

# MainLine

National Model Railroad Association Australasian Region

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NSWGR 70 Class sits idle at the Dorrigo Rail museum

*Photo: R.L.Taylor*



**The Official Publication of the  
National Model Railroad Association  
Australasian Region**



**CONTRIBUTIONS:**

All members of the NMRA are welcome to submit article suitable for inclusion in the MainLine

**Cut Off Dates for Submissions**

**Summer 2014 :** 10th January 2015  
**Autumn 2015 :** 15th March 2015  
**Winter 2015 :** 15th September 2015  
**Spring 2015 :** 10th December 2015

**Submissions can be emailed to:**

**editor@nmra.org.au**

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## Cover Photo

A busy Scene on Ken Scales MMR's extensive HO Layout. The boat shed is quite busy while the roar of the Santa Fe passenger train and freight trains move through the town.

## **Mainline Content Requirements**

### **Rod Tonkin**

The announcement in the editorial of Mainline Volume 31 number two that divisional news would no longer be published in Mainline raises two concerns; what impact will the change have on current and prospective members and where are the extra pages of content coming from?

Most divisional notes describe what we have done, not what we plan to do. (Mainline has never been effective as a platform for announcing future events.) I'm sure many members like myself find photos of members modelling efforts and activities presented in the divisional reports interesting. These notes and photos show who we are and what we do. Leaving them out of Mainline will detract from the publication.

It has been my impression divisions are obliged to prepare and submit divisional news items to Mainline. Division four, since the start-up of our newsletter "Western Lines", has been sending articles and photos of division activities and members modelling to Mainline as they occur (If they miss a deadline, this content could be put in a later issue.) I would like to continue this approach. If this approach is unacceptable I'll need a written instruction from our Regional Committee.

We state boldly on our Web site the foundation of our region is in descending order our divisions, the achievement program and conventions. Not highlighting the activities of our divisions in Mainline, a publication open to all visitors to our web site will contradict our stated aims. Not printing these photos and notes will detract from Mainline, could lose us members and potentially discourage potential members from joining our organisation. A fellow member of division four considers not publishing divisional notes in Mainline will detract from the magazine.

My last and major concern is the type and quantity of articles required to make this editorial policy change work. The type of articles required for Mainline are "layout description" and "How to" articles. These types of articles will apparently encourage hobby manufacturers/retailers to advertise in Mainline. How publishing articles of this type will encourage additional advertising in Mainline eludes me. Reviewing my collection of copies of Mainline shows me apart from divisional news most of the articles published in Mainline already fall into the two categories of articles required.

With around 700 members we have been and are still battling to fill four issues per year with around ten to twelve pages of articles per issue. Removing the divisional news from Mainline will require an increase in article contributions per issue to around eighteen pages. This is an increase of around 50%. Can we achieve this increase?

Having received my MRA award for articles published in AMRM in 2012, contributed more than fifteen pages of articles to Mainline and editing "Western Lines" since it started, I've a reasonable idea of the effort required to prepare and submit articles for publication.

We are not alone in having issues sourcing content for our in house magazine. AMRA with twice our membership has been and still is battling to fill six issues per annum of their similar sized (32 pages, A4, full colour) bimonthly magazine "Journal" with ten to twelve pages of articles per issue. Compiling an index of Journal articles over recent years showed they were relying heavily on a very small number of contributors of articles for over forty percent of the article content of their magazine.

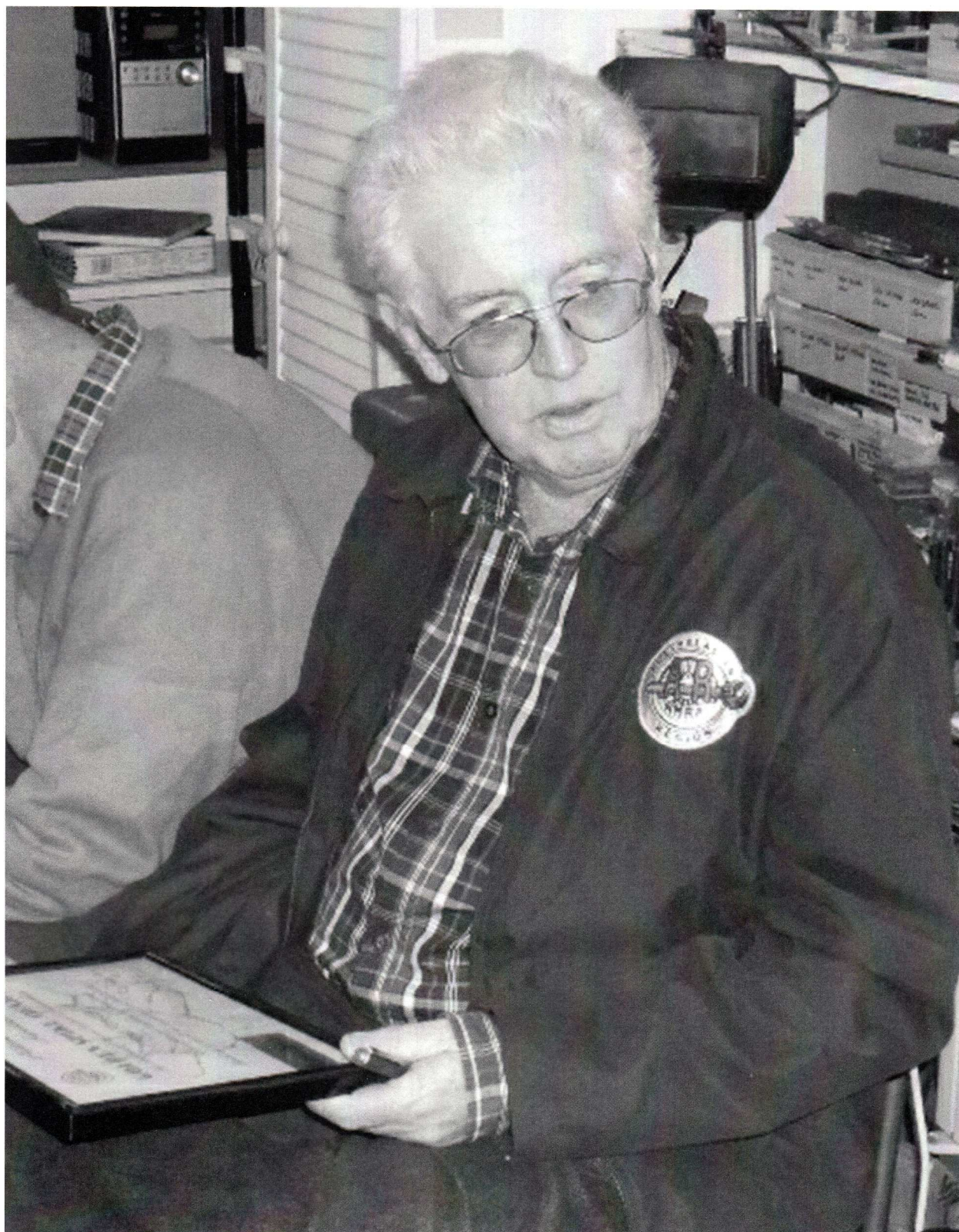
Regards

**Rod Tonkin**

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## **MEET THE NEW EDITOR of MainLine On-Line**



**Rod Tonkin can be contacted by email**

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# ARC INFORMATION

## EDUCATION DEPARTMENT UPDATE – JUNE 2014

The new and complete Basic Skills program is enjoying very good acceptance with over 800 hits on our web site and the US adopting it as the model for their new program. I have been slowed down a bit with health problems but I will now turn my efforts into creating an Advanced Skills program linked to the AP.

Again I will recruit the skills of Rod Tonkin and several members who have AP awards in specific categories such as scenery, structures, rolling stock, motive power etc. This way I hope to create a useful Advanced Skills program that assists our members achieve AP awards as they improve their modelling skills and enhance their layouts.

**Peter Burrows**

**Education Chair (AR)**

## NMRA AR

### 2014 AGM

Held 14 June 2104 at Shalvey NSW

Meeting commenced at 3pm

**Present:** 73 members/partners from Divisions 7 and 9 and 1 visitor

**Apologies:** P Jensen, P Marrant

**Minutes of 2013 AGM:** Approved by the ARC and published in MainLine magazine.

**President's Report** – Ken Scales summarised the past year's activities and acknowledgements as follows:

- Thank you to the outgoing ARC, Divisional Supers, volunteers and wives for their support
- The past two years have been very busy with many issues addressed and new initiatives implemented such as Teleconferencing, the archiving of our history and centralising of documentation on a common PC to be held and used by the Secretary to ensure continuity.
- The AR Strategic Plan was updated and several initiatives implemented to achieve objectives arising from the plan.
- Ken thanked Gerry Hopkins (Web Admin) and Alan Eagle (Web Master) for the high quality web site and the prompt updates that make the site one of the best sites in the country.
- Ken praised the work of our Editor/Publisher of MainLine in producing an excellent magazine and called for all members to increase their support by submitting articles. An Editorial committee is being established to assist Robyn in sourcing material suitable for publication.
- 50 year awards created and a Beginner's program published on our web site.
- Charging Moose layout acquired from the Estate of Geoff Nott.
- Clarification of procedures and doco associated with NMRA sponsored/endorsed train shows and Divisional Boundaries modified to better capture the demographics of our membership.
- The Executive handbook was updated to clarify membership of juniors in 100% clubs and issues such as the member's fee structure.
- Other achievements have included two AR conventions and two workshops. A management plan has been prepared for transferring the Smugglers Cove layout to the US California State Railway Museum.
- Ken also mentioned the misconception by some that the Association was responsible for the disposal of the models/layouts of deceased estates. He explained that whilst the Association does provide guidelines, members assisting families with this activity do it as friends and not representing the NMRA.



**Treasurer's Report** – James Wyatt summarised the financials for the FY 01 JAN to 31 DEC 2013. Details will be available on the AR web site.

- Incoming \$38,960
- Outgoing \$48,040
- Deficit \$9,080
- Cash available in Bank \$30,220
- Expenditure was higher than usual this past year due to the Div Supers meeting, technology acquisitions to improve communication and record keeping and promotional materials.
- The Association's finances continue to be healthy with no issues forecast.

**Motion** – That these minutes and future AGM minutes be reviewed and accepted at the next available ARC meeting. Moved Ken Scales, Seconded Sowerby Smith – motion passed.

**Rules of Association** – several changes/updates were proposed to align it with legislative changes and facilitate electronic notification which will save the Association significant dollars. A postal vote was undertaken with an unexpected reasonable response (19%). Results were as follows:

**YES** – 141 (118 by post, 23 by raised hands at the AGM)      **NO** – 2 (by post)

Therefore the proposed changes/updates are approved by the membership and now go to the NSW Dept. of Fair Trading for final approval.

**The Incoming ARC** – the incoming ARC was elected unopposed as follows:

President: David O'Hearn

Vice President: Peter Jensen

Treasurer: Jim Wyatt (continuing)

Secretary: Sam Mangion MMR

Ordinary Members: Peter Burrows (continuing), Graham Young (continuing), Ron Solly (Div6 SA).

**Meeting closed at 3:20 pm.**

## **Treasurer's Report for the Financial Year 1 Jan 2013 to 31 Dec 2013**

### **Income and Expenditure**

For simplicity all amounts in this report have been rounded to the nearest ten dollars.

Total income was \$38,960 and total expenditure \$48,040, resulting in a deficit of \$9,080. In comparison with the previous year, 2012, income was down by \$3,090 and expenditure was up by \$12,320.

Looking at items with both income and expenditure components:

- Income from Memberships and Subscriptions increased by about 3% however the "expense" of the Total USA Remittances increased by nearly 15%. This apparent discrepancy was due to the timing of the processing of memberships and subscriptions.
- There was a smaller surplus from the Regional Convention than was received last year (2012).

On the income side there was no income from Mainline advertising and reduced interest income.

On the expenditure side printing, postage and stationery costs associated with Mainline totalled \$8,350 being for the five editions produced during the year. Last year (2012) only three editions were produced.



While library expenses were lower by 42%, postage, copying & stationery costs increased by 64% and the success of the Achievement Program and the cost of various awards is reflected in those expenses increasing by 385%.

During the year there were a number of “one-off” expenses and those which could be described as “capital” expenses. These include:

- Purchase of 1,000 vinyl window stickers for distributing to new members and current members on re-newing, \$1120,
- Purchase of the late Geoff Nott’s “Charging Moose” layout, \$750
- Purchase of a laptop computer for use by the Secretary to facilitate record keeping and the handover of secretarial duties, \$700
- Purchase of five Rollup Banners for display at exhibitions, \$600, and
- Purchase of a frame and banner for the education program, \$320.

The major expense for the year was the Regional Planning Meeting held in July with attendance by the Committee and almost all the Divisional Superintendents. The total cost came to \$4,970. This was undoubtedly a very successful meeting however, considering the high cost, a major challenge for the new committee will be to make the best use of our teleconferencing facility and other opportunities for maximising the contributions from all divisions.

### Cash

At the 31<sup>st</sup> December 2013 the total cash available in our working National Australia Bank account, the Term Deposit and the Cash Manager account totalled \$30,220.

**James Wyatt**  
Treasurer

## Division Four’s Locomotive Testing Facility

### Rod Tonkin

Comparative locomotive performance trials are prototypical. The LNER and Great Western Railway locomotive exchange trials of the early 1920s gave the GWR bragging rights for fuel consumption and set Nigel Gresley on the right track to vastly improve the performance of his Pacific’s. Union Pacific trial operated a New York Central Hudson in the mid 1930’s to gauge the suitability of this type of locomotive for their needs. The locomotives designed and built as a result of these trials were the 800 series 4-8-4s. In contrast to these serious engineering endeavours, Division Four’s locomotive performance trials are in a spirit of fun.



Division four’s model locomotive performance trials needed a method of measuring model locomotive performance. On the prototype these days a coach marshalled between the locomotive and train fitted with load cells on the draw gear, speed recording radar and an engineer with a lap top computer can do the job on a regular train. In the days of steam some railways had stationary locomotive testing facilities such as the one at Rugby in England. These facilities measured power, tractive effort, fuel consumption and water consumption without tying up the main line with test trains.



A stationary test facility seemed the most practical for our purposes. The aim of our trials would be to determine all up weight, tractive effort and current draw for the models tested.



**Test rig spirit levels, levelling screw and track power sockets**

The test facility is built on a length of 140 mm by 19 mm pine. The pine plank mounts the test track, spirit levels, levelling screws and power connection sockets. The 600 mm long test track can accommodate the largest HO scale model steam locomotive (A HO scale Union Pacific Big Boy is around 470 mm long and a HO scale Santa Fe 3776 is around 420 mm long)). To ensure the test track is level the test track board is fitted with two spirit levels to check the track is level along and across the track before each test run. The spirit levels were set up and shimmed level using a 600 mm long spirit level as a reference level. The three jacking screws allow the test track to be levelled regardless of the surface it is placed on. Each rail of the test track is wired to a Banana socket. The track power connection sockets allow the test track to be powered by either DC or DCC.

The weigh in is simple. Locomotives are weighed as operational unit's i.e. Steam locomotive weights include the tender. Smaller contenders weighing up to 500 grams are weighed on a diet scale (to the nearest five grams). Large model locomotives and models weighing over 500 grams are weighed on the kitchen scales (to the nearest 25 grams). The kitchen scales are able to be zeroed; this allows large models to be weighed supported on the scales on a length of 42 mm by 19 mm pine.

A "Micro-Mark" pull meter is available to measure the tractive effort. This unit measures tractive effort to the nearest five grams. Models under test run until the drivers slip. The resulting tractive effort is duly recorded.

The NCE Power Cab allows the current draw of the model to be measured. The current reading at maximum tractive effort is recorded.



**Santa Fe 3784 on the test bed developing 95 grams tractive effort**

For a bit of fun I compared the relative performance of a few models to the real thing. The steeds chosen for the trials were a Bachmann HO scale model of Santa Fe's 3776 class number 3784, a Hornby OO scale model of a BR 40 class diesel, a Hornby OO scale model of the A1 Locomotive trusts LNER A1 60163 and an Athearn HO scale model of EMD's biggest selling model the SD40-2.





Santa Fe 3784 on the kitchen scales weighing in at 730 grams

Builder	Driven wheels	Weight	Tractive effort	TE/Weight
Santa Fe 3776 class 4-8-4				
Bachmann	8	730 grams	95 grams	0.13
Baldwin	8	960,630 lb	79,968 lb	0.08
British Railways 40 class 1-Co-Co-1				
Hornby	4	340 grams	60 grams	0.18
Vulcan Foundry	12	298,144 lb	52,000 lb	0.17
A1 Locomotive Trust 4-6-2 60163 "Tornado"				
Hornby	6	440 grams	65 grams	0.15
Doncaster	6	405,265 lb	37,797 lb	0.09
EMD SD40-2 C-C				
Athearn	12	430 grams	115 grams	0.27
EMD La Grange	12	393,300 lb	96,325 lb	0.20

A few things are worth noting from the trial results. Both models of steam locomotives had a higher ratio of tractive effort to overall weight than their prototype. The Hornby model of the 40 class ratio of tractive effort to overall weight almost matched the prototype. The Athearn model with the old sintered wheels comparatively out pulled the prototype.

The tractive effort results need to be considered in light of the trains we can operate on our layouts. My OO scale Hornby BR 40 class with only two driven axles and two traction tyres recorded a 60 gram maximum tractive effort. This model locomotive can easily haul a fifteen car train of bogie freight cars weighted to NMRA RP20.1 around the reasonably level 457 mm radius curves on Wombat Gully.



# My version of the “Venice Simplon Orient Express”

**Rod Tonkin**

A while ago my wife suggested we take a European holiday. One of the suggested highlights of this trip would have been riding the “Venice Simplon Orient Express” This service recreates the golden age of passenger trains. My enthusiasm for this adventure cooled rapidly on discovering you had to dress formally for dinner in the dining car and a lot of the train travel was at night. The last time I wore a dinner jacket was in 1971 and I like to see where I’m going.

As I wasn’t going to ride on the “Venice Simplon Orient Express” maybe I could have my own “Venice Simplon Orient Express”. Surfing the net showed the current “Venice Simplon Orient Express service on the British side of the channel uses British Pullman cars for the London to the Folkstone leg of the trip and trips around Britain. This service has on occasion been steam hauled by ex BR pacific 35028.

Hornby are currently marketing a “Venice Simplon Orient Express” set. The information off the internet gave the set’s contents prototypical authenticity in the preservation era. The DCC ready set contains a model of ex BR re built Merchant Navy class pacific 35028 “Clan Line” with the late BR steam locomotive logo, two Pullmans, and a Pullman brake, the usual circle of track, some extra track and a basic power pack.



Out of the box the finish of the locomotive and coaches are as Hornby’s literature proclaims “Pristine” The blindingly white Pullman car roofs were crying out for a little grime.

The set has an oval track of Hornby’s number three radius curves. In addition to the oval of track is a set of points and track to form a siding. A neat idea for a freight set. Not sure of the logic of including it in an express passenger set. The additional track won’t however go to waste.

The two named Pullmans each have different names and are differently named to the otherwise identical Hornby “Railroad” range Pullman. The Pullman Brake is similarly differently numbered to the otherwise identical Hornby “Railroad” range Pullman Brake. This allowed me to build up a five car Pullman rake of matching stock without the needed to re letter or number the models. Adding Hornby “Railroad” range Pullman and Pullman brake and the Hornby Southern region baggage car in Pullman colours to the coaches in the set gave me a six car train of matching but more importantly to me individually numbered or named vehicles.



Hornby's OO scale Ex BR 35028 comes with a plastic bag of details to be added by the purchaser. Which way round the loco driving wheel brake actuating links went was eventually determined from prototype photos off the Web. You have the choice of a dummy screw coupler or the Hornby hook and loop coupler at the front buffer beam. As my locomotives are there to work not just be looked at I fitted the Hornby coupler to the lead truck. The lead truck coupler fouled the front buffer beam vacuum brake hose while traversing Hornby second radius curves. My model of 35028 has had the front buffer beam vacuum brake hose shortened to clear the coupler when traversing the curves I use at home. The front buffer beam foot steps are not installed as they foul the lead bogie on the sharp curves on my indoor layout.

Fitting the decoder was "Fun" not. The boiler removal instructions were useful. I especially appreciated the detail of how to disconnect the speed recorder. My trusty multi meter showed the NMRA eight pin plug was wired correctly. I plugged in a Hornby decoder and we were in business. By this I mean the locomotive ran smoothly on DCC power. Getting the rather small Hornby decoder and it's wiring into the limited space inside the boiler was an exercise in frustration.

The pristine condition of 35028 and its attendant Pullman cars needed attention. Washes of black water colour took care of the white Pullman car roofs. A raw sienna wash over the underframe and bogies added to the in service appearance. I rain streaked a thin black wash down the sides of the Pullmans. 35028 received a raw sienna wash over the under frame, wheels and motion and a liberal black wash over the top of the boiler and tender.



A rain streaked thin black wash down the sides of the boiler, cab and tender added to the effect. White streaks around the safety valves and whistle added to the, run a few miles since the last wash down effect.

I glued some coal on top of the moulded coal load in the bunker. In addition to the coal tender fuel load I glued some spilt coal on the vacuum tank cover, the tender top sides either side of the coal bunker, the tender coal spout and the cab floor.

My "Venice Simplon Orient Express" was now ready for layout operation. It usually operates in daylight and I don't need to wear a dinner jacket to operate it.



# Modelling Santa Fe's coat of many colours FP45s

**Rod Tonkin**

There must be something in the air in the American south west. The region was home to, in my view, two of the most impressive looking diesel locomotives in North America; Southern Pacific's Tunnel motors and Santa Fe's FP45s. Of the two I prefer the FP45. An FP45 is basically an EMD SD45 with an extended frame to accommodate the steam generator for train heating and air conditioning and a full width car body.

EMD's FP45 introduced in 1967 was intended to replace the aging E and F units hauling passenger trains across North America. Unfortunately things didn't turn out as expected. The rapid demise of the passenger train in the late 1960's put paid to plans for legions of FP45s heading up the great trains of North America. Only fourteen were built, five for Milwaukee and nine for Santa Fe. Of Santa Fe's nine FP45s after thirty years of mainline service two were wrecked, one was sold and the remaining six have been retired to museums.



After delivery from EMD Santa Fe's FP45s rapidly took over haulage of the "Super Chief/El Capitan" and other trade mark Santa Fe trains. Two FP45s replaced five F7's at the head of the combined "Super Chief/El Capitan". While they lacked the elegance of the F units their angular styling implied they meant business.

The FP45s were a symbol of the Santa Fe over their operational life and an indicator of Santa Fe management policy, from the 1970 renumbering, the creation of Amtrak, the planned merger with Southern Pacific and the final flurry of independence in the Super Fleet era, prior to the merger with Burlington Northern.

The FP45s were not handed over to Amtrak with the passenger car fleet. The suitably repainted FP45s headed the "Super C" fast freights running on the fast "Super Chief/El Capitan" timings. By the mid 1970s all the FP45s had been repainted into the "Yellow Bonnet" colour scheme. A common FP45 duty was hauling executive trains over the system. There are plenty of photos around of these impeccably polished trains hauled by multiple well scrubbed FP45s.





The FP45s were rebuilt in the early 1980s like the rest of the SD45 roster and reclassified as SDFP45s. Externally this resulted in the FP45s being re numbered and fitted with cab roof mounted air conditioners and radio antenna platforms.

The planned merger with Southern Pacific resulted in all the FP45s acquiring the “Kodachrome” merger colour scheme. When the merger fell through all the FP45s rapidly reverted to their previous “Yellow Bonnet” colour scheme.



The “Super Fleet” program aimed to revitalise an independent Santa Fe. All subsequently purchased locomotives with full width cabs would wear the “Super Fleet” colour scheme. The new colour scheme after being demonstrated to the Santa Fe board using Athearn HO scale models of FP45 was publicly unveiled using the FP45s. The FP45s full width car body did justice to the “Super Fleet” colour scheme. The FP45s reverted briefly to their original 100 to 108 number series, were then re numbered 5990 to 5998 and finally renumbered 90 to 98.

The attached table lists the date for the colour scheme and number changes of each locomotive. The table shows not every locomotive carried all the number and colour schemes.

Santa Fe FP45/SDFP45 History											
	Date	Colour scheme	Numbers								
Delivered	1967	Passenger red/silver	100	101	102	103	104	105	106	107	108
Renumbered	1970	Passenger red/silver	5940	5941	5942	5943	5944	5945	5946	5947	5948
Repainted	1971/72	Blue with yellow trim	5940	5941	5942	5943		5945	5946	5947	5948
Repainted	1972/76	Yellow war bonnet	5940	5941	5942	5943	5944	5945	5946	5947	5948
Rebuilt to SDFP45	1980/82	Yellow war bonnet	5990	5991	5992	5993		5995	5996	5997	5998
Repainted	1986	Kodachrome	5990	5991	5992	5993		5995	5996	5997	5998
Repainted	1988	Yellow war bonnet	5990	5991	5992	5993		5995	5996	5997	5998
Repainted	1989	Super fleet	100	104	101	108		107	103	105	102
Renumbered	1989	Super fleet	5990	5991		5993		5995	5996	5997	5998
Renumbered	1989	Super fleet	90	91	92	93		95	96	97	98
Disposition		Scrapped					1981		1994		
		Sold		1995							
		Retired	1998		1997	1998		1998		1999	1998





Modelling the FP45 a minority design if ever there was one has been made reasonably easy by the efforts of the major model railway equipment manufacturers. Both Athearn and Lima have built N scale and HO scale models of the FP45. Mehano built HO scale models of the FP45. Athearn and Lima HO scale models can readily be picked up from traders at model train shows. Athearn's current offerings are in their Genesis range.

My first encounter with a model FP45 was in the early 1970s reviewing Lima's HO scale model for AMRM. My next encounter with models of FP45s was at an auction in the mid 1990's. For a bid of ten dollars I became the proud owner of a travel worn Lima built HO scale model of Santa Fe FP45 number 106. This model triggered my interest in the Santa Fe and especially in their FP45s. Photos off the internet provided a guide to correcting the paint work on my Lima model.

Santa Fe 106 was soon joined by Athearn built "Super Fleet" era 91 and 92. Sometime later an Amtrak painted Athearn built FP45 was acquired and repainted and lettered as 5998. Some more Lima built FP45s allowed me to build up a roster of passenger colour schemed FP45s wearing the post 1970 numbers. A Lima FP45 was repainted and lettered as "Yellow Bonnet" colour scheme 5940. A dummy Athearn FP45 in passenger colours was re lettered and detailed as "Super Fleet" number 98. The latest addition to the roster is Athearn Genesis series "Yellow Bonnet" colour schemed 5941.





The HO scale models pictured have been modified where required to match prototype photos. The cab roof air conditioners were made of balsa wood and thin card. The radio antenna platforms were made of thin card. The snow plough on number 98 was made of balsa wood and thin card.

- ATSF number 108 Lima model in passenger colour scheme, renumbered, number box numbers installed, underframe fuel tank and bogies painted silver, front handrails painted yellow, weathered.
- ATSF number 5948 Lima model in passenger colour scheme, renumbered, number box numbers installed, air horns, underframe fuel tank and bogies painted silver, front handrails painted yellow, weathered
- ATSF number 5940 Lima model repainted and lettered in "Yellow Bonnet" colour scheme, number box numbers installed, rotating beacon on cab roof
- ATSF number 5941 Athearn Genesis in "Yellow Bonnet" colour scheme, weathered
- ATSF number 5998 Athearn model, repainted and lettered, number box numbers installed, wire cab door handrails, cab roof mounted air conditioner, radio antenna platform, rotating beacon, weathered
- ATSF number 91 Athearn model in "Super Fleet" colour scheme, wire cab door handrails, number box numbers installed, cab roof mounted air conditioner, radio antenna platforms, air horns relocated to roof aft of dynamic brake fans and weathered.
- ATSF number 98 Athearn model in "Super Fleet" colour scheme, wire cab door handrails, number box numbers installed, yellow coloured (as per prototype photos) cab roof mounted air conditioner, radio antenna platforms, air horns relocated to roof aft of dynamic brake fans, a snow plough pilot replacing damaged original pilot and weathered.

My models of one of Santa Fe's FP45s progressively numbered 108/5948/5998/98 in three of its five colour schemes wearing four of its five numbers dispel the myth that all diesel locomotives look alike.







Laurie Green MMR presents Peter MacDonald with is well earned MMR Trophy







Scenes from Peter MacDonald MMR's Victorian Layout







More of Peter MacDonald MMRs Layout



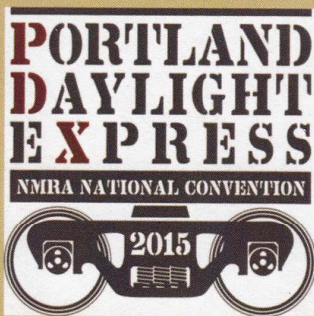








Plan to  
attend



We're working hard to bring you a great  
National Convention.

**August 23 – 29, 2015**

Hosted by the  
Columbia Gorge Model Railroad Club,  
who also brought you the 1994 NMRA National.

The event is to be held at the Doubletree Hotel at  
Lloyd Center, near downtown Portland.

**Bring the family to explore and enjoy  
the Great Pacific Northwest.**

Check out our website  
<http://www.nmra2015portland.org/>  
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<https://www.facebook.com/NMRA2015Portland>





# Thoughts on curve radius

## Rod Tonkin

My models of British Railways rolling stock pose a question as to the curve radius required to operate them. As most areas of British railways operated passenger service the rolling stock determining the curve radius on a British outline layout is the coaching stock. The signature passenger rolling stock on a post war era British layout would have to be the Mk 1 corridor coaches.

My OO scale models of British Railways Mk1 coaching stock measure a scale 66 feet over the buffers. NMRA RP 11 classifies these vehicles as class N. In OO scale RP 11 class N requires a curve radius of 30.5 inches. (775 mm) The market the mass produced models of British prototype are aimed at has limited space for a layout. To this end these models have a manufacturer's recommended minimum curve radius of 438 mm. Currently produced models with close coupler mountings negotiate these curve radii without compromising prototypical appearance.

As the models can negotiate curves considerably sharper than NMRA RP 11 recommends, what are the pros and cons of using sharper radius curves than those recommended by NMRA RP 11 on your layout? Layout minimum curve radius affects; train length, layout planning opportunities and the appearance of the layout.



I've found the maximum reliable operational model train length is around three quarters of a circle of the sharpest radius curve on the layout. The manufacturer's recommended minimum curve radius for BR outline OO scale models is 438 mm. This curve radius gives a maximum reliable operational model train length of around 2100 mm. This train length in OO scale is a train of a BR 40 class diesel locomotive and seven BR Mk1 coaches. British Railways operationally limited passenger train lengths to fifteen vehicles. The attached photo shows a seven coach train is a reasonably sized main line passenger train. The sharp curves clearly don't impact on train length.

Layout planning is heavily dependent on minimum curve radius. I've found the late John Armstrong's "Squares" approach ideal for determining the possibilities for a layout in a given space. John's track planning square is based on the minimum layout curve radius.



The track planning square using the manufacturer's recommended minimum curve radius is around 580 mm. The track planning square for RP11 class N models in OO scale is around 910 mm. The track planning square for the BR 40 class minimum operational curve radius in OO scale is around 1320 mm.

The track planning square using the manufacturer's recommended minimum curve radius is about sixty percent of the size of the RP11 track planning square. This smaller track planning square makes a huge difference to planning a layout for a modest space.

A typical single car garage is around 2,800 mm wide by 5,000 mm long. The RP 11 radius curves for class N, OO scale models in the single car garage allow a layout three squares wide by five squares long. In the same sized single car garage, using the manufacturer's recommended minimum curve radius allow a layout four and a half squares wide by over eight squares long.

Curve radius		
Curve type	Mfr Rec Min	RP11 Class N
Model	OO scale BR Mk 1 64 foot coach	
Curve radius	438	775
Angle between vehicles	35	20
Track planning square size	574	911
Effective train length	2100	3700
No of coaches	7	13

Layout space use			
Curve radius		Mfr Rec Min	RP11 Class N
Track planning square size mm		574.0	911.0
Layout space		Number of track planning squares	
Width	2800.0	4.9	3.1
Lenght	5000.0	8.7	5.5



The RP 11 curves layout three squares wide by five squares long. This effectively limits the layout to an around the walls oval with a branch line or terminus on one side. The potential of this arrangement is shown in the attached sketch.



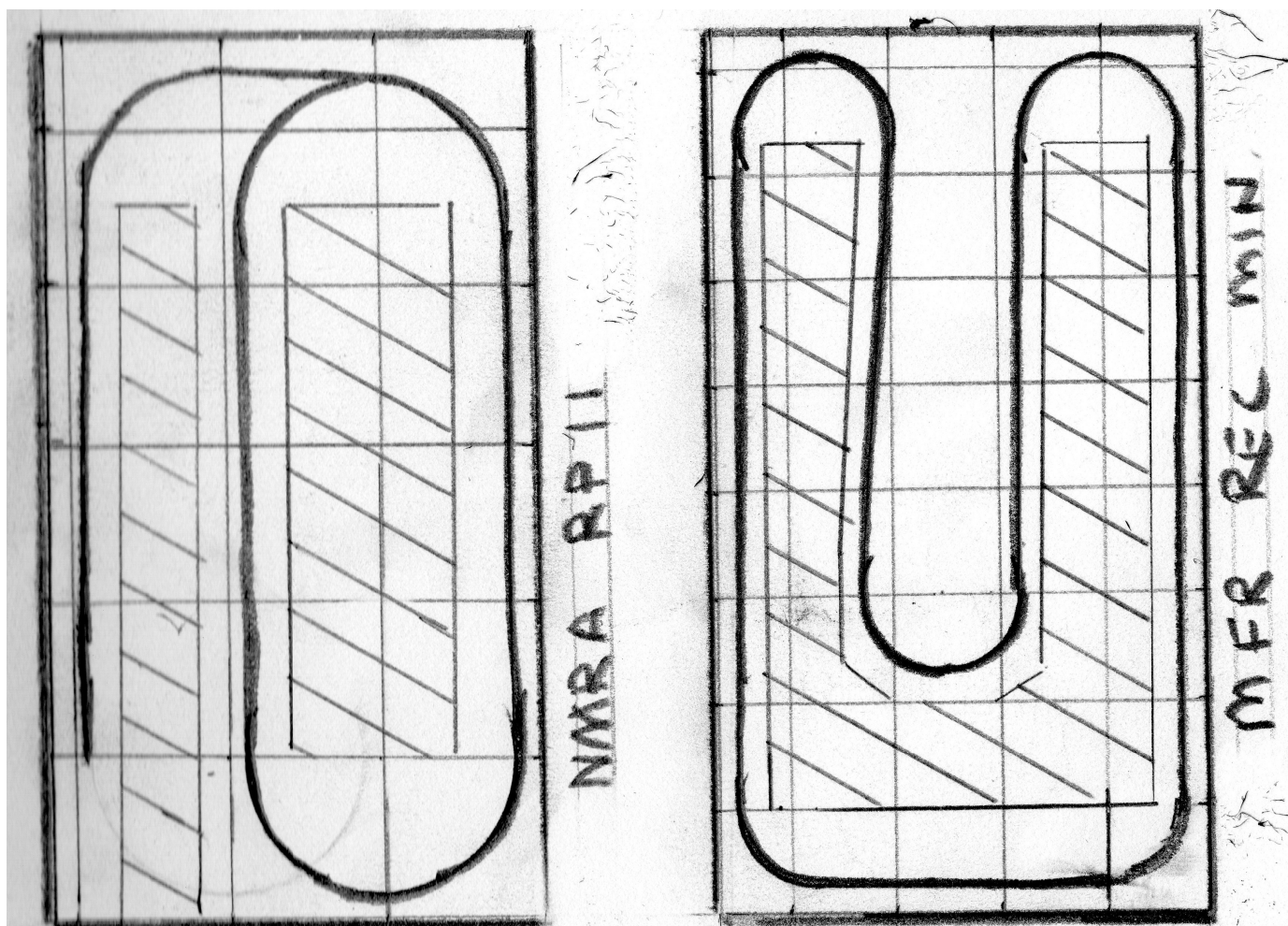
The RP 11 curves layout three squares wide by five squares long. This effectively limits the layout to an around the walls oval with a branch line or terminus on one side. The potential of this arrangement is shown in the attached sketch.

The manufacturer's recommended minimum curve radius allow a layout over four squares wide by over eight squares long. This arrangement would allow an around the walls layout with a centre peninsular. The main line length is fifty percent longer than the RP11 curved option. You could build a station along one wall to easily accommodate the seven coach passenger train the layout curves will allow you to reliably operate. The potential of this arrangement is shown in the attached sketch. The smaller curves make layout access easier. You can readily reach into the centre of a 180 degree bend from the edge of the layout.

The attached sketches demonstrate the layout planning options available. The hatched area of each arrangement is proposed access/operating well areas. Both sketches presume reasonably high level bench work and duck under access to operating wells.

The down side of sharper radius curves is the appearance of your train rounding a curve. The angle between BR Mk1 coaches rounding an RP 11 class N curve for OO scale is around twenty degrees. On a curve radius of twice the vehicle length the angle between coaches is around thirty degrees. On the manufacturer's recommended minimum curve radius the angle between coaches increases to around thirty five degrees.

The choice is up to the individual modeller, a superb looking but operationally challenged layout or an operational interesting layout with a few manageable visual challenges.



The RP 11 curves layout three squares wide by five squares long. This effectively limits the layout to an around the walls oval with a branch line or terminus on one side. The potential of this arrangement is shown in the attached sketch.



# Division Meetings

## Queensland—Division 1

Martyn Jenkins div1super@nmra.org.au

Meetings start at 10.30pm

## ACT—Division 2

Viv Brice—div2super@nmra.org.au

Meetings start at 2.00pm

## Vic / Tas—Division 3

TBA div3super@nmra.org.au

Meetings start at 2.00pm

## Western Australia—Division 4

Rod Tonkin div4super@nmra.org.au

Meetings start at 2.00pm

## New Zealand—Division 5

Kelvin Sherson div5super@nmra.org.au

## South Australia—Division 6

Geoff Chatwin div6super@nmra.org.au

Meeting start at 1.30pm

## Sydney, Newcastle, Wollongong—Division 7

Les Fowler div7super@nmra.org.au

Meeting start at 2.00pm

## Northern Rivers—Division 8

John Skinner div8super@nmra.org.au

Meeting start at 2.00pm

## Mid North Coast—Division 9

Chris Minahan div9super@nmra.org.au

Meeting starts at 2.00pm



A rather fanciful billboard that was found in country NSW. The Advertisement is for Big M flavoured milk and uses a “doctored photo” of Puffing Billy and the famous trestle bridge looking a little worse for wear, thank goodness for our hero who has filled the gap and will no doubt save the day.

*Photo: R.L.Taylor*



# AUSTRALIAN REGIONAL DIRECTORY

www.nmra.org.au - NMRA Inc.164 Buff Point Road. Buff Point NSW 2262

## REGIONAL COMMITTEE

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	Graham Young	(07) 5479 0339	graham@nmra.org.au
	Ron Solly	(08) 8522 2536	ron@nmra.org.au
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Div 7 NSW	Les Fowler	0411 266 196	div7sup@nmra.org.au
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Div 9 Mid North Coast	Chris Minahan	(02) 6559 3516	div9sup@nmra.org.au

## REGIONAL VOLUNTEERS

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	Bayview, NSW 2104		





Smugglers Cove by Geoff Nott (d)





Spring Bluff Station in Queensland is awash with colour at this time of the year while celebrating the Toowoomba Carnival of flowers. The winner of many awards for the gardens this site is now in the care of a trust to ensure thye future remains bright,

*Photo: R.L.Taylor*