



THIRD SUNDAY RUNNING:

Despite all the rotten weather of late the day turned out to be a very good-for-the-coffers event. Although the first runs of the day were a bit sparse, and after a few shower clouds had dispersed it was all on.

There was a fairly good attendance of the usual "hard-core" members.

Once again the previous crappy weather must have given the residents of Whangarei a touch of "cabin fever" and they were only too glad to venture outdoors. It would appear that we get some very regular riders, one in particular has been coming to see us every running Sunday for almost as long as I can remember.

Lloyd and Rodney had their steamers in action as well as the club's DG and Santa Fe.

We really under-estimated the rider's hunger and ran out of sausages fairly in the day. But it was decided not to go downtown and get more.

A couple of the younger members were gaining driving experience on the "Boy".

To do one thing at a time is the shortest way to do many things.

MONTHLY GENERAL MEETINGS

AS YOU MAY HAVE NOTICED THE MONTHLY GENERAL MEETINGS HAVE BEEN DISCONTINUED.

THE REASON FOR THIS DECISION IS THAT APART FROM THE COMMITTEE MEMBERS TURNING UP, THE ATTENDANCE OF OTHER MEMBERS AT THESE MEETINGS WAS ALMOST NIL.

IT IS ENVISAGED THAT FUTURE MEETINGS SHOULD BE DAYLIGHT ONES AND THAT THESE SHOULD BE OF A DIFFERENT FORMAT IN THAT VISITS TO OTHER VENUES SHOULD BE INCORPORATED.

FURTHER INFORMATION WILL FOLLOW

CLUB NOTICES

Next 3rd Sunday Running — November 16, 2014.

Mid-week Workdays — Mostly Every Wednesday.

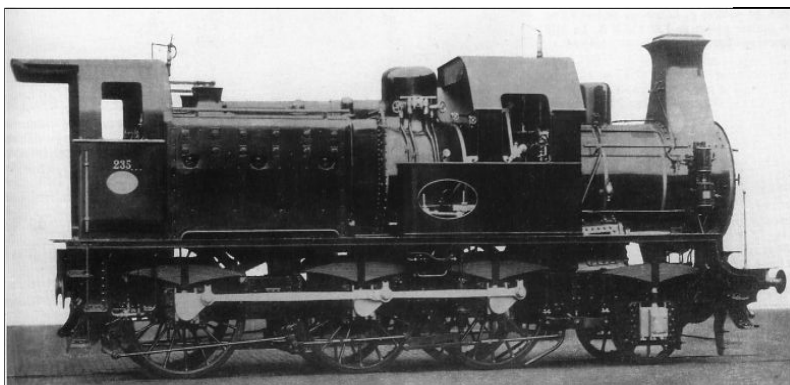
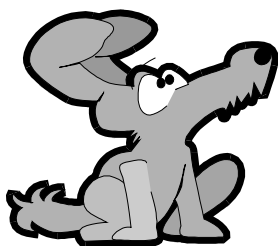
Extra Running Days This Month:

SEE PAGE 6

THESE WORK IN WITH
MUSEUM "LIVE" DAYS AND
OTHER EVENTS

QUIZ — What and where is it?

For answer see Page 5.



Japanese railway test centre opens to support export drive

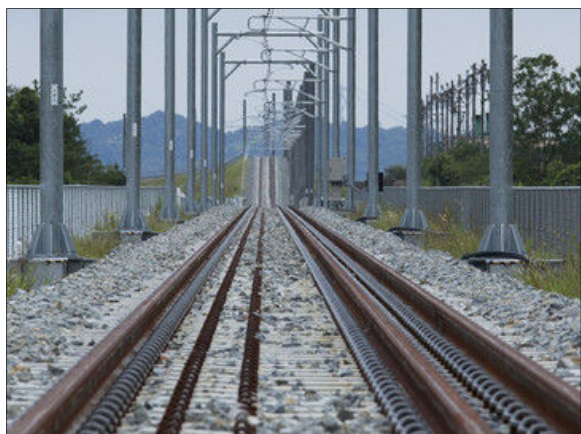
JAPAN: What Mitsubishi Heavy Industries describes as Japan's first comprehensive railway transport system verification facility was officially opened on October 2.

The Mihara Test Centre is located at the Wadaoki plant of MHI's Mihara Machinery Works in Hiroshima Prefecture. It is being made available for use by all private and public organisations as part of a national strategy to develop the export market for Japanese railway technology.

The centre has a 3.2 km loop, with dual-gauge tracks able to accommodate 1435 mm or 1067 mm gauge vehicles running at speeds up to 100 km/h. There is also provision for 1000 mm gauge. The tracks include an elevated section and rails meeting European specifications, with curve radii and gradients to 'global standards'. There are facilities for testing noise and vibration, signalling, power, control and communication systems.

The Mihara facility also has test tracks for automated *guideway* transit *people mover* cars, and 'high-speed surface transport' *maglev* vehicles.

Guests at the opening ceremony included government officials, representatives of universities and railway companies, and 30 schoolchildren, who rode round the new test track on a Hiroshima Electric Railway Co low-floor vehicle. ■



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This is the second part of the details of the construction of Tony Tanner's A3 boiler

I indicated at the end of my first article that I had procured all the materials to build the boiler. Importantly this included the steel plates to form the various plates needed. I had drawn out the plates full sized and dimensioned for Fletcher's to cut and they produced excellent 16mm and 10mm plates for each required copper plate. Obviously the most difficult were the two throatplates, sloping at 25 degrees. The rear of the firebox and back plate, were sloping at 8 degrees but effectively only the top flange pieces were at this angle. The throatplates were also double flanged.

Back in my school days and later, I had learned that a cylinder cut by a plane at right angles to the round cylinder would form an ellipse and that such an ellipse could be formed by quoting its two centres. In fact I had used this technique to cut a full sized dining table oak top some 40 years ago, that is still in use today.

I determined that the two back plates at 8 degrees to the vertical could be accommodated by simply increasing the length of the plates and flanging at 82 degrees around the top area coming to 90 on the verticals. This proved to be the case and these plates presented no real problems, with a generous cutting allowance and plenty of annealing between hammering over the flanges. The smokebox and firebox tube plates again presented no real problem. This left the two throat plates. These were seen to be the hardest. Initially I had not had these backing plates cut, as I worked through what I needed. In the end, I was able to specify the elliptical shape and ordered two 16mm rectangular plates, twice the length needed with a clean ellipse cut out from the middle. These arrived in due course. I cut the steel plates on the narrow centreline, thus forming two equal thickness steel plates. The actual elliptical surfaces were then heavily ground until I had formed the correct angle for the flanges. A lot of grinding! A cardboard cylinder stapled together around a wooden disk helped my mathematical thinking! Eventually I had the inner flange backing plates 'to shape'.

The outer throatplate flanges had to go the other way, coming to a point. I had deliberately had the backing plates cut as a rectangle and now set out to cut one of each to the shape required for the backward facing flange that was to be right angle formed to fit the inner and outer wrappers. This proved easy enough on the bandsaw, set vertically. Only two of the 16mm plates were cut in this manner. The two that had NOT been formed for the barrel and tube nest flange! I found that the firebox and backplate steel plates were in fact the shape required, but the elliptical cut plates were needed cut to a point to get the needed hammer in to form the copper flange. In any event, the set of steel plates now formed allowed me to proceed and form the copper throatplates. I now had a set of flanged plates and enough copper plate to roll the barrel sections and the two wrappers. But I did not have easy access to a large enough set of rollers.

Frustration pushed me into making a set of rollers. These needed to be large and bulky enough, able to roll 550mm between the ends. This would also, at a later date, be required to do the steel cladding. Thus I ordered up the necessary end plates and purchased some 50mm and 20mm diameter round. From my boating days, I already had the needed sprockets and chain, etc. The next step was to machine the lands on the rollers. I found that I JUST had room to get these in the 4-jaw and in a fixed steady with the tailstock removed and the toolpost at the far extremity of the lathe bed! Anyway, quite quickly I had a rolling machine and no more frustrations about repeatedly wanting one!

This then led to the two barrel sections being rolled to fit inside of each other. Next came the two butt straps. These were to be set up one below and one above the centreline. This allowed easy overlap for the eventual circumferential joint, behind the dome, where the shorter rear barrel needed to go outside the front section. These butt straps were formed and the butt joints soft riveted and silver soldered. The two barrel sections fitted like a glove!

Because the code does not allow very long, longitudinal stays, palm stays were needed. I had plenty of copper 1/4" plate and used my bandsaw to cut numerous strips to be a bit over 1/4" wide. The material proved able to be machined in the Myford and I determined to make all the necessary stays from this material. The method used was to hold in the 4-jaw with a short bit sticking out and machine a 16 mm length to 6.35mm diameter. Then a section of chain was split to get out a link that had a matching inside cylinder. This was held in the tailstock and a drop of oil used on the inside. The squarish stay held in the 4-jaw was then extended so that the machined end ran in this tailstock 'bearing'. I found that I could then machine a 120mm long stay fairly accurately and nice and smooth. Thus I proceeded to make 12 palm stays. I left the middle sections squarish on these stays and only machined the end sections. While set up for this job, I made around 300 shorter side stays and 70 odd longer crown stays. In each of these, there was left a square end to be the inside firebox head.

The code required palm stay anchor points were all made up from bronze rod. The two tube plates were drilled for the fire and superheater tubes. The two throatplates were offered up to the rear barrel and firebox and these, the tubeplates, palm stay anchors, palm stays, two clack valve bushes at the front end of the boiler (for future use for possible water feeds) and the front end foundation

CONTINUED ON NEXT PAGE



CONTINUED FROM PREVIOUS PAGE ring strip, along with bushes for wash out and blow down were all silver soldered in place. The regulator fitting under the dome and the main steam pipe through the smokebox tubeplate were also soldered in place. I must stress that most of these fittings were silver soldered in place at different times and quite a few 'heats' were required.

The standard heating/soldering technique used was to get the 'to be soldered', seam or part set up for downhand feed. Then to lag the associated parts with 50mm rockwool, tied in place with copper strands extracted from heavy electrical cable. Then firebricks were used to assist the lagging and to hold the assemblies above the floor level. Black flux was used throughout. Where possible I used a large size propane double burner to heat the general area outside the actual soldering area from below. This was able to raise large areas to 300+ Degrees C in around 10 to 15 minutes of firing. Patience was needed and a



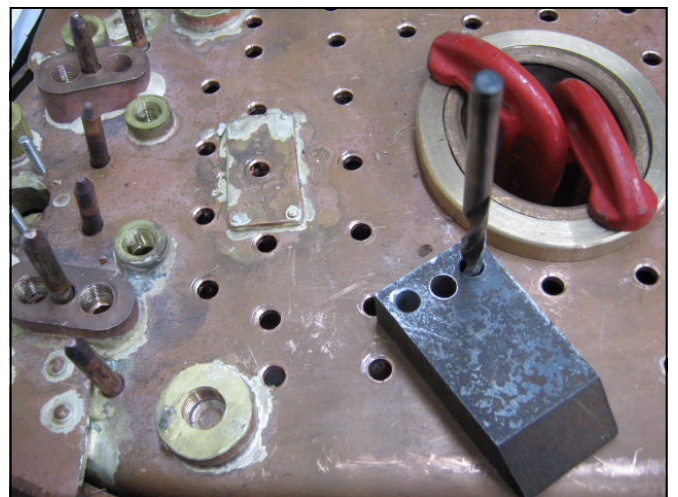
Boiler stay drill with flutes cut off.

temperature measuring contact device employed. This was followed by use of a flame thrower type gas nozzle to increase the temperature towards soldering. This was then followed (and usually with the previous two heaters still offering up some maintaining heat), by an oxy propane Seivert torch to bring the local areas to dull red. For the tubes, a number 12 nozzle was used going to a number 34 for the seam type joints.

At this stage the two sections of the barrel, the rear section with throat plate attached and the firebox with throatplate and the tubeplate fitted were ready for further action. The barrel circumferential seam was then dealt with, being most careful to align and soft location rivet first. The tubes were successfully fitted to the firebox and the coal hole plate also fitted. The smoke box tube plate was also fitted, to ensure that the palm stays could be visually seen inside and out. The two major assemblies were then Inspected for final assembly and passed.

Then the two main assemblies were joined by soldering in the tubes to the smoke box tube plate. Wooden tapered plugs were fitted to each tube and this assisted entry of the tubes to the already fitted tubeplate as the barrel was lowered by winch onto the tube nest. The boiler now weighs over 60kg and is of course, not easy to handle.

The next stage was to drill and fit the stays. There was a problem in aligning the palm stays to the backhead and to give my fingers space to work, I extended the 6 palm stays by about 30mm, by drilling into the fitted ends and making up tapered end bits with a short extension to fit in these holes. The extensions were then silver soldered in place, using a copper wire harness and cleaned up. I made up a 'special' 6.2mm drill, with the upper 3/4 length of the flutes ground back. Then a couple of holes in a bit of 16mm plate, gave me a vertical alignment jig. The outer wrapper/backhead stay holes had all been drilled 5mm prior to assembly. The backplate was thus offered up and the coal hole curtain drilled out and fitted over the firebox coal hole bronze elliptical. The stay holes in the backhead were drilled out 6.2mm and countersunk, on the pedestal drill. The backhead was then clamped in place, ignoring the outer wrapper at this stage. The firebox stay holes were spotted with the 6.2mm drill and drilled 4mm. Then opened up with the blunt fluted drill. The stay holes appeared not enlarged by this final drilling process and the stays slipped in nicely, with the requisite 0.1 clearance. That bit was reasonably easy and the next step was to upside down the boiler to do the same with the throatplate, leaving the backhead clamped in position' as drilled'. I do not think it was in a position to move in any case, but the clamps gave me a bit more confidence!



Boiler stay drilling jig.

The throatplate stay holes were then all drilled using the blunt fluted 6.2mm drill. I found that the 4mm pilot drill was not required and I went in with the 6.2mm drill directly. All seemed OK and all backhead and throatplate stays were offered up 'dry run'. Careful thought indicated NOT to fit the backplate at this stage. Thus the throatplate stays were set up for soldering. The boiler was set up with the smokebox end on the garage concrete floor and tilted forward, using one of the safety valve plugs

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ANSWER TO QUIZ ON PAGE 2:

Belgium CabMiddlewards

It is not every day that you have to make up a word to describe a steam locomotive, This design, however, is apparently unique. It is what I have chosen to call a "CabMiddlewards" as distinct from a Camelback, a CabForward, or even a mundanely conventional offering with the cab at the back.

This design has a cab in the middle of the boiler, placed on the right side. The Camelback, in contrast, has its cab on top of the boiler; this was not feasible with European loading gauges.

The first of these remarkable 2-6-0 locomotives, No 1818, was built in 1884 by Cockerill, and shown at Anvers in 1885. Two more were built in 1886, No 1825 and No 235, differing only in details. The driver controlled the locomotive from the very cramped looking cab midway along the boiler; this was because the firebox, with a grate surface of 6.7 sq metres, took up the whole width of the rear cab. There were three fire doors and two firemen, leaving no room on the rear footplate for the driver; hence the cab alongside the boiler. The driver communicated with the firemen by a voice pipe.

It was fitted with inside cylinders of 500mm x 600mm, and Walschaerts valve gear; driving wheel diameter was 1.7 metres. A combustion chamber was fitted ahead of the firebox.

All that is known of the performance of these locomotives is that "it left something to be desired". The driver's vision must have been good to the right, due to the short length of boiler in front of him, but very restricted to the left. All three were reconstructed in a more conventional format, but must have remained somewhat unsatisfactory, because No 1818 and No 235 were broken up in 1903, and No 1825 during the First World War. ■

REMEMBER, A day without a smile is like a day without sunshine!

And a day without sunshine is, like ... night!!!!

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as a support, the whole lashed to an upright pole and lagged. The rivet headed stays were then soldered into the throatplate, without incident. The barrel was then inverted whilst still quite warm and the outer ends of these stays soldered in place. A couple of stays did not appear to be quite right and these were dealt with when doing the backhead internal stay soldering.

Pickling and washing, inverting and turning is now becoming quite routine, now that the 'system' of handling this heavy boiler has been mastered. I have a large skateboard type trolley already made up to handle engines/trolleys and tenders, etc, into and out of the garage at ground level. Easy, even with this heavy boiler.

The next stage was the side and crown stays. When dealing with the backhead and throatplate stays, I had made up a go, no go gauge and went through all the nearly 400 prepared stays, segregating them into specific groups. The small group were used with the 6.2 (No. D drill) and used on the throatplate/backhead. The next group were a 'go' for an E drill. The next group was for an F drill and then a G drill. It turned out that the 55 side stays for the LH side were all suited to have the stay holes drilled E and the RH side drilled F. The crown stays were F and G. I now used the blunt fluted 6.2mm drill to drill through all the stay holes and the lowest of the crown stays. I scratched my head a bit to see how the upper rows of crown stays were to be drilled, but then realised that this same drill held in the chuck by the top 6mm of shank, would be just long enough to break through the longest stay holes. And so all the crown stays were thus drilled undersized with this drill. With the packets of sized stays, I proceeded to open up the holes to suit with an ordinary drill, using a long series drill for the crown stays. Careful control gave me good clean holes and the various stay sets were dry fitted with correct soldering clearance.

The side stays are all on a flat surface and I worried about how to do this on the pedestal drill. The battery drill was difficult to hold for so many holes. Thus I dragged the bench mounted drill down to floor level (half a day's work) and then, with the barrel set up with the stay face horizontal on the skate board trolley, I was able to move the trolley between my knees, position the pilot holes under the drill bit, hold in place with one hand, while drilling with the other! It all worked out remarkably well and the drill was got back onto the bench after a struggle. So the actual boiler construction is now complete. And I am thus moving towards a hydraulic test. With some difficulties ... more later! ■



WEDNESDAY WORKDAYS: By the Editor



1st and 8th October: These two days were of course in the middle of the school holidays and as we had told the “powers that be” we would operate each Wednesday from 10 am to 2 pm that is what we did and despite a first-day muck-up in the float we eventually carried about 180+ people. The second day was even better where it was in the 240 range. However the member head-count for the two days only allowed for train operations — so the weeds can now grow some more until Lloyd has another go at them.

15th October: Not very many turned up despite it being a beautiful day. Tony repaired some damaged point-work and made the locking pins fit properly where they were required and Rodney was into some of the usual maintenance on the rollingstock and also was involved in the fitting of derailment bars onto a couple of trolleys not yet fitted with them.

22nd October: Good to see Colin back with us again. He and his daughter Caroline (over from Aussie) busied themselves planting out shrubs, etc, on the land over and around the tunnel area and in a few other places as well. I don't know what we did to deserve it but they also turned up with a dozen cream donuts for morning tea. My diabetes probably didn't take too well to the sugar invasion. The rest of the gang busied themselves fixing a broken rail on the inside line around the “mountain”. This rail is a part of the original rail that was transferred from the old Tarewa Park operation and in the not too distant future will have to be replaced completely.

29th October: Well ... would you believe it! Just as I was having breakfast I heard the distant peal of thunder. A few minutes later the phone rang and Rankin said that Whangarei was awash and there were copious quantities of lightning and thunder and that it was probably not even worth thinking about going up to the club today. This bout of weather was forecast so I guess we can't gripe.

EXTRA RUNNING DAYS:—

The silly season is upon us in a big way.

We have numerous bookings for November and December for Christmas functions, etc.

Help is required to run the trains at these events.

THESE EVENTS ARE:

Sunday, November 2, 10 am till ? (Ticket event, approx 500 riders).

Saturday, November 8. (Ticket event, approx 500 riders — provisional).

Friday, November 21, 10 am-1 pm. (Pre-paid event).

Saturday November 22, 3.30 pm (Pre-paid event).

Sunday, November 30, 11 am. (Pre-paid event).

Saturday, December 6, 10 am onward. (Pre-paid event — provisional).

Wednesday, December 10, 11 am. (WWD will take care of this).

Sunday, December 14, 12 noon. (Pre-paid event).



Please advise **Rodney White (phone 436-1185)** if you can help.

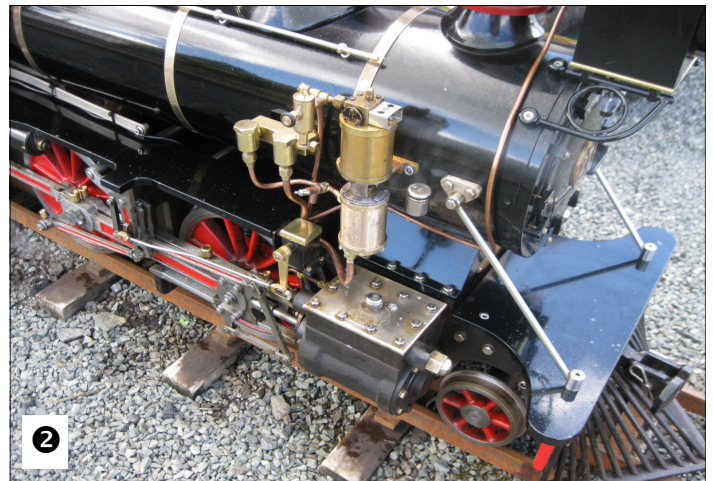
THERE IS A POSSIBILITY THAT SOME MAY BE CANCELLED ... LIKEWISE THERE COULD ALSO BE ADDITIONS

Other Club's Events:

Tauranga Model Engineers: Official Opening and Open Weekend, 8-9 November



General Pics from Around the Site



PHOTOS ABOVE:

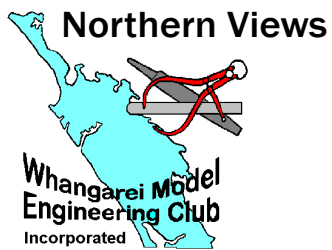
1. Lloyd and Brad at the station. 2. The latest addition to Brad is a steam-powered water pump that Lloyd is very proud of. 3. One of the turnouts in the steam-up bay yard looks as if, at one stage, it had three gauges on it. Does anyone know where it came from? 4. The track gang getting their hand in again.

Newsletters Received . . .

Title	From	Dated
Bay of Islands Vintage Railway Branchlines	Bay of Islands Vintage Railway	September 2014
	Canterbury Railway Society (Inc)	October 2014
	E.P.O.B. Society of Model Engineers (Inc)	October 2014
Model Torque	Hawkes Bay Model Engineering Society (Inc)	October 2014
Journal	Federation of Rail Organisations NZ (Inc)	October 2014
Piston 'n' Prop	Marlborough Associated Modellers Society (Inc)	October 2014
Pukemiro Junction	The Bush Tramway Club (Inc)	November 2014
Steamers & Dreamers	Manukau Live Steamers	October 2014
SWARF	New Plymouth Society of Model Engineers (Inc)	
The Dam Tram News	Two Foot Gauge Club	October 2014
The Generator	Palmerston North Model Engineering Club (Inc)	October 2014
Tramlines	Wellington Tramway Museum (Inc)	October 2014

THESE MAGAZINES ARE AVAILABLE TO READ IN THE CLUBROOMS FOR APPROXIMATELY 1 MONTH





IF UNDELIVERED PLEASE RETURN TO:—

Whangarei Model Engineering Club Inc,
P.O. Box 10233, Te Mai, Whangarei 0143.