

Number 605

September
2015

The MICROMETER

AUCKLAND SOCIETY OF MODEL ENGINEERS INCORPORATED

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REGISTERED NEW ZEALAND PUBLICATION

Seen these before?

Two "large copper pipes with brass fittings on the ends". See what happened to them on page 4.





Train Roster

Date	Electric Driver	Electric Driver	Steam Driver	Train Controller	Station / Guard	Station / Guard	Station / Guard	Station / Guard
6-Sep-15	M Granger	M Hollis	Voluntary	<u>D Russell</u>	G Healy	R Crook*	J Davies	J Burnett
13-Sep-15	D Housley	J Lankow	Voluntary	<u>T Lawrence</u>	G Healy	P Jones	M Luxton*	G Dickey
20-Sep-15	P Moy	D Moffatt	Voluntary	<u>S Meikle</u>	C Mitchell	G Murray*	A Pritchard	H Martin
27-Sep-15	M Moore	M Plant	Voluntary	<u>G Anderson</u>	M Richardson	K Ryan*	A Shirley	R Street
6-Oct-15	R Reichardt	P Woodford	Voluntary	<u>T Robinson</u>	G Taylor	P Tomkies*	R Copeland	D Addis
13-Oct-15	B Aickin	I Ashley	Voluntary	<u>G Wills</u>	R Crook*	J Davies	G Dickey	J Burnett
20-Oct-15	A Bailey	G Beazley	Voluntary	<u>D Black</u>	G Healy	P Jones	M Luxton*	H Martin
27-Oct-15	D Booth	B Cotton	Voluntary	<u>T Lawrence</u>	C Mitchell	G Murray*	A Pritchard	R Street

Bold and Underlined Name:

This is the designated **Train Controller**, i.e. the person in overall control of all operations for the day

Bold with Asterisk* Name:

This is the designated Stationmaster, i.e. the person responsible for activities in the station area. The Stationmaster is also responsible to account for the day's takings.

Drivers: Please keep your eyes open for unusual or suspicious behaviour around the track which may affect the safety and/or smooth operation of our trains. Report such activity to the Train Controller.

Please Note:

If for some reason you are unable to attend on your rostered date, you are respectfully reminded that it is **your** responsibility to find a replacement member to fill the gap – please don't let the rest of the team for the day be left short-handed.

Also, please ensure the member you arrange a swap with is one who is rostered to undertake the same role to ensure we always have members with the appropriate training and experience on the day.

SEPTEMBER CALENDAR

Tuesday September 1, 7.30pm - General Meeting, ASME clubrooms.

Tuesday September 15th, 7.30pm - Committee Meeting

Coming up - Club fun-run day on Saturday October 10th.

- Big Boys Toys exhibition, October 30th—November 1st. We need contributors to display their work, and people to man our display in The Shed pavilion. This is a great opportunity to show the world what ASME and Model Engineering in general is all about. Please indicate your willingness to take part to Mark Richardson or another member of the committee as soon as possible. There is a lot of work to be done to get this show on the road!

President's Report

Another good month of running on the railway has seen a return of the steamers with Grant running his Hotpot and Mike Banks returning with his Beejax driven from his new trolley which provides improved access to the controls of a small tank steam engine. There is no doubt that the return of steam was very well received by the visitors, interestingly not just those who wish to ride behind the steamer but the presence of the engines on the track is itself a significant attraction.

Over the last few meetings I have raised the possibility of the club purchasing a 7 1/4 inch gauge steam locomotive to be housed in the engine shed and available for running on any Sunday. The club's financial position particularly with regard to the necessity of completing the track and trolley project is not yet able to support such a purchase however I have raised the possibility of forming a syndicate to purchase such an engine. The basis of this would be to find, say, six people each prepared to share the cost of a locomotive which might cost of the order of \$20,000. So far there have been three offers of participation which is very encouraging. If we can match that with another three it's likely that a suitable engine could be found. The plan would be for the engine to be leased to the club on a peppercorn basis, for the club to take responsibility for insurance and maintenance and to eventually hand back or purchase the engine at a time in the future when the track is finished. The members of the syndicate would have control of all aspects of care for the locomotive and who is permitted to drive it.

ASME has agreed to take part in the Big Boys Toys exhibition at Green Lane at the end of October and at this stage Mark Richardson is coordinating offers of contribution by way of exhibits or manning displays. There are a few tasks to be done including finding and transporting suitable tables but the main call at this stage is to encourage members to identify exhibits for possible exhibition. This is a good opportunity for ASME to return to Green Lane: many of us will remember the popular exhibits at the ASME Easter show stand for many years which may even have kindled some of our interests in model engineering in the first place. Perhaps some of our old friends who have equipment which hasn't seen the light of day for a while might like to bring them out for the interest and pleasure of the many visitors which are confidently expected to attend the event.

On the topic of old friends, it was a pleasure to catch up with Hugh Martin when our rosters coincided on a recent running day. Many members will remember the highly successful 50th anniversary event organised by Hugh at Waipuna Hotel a few years ago. Hugh is now happily living in a retirement facility which is providing him and Celia the freedom to undertake some travel and they are away to a visit to Northeast America about the time you will read this. Our ex-president Alan Emerson has not been so well lately and has moved into a facility where he can be better cared for. I'm sure visits from his friends in ASME would be appreciated and contact details are available from the committee.

It's pleasing to see the number of items brought along for Bits and Pieces increasing again and we have had some popular entertainment sessions at our general meetings. Please keep the momentum building for meeting contents, all suggestions are best made by email to the president please. We now have the new screen installed which completes the projector replacement project. A couple of things are worth remembering about this. Firstly, if you are preparing content it can be in any format but to fill the screen it should be in the modern standard of 16 x 9. The projector is capable of showing modern high resolution standards although it can adjust itself down automatically to meet those of an older laptop or other source. Connection can be made by the traditional VGA cable connection which is always available but there is also a facility to connect a device by Wi-Fi. Now that the gear is all working we need to experiment with using it in a variety of ways to maximise the huge potential now at our disposal.

Another matter regarding AV at general meetings is the use of microphones. Many of our members are a bit hard of hearing and most of them use hearing aids. Although many of us pride ourselves on being able to fill the room with our unaided voice the reality is that we all easily fall back to mutter particularly when looking down and discussing bits and pieces and it's pretty clear looking around the room from the front table that many people are not hearing at all. The microphones not only provide sound reinforcement, they also connect to our hearing aid loop system which for those members whose aids are equipped with a T-coil (and most are) the sound is transmitted directly.

The committee is continuing to look at solutions to the problem of variable attendance by rostered members on running days. One solution which keeps returning is to create two classes of membership, active and non-active. Active members would include those involved in running but not exclusively; there are many other duties undertaken by members in the club such as attending at working bees, participation in the committee or assistance with special projects. It is likely that a firm proposal will be put to this year's AGM so thought and discussion amongst members and suggestions to the committee would be very welcome in the meantime. The year is marching on, we only have two more uncommitted general meetings out of the four until December, one as the auction (October) and the other is the AGM (December).

David Black
President

Bits and Pieces Help Make History



The copper pipes pictured were displayed on the Bits and Pieces table at the September 2012 general meeting by **Greg Burrows**, and the following description was printed in The Micrometer No 573:

Greg also brought in some large copper pipes with brass fittings on the ends, he explained that these were for the full size De Havilland Mosquito aircraft being restored at Ardmore and due to be flying late September. The pipes are just two of many that carry fluids for cooling from the engines to the radiators. The brass ends are silver soldered onto the pipe and the pipes are joined together with flexible pipe and clamps. This aircraft will be the only flying example in existence.

The aircraft mentioned has now won a top award at the EAA AirVenture Oshkosh 2015 air show, as reported in the *Howick and Pakuranga Times* on Thursday August 20, 2015:

“Being the first non American to win the Grand Champion WWII Award at EEA AirVenture Oshkosh 2015, the world’s greatest aviation celebration is no mean feat.

Warren Denholm, managing director AvSpecs is flush with success as he’s just returned home after a phenomenal win at the Oscars of the aviation industry in the US...

Looking at the pictures, it’s difficult to tell that the World War II fighter bomber, de Havilland Mosquito restored by the skilled crew at AvSpecs for American owner Gerald Yagen, was once a terrible pile of mush...”

The whole news item can be read on <http://digitalhp.times.co.nz/#folio=2>

and there is a nice picture of the aircraft at http://www.warbirdrestoration.co.nz/ka114_014.html

Bits and Pieces August 4th 2015

Conducted by Mike Banks, with photos and reports by Dave Russell.

There were only a few items tonight as the advertised attraction of Mike Banks's nearing-completion 5" gauge GWR King Class was on display.

Before describing his own locomotive Mike first went over the other bits brought in by Graeme Murray.

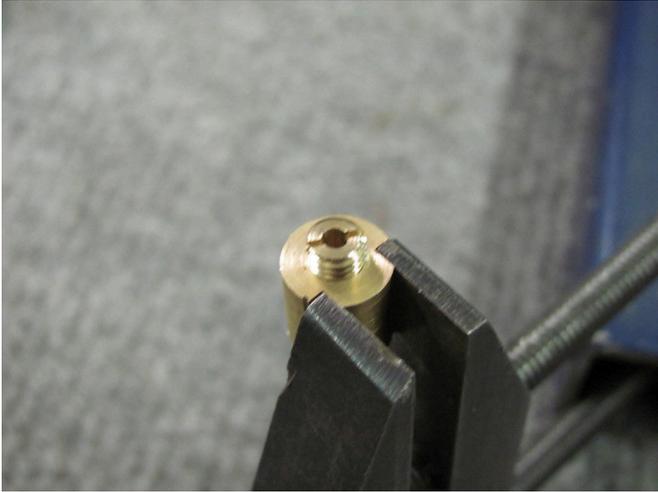
Graeme finds that a stainless steel poly pad is ideal for removing surface rust on metals; we all had a try at this on the sample provided.



This item had been made some time in the past and must have been so memorable that Graeme can't even remember what it was for!

A small Injection moulding machine die and a sample of what it produces, Graeme has a couple of these machines in his workshop.





This small gadget is for holding very small screws while they are being slotted with a small slitting saw.

This Dremel has been adapted onto a tool holder so that it can be used as a small toolpost grinding attachment for the lathe.



Graeme has acquired this rather nice live centre set with various interchangeable centre points.

Lastly, some time ago Graeme made this rudimentary head-operated switching device for a girl who was very disabled and had no use of her arms. By moving her head she could activate the switches on either side to make a phone call or switch on a light or make a bell ring to get help. Part of the design was that the mechanism could be easily cleaned if dirty with food or saliva.

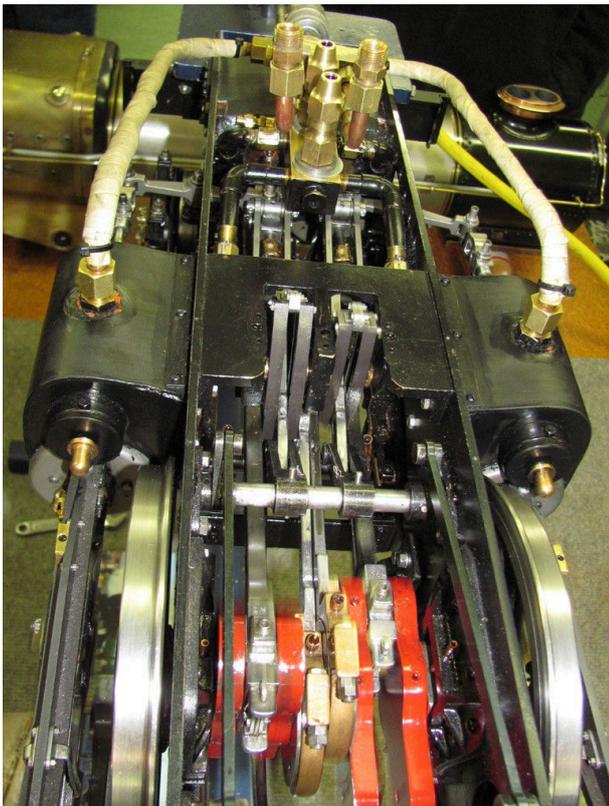
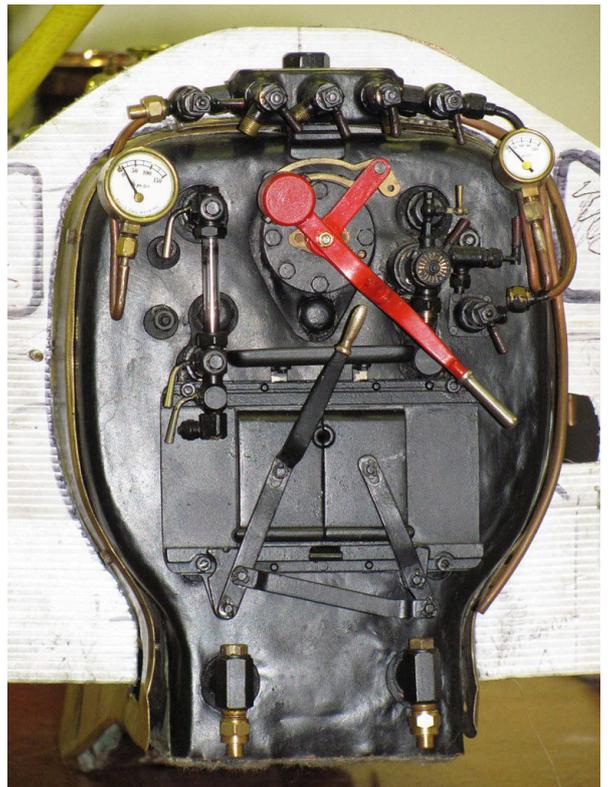
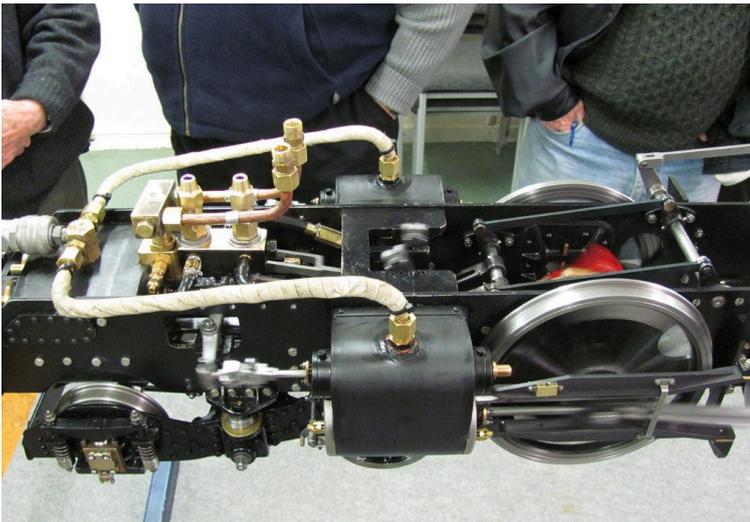


Mike then went on to describe the “King”.

So far Mike has spent 4,500 hours constructing this locomotive; the boiler alone has taken 1,200 hours. The set of castings weighed in at 64kg and after they were purchased from Blackgates in the UK they were brought back as part of Mike and his wife’s airline baggage. The full sized locomotive was a very successful type that was designed under the direction of the chief mechanical engineer Mr Charles Collett. With 30 being built between 1927 and 1936 the class proved to be powerful and sure footed and regularly pulled trains of 600 tons. They could reach a speed of 110 mph; they saw service through to BR days and were finally withdrawn in 1962. The engine has four cylinders with the valve gear being between the frames and is linked to the outside via a series of levers. There are 3 restored examples in existence, two of which are running. Mike has refined some parts from those shown on the drawings to enhance the scale correctness of his model. He also visited a full sized loco in the UK and took many photos to ensure he had proper details. Mike had the model running on compressed air and I am sure this will be a good running locomotive when it finally hits the rails.



Instead of the more normal block o’ wood, the CRC can is there just to prop up the front of the boiler! - Ed



Auckland Rail Update – Electrification of the Auckland Commuter Rail System

James Clendon (*from Auckland Transport and formerly from Kiwi Rail*) was guest speaker at the VHF Society Meeting 10/8/15. These are some notes that Greville made from the evening.

James is Signaling Design and Development Manager on the project. His brief: Safe separation of trains.

As most people know, trains have huge momentum due to their weight, and the stopping distance is considerable - an average freight train @ 90km/h takes 2666m or 204 seconds to stop.

NZ uses a 2-light signaling system where each light can be one of three colours and possibly flashing.

The Rail upgrade is a \$500 million project (including) \$100m for signaling and \$200m for bridges.

The new electrical system chosen for the Auckland Metro Rail Network (AMRN) uses 25kV alternating current (ac).

The old signal circuits (dc) are not compatible with the new (ac) traction system.

Some facts: There are 980 Axle Counter Heads, 700 Controlled Track Sections, 260 Point motors, 52 Level crossings, 230 Equipment Sheds (to protect electronic equipment from the weather) and 445 Signals.

The budget is approx. 30% Materials and 30% Installation costs.

The design is to have all components complying with fail-safe systems – lots of Interlocking of controls, lots of comparative checking. Build 2 of everything. Hot swappable components.

The Automatic Train Protection (ATP) system chosen was the European Train Control System (ETCS) – Level 1. It uses track comm's. It is an intermittent system - it would have been too costly to allow Level 2.

On-board systems have 3 comparators that make decisions, so 1 can be down, but if the other two agree, then the action can be taken e.g. light to green say. 2=Yes against 1 at no - OK.

The train units have 2 x tachometers and 2 Doppler radars for sensing and reporting speed.

The Electric Multiple Units (EMU's) are rated for 110km/h and can go 10% over.

The team built a 3D CAD model to test the signaling system.

All new EMUs have the system, but most freight (Diesel) locos don't. It costs \$250,000 to fit out a train.

NB; Adelaide had problems with suppliers as they chose separate suppliers for different parts.

From the CAD design model, they chose system parameters that were too conservative. It unintentionally caused excessive delays in general operation. Just a note on historic movements – there were 18 SPADS (Signal Passed at Danger) /year.

Got to get rid of level crossings!

For freight wagons tip-over speed is usually double rated speed.

NZ has approx. 4000 km of track. Auckland Trains are controlled from Wellington! Have had a disruption due to a fire alarm in the Wellington Control Room, so eventually everything comes to a standstill, (20-30min?) until staff comes back in to operate.

There are sensors on the track – uses 2 coils. Control Card has self-monitoring and has to prove output is correct.

Uses Siemens' Trackguard Westrace Mk II control system. \$12mil.

There are two main interlock sites - Newmarket and Westfield. Comm's are all fibre optics.

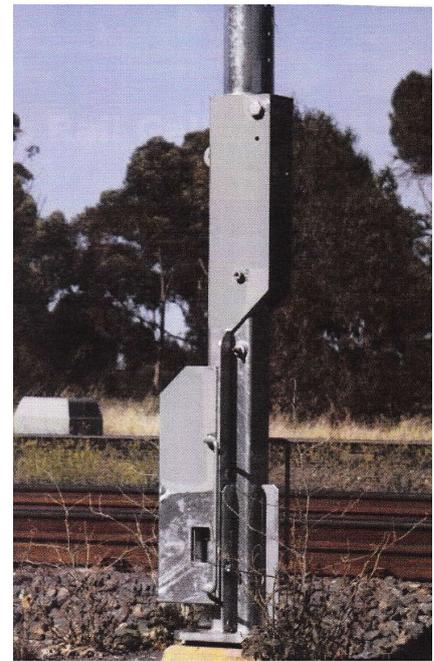
No point has only 1 connection.

Modules are all made in NZ



Signal maintenance is now much easier because they have installed folding signal masts – see picture.

When needing to replace a lamp, the mast pivots down to the horizontal so a worker can work standing beside it.



Points motors - very basic and relatively slow moving. They detect both blades in correct position.

Train Control - Much more overall command as detail is taken care of. Just order 1 train from A to B, say.

All have Auto Train Protection System. 18-20 signals passed by drivers each year.

Auckland Metro Trains are now carrying approx. 14 million passengers annually.

ECTS in Auckland - stops train operation outside of the safety envelope.

When commissioning, they had a dud batch of LEDs, but they were masked by built in redundancy in the design.

Around The Clubs

September 2015

Reviewed by Tony Lawrence.

Please note that as most of these Newsletters arrive by email nowadays, there are an ever diminishing number of them being filed in the folders at the clubrooms. However a good portion of these letters are available in the Public Domain at the respective Club websites.

Slipstream, Auckland Model Aero Club – May 2015

Again, lots of good photos of models at Club night held in the ASME clubrooms. A great display in keeping with the evening topic of “Repairs and Rebuilds”. Charles Warren has done an outstanding job in re building the Club R/C Trainer. Reports on flying days at Hoteo, Patetonga, and Karaka. Also a good indoor evening at the Balmoral Hall. A fitting editorial discusses the benefits of Club membership along with an appeal for the “lurkers” to join up. Well said, Stan.

Big Wheels News, Steam Locomotive Society of Victoria. – June 2015

A very successful monthly public run day with a larger than usual turnout, possibly due to the increasing number of steamers present. A very labour intensive re building of the stone wall lining to the cutting is being progressed with Members help. A comprehensive study of smoke deflector designs and performance, supported by photos of various trial conditions.

Sun City Express, Nelson Society of Modellers - August 2015

A plea from the President for more Members to help out at working bees and on Public Running days. The Club appears to be getting the run-around from some tardy Council officers, who are needed to make some bold decisions with regards to the long overdue repairs to the boat pond .
A page of great photos of some excellent looking small scale layouts in the clubrooms, in HO, N, O, OO, and Z scales.

Conrod, Otago Model Engineering Society - August 2015

A great day was had by Members who visited the Timaru Cub to share their celebration of the Hunslett Locomotive Co, 150 years in business. Lots of fine displays to be seen, including a “T” Scale layout. This runs on a 3mm gauge rail. Train set in a bottle?? The iced Hunslett loco cake looked too good to cut up and eat! Extensive photographs of various projects underway at the several divisions affiliated within the club. Good progress is being made on a batch of 6 small R/C airboats.

Wheels and Floats, Tauranga Model Marine and Engineering Club February – June 2015

As usual, some good humour to fill out this edition! A four page treatise and photos of some very large ships, including a glossary of such terms as Deadweight, Gross Tonnage, Nett Tonnage, and various volume and length classifications. I now can see through the fog of shipping terminology. A very unique vessel is the “Pioneering Spirit”, a purpose built oil platform construction and repair ship. It is a 477metre long, 403,000 Tonne, 124metre beam Catamaran! Eight diesel generators pump out 95 Megawatts to power 12 thruster units.

E.B.O.P. Society of Model Engineers Inc. – August 2015

After trying out several types of solid fuels, the Club has decided to settle on Welsh Anthracite as the preferred fuel. This was primarily in view of the need for a smokeless, and relatively smell free operation on the new track which runs alongside neighbouring houses. Firing technique, grate and ash pan modifications are an ongoing process to improve running efficiencies. The annual “Sparks in the Dark” was a great success, and was well attended by other club members as well as the public.

FOR SALE

(This ad also appeared in last month's Micrometer, but unfortunately the asking price shown was incorrect. The correct price is \$150, not \$250. - Ed.)

230v Single-phase motor, 1.85 kW. (2.5hp)

This is a lot of grunt for a single-phase motor!

It was bought for a particular job, but was never used, so is effectively as-new.

Price \$150.

Phone Mike Banks, 537 3484.

