CANTERBURY MODEL ENGINEERS · C·S·M·E·E · CHRISTCHURCH N.Z.

Canterbury Tales

Vol.58 March 2021

Jock Miller, a member of CSMEE since 1956, has accepted the position of Club Patron. The above photo sees him receiving his badge of office from the President, Alex Cowdell.
Congratulations, Jock - -we wish you well in your exalted position!

Peter Grounds

Progress on “The Berkshire” (Part 7)

Recent work on the Berkshire has involved finishing off the main (connecting) rods and side (coupling) rods. **Photo 1** shows one of the main rods joined to a rear side rod. This arrangement may seem unusual to many model engineers. It was used on some of the last, large 2-cylinder American engines, and was known as “divided drive” or “tandem drive”. The idea was to transfer some of the piston thrust directly to the rear coupled wheels, without going through the main crankpin first. I had fun figuring out how to drill oilways through that lot!

Photo 2 shows the other end of the main rod, the “little end”. In the full size engines, the bearing bush was split vertically. The nut on the side of the rod pulled on a taper which forced the two bearing bush halves together, thus taking up wear. I wanted something simple and robust, so a one piece bush, and the various components TIG welded together for strength.

Photo 3 shows the rear of the little end and the welded components. Interestingly, TIG welds bronze to steel very well, using silicon bronze filler rods. I suppose this could be considered “TIG brazing”?

Photo 4 shows a pair of side rods, with brass oil cups and hex-head screws holding the bearing bushes in place. I needed to make 24 oil cups. Towards the end, I was making an oil cup every 3 or 4 minutes. Unfortunately, I stopped for a coffee after each two or three were made, so didn’t make the progress expected!

But wait..there’s more!

Another project!

Although the Berkshire is the primary project in my workshop, there is a “counter-project”, namely a **7¼” gauge NZR Ab**.

I clearly remember Ab class locomotives in NZR service in and around Papanui, in the 1960s. I have wanted to build a live steam Ab for a while.

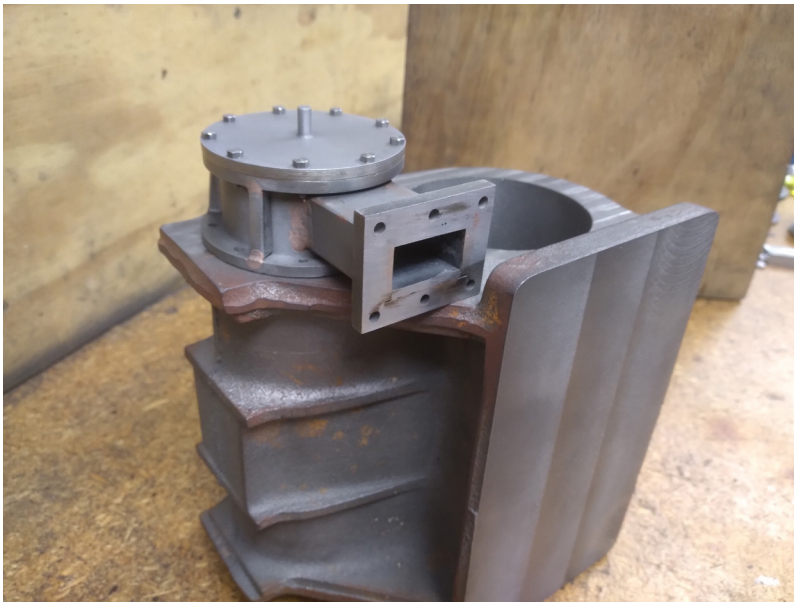
Somehow, three sets of wheel and cylinder castings ended up in my workshop. Not all mine! Win Holdaway made the patterns and The Casting Shop made the castings.About 3 years ago, when I was trying to get my workshop operational after the move from Christchurch to Leeston, I found machining NZR castings quite therapeutic, and over a period of about 2 months, machined 60 wheel castings! Then it was back to the Berkshire.

Recently I have been doing some machining work on a pair of Ab cylinder castings. They are deceptively large castings, even bigger than the Berkshire ones.

Making the front valve chest covers presented a tricky problem. The Ab is unusual in that the exhaust steam passageways are external to the main cylinder casting. Since the arrangement is very prominent on the full size engine, I put a bit of effort into this part.

The photos hopefully show the arrangement. These exhaust covers are steel fabrications TIG welded/brazed together. They seem to have worked out all right. The ones at the other end of the cylinder include the valve guides (it only seems like 10 minutes ago I was making the Berkshire ones). However, they will be another story.

It’s now time to return to the Berkshire! Next up: expanding the copper tubes into the boiler tube plates. There are 38 of them!



Ab cylinder castings

7¼” gauge South African Railways Class 15F locomotive

By Ian Fanshawe

7¼” model UK

While talking to a number of club members about the loco I invariably get asked “What is a 15F and what does it look like?” A good starting point would be some history of the full-size engines. They had a wheel arrangement of a 4-8-2 (mountain) type. The 15Fs were the most numerous of the many classes running on the South African Railways 3’ 6” system and totalling 255 in all. They were built in 3 batches from 1938 to 1948 by 4 different manufacturers, namely Henschel (14) and Schwartzkopf (7) in Germany and subsequently North British Locomotive Co. of Glasgow (204) and Bayer Peacock of Manchester (30) in the UK.

Originally the engines were paired up with a twin 4 wheel bogie (JT type) tender having 6050 gallon water and 14 ton coal capacity. Later on, on some of the 15Fs these tenders were swapped for a larger twin 6-wheel bogie (EW type) tender having 9500 gals water and 18t coal capacity. The EW tender were originally fitted to the class 23 engines and were swapped over when these engines were scrapped. My model will be this latter combination with the EW tender.

My first exposure to a 15F was Dave Dunk’s 3.5” gauge version many years ago and I thought then it would make a nice 7¼” gauge model. That’s when I started planning and accumulating bits and pieces even back when building the 7.25” Britannia. Engine frames in 20mm steel were drawn up and laser cut, wheel patterns and castings produced, also many other laser cut parts were cut and things started to accumulate. In addition the tender bogies were made early on. Then came the steel boiler. These all sat around until the Brit and the electric BR class 40 were finished and construction commenced on the 15F in early 2020.

Being 3’ 6” gauge prototype with a large loading gauge results in a large scaled down version of approx 2” to the foot or about 1/6th full size. This equates to an engine and tender working out at 4500mm long by 520mm wide by 680mm high, and weight of approx 1000Kg when fully loaded with water and coal. It is even wide enough to sit **in** rather than **on** the tender. The engine chassis is well under way, with cylinders and valve gear yet to finish (see photos). The steel boiler has been made and successfully hydraulic tested and empty weighs in at 180 Kg.

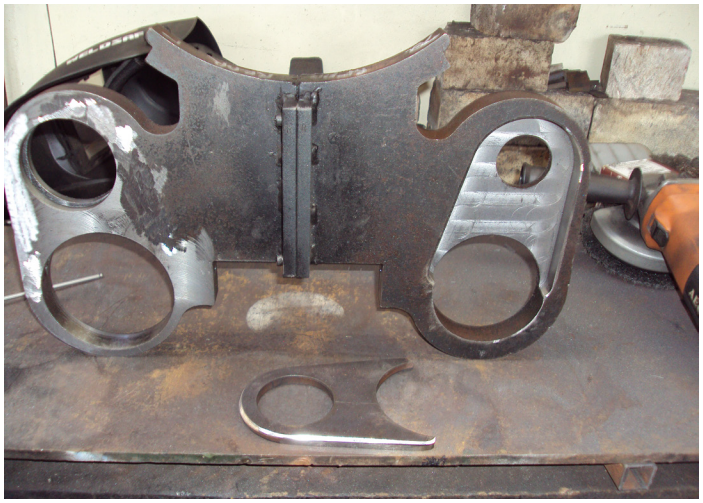
Lagging, cladding and boiler fitting are yet to be made and fitted. As mentioned the tender bogies are made and only await hand and air brake gear (highly desirable considering the weight of the thing) to be fitted. The tender tank under-frame is coming along and tank/bunker parts await assembly. Then of course there is the chore of painting. The tender comes out at 2m long and as mentioned can easily be sat in. This will make it much more comfortable to

drive, (an important consideration especially with my old creaky bones, which are unlikely to improve!)

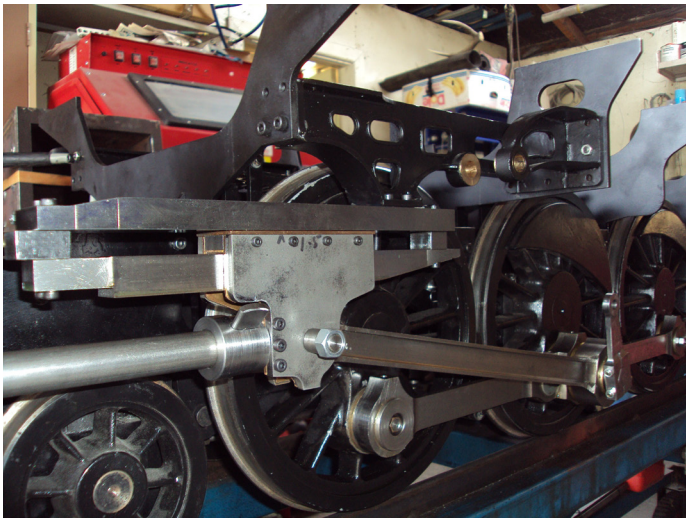
For those interested in seeing some full-size and various gauges of miniature 15Fs in action, go to You Tube and search ‘SAR 15F’ This will bring up a number of videos to choose from. A couple of my favourites in full-size are:

15F 3094 Irene Marathon Train **and** *15F Double Header Return*

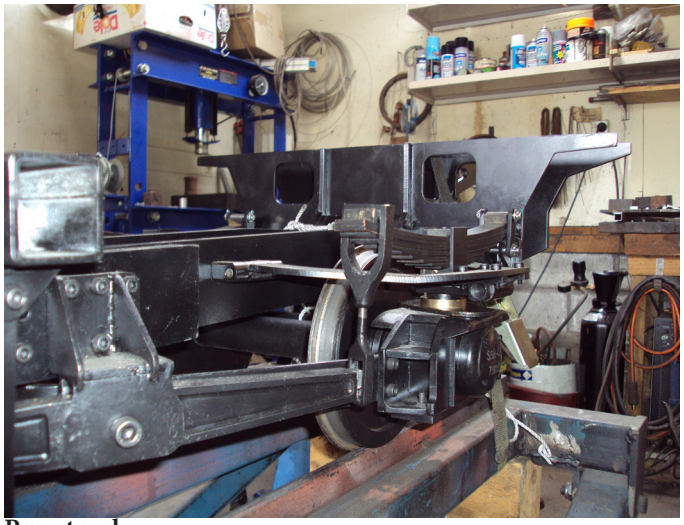
With the present goings on, - fire bans for no real reason, coal being phased out etc., things seem to be getting worse by the year. It makes one wonder whether it is worth while to carry on with the construction. Sorry to sound despondent but these things can get you down after a while....



Fabricated cylinder ends , with steam passages



Crossheads, slide-bars, expansion link bracket

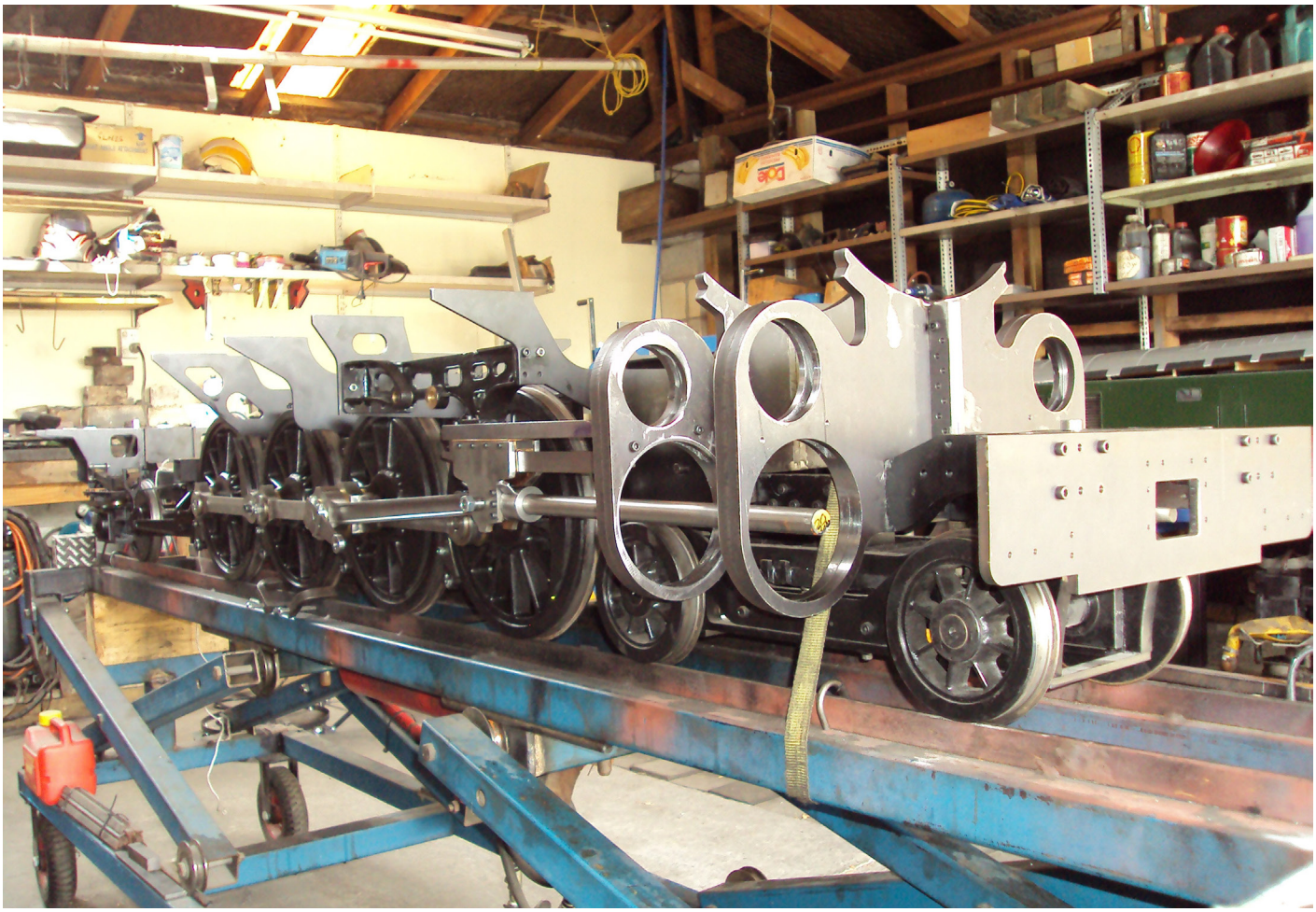


Pony truck

Main springs (phosphor bronze)

Milling side rods

Boiler

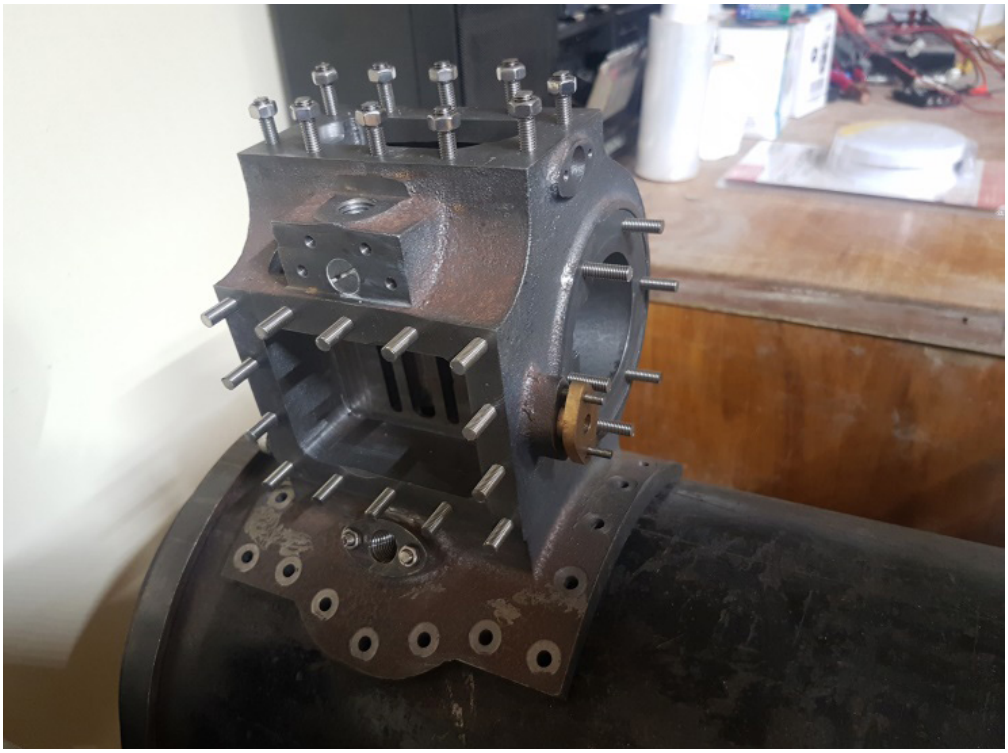


Construction to date

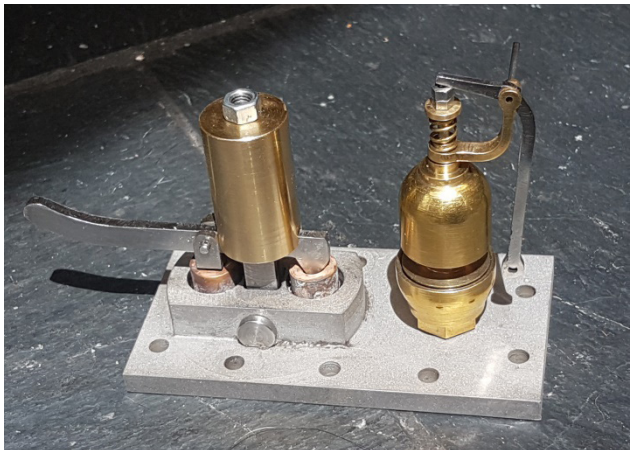
John Begg's 3" Fowler A7. Continuing Work on the Cylinder

Avid readers may recall that the last instalment concluded with comment as to the work to be done in and around the cylinder with the suggestion that it may be finished by Christmas 2020. Well it wasn't, despite plenty of time input. There is certainly a lot of work in the bits attached to the cylinder. Drain cocks, whistle, safety valves, various glands etc. However, that is now all done.

A small fun fact – there are 50 drilled and tapped holes (with studs) in the cylinder plus 40 straight holes (steam ways, clearance on other studs etc). The cylinder is a bit like a piece of Swiss cheese.



With the safety valves I wanted to try and keep the scale look of the Hornblower style valve as per the original Fowler. However, I received plenty of advice that the Hornblower type don't work too well, especially their reluctance to shut resulting in more loss of pressure than desirable. Ian Fanshawe gave me some helpful information re: pop valves and their design and I also did some internet research. Thanks Ian. After due consideration, I have gone with a compromise design which hopefully incorporates the better aspects of the pop valve while still retaining the overall appearance of the Hornblower. However, as is common in engineering, compromises were required and time will tell whether this approach is successful or if a re-design will be required.



Picture shows the safety valve and whistle on the cylinder top cover.

Just before Christmas I offered to take my engine to Kelford Engineering as part of their end of year function. This was an opportunity to fit the various components (boiler, smoke box, cylinder, and wheels) together for the first time. To my considerable relief they did actually fit together and the end result looked like a Fowler A7 traction engine. That was a big morale boost and incentive to carry on.

In the picture below it looks more finished than it actually is – the major bits are just sitting together. Still I am happy.

From the Dockside

Pond Life

At last our pond is finished, with a brand new weir built by Tesco, A 300mm pvc pipeline has been installed, with a valve at the pond end so that we can lower the water level as required,via an outlet into the stream, The overflow in the pipe up-stand will regulate the pond level. Tesco also removed the old weir and back-filled the ground to a width of 3 meters to create the dam. It was all compacted and will stop the pond water pushing through. The grass seed has even been sown. So let's hope the boats will be back soon.

Overflow exit

Overflow pipe

Pond finished

Commodore's Report

YAY! WE HAVE DONE IT!

Finally, we have fixed the weir at the pond, with the local help of Tesco, who came and built us a new weir and took the old one away. We have been off the water since November 2020. Now we are just waiting for the weed to be sprayed and for the pond to come up to the required water level, after which we will be back in action for many years to come. There are lots of members who've been waiting for this exciting time, eager to sail their freshly-built boats and see how they perform.

So there's not much to be said about the pond over the last four months; but watch this space!

Well, thats all from me at this time and I look forward to the many great times we will have on the pond.

Andrew Willis

Pond outlet

Editor's Comment: Sadly, all rejoicing is on hold for the moment, as the pond is losing water, owing to evaporation, faster than it is being replenished

Substantial rainfall is needed to fill the pond, thereby encouraging weed to grow to surface, before then draining the pond to permit weed-spraying. After this, we hope life can return to normal!

Placing pre-cast form into position

Old outlet in foreground

A Short History of the Halswell Pond

by Ritchie Wilson

Before the CSMEE excavated a pond at the Andrew's Crescent site in 1963, the model boating venue was Lake Victoria in Hagley Park. When the Club moved to Halswell in 2003 a new pond was dug, without cost, by Isaac Construction, due to the generosity of Lady Isaac. Several potential sites were investigated, one near the trestle bridge, before the present location was decided on.

The source of the test pond's water is a series of springs in its base. The size of the pond was suggested by the Council as being "10 metres", which was interpreted by the Club as being 10 metres radius rather than 10 metres diameter – or indeed 10 metres circumference. The maximum depth was originally three metres, but was reduced to less than two metres by the 2011 earthquake.

Excavation revealed a strata of sharp black sand which, rumour has it, was much appreciated by Isaacs, who used it as compactable fill in a local sub-division. Unfortunately for the Club this sand layer was permeable – water could pass through it – and this was to lead to problems in the future. A concrete pipe was installed so that the pond could be drained to allow water-weed to be removed. A metal plate across the pipe's exit controlled the water level.

The Wednesday workers completed the mammoth task of installing the pond's wooden sides (formed by two 200x50 planks fastened edge-to-edge to long stakes) over many weeks. The wood was to protect the pond's edges from being eroded by wave action. The posts in the dock area were driven by a local farmer after attempts to use a post-hole digger resulted in holes as wide as they were deep, in the shingle which was traversed by fast-running water. The narrow entrance to the dock area is a relic of an early scheme to have the 7¼" track run over a bridge there. The dock area has attractive wooden piers, storage and a lift for removing heavier models from the water

The water-weed is a problem to which there appears to be no easy answer. Weed spray is the current method, which has to be applied every year.

Maintaining a satisfactory water level in the pond has become increasingly difficult. The flow from the springs into the pond continues, but leakage out has often been greater, leading to shallow water. The consensus is that the width of the ground between the east end of the pond (where the drainage pipe is) and a small stream, was too small to stop water percolating through the porous strata and escaping. Attempts to slow the leakage using sandbags and quick-setting cement proved ineffective and so the decision was taken to widen the narrow section of the bank to four metres. This necessitated installing a new, longer, outlet for draining the pond and this was put in place at the beginning of 2021.

CANMOD 2022

The planning for Canmod 2022 is underway with the dates set for the National Convention being

6 - 10 January 2022.

All further details, registration costs, daily programme, competition details will follow in due course. Everything will naturally be dependent on the Covid 19 situation at the time.

Here's where you come in!

If you are interested in being part of the planning team, you are welcome to attend its meetings on the third Tuesday of every month. The next meeting is on Tuesday 16 March at 7.30 in the Clubrooms.

CSMEE Officers for 2020 - 21

Patron: Jock Miller

President	Alex Cowdell	03 3181908
Vice President	Jonathan Grueber	03 3135070
Past President	John Howie	328 7459
Secretary	Rob Wilson	960 4305
Treasurer	Mike James	321 7051
Loco Foreman	Rob Wilson	960 4305
Commodore	Andrew Willis	0274 509334
Clerk of Works	John Howie	328 7459
Librarian	Dave Markham	322 7524
Boiler Committee Chair	John Hamilton	322 4574
Safety	Committee Members	

Committee Members

Robin Shand	021 217 3601
Howard Shears	382 0761
Barrie Doublesin	383 3827
Eddie Clark	359 9615
Mike Harrison	349 6946
John Blanchard	359 4053

Boiler Committee

Jock Miller	332 1614
Ian Fanshawe	942 2937
Mike James	321 7051
John Hamilton	322 4574
Keith Robson	324 4195
George Hodges	323 5019
Dave Campbell	326 5585
Peter Grounds	324 3662

Constitution & By-laws Chair: John Howie 328 7459

Volunteer Positions

Awards Night Convener	Dave Campbell	326 5585	**Visiting Speakers**	John Begg	339 8448
Asst. Loco Foremen	BarryDoublesin	3833827	**Wagons /WOF**	Phil Bellaney	03 312 5659
	Dave Markham	322 7524	**Membership**	John Blanchard	359 4053
	Peter Grounds	324 3662	**Canterbury Tales**	John Pattinson	329 4441
Asst. Clerk of Works	John Hamilton	322 4574	**Shed Foreman**	Alan Barlow	344 0244
Projects Manager	John Hamilton	322 4574	**Asst. Shed Foreman**	Ben Sewell	322 4219
Webmaster	John Begg	339 8448	**Mech. Maintenance**	Peter Grounds	343 1443
Publicity	Ben Sewell	322 4219	**Roster Reminder**	George Maylam	324 3469
Facebook	Nicky Tily	03 318 4785	**Ticket Box**	Jim Rosanowski	359 1370
	Patrick Whillis	382 6452	**Archivist**		
	Jayden Randall	322 7292	**Asst. Librarian**		
	Ben Sewell	322 4219			