1.5 mm thick engraving brass replaced the sheet of styrene on the router. Unfortunately the first 1mm cutter was quickly consigned to the scrap bin! I was a little bit over zealous with the feed rate and decided to drop it down to 2mm / second to be safe. It took nearly an hour to cut all 4 frames, better that than break another cutter half way through the job! The frames were recessed 0.6 mm for the clear inserts to be glued in.

A jig was made to hold the window frames square to the Dremel pillar drill allowing the hinge pin holes to be drilled with a number 70 drill. Hinge posts were made by soldering very short pieces of brass tube to 12 BA screws. They work and don't look too bad if you don't look too close.



Window frames.

The two on the left show the recess for the window, the one on the right is the styrene test piece.



All the bits and pieces assembled

I was relieved to find some very small 8mm wide brass hinges for the tool box lids. They were only 85 cents for a pack of ten from Aliexpress. After the fiddling job of making the eight hinges for the windows, I really didn't fancy making the four for the tool boxes.

The last job I managed to get done was to solder the half round beading around the cab. It took nearly two days to bend and form all the sections. I had to keep walking away to release my frustration as I frequently got to screaming pitch!! The resistance soldering unit really came into its own with regards to attaching them to the cab. I couldn't have done it with a normal soldering iron. I recently upgraded the unit with the help of a G Scale friend Ian Moore from 100 to 1000watts, not that it needed that power to do the job. I can now vary the output from 0 to 1000, so a test piece was used to find the best setting because on full power the carbon tip glows bright yellow/orange, scary stuff!

A brief summary of the engine details:

Current weight is 4.75 kg's

The smoke box doors have been made to hinge open.

Rear side tanks will contain 6ch radio gear, batteries, on off switch, charge socket and gas control valve.

Left and Right water gauges will have a common blow down valve.

A Ceramic burner will be fed from the large rear "boiler" gas tank.

There will be an audible low level water alarm.

Water top up will be by an Enots valve in the centre section of the cab.

A large whistle with a resonating chamber will be installed in one of the front tanks.

There will be two throttles and two lubricators for the power bogies.

The two tank top mounted tool boxes have hinged lids for access to the gas control valve and R/C on off switch.



Tool box open

The next part of the project will be the construction and silver soldering of the boiler and gas tank.