

MainLine

National Model Railroad Association Inc - Australasian Region

Autumn 2008
Volume 25 No. 1



Inside this issue

- Signals on the Kansas City Subdivision
- Using the Kalmbach Memorial Library
- In Defence of Code 100 track
- MMI K-27 HOn3 - fitting lights
- Taming the Walthers 90' HO Turntable
- ...and much more!

Registered at Australia Post Publication # PP241613/00080



Australasian Region Directory www.nmra.org.au NMRA Inc. PO Box 382, Forestville NSW 2087

Board

President	Sowerby Smith	(02) 9411 5726	president@nmra.org.au
Vice President	David North	(02) 9975 2569	vicepresident@nmra.org.au
Secretary	David Jupp	0416 280 517	secretary@nmra.org.au
Treasurer	Erik Bennett	(02) 9997 7971	treasurer@nmra.org.au
Pacific District Director	Peter Jensen	(02) 4990 9855	director@nmra.org.au
Members	Gerry Hopkins MMR	(02) 4329 0242	gerrymmr@bigpond.net.au
	Marcus Ammann	(02) 9402 8929	mammann@optusnet.com.au
	David Howarth	(02) 9498-4995	dhowarth@skm.com.au

Superintendents

Div 1 Qld	Glenn Stevens	(07) 3207 2442	div1sup@nmra.org.au
Div 2 ACT	Jess Brisbane	(02) 6260 6427	div2sup@nmra.org.au
Div 3 Vic/Tas	Grant McAdam	(03) 9578 8685	div3sup@nmra.org.au
Div 4 WA	Frank Godde	(08) 9293 0667	div4sup@nmra.org.au
Div 5 New Zealand	Kelvin Sherson	(04) 234 8577	div5sup@nmra.org.au
Div 6 SA	Ron Solly	(08) 8522 2536	div6sup@nmra.org.au
Div 7 NSW	John Montgomery	(02) 9628 9921	div7sup@nmra.org.au
Div 8 Nth Rivers	Ian Phemister	(02) 6658 9871	div8sup@nmra.org.au
Div 9 Mid North Coast	Mike Bartlett	(02) 6553 6227	div9sup@nmra.org.au

Other Officers

A.P. Chairman	Gerry Hopkins MMR	(02) 4329 0242	apchair@nmra.org.au
A.P. Vice Chairman, VIC	Laurie Green MMR	(03) 9744 5188	apvicelaurie@nmra.org.au
A.P. Vice Chairman, SA	Ray Brownbill	(08) 8389 1045	wildcreek@chariot.net.au
A.P. Vice Chairman, QLD	Graeme Davis	(07) 5463 1475	apvicechairqld@nmra.org.au
A.P. Vice Chairman, WA	Phil Knife MMR	(08) 9459 4506	pkni5191@bigpond.net.au
Librarian	David Howarth	(02) 9498 4995	librarian@nmra.org.au
Member Aid	Steve Chapman	(02) 9626 9979	memberaid@nmra.org.au
Contest Chair	Gerry Hopkins MMR	(02) 4329 0242	contest@nmra.org.au
Public Officer	Rob Peterson	(02) 9871 4157	publicofficer@nmra.org.au
Editor MainLine	Kelly Loyd	(02) 4956 5793	editor@nmra.org.au
Web Master	Wayne Eagle	(02) 9627 9892	webmaster@nmra.org.au
Membership	Denise Bennett	(02) 9997 7971	membership@nmra.org.au
	33 Kanook Avenue	Bayview, NSW 2104	



Something a little different! David Howarth's Beaumouth O Scale Layout



Official Publication of the
National Model Railroad Association
Australasian Region

Registered at Australia Post Publication #
PP241613/00080

Editor: Kelly Loyd

Proof Reader: Greg Harper

Photographers: Josh Loyd, Gerry
Hopkins

Assistants: All NMRA AR Members

Article Submissions: The editor
welcomes any train related articles,
photos, drawings, cartoons, letters to the
editor and other material.

Any submissions can be either emailed or
"snail mailed". It is preferable that any
submissions be made using a computer,
(PC or Mac) Publication of articles
submitted are at the discretion of the editor.

Cut-off dates for Article submissions

Winter 2008 - 16/5/08

Spring 2008 - 15/8/08

Summer 2008 - 14/11/08

Autumn 2009 - 7/2/09

Winter 2008 - 16/5/09

The Editor
Mainline

27 Whitehaven Drive
Lakelands NSW 2282

Email: editor@nmra.org.au

Advertising: The NMRA Australasian
Region welcomes any proposals for
advertising. All advertising inquiries
should be directed to the Advertising
manager (David North,
vicepresident@nmra.org.au). MainLine
reserves the right to refuse or drop
advertising for any reason. Advertising in
MainLine in no way constitutes an
endorsement by the National Model
Railroad Association.

NMRA Inc.

Advancing the global model railroading
community through advocacy, standards,
education and social interaction

Feature Articles

**Signals on the Milwaukee Road Kansas City
Subdivision.....8**

Using the Kalmbach Memorial Library..... 10

Wombat Gully comes in from the cold..... 11

In Defence of Code 100 track..... 12

MMI K-27 HOn3 - fitting lights.....14

Taming the Walthers 90' HO Turntable.....22

Decoders for Dummies.....23

Meet the Member - Dr Jim Anderson..... 27

Regular Articles

President.....5

Pacific Directors Report..... 6

Highball! - Editorial.....7

Region Roundup.....18

Division 9 & 3/4 Handy Hints..... 28

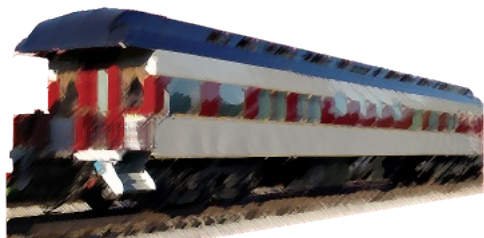
Photo Credits

**Front cover - Frisco transfer gets the clear signal at Rock
Creek Junction, Milwaukee Road Kansas City
Subdivision by Kelly Loyd**

**Centre photo - Shay working the log camp, Sowerby
Smith's Shasta Subdivision by Kelly Loyd**

**Back Cover - David Howarth's Beaumont layout loco by
David Howarth**

Laurie McLean's MMI K-27 HOn3 by Laurie McLean



From The Business Car

The New Year is upon us and over most of the country a deluge has finally arrived. Drought breaking rains bring not only the hope of new life but hardship for those who get a little too much. The good side is that the long wet weekends are perfect for advancing that modelling project

you have been putting off. Inertia not only affects our locos and rolling stock. If like me you procrastinate and always find an excuse for not working on the model or the layout think about putting your hand up for a layout visit. I guarantee the thought of a large bunch of modellers heading over to your place in a few months time is the best catalyst to get you motivated.

In early January I had a Division Seven meeting at my place, the first for a few years. Well, I have done more work on the layout in the last few months than for years before. Scrambling to finish the installation of the DCC decoders into most of my locos and checking and double checking the layout worked. I was not without a little apprehension as Saturday approached. Friday night the gremlins were about and scrambling around under the layout fixing the sticking point motor and having only run most of the newly equipped locos in test mode only I was wondering if it was all going to be a big mess. I was up the next morning at 6 am and down in the layout room as soon as possible. I turned on the system and it all worked. After the experience of the previous couple of days with nothing but bugs it turned into a dream run. Nothing broke, no mysterious shorts and other than the inevitable problems with inexperienced operators my new system worked flawlessly. I can tell you I was mightily relieved and when all the crowds had dissipated by 6pm it was still working, though I am not sure I was too flash. For once Murphy stayed away from my meeting.

The next day the gremlins returned with a vengeance. Points stopped working, trains would derail in the tunnel and switch motors would mysteriously loose all the wires to the frog. These are just a few of the after meeting problems. But it all worked on the day and I must say it was a lot of fun. I have got more done and had more pleasure from my railway modelling in the last few months than I have for years. The momentum keeps on rolling after the meeting and the whole layout has benefited. So give it a go. Whether it is putting your hand up for a layout visit, volunteering to help with a division project or giving a clinic at a monthly meeting or convention, I guarantee you will get more pleasure out of your hobby by sharing your skills and knowledge with other members. And I'm sure Gerry Hopkins will be more than happy to encourage you to put all that good work towards an achievement award.

My sympathies go to Dawn Gill and all of her family on the death of Jean Gill, the wife of Fred Gill, who passed away late last year. To have both of their parents pass away in such a short time is a terrible loss. On behalf of the Association, I have sent our condolences and John Montgomery arranged for Division 7 members to sign a condolence card at the February meeting at Kelly Loyd's, which John has since sent to Dawn.

On a more upbeat note, remember we have our first ever convention in Queensland coming up later in the year and the sooner you book your air tickets the cheaper they will be. It is shaping up to be a fabulous event and September in southern Queensland is a lovely time of year. Enjoy your modelling and remember, if possible, it is even more fun if you share your knowledge and skills with a friend.

Sowerby Smith

Pacific Directors Report

By Peter Jensen

The Officers, Board of Directors, Department Heads, and Headquarters Staff met in a chilly and snowy Atlanta, Georgia, on January 16–18, 2008 for the annual mid-year BOD meeting. Missing was our president, Mike Brestel, who was resting at home following successful heart-valve replacement surgery and doing extremely well. Mike expects to be back on board in time to attend the Anaheim National Convention. Vice President Allen Pollock chaired the meeting.

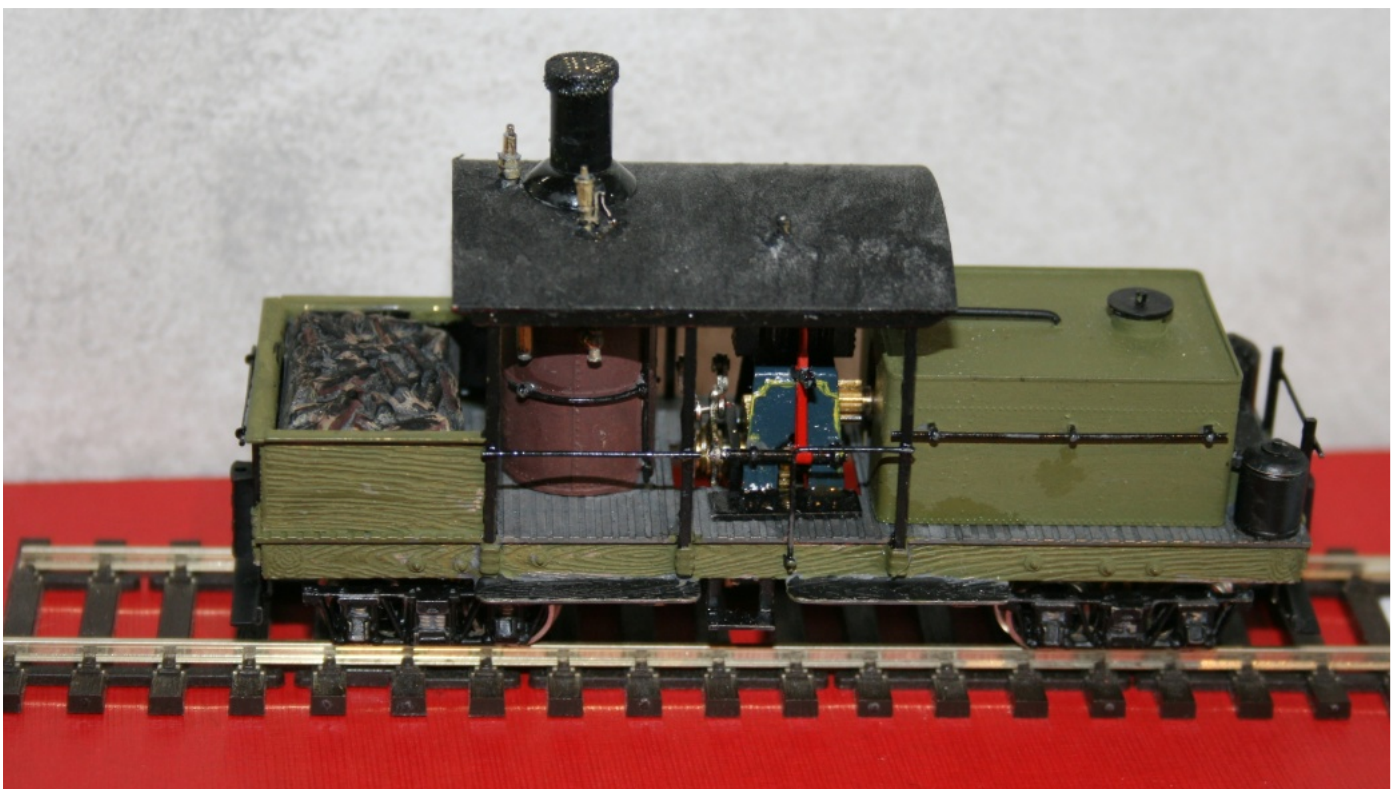
We also had the opportunity to visit the NMRA headquarters in Chattanooga to see HQ first-hand and to meet the staff. The library is impressive and I would encourage all AR members to make use of the Kalmbach Memorial Library and its manager, Brent Lambert. The BOD also inspected the exhibits and models stored in the basement that will form the core of the Howell Day Model Railroad Museum.

Conventions and their cost continued to be a big issue at the meeting. The BOD and the Convention Department are now actively looking at ways to curtail costs without limiting the fun and experience of attending a National Convention. Online registration is almost here. During the visit to HQ, we were given a demonstration of the software that will support this effort. It is unlikely to be ready for Anaheim.

Speaking of Anaheim, don't forget the registration pack is available on our AR website to be downloaded. Also, there will be an announcement of the AR "meeting point" on the AR website, along with a list of members attending the convention. Look out for that in the near future.

Best Regards

Peter Jensen
Pacific District Director.



Robert Shoesmiths locomotive on display.

Highball! - Editorial

Department of Signals & Communications

I just completed holding a Division 7 meeting at my house in February. We were expecting about 40 people but I think there were about 70 that turned out for the afternoon. There was standing room only in the layout room, but everyone did get a look at the operation. Now that the dust has settled, I can start writing about the Signal System that I completed building last December.

Small is fun, too!

Many modelers say they haven't got room for a layout. I would like to encourage you to make a start if you haven't already. There is a wealth of information on the world wide web about small and interesting layouts. I helped my son build a small N scale layout for switching. It has removable legs and fits under his bed when not running. It takes about 10 minutes to set up. If he wants to, he can add buildings and some basic scenery to it. The size? 300 mm by 1200 mm. It is a switching layout, loosely based on an Atlas track plan. We built it using Peco points and Peco flex track.

Corrections

In a previous issue, we featured photographs from a member's layout in New Zealand. They were incorrectly captioned as 'Alan Dunston'. The correct spelling is Alan Duston. I am looking forward to more photos of his layout in the future.

Until next issue, Happy Modeling!

Kelly



Kelly Loyds Milwaukee Road Kansas City Subdivision
Operational Interlocking Signal panel

Signals on the Kansas City Subdivision

by Kelly Loyd

Part 1 – Research and Development

The beginning

There was no doubt about it, I wanted working signals on my model railroad. Where to start? What to do? Many questions presented themselves. So I began a brainstorming phase where I thought about the kind of signals that I wanted.

Turn back the clock about 26 years; I was working for the Milwaukee Road in Kansas City, as one of the tower operators at West Wye Tower. West Wye Tower controlled a double-track wye connecting the Milwaukee Road, Kansas City Southern and Rock Island (soon to become the Chicago and Northwestern).

West Wye Tower contained a Union Switch & Signal 'Direct Wire' control machine.

The machine lasted into the 1990's when it was decommissioned and replaced by remote control between the Drawbridge operator and the Kansas City

Terminal control operator. Until that time, it directly controlled the junction.

The system I designed incorporates similar functionality to the US&S machine.

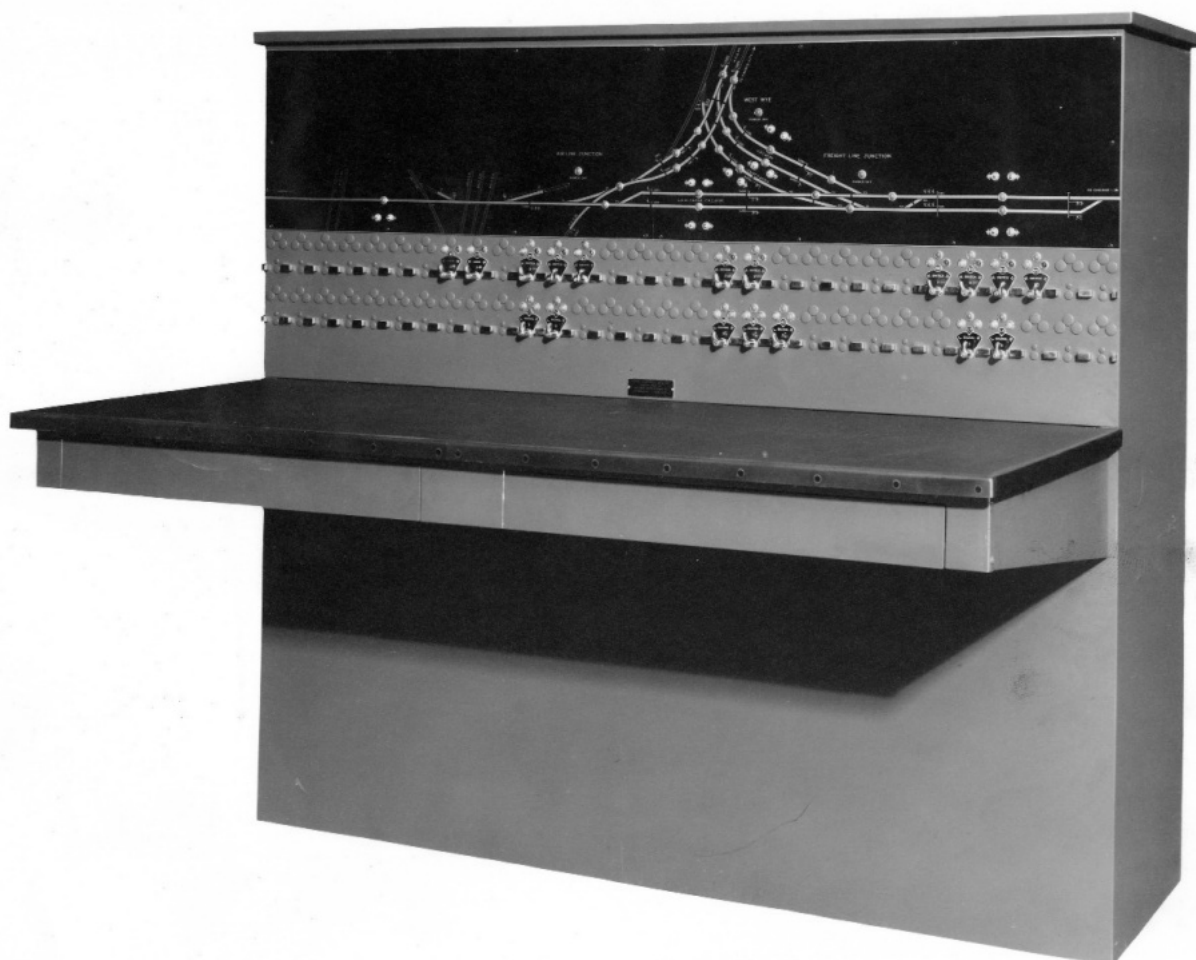
How did the US&S machine work?

There is a track diagram, with red lamps that illuminate when a train is 'in the circuit', two rows of little 'lever' switches with coloured lamps over them. Behind the levers were pie wedge shaped plates with numbers. The number on the plate designated which switch or signal was controlled by that lever.



Switch and Signal Plates

These levers operated the corresponding switch or signal immediately if it was safe to do so. For example, clearing a Milwaukee train out of town over the Drawbridge, the operator would first rotate the switch lever for switch 35 to the 'R' for reverse position. There



Union Switch & Signal builders photograph of West Wye Tower Interlocking Control Machine
The build date is 6th of March, 1945.

would be a short delay of 1-2 minutes while the switch machine moved the turnout to the reverse position. Then the yellow R light would illuminate, telling the operator that the turnout was lined and locked for the diverging route. Then the operator would rotate signal 36 lever to the 'R' position (for Right Signal). If it was safe to clear the signal, then the lock light (red lamp over switch plate) for switch 35 would illuminate, the red lamp over signal plate 36 would extinguish and the green lamp over 36R would illuminate. This was feedback for the operator, to tell them that 36R was clear and that the train could move up to Freight Line Junction.

While signal 36R was cleared or there was a train standing on the track, switch 35 would remain locked. Any movements of the lever for switch 35 would be ignored by the machine.

Next, the operator would set the lever for switch 53 to the 'R' position to reverse the turnout. After 53 indicated 'R', then the operator could clear Signal 52R by moving the lever for signal 54 to the 'R' position.

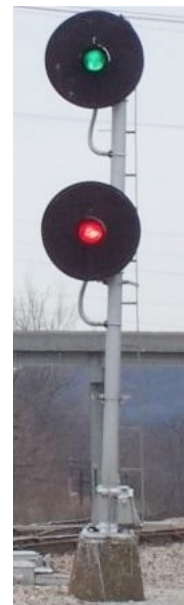
When the train passed signal 36R, the track circuit light would illuminate and signal 36R would 'drop' to stop. This would be shown on the panel by the red lamp illuminating and the green lamp extinguishing. The signal could not be cleared, nor would changing the signal lever have any effect while a train was 'in circuit'.

The West Wye interlocking machine worked differently to a CTC machine. CTC machines sent out a coded message on the communications line to remote locations. The remote control point worked out the logic of the request and sent back confirmation (via coded message) to the CTC control panel.

The signals used at West Wye Tower, and all of the Milwaukee Road mainline up to Laredo Missouri were Union Switch & Signal H Dwarf signals and H series Searchlight signals.

System Requirements

The system needed to control turnouts with Tortoise



Typical US&S Searchlight installation.

switch machines, perform block detection and control signals on the layout. It also needed to display the current state of turnouts, signals and blocks on a CTC panel. The layout should be controlled by means of switches on the CTC panel. The logic behind the CTC panel had to perform all of the checks necessary to allow trains to proceed safely. It should not be possible to allow a train to proceed if there was another train approaching or in front of the train. Turnouts could only be changed when there was no signal cleared and no train standing on them. The first stop on the research trail was Mike Burgett's CTC web site. (<http://www.ctcparts.com/>). This is an excellent reference for anyone wishing to research a Signal System. On this web site you can learn about CTC Signalling and find links to other web sites about system hardware, signals and software.

Design considerations

I considered a few other possibilities, such as automatic signaling, computer aided dispatching (having the control panel on the computer instead of a real CTC panel), and different control systems,

Mountain Blue

MINIATURES

O Scale figures in pewter for your On30 layout.





tel: 02 4739 9885

info@mountainblueminatures.com www.mountainblueminatures.com PO Box 287 Blaxland NSW 2774

Etch-primed
or
fully painted

including my own homebuilt design. I investigated some of the commercial signal system offerings.

Signal Components and Systems Investigation

Atlas signal system

(<http://www.atlasrr.com>) - This product was announced in 2006 and provides realistic signaling. I found that the Atlas offering was good if you wanted simple block signals, however I needed more realism and control since my track plan consisted of more complex junctions than the Atlas system could cater for. The Atlas signals also were not applicable to my prototype. They would serve NYC modelers well. The Rock Island also had this style (Type G) signals on the line from Polo, Missouri to Des Moines, Iowa.

Digitrax Signal System

(<http://www.digitrax.com>) - The Digitrax offering had been around for a while and looks very good. The drawbacks for me were that they only offer colour light signals and not searchlight. I spent a lot of time reading all of the Digitrax documentation and concluded that it was a good flexible system, however I would need to use LocoNet to hook it all together and there did not seem to be an easy way to use other products in conjunction with the Digitrax system.

TracTronics Components

(<http://users.rcn.com/weyand/tracronics/ttinchom.htm>) - TracTronics offers circuit boards and designs to implement signaling, but this also was very 'homebrew' and did not look like a full integrated system. This would be great for 'do-it-yourself' approach where you would like to save a few dollars.

JLC Enterprises C/MRI

(<http://jlcenterprises.net>) - I had not heard of this product before the series of signaling articles appeared in Model Railroader magazine, starting with the January 2004 issue. C/MRI stands for Computer / Model Railroad Interface. This system was designed by Dr. Bruce Chubb, MMR. It was designed many years ago and has matured into a very flexible system. C/MRI is made up of various components, particularly Nodes which can have many connections on them. These connections can control switch machines, signals and they can read the state of turnouts and blocks using different sensors.

This system offers the greatest flexibility and is easy to change through programming. Once you have wired it up, you do not need to re-wire if you need to change the logic.

Coming next MainLine - The Design.

Using the Kalmbach Memorial Library

by David Howarth

NMRA members are part of a worldwide organization, with the majority of its membership firmly based in the United States of America. In the USA there are facilities available to members which we on the "fringe of the world" are able to use.

With this in mind, and being your local librarian, I thought I would see what information I could obtain and what quality of service I would receive.

I am one of those modelers who believe if one is to build a decent model of a particular railway then it is important to understand the environs in which the railway was built as well as the details of the equipment, structures and environment. If we are armed with this good information, it will ensure the model scene which we produce will have the correct characteristics to convey to the viewer the small part of the railway world we are building. This is particularly important as most modeling takes us back in time. To this end, small details such as the clothing on model figures, is important in painting the overall scene for the viewer.

If you look at the front page of Model Railroader magazine it says "Dream it, Plan it, Build it". When considering the construction of a new modeling project, I find time spent of the first two activities is as enjoyable as the final construction.

I have been contemplating changing from my current British modeling to a US based scene. An interest in the water/rail interface and the float bridges of the New York harbour area has lead me on a wonderful journey of research into the New York Central Railroad. A layout based on the NYC line from Weehawken, New Jersey up the west side of the Hudson River to the north would provide some wonderful modeling opportunities.

With this in mind I sent an email to the director of the NMRA's library which is located in Chattanooga Tennessee. My request was a general one asking what the library had in the way of New York Central company facilities information, Way and Works manuals, drawings of turntables, towers, depots and freight sheds, and any related photographs particularly in the Weehawken NJ area and all relating to the NYC.

The email address I used was kmldirector@aol.com. I received a prompt reply from Brent L. Lambert who is the Library Director. He explained he was happy to do the research at US\$15.00 per hour for members with photo copying at US\$0.25 for members plus any postage costs. I replied, asking him to do the research for me, giving him a budget not to exceed, and asking him to charge my credit card, details of which I had sent him by letter separately.

Four weeks from giving him the go ahead to proceed



A.C. KALMBACH MEMORIAL LIBRARY
NATIONAL MODEL RAILROAD ASSOCIATION, INC

4121 CROMWELL ROAD • CHATTANOOGA, TN 37421-2119 • UNITED STATES • (423) 894-8144 • FAX (423) 899-4865

September 24, 2007

Mr. David Howarth
22 Kamilaroy Road
West Pymble, NSW 2073
Australia

Dear David:

Thank you for your questions about the New York Central's facilities along the River Division and specifically in the area of Weehawken. I appreciate your patience in awaiting a response.

I am pleased to enclose photocopies from the March 1992 issue of *Mainline Modeler*, the August 1952 issue of *Railroad Model Craftsman*, Crawford and Kramer's *Rails Along the Hudson*, and numerous editions of *Railway Age* and *Railroad Gazette*. These materials provide photos, drawings, prototype data, and some modeling information about the River Division as well as NYC car float transfer bridges and drawbridges. I hope this material proves to be helpful to you.

Unfortunately, we are not aware of any compiled work of NYC structure standards, although it is highly possible that the New York Central System Historical Society has a collection of such standards. You may want to consider contacting them at the following address:

New York Central System Historical Society
Dept. W
Post Office Box 81184
Cleveland, OH 44181-0184
Website: <http://www.nycshs.org/index.html>

with the research I received a written reply at my home. A copy of the letter of reply is enclosed showing what they had reviewed. The accompanying photocopies amounted to 25 A4 pages and 19 A3 pages of information. The articles provided me with information which included photos, drawings and maps on the following:

- . NYC pier crane
- . The ferry terminal at Weehawken
- . The grain elevator at Weehawken
- . The largest Railroad Track Scale in the World at West Albany
- . West Shore Weehawken Tunnel Ventilation
- . The West Albany Yard of NYC
- . Passenger station layout Albany
- . Two NYC drawbridges
- . Plans of revised Weehawken Yards, circa 1900
- . Weehawken Terminal Plans, circa 1885
- . New Roundhouse of NYC at Rensselaer
- . NYC plans of roundhouse West Albany
- . Standard Transfer Bridge for Car Floats, NYC&HRR

In summary, I thought the process was a good experience. I received information which was useful, some particularly useful, some which I would not have needed but of good background interest and some which I already had. I believe I received value for the money I spent on what was a very general request. I am sure if I had a very specific request for information on a much more focused subject the cost would be consequently much less.

I have written this article to demonstrate one of the services available to members of the NMRA. It has given me knowledge to improve my understanding of the prototype I am interested in and hopefully will improve my modeling. I commend this service to you.

Wombat Gully Comes in From the Cold by Rod Tonkin



In early December 2007 I got possession of the walk-in wardrobe adjacent to our bedroom. After months of planning, a couple of false starts and with the layout's baseboard perched on top of Martindale Creek's back scene in the car port for some months, it was time for action.

Clearing out the walk in wardrobe was the equivalent of emptying King Tut's tomb. With the room finally emptied I could start to set up my long awaited train room. Two surplus chests of draws provided two functions, support for the layout and storage for tools, rolling stock and the usual bits and pieces required to support an operational model railway.

Moving the layout baseboard into the train room proved I could move the layout through the house without damaging the layout, the house and its furnishings or myself.

My planning was sound. The layout fitted into the train room. I could close the train room door without the door hitting the layout. The 400 mm aisle between the layout and the long wall of the layout room was adequate for me to move about. All the point work, coupling and uncoupling points were accessible from the aisle ways. I could gain access to the rest of the track for cleaning and maintenance from the access hole.

Mounted on the chests of draws the track work was 1070 mm above the floor. I trialed raising the layout 42 mm above the chests of draws to make it 1110 mm above floor level. A further trial raising the layout 70 mm above the chests of draws proved a better proposition. The layout height of 1240 mm was about right for me to work on and view my handiwork. As a bonus I could use the top of one of the chests of draws to store rolling stock beneath the layout.

In Defence of Code 100 Track

by Stuart Sharp & John Nash

After many visits to NMRA members' layouts, visitors get the notion that the use of code 100 rail for HO scale is associated with beginner modellers. This article lists some of the advantages for its use by HO modellers and suggests that its application has benefits that go beyond merely the beginner.

One of the major benefits is that code 100 rail is far more sympathetic to ballasting and scenery errors. The build-up of ballast and other materials do not infringe on the operation of wheels of rolling stock. It provides a margin of error for smooth train running. Not everyone wants to spend many hours with an eye-dropper very carefully placing ballast and scenery glue adjacent to the rails. Code 100 allows for faster application of ballast and scenery. Moreover, it is often difficult to perceive that code 100 track is being used once the visible rail webs and sleepers have been painted.

Code 100 facilitates soldering electrical wires to the rail web as there is a greater amount of surface area on which to solder wires. There is a greater surface area for the rail/wheel interface and this permits better electrical contact between the two components. It also provides a wider surface area at the base of rails if soldering to that part of the rail is preferred to the web.

Code 100 is sympathetic to older locomotives and rolling stock which may have larger flanges. Many such items are often in the toy category but they are often operated for sentimental reasons. The Guildford Model Railway Group has operated a Lima HST set, modified and repainted as a NSW XPT train, for many years. One of the choices the Group has made is to use code 100 so that it can operate the XPT. This model train has been adored by thousands of visitors, especially children, and its operation on code 100 rail in no way diminishes the significance of the model. Members of the NSW Division of the NMRA some years ago visited the layouts of the Taree Model Railway Club and I remember the trouble that Club was having with the track used on one layout. Not many members owned finescale rolling stock that ran well on the track. Therefore, it seems there are operational reasons for using code 100 for club layouts.

Code 100 is the cheapest and has traditionally been the easiest to purchase. It is the most popular type of rail and that single fact attests to its virtues greatly. If a hobby shop stocks any brand of track, the chances are that the HO track will be code 100. Also, there are more makers of code 100 rail and more varieties of track, turnouts and related perway [*Permanent Way - where*

the railroad track is laid. - Ed.] items. Many accessories are made specifically for code 100. Peco's locomotive lifter no. SL 44 and Kadec no. 321 magnetic uncouplers are examples.

In summary, the physical evidence strongly indicates reasons to use code 100 rail for HO track. The written evidence also seems to support code 100 rail and certainly does not consistently associate it exclusively with beginners. There is not any information about the selection of codes of rail sizes for HO scale in the NMRA material that new members receive on joining the organisation. There is Standard MS-1.0, which relates to "module standards". The NMRA literature says a standard is "cut in stone". Strangely, MS-1.0 refers to the exclusive use of code 100 rail in HO scale. Other codes are not regarded as "standard" for module construction. Of interest, code 83 rail is restricted to "traction/overhead standards". Recommended Practice No. 3 relates to "proto-fine scale track" but there is not one reference in the RP to the size of the rail. Even the Mark IV "NMRA HO Standards Gage" has no reference to the size of the rail. Thus, the material provided by the NMRA discriminates in favour of and certainly does not go against code 100 in any way.

Why then do some experienced modellers who are beyond beginner level prefer codes other than 100? A Google search on the Internet confirms that codes other than 100 for HO are considered to be associated with "advanced" modellers. www.justrains.com is an example. From visits to members' layouts, it is clear that some people prefer codes other than 100 for HO scale.

The Atlas website says that "code 83 is more prototypical...more realistic than code 100" and that it is the choice of "discerning modelers" (sic). Atlas differentiates HO track into three groups. These are: code 100, which is described as "basic track", and code 83, which is labelled "modellers track". However, Atlas then advertises its third group as "true-track", which features code 83 as for "beginners". It seems all the labels applied to track may not be as water-tight as first thought. I prefer the words of well-known model railway guru, Tony Koester, who describes in his book, *Realistic Model Railroad Operation* (p. 91) code 100 as the "standard" HO rail track. Mmmmm? Does this mean that those using codes 55, 75 or 83 are sub-standard?

Is the selection or avoidance of code 100 rail related to the basic difference between railroad modellers or model railroaders? The latter is focussed on operating a layout like a railway whereas the former prefers the modelling. Scale down the prototype for both groups is about compromise. It seems something to do with the visual setting of models. Smaller rails seem to look better. Some modellers desire to use codes 55, 75 and

Gwydir Valley Models

EasyDCC Now Available in Australia

The Easiest to use DCC System

Modular for Easy Expansion

Fully expandable & upgradable

Full support for all 13 NMRA-DCC functions

Guaranteed to work with all brands of decoders

Coming Soon Zonemaster 7 Amp Dual Zone Booster

Also Available:

Decoders from: Soundtraxx, TCS, NCE, Lenz

Auto Reverser, Circuit Breaker, & Rrampmeter

Powerpax Programming Track Booster

Decoder Wire, Speakers & Pin Connectors 2, 3, & 4 pin



Create highly accurate turnouts that stay in perfect gauge.

Easy to build: No special skills needed

Build a turnout in less than 1 hour at the workbench

Create perfect frog and point blades in minutes

Ready to use laser cut sleepers

Go To: <http://gwydirvalley.fast-tracks.net>



Don't forget to call us for a discount code to get a 10% discount on all our Fast Tracks products.

Also available from *Gwydir Valley Models*:

IRDOT Infrared Detection System

Miniature Drills and Modelling Tools: Xuron

Micro-Engineering: Rail, Track, Joiners, Track Gauges,
Spikes, Bridges, Windows

Clover House: PC Ties, Barrels, Window Glass Cable

Miniature Globes: 1.5 volt, clear, red & green, 12 volt, 14 volt

Golden White LEDs: 3mm, 0.8mm with leads attached

Fibre Optic: 0.5mm to 1.5mm

Kappler Scale Wood: HO Sheet, Strip, Bulk packs, Ties

Tortoise Switch Machines: Single or 6 Packs

Kadee Products: Couplers, Tools, Uncouplers

Light Works: Neon Signs and Billboards

BA Bolts & Nuts: 8 BA to 16 BA up to 1" long

Brass Wire & Strip: 10 to 30thou, Phosphor Bronze & N, Silver

Carr's Products: Solders, Fluxes Metal Blackening

AIM: Weathering Powders

Steel Plate Load Kits: Various sizes

Uneek: Detail items

Agent for: **TRAINMASTER,**

EUREKA & TRAINORAMA



Gwydir Valley Models

P.O. Box 740 GLEN INNES NSW 2370

Phone: 02 6732 5711 Fax: 02 6732 1731

Web: www.gwydirvalleymodels.com

Fast Tracks - <http://gwydirvalley.fast-tracks.net>

VISA

MASTERCARD

code 83 because they are perceived to be more in accordance with the size of the main line prototype. However, it should be kept in mind that in 1:1 scale, railway tracks and especially shiny rails in most settings dominate the landscape. In other words, the perceived visual dominance of code 100 rail accords with its comparative centrality in most model scenes.

Those who use other than code 100 often argue about getting the scale of the rail correct relative to the prototype. They chose to discriminate about rail size but not about other issues. Everything cannot be scaled down by the same ratio and expect it to work well. Scale track radii have to be much tighter than the prototype. Distances on model layouts is another clear compromise. With that in mind, why do some people like to scale track and others do not? The answer seems not in the application of labels of any sort but in the recognition that the hobby offers virtually unlimited choices to hobbyists. The choice of code 100 rail for HO is not about being a beginner or being “advanced”. It is about choice. That’s the beauty of the hobby.

MMI K-27 HOn3 Locomotive – Fitting SMD White LEDs for Classification Markers, Headlight and Cabin Lights

by Laurie McLean

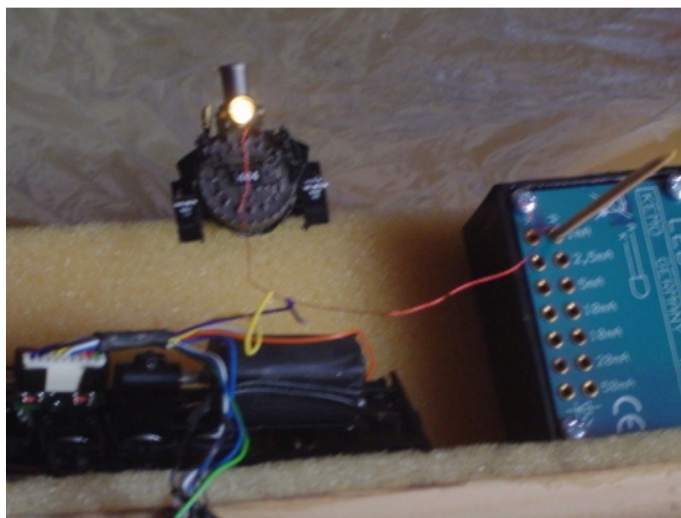


My MMI Hon3 K-27 Locomotive came with a 12V DC globe for the headlight and a 12V globe in the cab. It comes DC ready but I needed to convert it to DCC which I run, and add a decoder, sounds and a speaker... but first to get the lights I wanted!

I removed all the original wires, 12V globes and the circuit board that came for DCC as they was taking up too much space in the loco and I planned to fit a Soundtraxx Micro Tsunami #750 in the loco body and a speaker in the tender.

I worked using a 6 inch magnifying glass with inbuilt light so I could see what I was doing with such tiny pieces. I also used a variable heat soldering iron with a very small pointed tip that is a MUST for doing DCC wiring and to get low heat and NOT burn things!

The existing holes where the front and cab lights wires ran were used for the new Surface Mount Device (SMD) light emitting diodes (LEDs). These being white light and 0.8mm diameter with 6 inches of enamel wires attached- the enamel being the insulation covering.



Testing headlight LED current.

Firstly, I placed one of the LEDs into the headlight and centered it to see how it fitted and looked – good. I then super-glued (ACC) a 1.5mm square of thin cardboard to the back of the SMD LED so the terminals would be protected from contacting the loco body through the metal detail casting of the headlight. I then placed more ACC on the back of the cardboard and glued it in the centre on the back of the headlight. This was then tested again to ensure the light worked and the beam looked correct – it was.

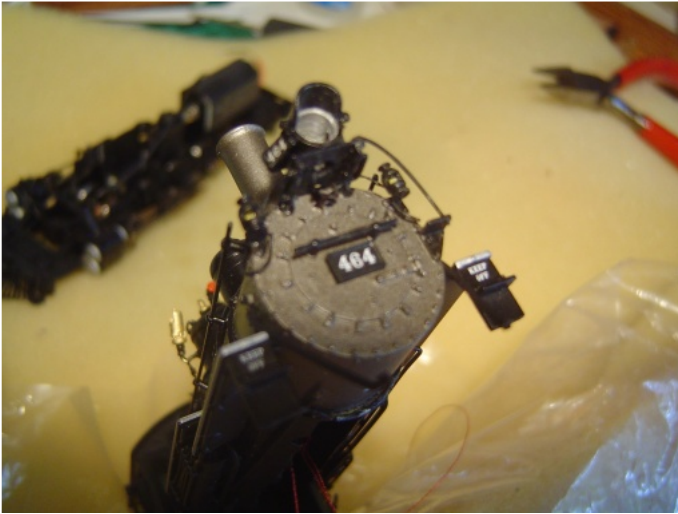
Secondly, I prepared both the Classification Marker lights on either side of the headlight. To do this I used my X-acto knife to clean away any paint “lumps” and high spots in the back holes of each marker. Then I “test-fitted” each of the SMD LEDs into the back hole of the markers.

NOTE: The back hole on the marker casting is slightly rectangular and so is the SMD shape so it makes for a nice snug fit and the LED actually goes in a little so that the lens actually fits perfectly. (A nice casting from PSC MMI).

With both LEDs tested and the fit confirmed as being a good, close and tight one, I removed the LEDs and placed a TINY drop of ACC onto each SIDE of the SMD. Placing such a small amount on each side

prevented any ACC getting onto the lens and it was just enough so that if needed, it could be removed later. I let the ACC dry overnight.

The tiny wires from each marker were run to the headlight bracket and tucked down behind it so they were not visible. They were painted with acrylic carbon black to hide the “copper” colour of the wires.



Marker lights fitted

The running of the wires

The wire “pairs” from the two markers and the headlight (total of 6 wires) were twisted together and fed through the existing hole at the top of the smoke box. Once painted black they are hard to see. The ends of the enamel wires were a little difficult to “tin” even though I scraped off the enamel coating. They are finer than a hair!

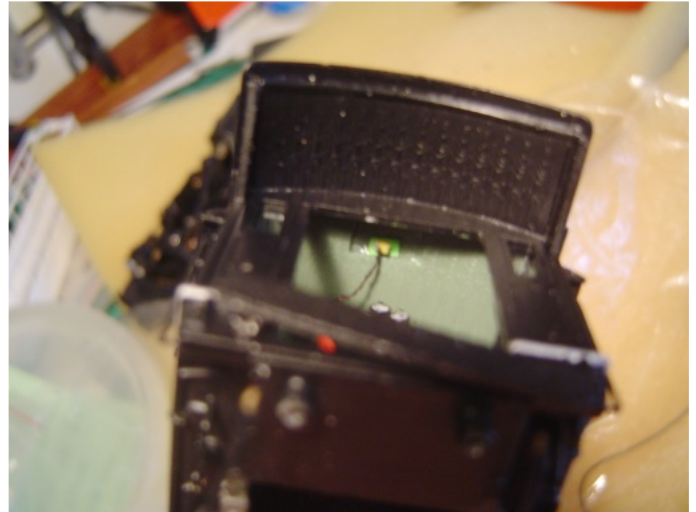


Routing wires through boiler

Anyway, I cut two pieces of Printed Circuit Board (PCB) from a Clover House strip (used for hand laying track) to use as a terminal for the wires. I tinned the PCB and made a small “puddle” of solder so that the tiny wire ends would sit in the puddle. This worked fine and I connected the decoder wires to the PCB terminal pieces. The PCB was ACC'd to the boiler and heat shrink insulation added to cover the bare wires.

NOTE: All Decoder wires MUST have insulation of some sort placed on them! If a wire was to touch or to

come adrift, it could cause a short or blow up the expensive decoder!

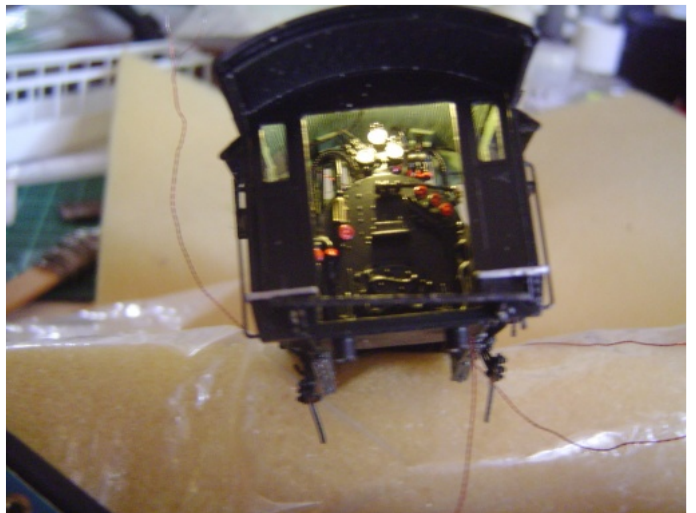


Cabin light (SMD LED) fitted

The Cabin Light

I again used a SMD 0.8mm white LED for the cab light. The original 12V globe didn't light up the cab very much so the back-head detail couldn't be seen properly.

I ACC'd a tiny square of thin cardboard onto the back of the LED so it covered the wires and LED “pads”. Then I ACC'd the cardboard and LED to the roof of the cabin slightly aiming the light down and onto the back-head detail which showed the white gauges and red handles of the various valves etc. This gave an intense light that really brought the cab to life yet was not overdone in any way. I was very pleased with the results.



Cab light turned on showing backhead detail

The wires were run back into the boiler via the existing hole and joined onto the same PCB terminal as the front three lights. A single 1K resistor is used and the four SMD LEDs are wired in series so that the milliamp value of the decoder is not exceeded. This is where a costly mistake can be made and keeping below 100ma per the manufacturer's specifications MUST be done.



Centre Photo - Shay
On the Shasta Subdivision, by Sowerby Smith
Photo by Kelly Loyd



My #464 came with no reversing light (per era modeled) however I will be fitting a reversing light and using a 3mm Yelo-glow LED.

For operation, the four LEDs fitted on the loco will come on with the dyno sound for moving forward. For moving in reverse, only the rear/tender light will come on. The loco engineer turns off the cab light in reverse so it doesn't distract him (that's my story anyway).



Lights fitted and connected to power

The headlight, when lit, shows the bulb/filament which makes for a nice and realistic looking light.

The photos show some of the steps and the end result. I hope this help you in trying to fit classification lights, marker lights or headlights etc.

It's been a really new experience doing this refit on the MMI K27 and I would like to thank Gerry Hopkins MMR, Jim Vail MMR and "JC" Zuloaga (California) for their help and information regarding the Micro Tsunami fitting - it is truly appreciated. By them sharing their knowledge others can become better modelers and in doing so it allows all of us in the hobby to embrace their friendship, increasing our enjoyment of our hobby at the same time. In fitting the SMD LED marker lights into my loco it is yet another step forward with new technology and it gave me much pleasure.

Region Roundup

Division 2 ACT

by Jess Brisbane

Division 2 held it's February meeting on 16 Feb at Tony Payne's abode where we welcomed new (to us) member David O'Hearn. Tony gave a brief talk on the care and feeding of airbrushes, stressing the importance of prompt and thorough cleaning. The first picture shows Tony demonstrating the weathering of rolling stock using a simple, single-action airbrush. The second picture shows John Bullen having a go and seeing how easy it really is.



Division 4

Western Australia

by Frank Godde

Annual Report for 2007

There's another year just about gone and I think we have achieved a lot this year. Firstly, my computer skills have drastically improved. Were it not for this position, I would still be chipping away on a stone tablet! No one has challenged me for the top job yet like someone else we all know...

Golden spike and achievement certificates have been presented to two members.

The members profile is going well and next year I will do the first club profile.

We took a trip down to the southwest to look at a steam sawmill in action as well as sheds full of retired machinery, then on to Busselton to photograph an old steamer that was once used in the timber industry.

Two more new members this year; these blokes are all known to us all and have been in the game for years.

Phil Knife has given his modeling room a face lift, and Allan Perry has pushed in a tiny golden spike to join his rails up.

Bob Kollwyn has again added more industries to his layout and Les Hodgson has at last faced his demons about scenery.

Allan Burroughs is just starting a new layout, while Peter Scarfe and Rod Tonkin are progressing slowly.

I called a special meeting in November at Jim Anderson's place so the members who had not seen Jim's layout could do so. This also allows us to show some support to this member as Jim has to move house and his N scale layout will be dismantled and put somewhere. Jim's next house will be a lot smaller.

Frank will be getting ready for next year's AMRA show with a table of displays and some good pictures of what's been going on in the East.

Regards to you all- Frank Godde

Division 6

South Australia

by Ron Solly



View of the scenic demonstration

December

December 8 had the year's last meeting for Div 6 at the home of Ray and Gael Brownbill for what is now a regular part of the NMRA calendar, the Christmas BBQ.

The BBQ was the first part of the afternoon and was enjoyed by all.

In between the meat, salads, cheesecake, and with a small amount of formalities thrown in, such as a report on the last NMRA convention and what is planned for the next couple of years, Ray, wearing his Achievement Program hat, then presented Ron with his first AP Certificate of Achievement, that being for Association Volunteer.

There was a "show and tell" session with Ian describing some of his building models and the methods he used including the unusual use of toilet paper to



A view of the mountains

create tarpaulins and hill sides.

Ray then opened up his layout for operating. His layout is developing quite well and is almost ready for signalling.

The raffle of a gift Voucher from Junction Models was won by Ken.



Ray Brownbill's yard

February

The first meeting for 2008 was held Feb 2 at the clubrooms of DECCA [*Digital Experimental Command Control of Australia*, www.decca.net.au - Ed.], hosted by Irene and Ian Wade, and saw 15 names on the attendance sheet.

Formalities were few and far between such as; state of our Divisional finances; members joining and others not renewing (we now have 26 members in this Division) and Nominations for the Regional Committee. Our Division's elections for Division Super' won't be needed this time. Al Harris has indicated that he would be happy to take over the job and this is planned to occur on June 1st. Following on from an email from Ron, Al discussed the use of parts from audio cassette tapes - these now slowly becoming obsolescent items. Scott displayed his 1:24 scale scratch-built narrow gauge box car/van as a possible start to working in a larger scale. Ray then gave a brief outline on the AP to date and looking into



Ron Solly receives his AP from Ray Brownbill

judging buildings by Len and Ken for his possible Golden Spike award. Ian then gave a talk on the changing face of technology such as the Heljan Container Crane Terminal; ESU ECOS DCC, the ability to route set and accept other DCC brands' compatible controllers etc.

The DECCA DCC layout was also operating and the members had fun with sound on this as well as on Ian's layout.

Division 7 New South Wales

by John Montgomery



SP Cab forward locomotive on Sowerby's Shasta Subdivision

The January meeting was held at Sowerby and Jenny Smith's residence in Chatswood. The layout is a transition era from steam to diesel. Sowerby has recently installed DCC which has made the layout easier to run. Some locos also had sound.

The meeting attracted about 68 people. This was a very good attendance for a January meeting. Most of the members were keen to see Sowerby's layout and, as always, it performed flawlessly.

The formal part of the meeting covered the promotion

of the convention in Queensland, the Taree bus trip and the 2008 Christmas party which will be held at the same venue as in 2007. Members were asked to support all of these functions.

Kelly Loyd announced that the following Saturday there was to be a running day on his layout for members who wish to hone their skills on his signaling system.

A number of AP awards were presented by Gerry Hopkins including the 250th award for the Australasian Region. This award was presented to Sam Mangion and was for Civil Engineering. David Howarth advised that there have been recent additions to the video library and that members should take advantage of the new material available. John Montgomery informed the members that he had watched a DVD on scenery techniques by Paul Scoles. After watching the video he experimented with the method of staining rock castings. He provided an example of this work for others to see. The ladies as usual provided a superb afternoon tea.

My thanks go to both Sowerby and Jenny for opening their house to the members for the meeting.

Division 8 Northern Rivers

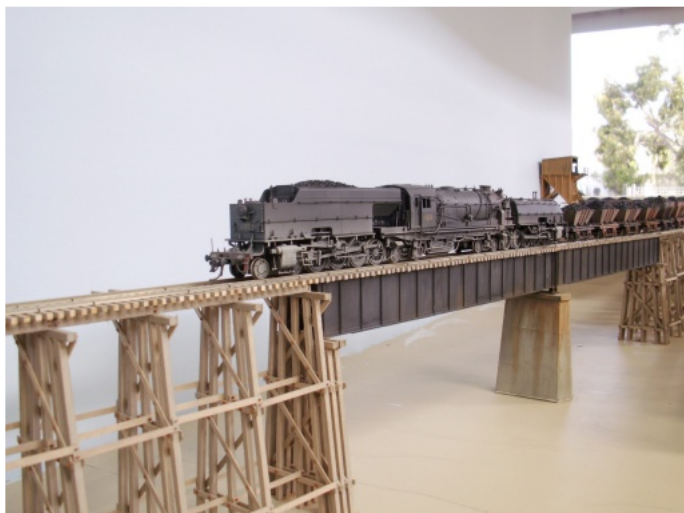
by Ian Phemister



Stage two of the layout. Trackwork almost finished.

With the deadline for our first exhibition drawing nearer, steady progress continues with the construction of our new exhibition layout. So far, all of the trackwork and wiring has been completed. After much debate, we opted to use Atlas code 83 track and points. Converting from out of gauge Peco points causes problems for some that have older locos and rolling stock that do not have NMRA profile wheels as the Atlas points are almost perfectly in gauge. 95% of all turnouts are powered by Tortoise switch machines. The others use John Saxon's switch stands.

The layout has been split into 5 power districts, one for each half of the layout's mainlines, one for the branch, and one each for of the two storage yards that



'Bridge' Module. Bridges almost complete. Trains running occupy the centre of the display. These storage yards have 20 tracks each. As we had kept the old yard from the previous layout, all the track and points were salvaged and used on the new yards along with lots of new ones. These are all code 100 Peco.



'Bridge' Module

Almost all of the visible tracks have now been painted, weathered and are ready for ballast. One area however that has slowed progress considerably is the 'Bridge' module. This will have a large river at the bottom of a shallow gully that both mainline and branchline tracks will cross. All the bridges needed to be constructed and fitted before testing of the second half of the layout. Three major bridge types needed to be built. The back branchline has two scratch-build timber trestles at either end of two Micro Engineering 85' plate girders. The inner main has two 150' Central Valley truss bridges end on end with a small Micro Engineering 30' plate girder at one end so as to add a bit of variety. The outer main has a 105' through plate girder with four 50' plate girders, two at either end. All are Micro Engineering as well. All the bridge piers and abutments are hand made plaster casts. The next job will be to start the scenery construction.

Early December we had a visit from four members of Mike Bartlett's Taree division to see the progress of the

layout and to get a few ideas for their new layout. All were most impressed and hopefully went back with a heap of new ideas. After a BBQ lunch and some general chit chat, they were invited to see Wally Palmer's home layout, then to cranky old Peter Web's SP layout. An enjoyable day was had by all.



Taree crew inspecting the layout. From Left Bill Oakes, Gordon Robbie, Mike Bartlett, Phil Calvert and Kevin Rasmussen.

I was very pleased to present to one of my fellow members, John Skinner, the Hopkins/Bone Award. This is an initiative of President Sowerby Smith and is a Division Superintendent award in the form of an individual plaque for a member within each division that has shown achievement within the hobby. John has certainly done this. Not only has he built a nice home layout, loosely based on Coffs Harbour's railway yards, but he has also greatly improved his modeling skills over the past couple of years. Additionally he has shown great interest and dedication to the construction of the new layout along with leading a team with the construction of the centre yard modules for the layout. John has also faced head on the gauge problem for some of his rolling stock and is slowly updating his equipment to run on the layout. Keep up the good work, John.

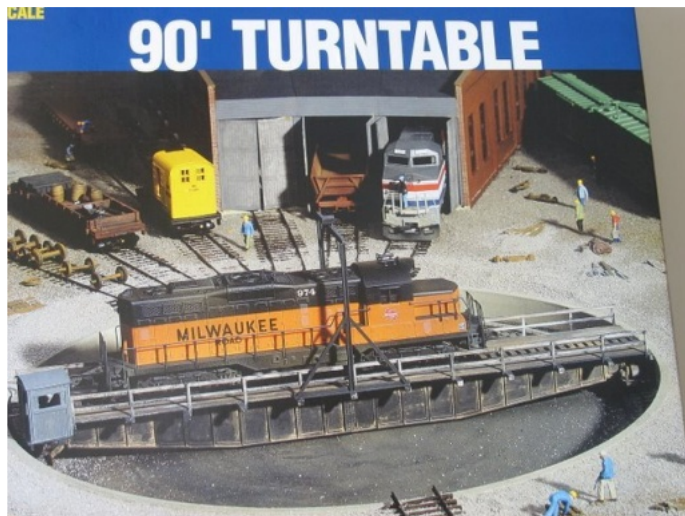


John Skinner. Hard at it

With Only 18 scheduled work days left, I think we will have to put in a few extras in order to get it ready for the AMRA show in May. Hope to see you all there.

Taming the Walthers HO 90' Turntable

by John Saxon, MMR HLM



It was time. The near 40 year-old kit-bashed Cedar Valley turntable continued to present challenges. Based on the upturned bridge girders of an 87' Airfix turntable kit and powered by a WW2 Bolton Paul Defiant turret motor with complex alloy gear head, the historic assembly could no longer be relied upon for consistent operation.

Inspection of the made-in-Denmark Walthers 90' turntable and separate dedicated geared motor showed a well-designed unit that should be able to be assembled and dropped into the existing hole in the benchwork with minimum difficulty. This turned out to be an optimistic assumption.

I followed the excellent instructions generally but I did make some changes and did find some difficulties that I was able eventually to overcome. However, I found it was best to walk away when I came up against some of the difficulties and return to it the next day.

Following are my observations based on my experience with the beast:

1. Read the instructions from beginning to end, then read them again!

2. If you have a sprue cutter, use it to avoid damage to some of the more delicate parts.

3. Note that page 2 contains instructions A and C and that B appears at the top of page 3, not directly under A. Hence Hint 1 above!

4. If you are careful you should be able to glue the bogie halves together and still have the wheels freely turn. I use a European-made liquid plastic cement with a 40mm stainless steel applicator. This usually controls the flow satisfactorily. And with luck, you can avoid the wheel bearings.

5. Install the bogies and when cured make sure they clear the pit walls OK. A little judicious filing may help.

6. I cut off about 2 x 5" of the wires provided, fed

them upwards through the peg of the bridge and soldered them to the base of the code 70 rails I was using. I then super-glued the first rail midway between the walkway and inner plank. Using my NMRA gauge and a K-Dee track gauge I super-glued the second rail, inverted the bridge on a flat surface, applied some weights and allowed it to harden properly over-night.

7. I then affixed the hand rails with a mixture of plastic glue and superglue, using ZipKicker for a solid result. I did not affix the gantry at this stage.

8. After fitting the bearings 21 & 22 I found that the peg was slightly longer than the depth of the hole and lower bearing in the lower mechanism cover so to try to avoid any future binding I carefully reduced its length with a fine flat file.

9. Note that the rounded, smooth-side of the large washer (50) faces upwards.

10. Note that the 3-dimensional side of the large gear faces upwards.

11. After assembling the bearings, the metal spacing washer and gluing the large gear according to the instructions I found, on a test hand-turning of the bridge in the pit, that there was some lateral looseness. I'm not sure if I failed to sit the large gear as far up as it should have gone towards the bridge but it was apparent that this could cause binding and slop in operation. This proved to be the case when I trial-fitted the geared motor.

12. To overcome this I constructed a 30 thou. spacer from styrene approximately 70 x 40mm with a large centered hole to clear the peg and four 10mm holes for gluing purposes. I cut the spacer in half through the centerline of the peg hole, filed away any burrs and slid the two halves between pit bottom and the large metal washer. This appeared to almost eliminate the slop without causing any binding so it was glued in place by slopping the glue into the four 10mm holes. Refer to the photo for assistance.

13. Solder the track power wires to the interior of the two brass ferrules making sure that the exteriors are bright and clean with no surplus solder that could impede operation.

14. Carefully feed the upper ferrules' wire back into the peg slot, install the separating washer, then finish by installing the lower ferrule.

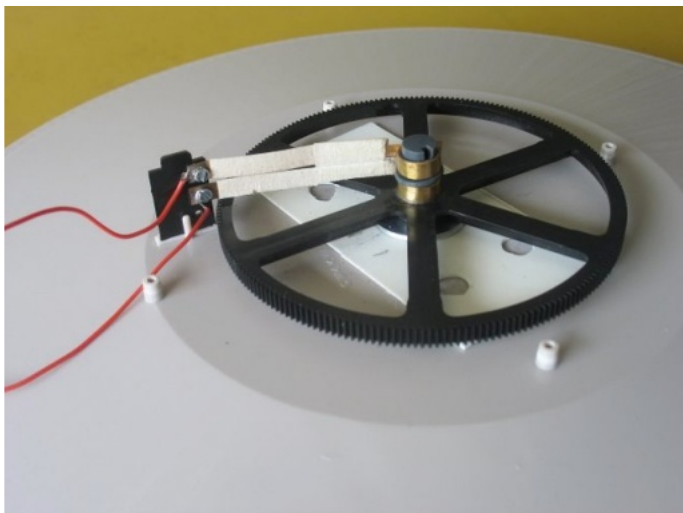
15. Now is the time to make sure that the electrical connections between each rail and its particular ferrule are solidly connected. Once the unit is installed it will be very difficult to address any problems.

16. Instruction B9 is simple. However, be careful. If the two wipers (36 & 36) touch each other in operation then you will have a short that might be difficult to find and may mean removing the turntable or doing some difficult work standing on your head under the layout.

17. I carefully cut about 1mm from the top and bottom edges of the working ends of the two wipers so that in the event the finished unit moved after installation and overriding the plastic spacing washer

(28) the exposed edges could not touch and short.

18. I carefully wrapped the two wipers with masking tape to provide further insulation.



19. I soldered the wires to the screws avoiding the possibility of a wire coming loose in the future.

20. After tightening the nuts I superglued them to ensure they also did not come adrift.

21. I temporarily soldered an LED and resistor test lamp to the track and made sure that the wipers continued to make contact as I hand-rotated the bridge and applied power to the wires. Cleanliness in the wiper/ferrule connections is essential and you may have to adjust these wipers several times to get a permanent connection. Remember, get it right now, not underneath on your head.

22. Drill holes in the mechanism cover to take the two sets of wires.

23. Install the motor and make sure it rotates quietly and steadily. If you are going to give the turntable a lot of use, now is the time to take off the cover and add more lubrication.

24. Install the mechanism cover making sure that the upper peg of the wiper fixture sits comfortably in the provided slot. Apply track power, apply power to the motor and run in both directions for a few minutes to make sure all is well.

25. Cut the specified hole in the layout. (Here I had a problem as the original hole was 12" in diameter and the new hole had to be 12 5/8". Trying to exactly cut 5/16" around the perimeter of the old hole with a jigsaw in old pineboard was difficult. I also had to shorten the existing lead tracks to allow the pit lip to sit down and then reinstall them, again not an easy task).

26. Install, remove the soldered on test set-up, sit a spare loco. on it for weight and test, test and test again. Glue on the power arch and tidy up the area.

27. Apply suitable weathering.

The resulting installation is well worth the effort. However, this is not a shake-the-box kit and some skills are required for a successful conclusion.

John Saxon MMR HLM



Decoders for Dummies

.... Fine Tuning your Decoders

by Gerry Hopkins MMR

Over the past few months people have asked about setting the CVs in their decoders and what are the "best" settings. The optimum settings will depend on the type of layout, the model loco in question and how the layout is run. Is it just for rail fanning, or switching, or just a social gathering with mates?

First I will explain the "standard" CVs as listed by the NMRA. I have removed the techno-babble – just the basics. If you want the full works – you already have it on your Data Plus CD.

Be sure to compare your decoder's specifications, as laid out in the manufacturer's documentation, to the official NMRA definition especially related to value ranges. Some decoders do not support the full value range so be sure and stay within the recommended value ranges described in your decoder manual which should be available on line – refer to the web site links below.

Keep in mind that decoders from different vendors may implement the NMRA-DCC recommend practices differently. There are also some vendor specific CVs that provide capabilities beyond the NMRA specifications. And some decoders do not have capabilities you may find necessary for your railroad.

No single decoder, available today, implements ALL of the available configuration variables. You should not be surprised that the observed reaction to a programmed setting differs from the official description shown in the NRMA documents. Check the decoder manual and don't be afraid to call or email the vendor if you have a specific question on capability.

Configuration Variable Bit Positions.

7	6	5	4	3	2	1	0	
128	64	32	16	8	4	2	1	

All CVs have 8 bits – you can think of them as single switches. Each bit has two values if it is off then the value is 0 but if it is on then it has the value shown above. For the switches that are on just add the values together. If you add them all together you get a total between 0 and of 255 depending on which switches are set to 'on'.

To change a CV you can just enter a value (this is the easy option for mere mortals) or you can just change the bit for a value. The setting of a bit is normally done by your command station when you enter a value.

Keep reading you will get the hang of it.

Configuration Variables

CV 1 Primary Address (Loco ID)

The primary address is the Loco short address with a value between 1 and 127 (bits 0-6). Bit seven must have a value of "0". The default for almost all new decoders is '3'. Before any programming you can usually use #3 to test the decoder.

CV 2 Motor Start Voltage

Vstart is a value that is added to the speed table so that the loco will start as you begin to turn the knob – and not wait until the knob is half way round. This setting is important when you want to consist locos. (Consist – when you want to drive more than one loco in the train)

CV 3 Acceleration Rate

Determines the decoder's acceleration rate. If the value is zero then the drive is direct – no momentum. This can be hard on your gearboxes and couplings and it can also trip your booster if you hit the reverse button while the loco is moving. A value is also needed here for your loco to generate the correct sounds.

CV 4 Deceleration Rate

Determines a decoders braking rate, in the same fashion as acceleration above (CV #3). (If the value is "zero" the loco will respond instantly to throttle changes – tear out the couplings, trip the booster if you press revers without stopping the loco, derail when doing wheelies)

CV 5 Vhigh or Vmax (not on all decoders)

Vhigh is used to set the top speed of your loco. Many locos are too fast for most layouts. This CV is important when consistng.

CV 6 Vmid (not on all decoders)

Vmid is used to set the middle of a primitive speed curve, when using CV5.

CV 7 Manufacturer Version Number

This is reserved for the manufacturer to store information regarding the programme version of the decoder.

CV 8 Manufacturer ID

CV8 shall contain the NMRA assigned ID number of the manufacturer of this decoder.

CV 11 Packet time-out Value

Contains the maximum time period that the decoder will maintain its speed without receiving a valid packet addressed to it. (Not on all decoders)

CV 17,18: Extended Address (3 or 4 digit)

The Extended Address is the locomotives address when the decoder is set up for extended addressing (indicated by a value of "1" in bit location 5 of CV#29. Your command station does all this for you!

CV 19 Consist Address

Contains a seven bit address in bit positions 0-6.

(A 2 digit number between 1 and 127). Bit 7 indicates the relative direction of this unit within a consist, with a value of "0" indicating normal direction, and a value of "1" indicating a direction opposite the unit's normal direction. If the address is "0" the unit is not in a consist.

CV 21 Consist Address Active for F1-F8

Defines for functions F1-F8 whether the function is controlled by the consist address. For each Bit a value of "1" indicates that the function will respond to instructions addressed to the consist address. A value of "0" indicates that the function will only respond to instructions addressed to the locomotive address.

CV 22 Consist Address Active for FL

Defines for function FL (Headlight) whether the function is controlled by the consist address. For each Bit a value of "1" indicates that the function will respond to instructions addressed to the consist address. A value of "0" indicates that the function will only respond to instructions addressed to the locomotive address. FL in the forward direction is indicated by bit 0, FL in the reverse direction is controlled by bit 1.

CV 29 Configurations Supported

Bit 0 Loco Direction: "0" = normal, "1" = reversed. This bit controls the locomotive's forward and backward direction in digital mode only.

Directional sensitive functions, such as headlights (FL and FR), will also be reversed so that they line up with the locomotive's new forward direction.

Bit 1 Speed Steps "0" = 14 speed steps, "1" = 28/128 speed steps. The Command Station can be set at 28 or 128 and the decoder will see the difference and respond accordingly.

Bit 2 Power Source Conversion: "0" = NMRA Digital Only, "1" = Analogue Enabled.

Bit 3 Advanced Decoder Acknowledgment: "0" = advanced acknowledgment disabled, "1" = advanced acknowledgment enabled.

Bit 4 Speed Table: "0" = speed table set by configuration variables CV5 and CV6, (if the decoder does not have CV5 & CV6, it uses its default internal

table) "1" = Speed Table set by configuration variables #66-#95.

Bit 5 "0" = one byte addressing (short address), "1" = two byte, addressing (long address).

Bit 6 Reserved for future use.

Bit 7 Accessory Decoder: "0" = Multifunction Decoder, "1" = Accessory Decoder.

CV 33-42 Output Locations FL(f), FL(r), and F1-F12.

Contains a matrix indication of which function inputs control which Digital Decoder outputs. This allows the user to customize which outputs are controlled by which input commands. A value of "1" in each bit location indicates that that function controls that output. This allows a single function to control multiple outputs, or the same output to be controlled by multiple functions.

CV49-63 Manufacturer Specific

See the decoder manual for details on what these CVs do.

CV67-94 Speed Table

The speed table is defined to be 28 bytes wide, consisting of 28 values for forward speeds. A digital controller that uses this table shall have at least 64 voltage drive levels and can have as many as 256 so that a smooth power curve can be constructed.

The CVs shown above are the basic CVs. Only some decoders have CV5 & CV6 but all should have a speed table that is user adjustable.

Sound decoders have many more CVs and programming them can be quite complex, but, if you have an old computer, you can use a program called Decoder Pro to do all your programming and not worry about any CV number or value. I will explain later.

Programming Your Decoder . . .

.....The way you want it to run.

First is setting the address. You can use 1, 2, 3, or 4 digits. I have a very simple mind – I use the number on the side of the cab. Some people complicate this bit, by adding secret/hidden numbers like "0" or "00" – remember "0" is a number as far as decoders are concerned. For the first example (non-sound), I will use one of my switchers, a P2K SW1500. It is GN #14 so I



will enter 14 into CV1.

Normally your Command station will just ask for the address – you say 14 and it will know that it is a 2 digit address and so put it into CV1 for you and set CV29 bit5 to "0" so that the decoder knows what number to listen for. Some systems will only allow you to enter the address if you are using the programme track. (This is a good thing).

Put the loco on the running track and we can do the rest in "OPS Mode" or "on the main" (POM). With your Command Station set to 128 speed steps, turn the throttle up to either 2% or 2 steps (depends on your system). Did your loco move? – Probably not. Leave the throttle at that setting and program CV2 – try a value of 10 – did it move? – Mine did and is moving along the track. The loco is running a little too fast, so I enter a value of 5, - Great, the loco is only just moving. Some locos will need a value of up to 50 here.

Next set a value of 5 into CV3 & CV4. This is just a temporary value for now, we will come back to it later.

We need to set the top speed. My switchers have a max of 20mph and all the road locos have a top speed of 30mph. I only have a small layout so I cannot get up much speed on my straight track before having to brake for corners! Setting all locos to respond the same will help when consisting and the low speed is safer when there are "visiting" drivers. (Through the lens of the on board camera, a speed of 15mph appears fast enough).

Run the loco at top speed, then enter a value for CV5 - try 128 (half full speed of 255). Try higher or lower settings to your taste vary the value you enter by 20 each time so that you can see the difference. On this loco the value in CV5 is 119 and I set CV6 to half this, hence, value is 59.

Back to CV3 & CV4 these values are a little high for good switching so I have dropped them to a value of 4 each. Nice response, easy to drive.

This decoder is a TCS T1 and has BEMF so no other adjustments required. At 5mph if you put a pencil across the track the loco will slip its wheels until you remove the pencil – then it will carry on at 5mph.



Now for a Road Loco. I have set one loco up as a reference for all the other locos. I use GN #314, a P1K F3 chassis with a Bachmann F7 body and a Soundtraxx DSD100LC sound decoder – the generic Plug and Play decoder for EMD 1st Generation locos.

The initial setup is the same as the above non-sound decoder. I enter the number and the Command Station works out the long address as CV17 = 193 and CV18 = 58 and sets bit 5 of CV29 to 1.

Follow the same procedure as for the non-sound decoder setting for CV2 (= 0), CV3 (= 5), CV4 (= 5). The Soundtrax decoders do not have CV5 or CV6 but they do have a choice of 14 speed tables and a "user defined" table. I use this last one, it only takes a few seconds to upload. Step 1 (CV67) = 2 and step 28 (CV95) = 128 with a straight line in between. (Some systems may take a few minutes – if you have to enter each step separately)

The sound levels are normally about half way as a default, this will do in most cases – remember – if you are over 45 then your hearing is not 100% so adjust the horn, whistle, dynamic brakes to suit YOUR hearing not the visitor. If you are using 128 speed step setting then set CV116 = 14. This tells the engine sound when to notch and you can hear the 8 notches and the traction motor transition between notch 4 and 5.

What's a transition? Well briefly, on 1st Gen locos the windings in the traction motors are changed from series to parallel at this point, done by contactors (big relays). This causes the engine speed to drop back to idle during the change.

Well you now have a couple of locos to play with and decide if they are running the way you want. If not go back and change a few of the CVs mention here and see what you think.

These days, sound decoders are so advanced that you can wear your pencil out recording all the settings you change.

In some cases there are so many things to enter that I do not even think about doing it without the computer.

My computer (in the train room) is an old Pentium 3, 733 CPU with 512mB ram – don't worry this just means its like me – old and slow! It runs with Windows 2000 Pro and is 7 years old. I use a programme called Decoder Pro to programme and record all the decoders.

It is easy to use, is regularly updated for new decoders and most of all it is free.

It means I do not have to remember or look up which CV to change or what each CV does. You just enter a number, or move a slider or just tick a box, the programme does the rest. To connect the computer to your system can be very easy – just a cable from the COM port to a socket on your command station. For NCE it is a serial cable, for Easydcc it is a Telco cable with 4 wires. For other systems you will have to check your manual.

Below is a table, hopefully, explaining CV 29 and help you set up CV 29 for your loco. REMEMBER – set the loco up the way YOU want it, not Claude from the club.

Next issue I will go over setting a few more variables in non-sound decoders and sound decoders like the

Tsunami and QSI V7 (AD60 Garrett) and how to use Decoder Pro.

Example (What your Command Station Does For You)

Programming the loco number 5354 (Extended Address) into CV 17 and CV 18.

Divide 5343 by 256 to get 20 as quotient and 223 as remainder.

($5342 / 256 = 20$ with a remainder of 223)

Note: If you use a calculator, you will get 20.8711.

Note: The integer value $n = 20$, which is the quotient.

Add 192 to this quotient (20) to get 212 and store this value in CV 17:

CV 17 = $n + 192$

CV 17 = $20 + 192 = 212$

Compute the remaining integer value by multiplying 20 by 256 and subtract from the locomotive value to get remainder and store in CV 18:

CV 18 = Locomotive Number - ($n \times 256$)

CV 18 = $5343 - (20 \times 256) = 223$

Remember to change CV 29, bit 5 to "1" to allow the Extended Address operation (see CV 29).



Sam Mangion gets his Civil Engineering certificate at the Division 7 Christmas party.

FOR SALE - TRAIN LAYOUT BASEBOARD

5130m x 3048m x 1m lightweight wooden baseboard, with further extensions.

Easily dismantled - clip-together/bolt boards with drop-out legs and stays.

Complete with demountable back-scene boards. Painted and all ready for track laying.

Built to fit half of a double garage with added portable board system for extra extensions.

Asking price - \$500. Contact Jean: bintan@stg.net.au Wyong, Central Coast.

Meet Dr Jim Anderson

by Frank Godde

Neat Tidy and N Gauge



This is the layout that confronts us all as we walk through the door of veterinarian Dr Jim Anderson. Built in an 8m x 5m room, the room has all the comforts of home with air-conditioning, a TV with video recorder and Jim's work bench strategically placed in one corner. The layout is built a little low for my liking for you look down on it rather than look into it. Never the less, it's neat, tidy and N gauge. All the track is ballasted and the polystyrene painted in the colours of the Kimberleys. Just like the real mine, there's a raised section where the ore is mined an enclosed helix to transport the ore down the hill.

In his youth the Anderson family lived in Brisbane and Jim's interest started when, from his back veranda, they could all watch the suburban trains on the Wynnum/Manly line going back and forth. Having no transport of their own, they used public transport to commute.



Jim's dad was involved in the racing game, knew a

lot of people and they somehow finished up on a dairy farm where Jim found his calling in life to become a vet.

With a scholarship in hand and working for the Department of Agriculture, Jim spent 16 years working in Papua New Guinea and then overseas with the Food and Agriculture Organization of the United Nations. He spent some time in Burma with the UN and became involved with their social club as secretary and, later on, as president. He rode on that notorious railway that we all know about and while in Burma built a small layout using the local timber - Teak.

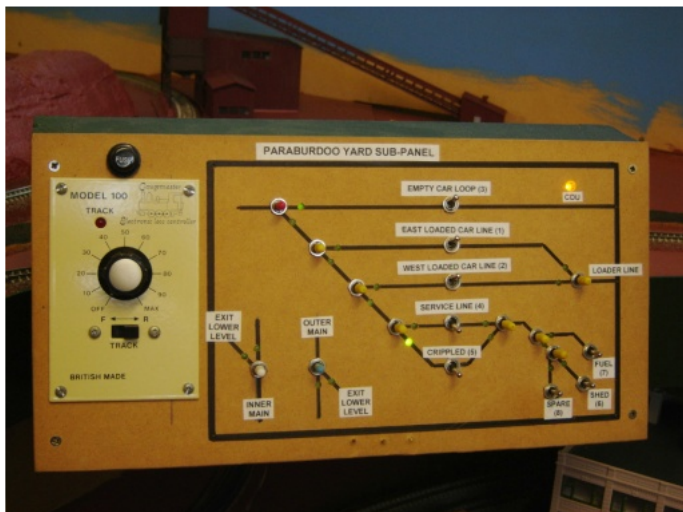


The rail system in Burma is metre gauge. There were some beautifully maintained pre-war 2-6-2 Tank locomotives from the UK that were used for shunting in the goods yards and post-war USRA Pacifics and Mikados that had to be re-gauged. These were replaced by Japanese Hitachi and French Alsthom diesels.



Then came time in Afghanistan where a laboratory was set up in Kabul by the Afghan Government, equipped by the FAO and staffed with Russians from the bilateral aid agency. After the Russians left, the Taliban seized power and blew it up! While he was there, Jim built a small N scale layout which he gave away before leaving. Coming back home, it was up to Carnarvon and then Paraburdoo where the Hamersley Iron

Railroad, with it's massive trains and ore facilities, took his fancy.



Jim has never stopped working and now, at 74, still works part time for the Australian Quarantine Inspection Services. That not being enough, Jim has been actively involved with the Scouting association and, as he has just told me, is still involved with them.

The Jim Anderson Trophy, as the name implies, has been set up to be presented to the best N scale scratch-built model of Australian outline. First presented in Brisbane in 2005 and again in 2007, this continuing trophy is presented at the Australian N Scale Convention.

Jim has decided to sell his property and to down size. This means his next place will be decidedly smaller. There may be some hope for his layout and the finishing touches are still be applied.



Division 9 and 3/4 Handy Hints

by Gerry Hopkins MMR

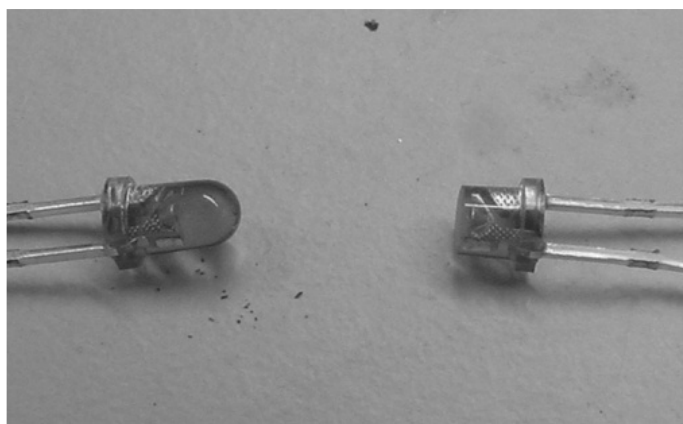
At the Blue Mountains Convention I gave a workshop on "How to Install a Decoder". As a result of this clinic, I was asked to explain a few terms I had used.

I will start with the brand of loco - P2K - also known as Proto 2000. If you can remember back to the year 1999 and all the hype about computer viruses, the end of the world etc. then you should remember the Y2K Bug that would cause it. So, Proto 2 K (for 1000 in the decimal system) - quite simple - once you are told.



WHITE LED in Streamliner

LED, White LED, Golden White LED are terms thrown around by a lot of people. First, Light Emitting Diode - this is the little gadget that puts a light at the front of the loco or the rear light of loco and caboose. Also used for signals. They come in assorted colours - red, green, yellow, amber, and blue. If you are running these off the decoder or a separate 12 volt supply then you will need a resistor, normally a 1K ohm will do (1K = 1000 = brown + black + red colour bands) or 1.5K ohm.



GOLDEN WHITE LED after grinding.

White Light Emitting Diode normally has a bluish tinge - OK for modern diesels but too blue for anything else. You can reduce the blue by painting with an amber paint.

Golden White Light Emitting Diode is a modified

version of the White LED. The plastic material is amber to remove the blue cast. If the LED looks too "yellow"



GOLDEN WHITE LED in VR S Class

grind the face back to reduce the thickness of the filter. While on the subject of LEDs, a quick word about types of LEDs (as used by us). The round 5mm diameter LED is good for panels and fascia – big, bright, can be seen from most angles. The 3mm diameter LED is often used for signal heads and indicators between the rails in staging yards. When connecting this type of LED, the longer of the 2 leads is the positive (+). If you are connecting to a decoder then the (+) is connected to the BLUE lead. The resistor can be connected to either lead - use one resistor for each LED.

SMD LED, SMD Resistor, SMD Diodes SMD stands for Surface Mounted Device. This can be any kind of component but the only ones we are lightly to use are the LED and Resistor.



Two SMD LEDs along side 3mm LED

The SMD Resistor is normally used on the axle of a freight car so as to trip a detector for signalling purposes.

It can also be used in conjunction with a SMD LED in confined spaces.

Another question asked was, "What is a CV, Is it the same as a Function"? Well, it is not the same as a Function. The Function is some "other operation" performed by the decoder. Examples of the most common for non-sound decoders are:

- . F0 = Headlight
- . F1 = Marker Lights
- . F2 = Ditch Lights
- . F3 = Dim Headlight



SMD LED used in the Headlight of brass loco.

Examples for Sound Decoders are:

- . F0 = Headlight
- . F1 = Bell
- . F2 = Horn / Whistle
- . F3 = Short Horn / Whistle
- . F4 = Steam Blow Down
- . F5 = Water Stop
- . F6 = Injectors
- . F7 = Brakes
- . F8 = Mute

CV stands for Configuration Variable. Changing the value of the CV is programming the decoder so that it knows how you want it to perform.

Last but not least the much touted but misunderstood BEMF = Back Electro Motive Force = a voltage that occurs in electric motors where there is relative motion between the armature of the motor and the external magnetic field.

When a motor spins it generates a current within the motor that tries to stop it spinning. The decoder measures this current then, if the value changes, the

- Advertisement -

AUSTRALIAN TOUR 2007

2 DVD set of Layouts in Australia
Standard & Narrow Gauge. Oz & US
All in Wide Screen, All videoed in 2007
Only \$12.50 including Postage

Contact:

Gerry Hopkins MMR
15 Narara Crescent
NARARA 2250
02 4329 0242

decoder will change the current applied to the motor to return it to that speed.

If you set a loco up to run at low speed and the loco runs smoothly, putting your finger in the way will cause the decoder to drive the motor harder until the wheels slip. Remove your finger and the loco will run at low speed.

This sort of feedback is not really needed in non sound decoders but in sound decoders it can be used to change the sound of the power unit – deeper chuff for steam or higher revs on a diesel – just to name two benefits. Of course there is a lot more to it, but we only need to see or hear the results not the science of how it is done.

Keep Alive Capacitors – This term I will “blame” on Marcus Ammann. His web site has a great page on how to fit these to your decoder. Going back about 50-60 years modellers were having running problems with their locos over rough track due to poor pickups, so the manufacturers started to fit mechanical 'keep alive capacitors' to motors so they kept spinning when travelling over poor or dirty track. These took the form of large brass flywheels on the motor shaft – problem solved – for now. 50-60 years later we find that sound decoders cut in and out over dirty or poor track and this is very annoying.

The manufacturers of sound decoders that can be run on DC fitted large capacitors to the circuit board to eliminate the dropout of sound on pulsed DC – the same effect poor/dirty track on DCC. To improve the overall effect Marcus shows you how to add a KAC to any decoder.

The pickups on locos were never really improved. Still the same design of pickup. Improve the pickups and fit the KAC and you will get a beautiful running loco.

Have you tried Fibre Optics? They are small diameter “plastic” tubes that pass light through them. They come in many sizes from 0.25mm up to 1mm (they do go bigger but 1mm is all we need). You can get lights to places that would be difficult to fit LEDs.



0.75mm Fibres used on HO Bachmann Tamper.

You can just see the fibre towards the right of the above picture.

Gerry Hopkins MMR

Photo Caption Contest

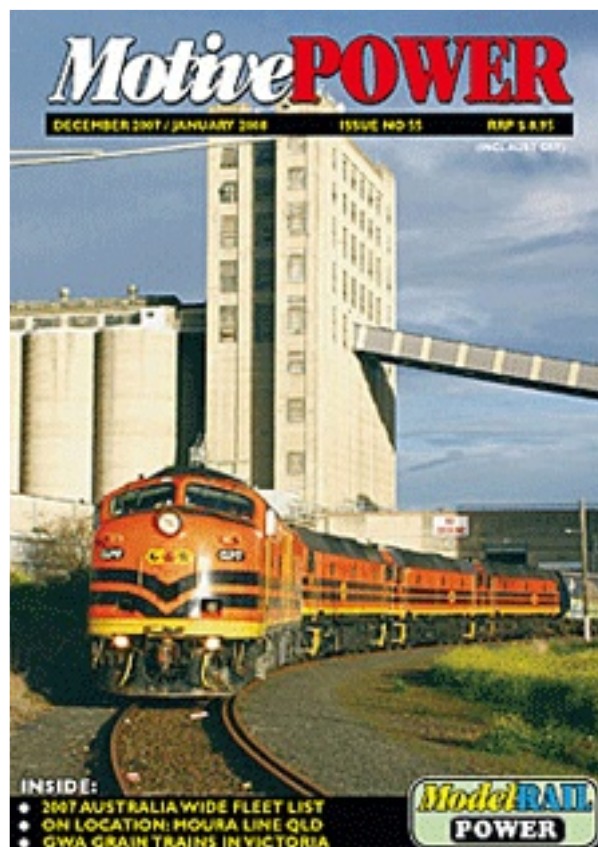
Here's a photo from the Division 7 Christmas party. Would you like to see your name in print? Just send us a caption to go with this photo. Entries will be published in the next MainLine. I have put a few on to help get you started.

Kelly Loyd, Editor MainLine



"Fill 'er up, please!"
 "Garcon! My glass is empty"
 "Can I trade this for a boxcar?"

Check out Motive Power, available at your newsagent or favourite hobby shop!



Retail Directory

<p>ARHS NSW Bookshop 67 Renwick St, Redfern NSW 2016 Ph: (02) 9699 4595 Fx: (02) 9699 1714 www.arhsnsw.com.au Mon-Fri 11am-5pm Sat 9:30am-3:30pm</p>	<p>Model Railroad Craftsman Shop 2/21 Campbell St Blacktown NSW 2148 Ph: (02) 9831 8217 Fx: (02) 9831 4132 Email mrc@zip.com.au http://www.mrrc.com.au Tue-Wed 10am-5pm Thu 10am-8pm Sat 9:30am-3:30pm</p>
<p>Casula Hobbies 62 Moore St Liverpool NSW 2170 Ph: (02) 9602 8640 Fx: (02) 96028874 Authorised Walthers Partner On-Line Dealer Email casulahobbies@casulahobbies.com.au www.casulahobbies.com.au Mon-Fri 9am-5:30pm Thu 9am-8pm Sat 9am-3pm</p>	<p>The Signal Box Model Railways 8/15a Gt Western Hwy Blaxland NSW 2774 Ph: (02) 4739 1799 Mail & Phone Orders Welcome Open Tuesday-Saturday</p>
<p>Anton's Trains Order Service PO Box 236 Castle Hill NSW 1765 Fx: (02) 9899 4484 Email: bognar@bigpond.com</p>	<p>Mountain Blue Miniatures PO Box 287 Blaxland NSW 2774 Email: keith@mountainblueminatures.com, www.mountainblueminatures.com.au Full range available at: The Railcar (NSW), Model Railroad Craftsman (NSW), Buffer Stop (VIC), Cyanotic Hobbies (VIC), Brunel Hobbies (VIC), Christmas Every Day (QLD) Trains & Track (QLD)</p>
<p>Woodpecker Model Railways 8 Joyce Street Pendle Hill NSW 2145 Ph: (02) 9636 3855 Fx: (02) 9631 4204 Email: wmr@zeta.org.au Mon-Fri 10am-5:30pm Sat 9am-2pm</p>	<p>The N Scaler - N Scale By Mail PO Box 254 Rydalmere NSW 1701 Ph/Fx: (02) 9832 8913 Mo: 0407 217927 Email kerr43@ozemail.com.au www.ozemail.com.au/~kerr43/nscaler.html</p>
<p>Gwydir Valley Models PO Box 740 Glen Innes NSW 2370 Ph: (02) 6732 5711 Fx: (02) 6732 1731 Email: info@gwydirvalleymodels.com www.gwydirvalleymodels.com</p>	<p>The Railcar 17 The Breakwater, Corlette NSW 2315 Ph: (02) 4981 0668 Fx: (02) 4981 0668 Email: railcar@hunterlink.net.au www.railcar.com.au Contact: Herna or Paul Ward</p>
<p>Berg's Hobbies 181 Church Street Parramatta NSW 2150 Ph: (02) 9635 8618 Fx: (02) 9689 1840 Email mail@bergshobbies.com www.bergshobbies.com Open 7 days</p>	<p>Junction Models Shop 5/449 Main North Rd Enfield SA 5085 Ph: (08) 8349 7464 Fx: (08) 8349 7463 www.junctionmodels.com.au Open everyday except public holidays</p>
<p>Vic Barnes Cycle & Model Train Centre 213 Lambton Road New Lambton NSW 2305 Ph: (02) 4952 1886</p>	<p>Asquith Model Railways Unit 4/113 Hunter Street Hornsby NSW 2077 Ph/Fx: (02) 9482 3242 (PO Box 106 Asquith NSW 2077)</p>
<p>Austral Modelcraft Shop 15 Fairfield St Mt. Gravatt QLD 4122 Ph: (07) 3849 2655 Fx: (07) 3849 8664 Walthers Dealer Tue 9:30am-1pm Thu-Fri 4pm-8pm Sat 9am-4pm</p>	<p>Tom's Hobbies 1001 Victoria Rd West Ryde NSW 2114 Ph: (02) 9809 0530 Fx: (02) 9809 0650 Email: info@tomshobbies.com.au www.tomshobbies.com.au Mon-Fri 8:30am-5pm Sat 8:30am-3:30pm</p>



David Howarth's Beaumont Layout O Scale Loco



Laurie McLeans MMI K-27 HO3