



Newsletter of **THE PALMERSTON NORTH MODEL ENGINEERING CLUB INC**

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TRACK RUNNING

This is held on the FIRST and THIRD Sunday of each month, from 1 pm to 4 pm Summer and 1 pm to 3 pm during the Winter. All club members are welcome to attend and help out or even just a chat. We will even give you a cuppa.

Visiting club members are always welcome at the track, at the monthly meeting, or if just visiting and wishing to make contact with members, please phone one of the above office bearers.

Sender:- PNMEC
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here

This Months Featured Model



Report on the March Meeting.

Palmerston North Model Engineers members met at the Feilding Coach use and spent a couple of hours looking at the marvelous exhibits from the past. One of the trustees, Brian Hunter, gave a short address explaining the history of the museum and their problems in the past finding a suitable building big enough to house their collection.

The problems faced with keeping the building free of birds and vermin, the insurance problems (especially since the Christchurch earthquakes) were all part of the hassles of looking after a collection of this type. The continued support of the Higgins family and the increase in visitor numbers has eased the stress of it all.

Changing the building from its original use (wool spinning) to a building suitable for housing delicate museum artifacts was a challenge in itself. All the efforts of the volunteers has been worthwhile and now the Museum has a collection of the Manchester Block's past that shows the work that the early settlers undertook to turn the bush into productive farm lands.

AGM and Club Night

This Month is the AGM.

You will need to vote for the

“Members of the Incoming Committee and Executive”

also the

“Clubman of the Year”

7:30pm, Thursday 25 April 2013
Hearing Association Rooms
Church Street, Palmerston North

Construction Competition

Rules - The supplied scrap must be used for part of the project.

Your project is to be displayed at the May Club night for judging by your peers.

COMING EVENTS

Track running at Marriner Reserve Railway

April 21st from 1pm to 3pm
May 5th from 1pm to 3pm
May 19th from 1pm to 3pm

Open Weekends

Manakau Live Steamers

1st, 2nd, and 3rd of June 2013

Editor's apology. In the last newsletter I said the New Plymouth Model Engineers were hosting an Open Weekend at Easter. This was incorrect and I apologize for any inconvenience. My only excuse is that the last month's 'Generator' was published under some difficulty as the computer had suffered a complete failure or perhaps it is the onset of senile decay in which case I should be replaced by a younger member!!!

Repairs to a Toy Wagon

By Bruce Geange

I was asked by the Coach House Museum if I would like to repair an old toy wooden wagon for them.

The wagon was picked up from the museum and found to be in poor condition and had been built like the full size one.

On a fine day the wagon had a good wash and a scrub and many problems were found while

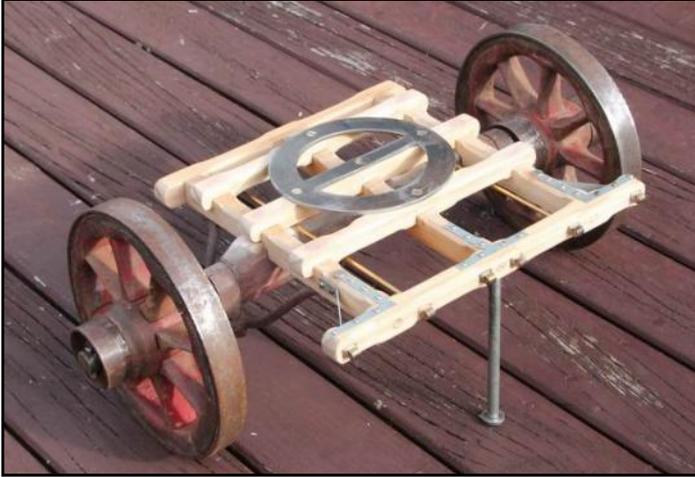


The closing date for the next issue of The Generator is Friday 10th May

doing this. There must have been almost half a box of carpet tacks banged in at random to remove.

Damaged or broken timber was replaced or filled with Builders Bog. Fit a timber spacer inside the main frame for the new floor to fit on.

Cut a new floor out and temporary fit. Make a new tail board with hinges and keepers. Make a



new fore carriage with turntable and centre pin. All wheels were repaired and the old bearings and shims removed from the rear wheels. The shims were made from the lids off the old tin match boxes. New bearings were made from aluminium and glued into the wheels. The bore in each wheel were different to suit the axle. Spacer washers and securing pins for the wheels were machined. Prime all parts and sand then apply an undercoat. Spray on the finished colours and varnish the floor. Assemble the wagon and line the sides in yellow.

Letter from England

By Stan Compton

No doubt you will have heard of or seen on TV some of the floods in this country, no mentions that if all the ditches that border our farmlands were cleaned out, it would help prevent run-off from the fields onto our roads. The rainfall has been excessive though and the Hereford Model Engineers track site has been flooded more than usual.

The elevated track has two old transformers mounted in a lockable box for power supply to the 12 volt fans required for raising steam. Usually these transformers are removed and stored above flood level for the winter, but one year (and again this year) they were left in the box and got flooded. When spring came the transformers were covered in silt but after cleaning they performed as usual. With luck they

will do so again this spring.

I have just written an article about the history of the 'Worcester & District Model Engineers'. One of the founding members was Alf Castle and he was a night fitter in a local factory and was able to build rolling stock for the new group in quiet times. In my 1963 copy of 'Manual of Model Steam Locomotive Construction' by Martin Evans there is a photo of one of Alf's locomotives. Alf told me that all his locomotives had 1½" cylinder bores because he owned a reamer of that size. Everything depends on working steam pressure. The 0-6-0 club locomotive he built handles heavy loads as long as 100lbs pressure is available.

This is something I have mentioned before, an over scale piston will help if pressure drops, full-size and model.

Alf was known to speak to a new visitor with a small 3½" gauge locomotive "You can put that back in your car. It won't earn us any money.!" This was a bit hard on somebody new to the hobby. I would have invited him to have a run after the public had left, on his own out on the track.

I would be happy if someone approached me with a new small locomotive on a public running day, we have a lot of members but few with engines to run.

Some new model engineers set their sights too high. I met one who intended to build a 5" gauge 'Darjeeling Railway' tank locomotive and was making his own drawings not realizing that this could take many hours. With plenty of choice available why take on such a load of work before even cutting any metal? Any number of new members ask me if I know of an old locomotive they could buy and fix up not realizing what this can involve. Locomotives are not like an old Morris car, a set of piston rings, a valve grind and new plugs will give it some more life.

A different story with a locomotive that was not so well built from new and has been used every Sunday until worn out?

An incomplete locomotive can be worthwhile, but even a qualified person can let one down. I recall an inside cylinder engine where one cylinder was not parallel to the other one, this caused a lot of grief at the end of the slide bars, something that could not be foreseen. There are always bare chassis available but take care, I know of an 0-6-0 that has axleboxes that are a very sloppy fit. Not a simple job to press the wheels off then rebores and fit bushes. The

coupling rods may now need eccentric bushes to obtain free-running. Mount a wheel on a faceplate and you may well find that the crankpins do not run true. So be warned, first time builders who give up, tend to rush jobs that need great care.

The out of line piston rod mentioned last month could be corrected by using a self-aligning bush, shouldered on the outside and held in by the gland packing.

Be very wary of Kit Set engines. I once completed a 'Model Tech' example and I could not believe how the maker had got so many things wrong. I said "Never again".

Another example had the builder struggling for three days trying to connect the steam pipe to the throttle. The bush in the backhead did not line up with the bush in the front tubeplate.

The tubeplate copper was soft and with the aid of a bar I was able to align the two bushes.

This should not happen but I am afraid that kit sets are the way of the future as few people want to spend time in their workshops these days.

I always tell a newcomer to the model engineering hobby "If you can't allow ten hours a week for over two years to build a 'Simplex', don't even start." Laser cut frames etc will help but even a 'Juliet' is a lot of work. Forget 'Tich' they are not that simple. I know many men whose first locomotive was a 'Juliet' and they still have it at the end of their lives, the heavier engines they built have all been disposed of. Years ago when I was working in Vancouver B.C., I heard a true story about life in the logging camps. It seems the Chinese cook got so frustrated with the poor quality meat supplied to feed the men that he marched over to the supervisor's office carrying a big meat cleaver and followed at a distance by some of the men. The petrified boss was found with the meat cleaver stuck in his desk!!!!

Editor's Comment

The following is a personal view of the Editor
In Stan's Letter from England he mentions that a chap wanting to run his 3½" gauge locomotive was turned away and told that it was too small to be of use hauling passengers and therefore would not make any money for the club. I have read of incidents like this in the 'Model Engineer' and in the 'Australian Model Engineering' magazines and I am aware of tracks in New Zealand where 3½" and small 5" gauge

locomotives have been made to feel unwelcome. The track at Marriner Reserve is ground level and caters for 3½", 5", and 7¼" gauges.

It is about 500 metres long and has a long 1:70 uphill grade followed by a 1:60 descent. During all the years I have run engines there (5" and 7¼" gauges) I have never found it a problem even when 3½" gauge engines are being run at the same time passenger hauling is under way. At times engines of all three gauges have been known to run short of steam on the grade but this only means a 5 minute delay.

The application of a bit of commonsense and courtesy should see the driver of a bigger locomotive delay his departure from the station to give a small engine a good start of perhaps half a lap thus avoiding the 'tailgating' that tends to intimidate the driver of the small engine. Sadly commonsense and courtesy are two attributes sadly lacking in people these days. From personal experience I understand that the skill level required to drive a small engine is far greater than that needed to drive a 7¼" steamer, the driver of which will fire at the station and then complete his two laps and fire again at the station while his passengers are being changed. With a small boiler the water level in the glass is constantly requiring attention, more feed water, but only a little or the boiler pressure will drop, a little more coal, only a little at a time or the fire will smother and cool for a few precious minutes dropping the pressure again. Perhaps the drivers of 7¼" steamers should have to drive a little engine for a time and then they would better appreciate the skill of a small engine fireman and the challenge he faces on each lap.

Of course there are only a few large engine drivers who are impatient and resent delays, but why? All our tracks are a complete circuit and eventually you are going to finish up where you started from.

A year or so ago we hosted a Kindergarten Party of children accompanied by teachers, mums and dads. The passengers were hauled around on wagons drawn by Richard Lockett's NZR W and the PNME club's Santa Fe F7, both 7¼" gauge. Joining in was Ian McLellan with his elderly 'Juliet'. Ian was not hauling passengers of course but it was the reaction of the children that delighted me. I was driving the Santa Fe and when I ran into the station to change passengers; Ian ran the 'Juliet' along the by-pass loop past the station and all the children started clapping and cheering. I asked the head

teacher if she had told the children to do this. She said no and she asked some of the children why they were applauding the little engine. The children said that because it was such a little engine and it had such a big man driving it. Neither the Santa Fe, nor the NZR W was cheered on, so even the four year old children could sense the effort made by the little engine. So if there are any owners of small engines out there who would like to run on the Marriner Reserve Track, you are very welcome and you will get a fair go without being intimidated!!!!

TURBO CHARGERS

By Doug Chambers

First I will clear up a common misunderstanding; turbo chargers and superchargers are two different devices both trying to achieve a greater air mixture into the combustion chamber.

The supercharger is mechanically air pump driven by the engine and is therefore inefficient at low engine rpm (revolutions per minute).

The turbocharger is turbine wheel driven by the exhaust gases which turn the turbine wheel and the shaft at high speed. Attached to the shaft at the other end is a compressor wheel which compresses the air in the inlet manifold.

The turbocharger design was patented in about 1905. However, common use did not really get started until the Second World War when American aircraft engine manufacturers found that their already supercharged engines would develop even more power when a turbocharger was fitted as well. Engine power at altitude increased which was very desirable in the never ending demand for more power at that time.

My first experiences of turbocharged engines were those fitted to the Ford D series trucks that started appearing in the early seventies.

I was a tractor mechanic on the other side of the workshop from where I watched with interest the problems the truck mechanics faced trying to keep these engines running. The turbocharged engines certainly delivered more power, but the more power you get out of an engine the more heat is developed and so a larger engine block with greater water capacity, bigger radiator and more efficient water pump are all needed.

Unfortunately the engine block was no bigger than the naturally aspirated engines and cooling was always a problem. A long period of sustained power usually ended with the rear cylinder seizing and another engine rebuild. Another problem was the early failure of the

seals that stopped the engine oil leaking into the inlet manifold or into the exhaust pipe. The turbo bearing was lubricated by engine oil at about 65psi. It appeared that the high temperature that the turbo operated at was a bit too much for the seals and from time to time they would fail.

In some instances the first the driver knew was when the low oil pressure alarm came on, usually too late to save the engine from internal damage.

One thing we noticed was that the turbocharged trucks driven by young drivers who (revved the engine to the maximum) had a longer engine life than those driven by older and gentler drivers. The truck mechanics soon realized that the lower rpms meant that the water pump was not operating at anywhere near maximum efficiency. However mileages over 50,000 miles between overhauls were seldom attained however the truck was driven.

About 1977 a Ford tractor the model 7000 was produced and it was fitted with a turbocharger. There was a large capacity for water in the block and the engine performed very well. The Ford 7000 produced 85hp quite a step up from the Ford 5000 which was similar in size but the naturally aspirated engine delivered only about 70hp. The Ford 7000 had two defects, one was easily cured but the other was to see the model withdrawn from the market place earlier than expected.

The first was the little flap cap on top of the muffler. When the tractor was trucked or railed it was found that this flap would open and direct air down into the turbocharger which would then start rotating. Engine oil was used to lubricate the special bearing but of course with the engine not running there was no oil and transporting the tractors over long distances often resulted in early turbo bearing failure. The cure was simple; a piece of wire holding the flap shut.

The second fault was more serious and could not be overcome. The Ford 5000 when pulling a four furrow plough would burn about 2 to 2¼ gallons of diesel per hour. The Ford 7000 could handle a 5 furrow plough but burned over 5 gallons per hour, and although diesel was cheaper in 1977 it was obviously not going to please many farmers with that fuel consumption. While working at Dalhoff and King in the Assembly Shop quite a few of the Kenworth trucks had GM 8V 92 engines. They were supercharged and then later Kenworths arrived with GM 8V92TT engines. These had two

turbos, one fitted behind each manifold. These engines had about 450hp but it was not to get more power that they were fitted. California has very strict emission controls and it was noticed that the supercharged GMs had a clear exhaust at high rpm's but when changing up a gear they puffed black smoke until the rpm's increased. The twin turbos increased the efficiency of the supercharger at low rpm and the puff of smoke was virtually eliminated. Turbochargers are today quite common on large and small diesel engines, not so common on cars nowadays with petrol prices increasing.

Running Day 7 April 2013.

On this day we hosted almost 400 members of the public, during the day, that were part of the Takaro Rotary Club's "Shed Tour". We arrived at 9am to start running at 10am and found 10 - 20 of the tour members waiting to have a look at "what we do". They were very interested in the models and asked many questions as we unloaded and steamed the locomotives. Other members readied the track for running. There were even our own club members on the tour. At times the steaming bays were quite busy with the Tour members checking us out.



Above and below— Photos of the steaming bays. Photos by Stuart Anderson



During lunch it was time for a chat.



MEANZ Meeting 13 April 2013

Four members from the PNMEC attended the MEANZ meeting hosted by the Hutt Valley Model Engineers in their clubrooms. It was an interesting meeting with many concerns from the clubs sorted or explained. Clubs represented, came from as far north as Whangarei and as far south as Dunedin.



Three of the executive sat at the front and the rest filled the club rooms. Peter Anderson was the photographer.



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