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MAGAZINE

Mudgee



Victorian Railways Tait Car details
Point Construction
Bowmans
Reviews • Mailbag • AMRM News

Issue 345 Vol. 29 No.12

ISSN 0045-009X

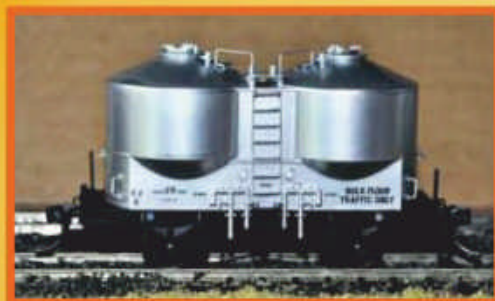




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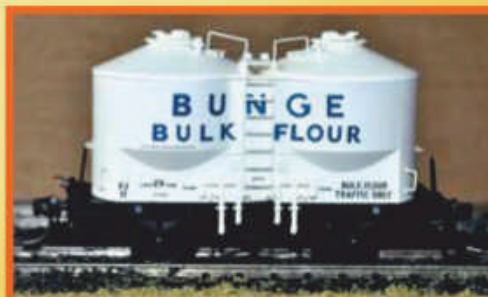
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GAUGE
H0
1 : 87

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NR class Locomotive

In late 1997 National Rail Corporation out-shopped two NR class locomotives bearing indigenous design based on the work by Alice Springs artist Bessie Liddle.

The first was launched in Sydney by Cathy Freeman in November 1997, Warmi NR30, featuring an Aboriginal Dreaming story. Decorated by Bessie after a Warmi dot painting showing a snake, bush tucker and women's footprints.

The second was launched in Alice Springs by Mark Vaile in December 1997, Kungara Mankurpa NR52, this design depicts the Star Dreaming story Seven Sisters. Decorated by Bessie, a dot painting showing the travels of the Seven Sisters and their pursuit by the Snake Man in Pitjantjatjara country.

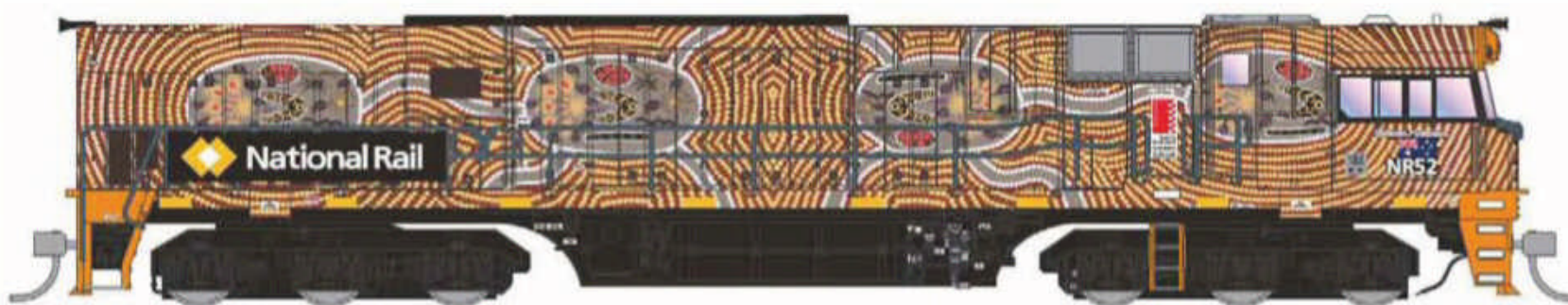
The production is limited to a total of 660 units across the 6 options and is fully licenced by the artists agency.



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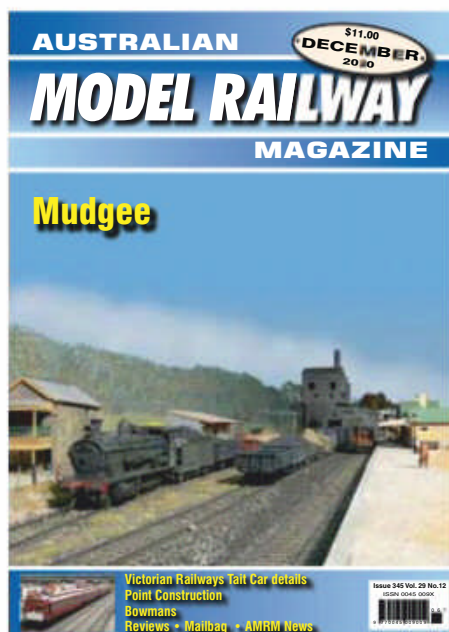


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ON THE COVER: *Standard Goods locomotive, 5132, shunts the goods siding at Chandos while working the down pick-up goods as an overtaking CPH 'Tin Hare' railmotor pauses at the platform. See the article starting on p.18 for more on this well-conceived and executed model railway. Photo by James McInerney.*



Setting Goals

As we get close to the end of the year, it's a good time to check your modelling progress. Ask yourself these questions:

- Did I achieve the goals that I set?
- If not, why not?
- What did I learn (a new modelling technique etc.)?
- What inspired me in my modelling?

Progress in the hobby is important; setting goals is essential to maintaining momentum. If you don't achieve your goals, that's okay, you just need to re-evaluate. Set smaller, more attainable goals; achieving goals is good for our overall enjoyment of the hobby.

For me, a goal was developing a unique layout design requirement with a group of friends to model a location called *Cheakamus Canyon* in British Columbia (Canada). The scenery was just about vertical, so a completely new base-board design was developed. This involved scenery 1.2 metres deep (including the lighting and back-drop), while enabling the boards to fit in the current trailer. This layout was completed in 2019 and the design features of this layout were incorporated into my next project (2020) *The Peterborough Line*. The board for the Light River Bridge (see image) was built using techniques learnt on *Cheakamus Canyon*. Further design improvements were incorporated as the build progressed. I have incorporated even more improvements in my 2021 project — a similar concept, but with lighter board construction.

Taking on these challenges completely changed my design philosophy and made me more confident to tackle other projects.

So, do yourself a favour: set yourself some goals for 2021.

Take time over the Christmas–New Year period to catch up with family and friends, and we will see you all in 2021.



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The Annual Membership Fee for SCMRA is \$66.00 from March to February and the Joining Fee is \$20.00, which includes the membership data pack. Applications must be received by the first of the odd month to meet our mailing list deadlines. For applications received between the 2nd September and the 2nd January the Half Annual Fee is \$33.00 plus the (\$20.00) Joining Fee (does not include October issue of AMRM). All fees are GST Inclusive. Membership entitles you to participate in the activities of the Association, to receive AMRM and our regular news-sheet *Booster*. Standards, Recommended Practices and Information Sheets covering model railway practice are included in the joining kit together with a vinyl ring binder and are also issued at regular intervals. For further details write to the Secretary or contact the divisional representative. Meetings are usually organised on the second Saturday of

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AT ISSN 0045-009X

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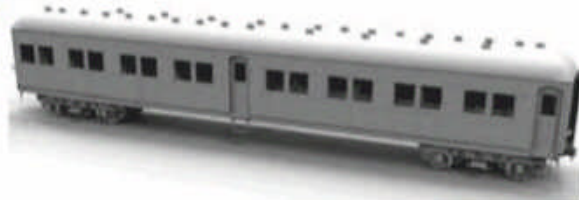
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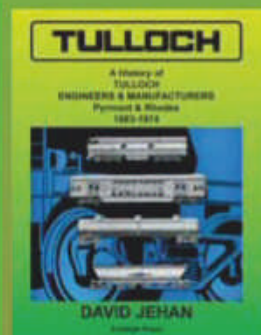
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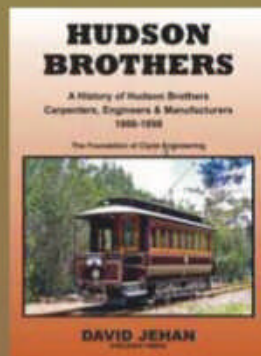
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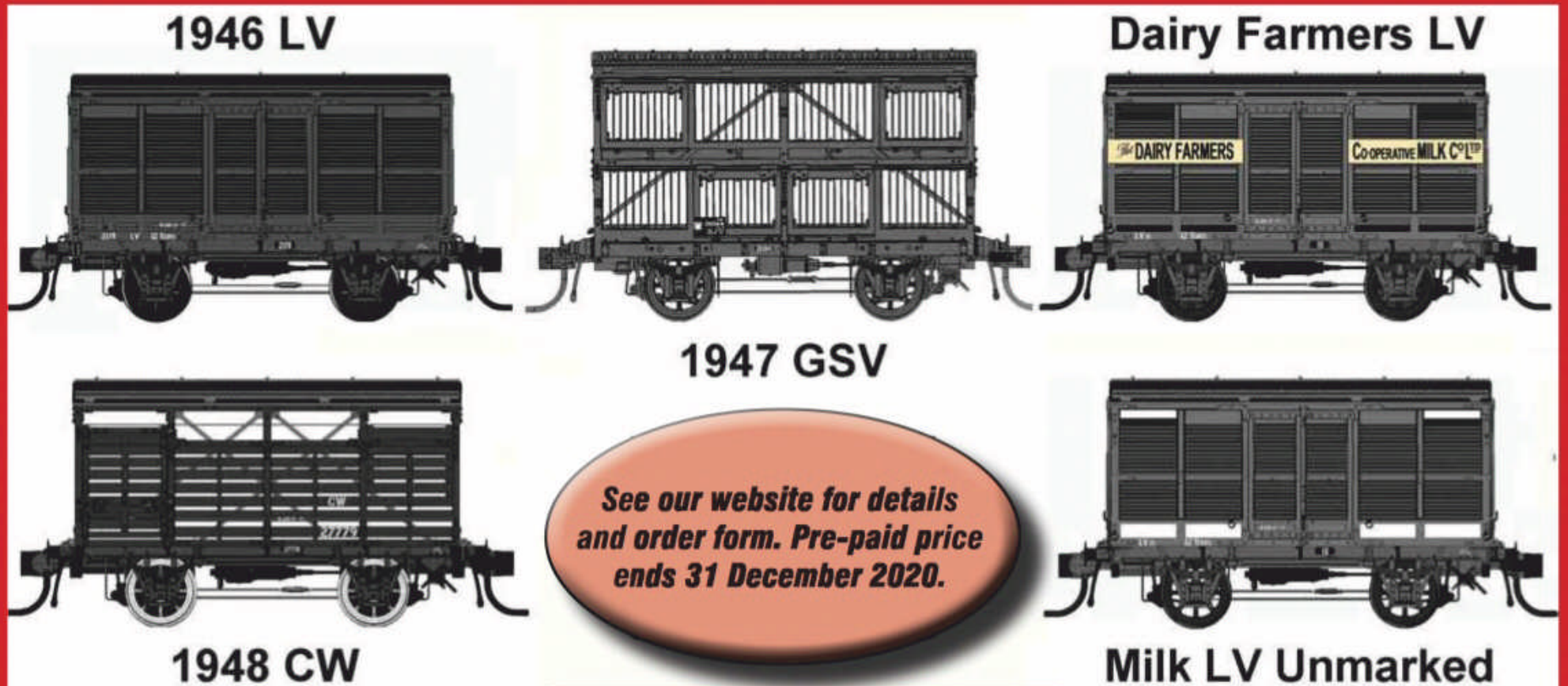


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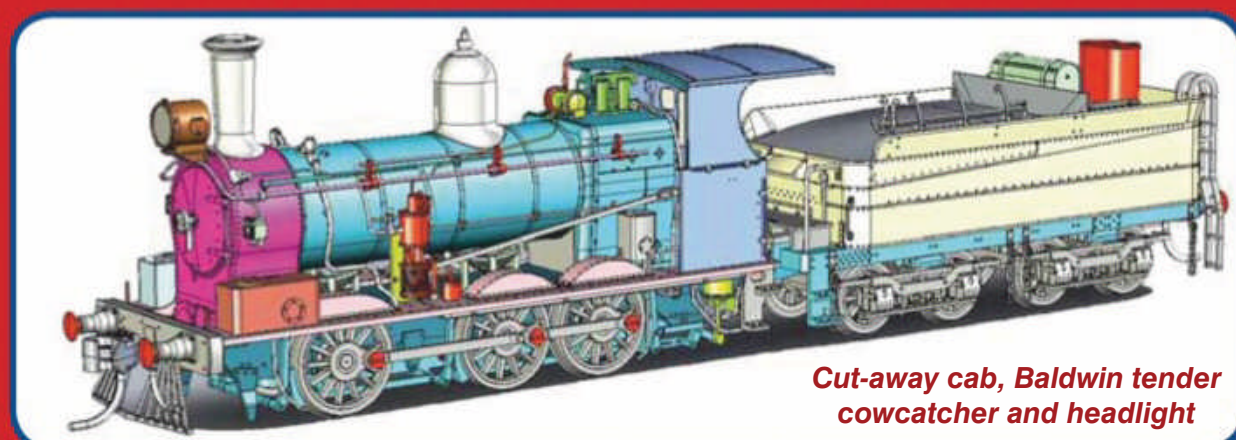
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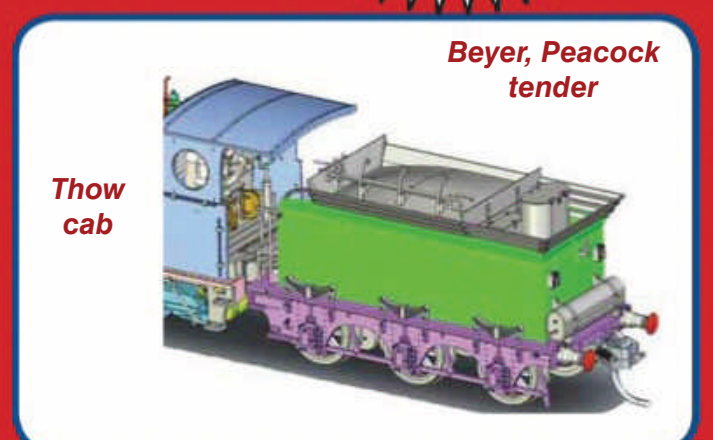
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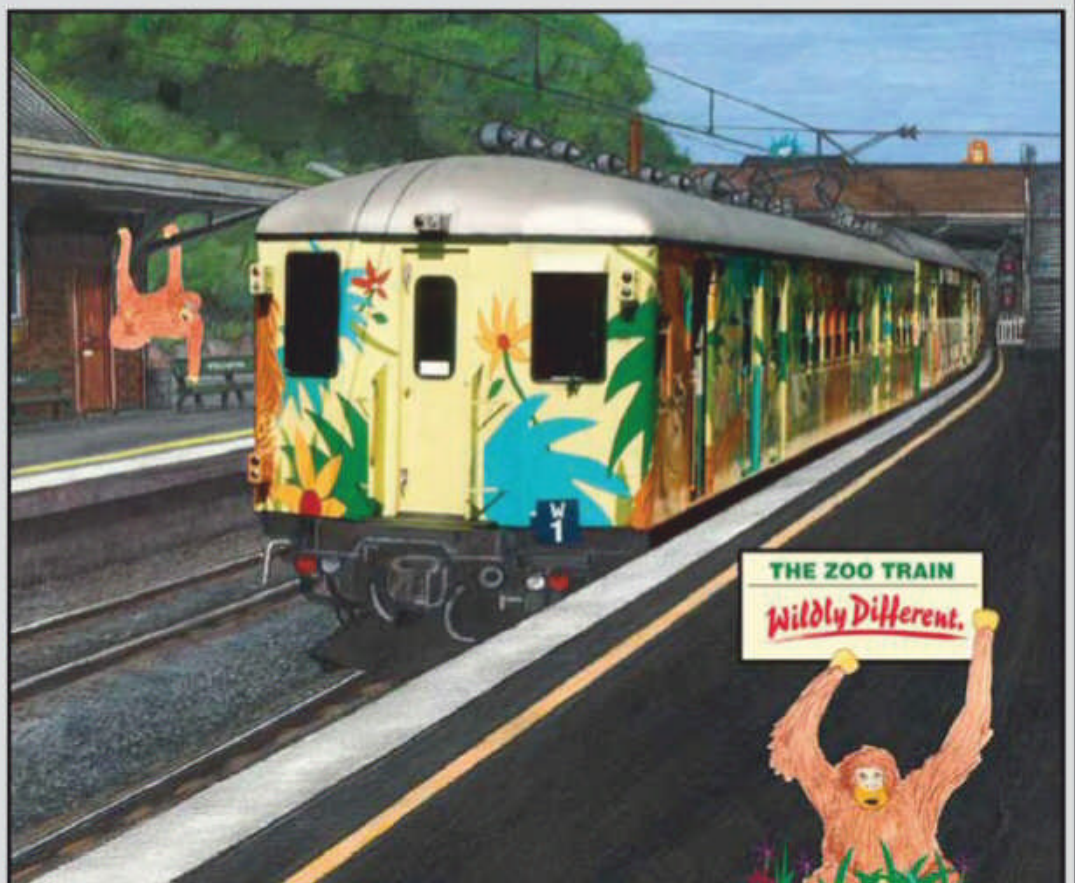
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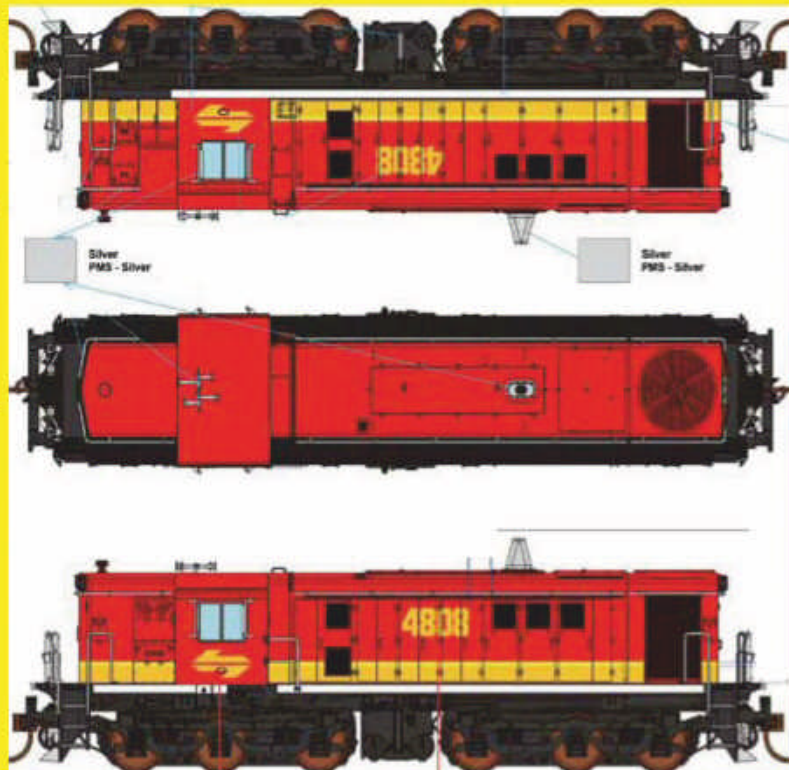
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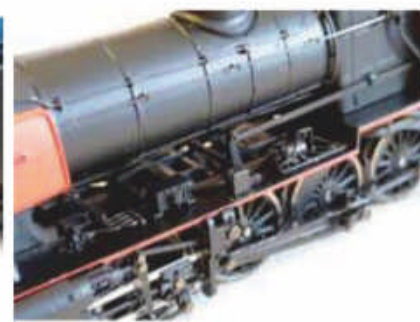


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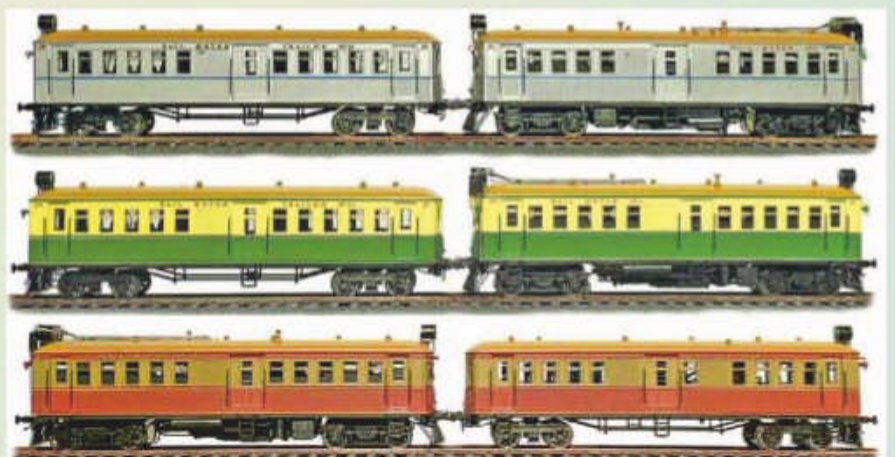
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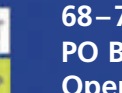
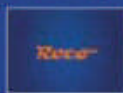


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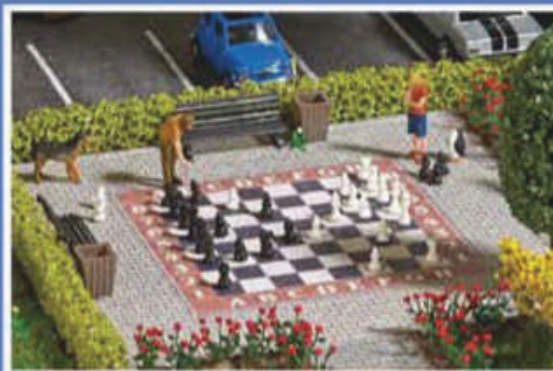
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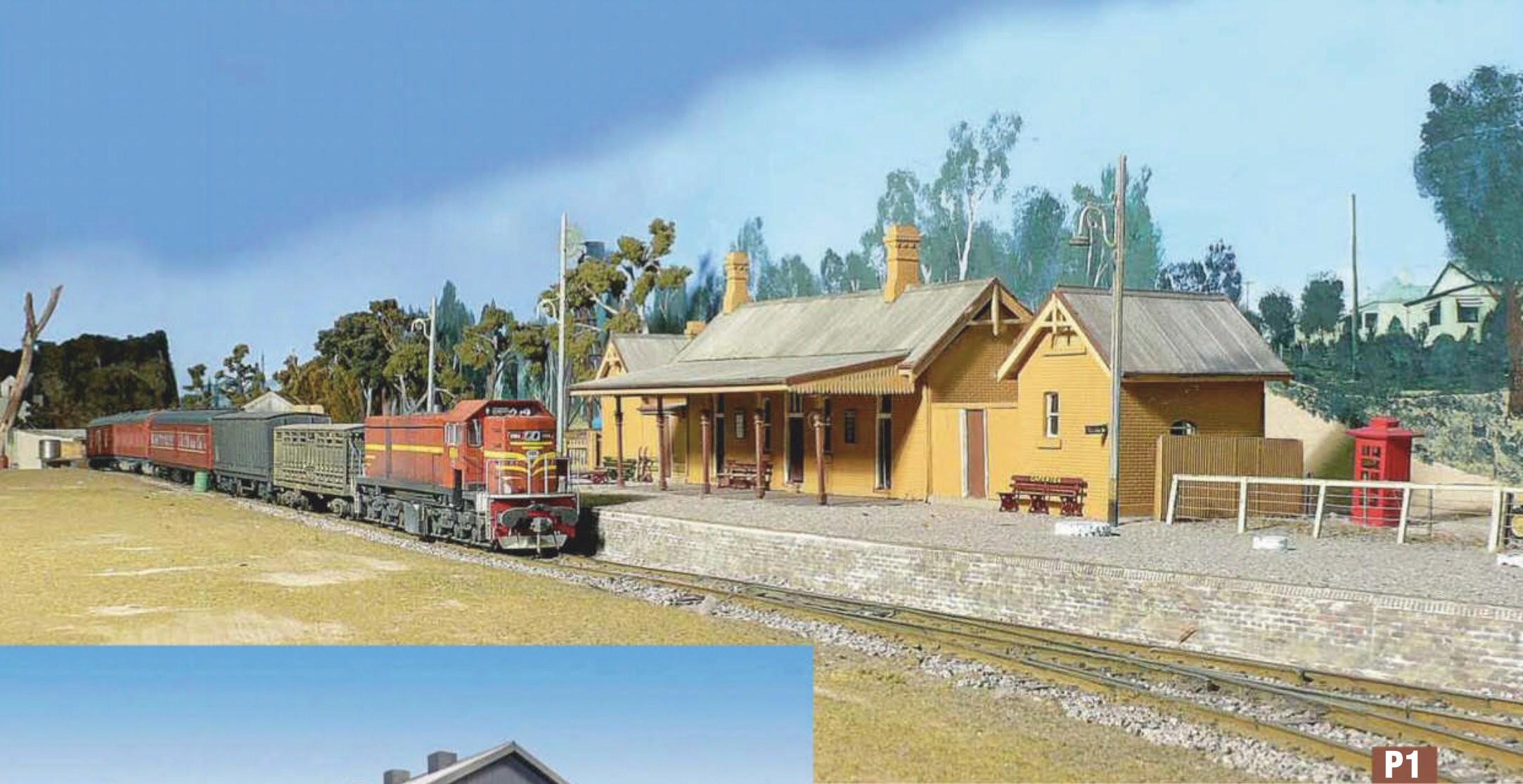
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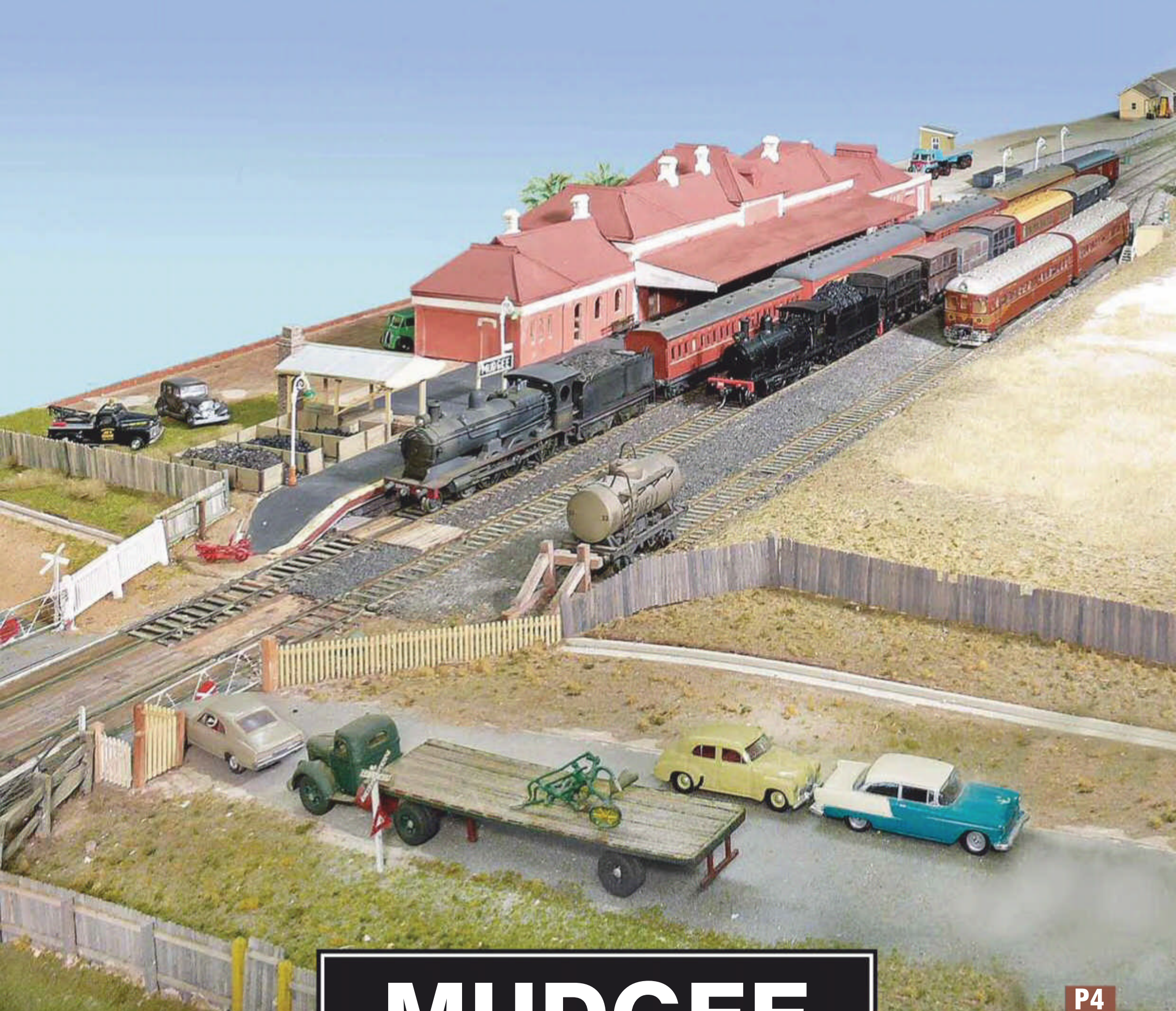
P1

P3



P2





MUDGEE

P4

*Tim Stewart describes his HO scale home layout based on Mudgee and the line towards Lithgow.
Photos by James McInerney.*

▲ The down 'Mudgee Mail' has arrived next to the impressive station building at the country town of Mudgee. After a suitable interval to represent the time required to carry out station work, the train will be shunted into the yard and the locomotive dispatched to the depot. Then the Coolah mixed, waiting patiently in the loop, can take its place in the platform, load parcels and any passengers, and then depart north to its destination, simulated by the fiddle yard 'around the corner'.

➤ The up 'Mudgee Mail' approaches Capertee station.

➤ An up goods stands next to the locomotive shed at Mudgee. A 30T locomotive is about to enter the loco shed for servicing, where the lit interior allows the observer to see the interior detail in the structure.

◀ Until the end of the steam era, the locomotive depot was a major component of country railway yards, both in size and level of activity.

In the Beginning...

It was shortly after Christmas 1955 when my dad took my brother Bern and me to Glen Davis in my Uncle Jack's Bedford truck. We parked outside a fibro cottage that Dad had bought and, over the next few weeks, the cottage was dismantled and loaded wall by wall and driven out to Mudgee, where we re-erected it on Lawson Street where it still stands to this day. This was the beginning of my association with Mudgee and its surrounds.

Sometime in the 1970s, I read an article in this magazine where a modeller had removed the stumps from under his house and dug it out to build his own layout room. This article inspired me and I told my friend Eugene Duff, who then got under my house, installed some fluoro lights and said "Go for it!". Over the next few years, with a little bit of help from my son Geoffrey, I dug out around 200 tonnes of dirt and

The numbers (P1, P2 etc) on the photos in this article refer to photo locations indicated on the track plan on page 20.



Tim Stewart (centre), along with son, Geoffrey (left), and long-time friend/helper, Eugene Duff (right), proudly surveys his not quite complete model of Mudgee's extensive station building.

At a Glance

Scale: HO

Prototype: Capertee to Mudgee, north-west of Lithgow in NSW

Period: 1950s–1970s

Layout Type: Continuous run home layout

Layout Size: 13.6 m x 7.0 m

Rail Height from floor: 1.05 m

Baseboard: Pacific Maple and plywood

Track: Shinohara code 70 and hand-laid code 55

Control: DCC

Structures: Mostly scratchbuilt

Locomotives: Scratchbuilt, kit-built and r-t-r

Rolling stock: r-t-r and kit-built

Builder: Tim Stewart with assistance from Eugene Duff

rock and, using a hand mixer, poured the floors, built retaining walls and made my own Man Cave.

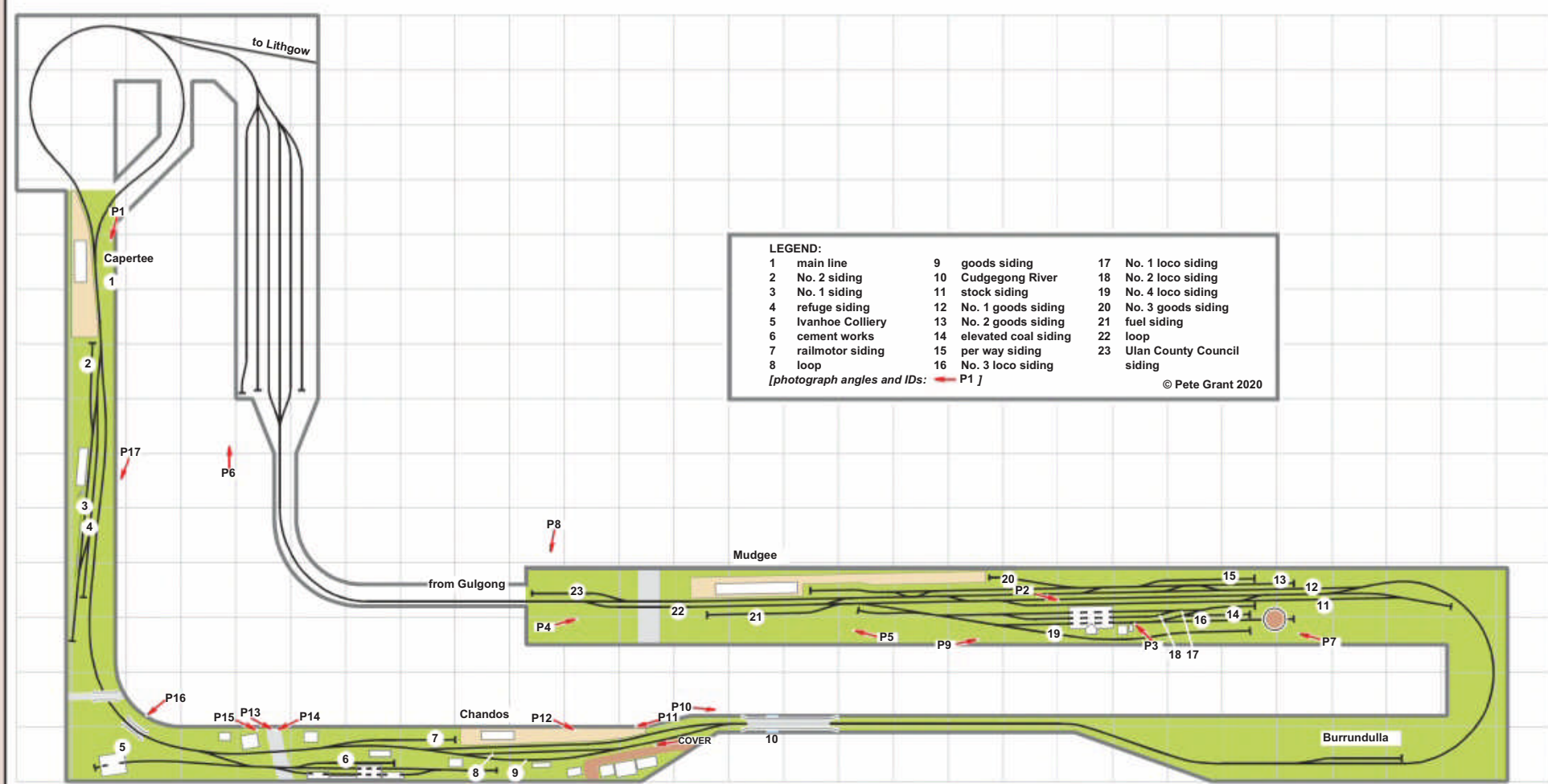
In 1984, Charlie Agland (of Chucks Ballast fame) sold me a layout and Eugene and I tore it down and rebuilt it, making our first exhibition layout *A'Becketts Creek* [Described in *AMRM Issue 160, February 1990 – Editor*]. Over the next four years we took it interstate a number of times and showed it at over 20 exhibitions. I then sold it to generate funds to make my dream layout *Mudgee*, situated in the aforementioned Man Cave.

Building Mudgee

At the time I was working at the Department of Main Roads (DMR) and used the computer program 'MOSS' to design the track layout. The new layout was designed to be an exhibition layout and a lot more portable than *A'Becketts Creek* was, but, due to family commitments and my age, the layout has never been exhibited. I made the framework up from 100 mm x 25 mm Pacific Maple and it sits on hinged 50 mm x 50 mm legs. The deck is 6 mm ply and the track is code 70 Shinohara laid on 3 mm cork. All electrical work is handled by Eugene Duff, with the point motors being ex-Postmaster-General (PMG) phone relays (which work extremely well). The layout has been upgraded to DCC, which has added another layer of realism and enjoyment.

Every Thursday night a group of local train enthusiasts and friends (we call ourselves the 'Thursday Nighters') operate the layout and drink a bit of port. The layout was originally built as an end-to-end layout with a turning loop, just past Capertee, but around 2010 one of the group, Peter Hepburn, built an elevated bridge above my workbench and a curved, hinged, bridge to join both ends

Mudgee — approx. 13.6 m x 7.0 m (0.5 m grid)



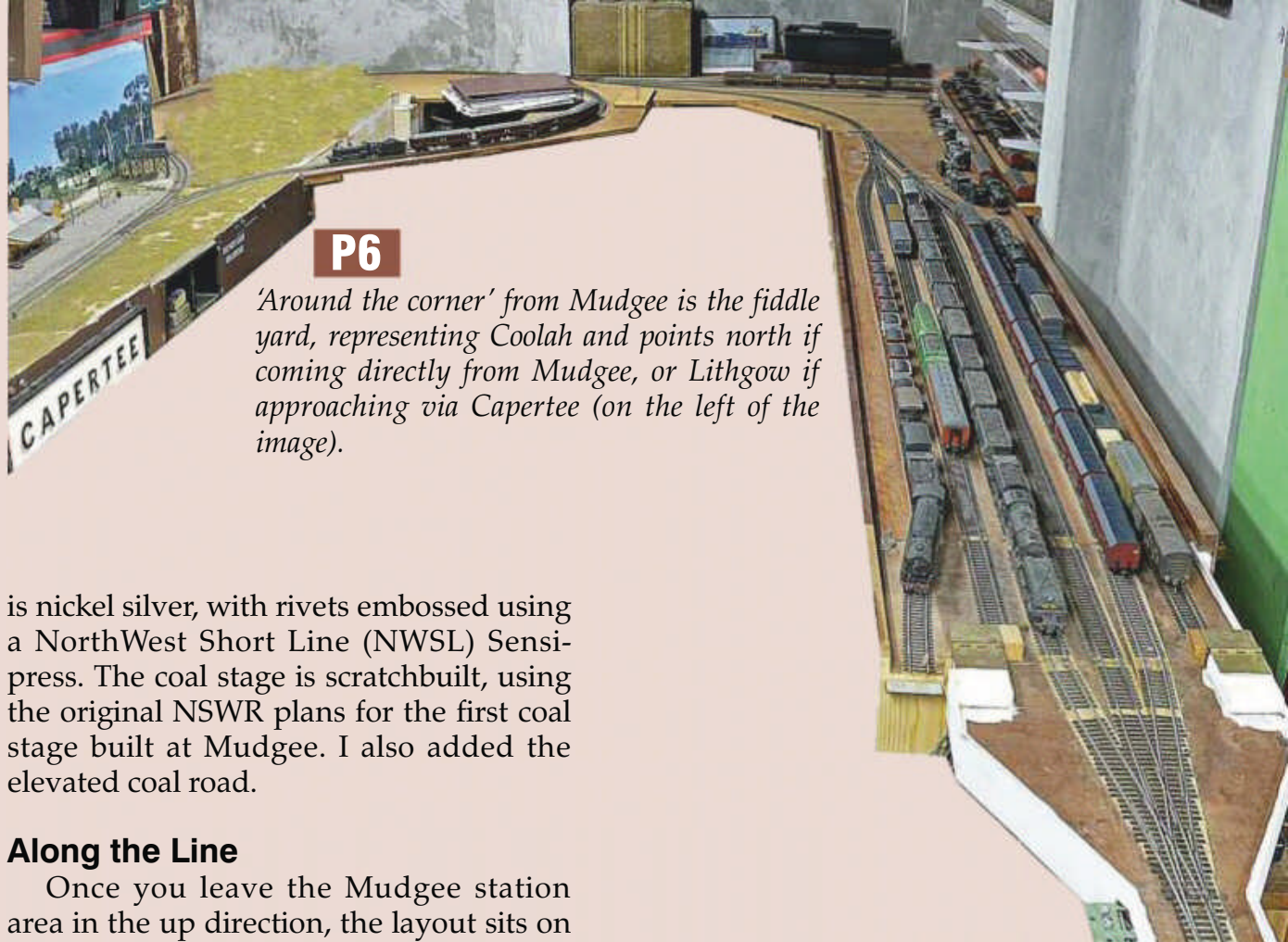
to form a continuous circuit. This addition certainly has changed the dynamic of the layout, making this one of Peter's greatest legacies on the layout (sadly, he passed away in 2016).

Structures and Trains

I get my greatest pleasure in the hobby from modelling, rather than running, whether it be buildings, rolling stock or locos. Back in the 1960s and 1970s I was doing my own lost-wax casting to make my own locos and rolling stock, as there wasn't much on the market. All the buildings on the layout are taken from real life, using my own plans, measurements and photos taken over a lifetime. Not all are finished yet and there is progress still to be made.

The Mudgee engine and goods sheds are both built with carcasses made from 1.5 mm plywood with corrugated iron sheets veneered onto the outside; the engine shed also has all the internal framework built from scale timber. Before I laid the track in the engine shed, I built and installed the inspection pits.

The turntable was built using plans out of this magazine (*NSWR 60ft Cast Iron Turntable*, AMRM Issue 126, June 1984). It is made from brass plate that I silver-soldered together. The elevated water tank stand is soldered together, using brass shapes that I bought from Punchbowl Hobbies back in the 1970s. The tank itself



'Around the corner' from Mudgee is the fiddle yard, representing Coolah and points north if coming directly from Mudgee, or Lithgow if approaching via Capertee (on the left of the image).

is nickel silver, with rivets embossed using a NorthWest Short Line (NWSL) Sensi-press. The coal stage is scratchbuilt, using the original NSWGR plans for the first coal stage built at Mudgee. I also added the elevated coal road.

Along the Line

Once you leave the Mudgee station area in the up direction, the layout sits on concrete shelves and models the line towards Lithgow (and eventually Sydney). First, you travel through Burrundulla, which is the old name for Mt Frome, on to Chandos and finally through Capertee (this last section features hand-laid code 55 rail on wooden sleepers, to represent the 60 lb rail laid on the real line).

Chandos, which is the first major sta-

tion, is a fictitious village modelled using aspects from a couple of locations along the line. I had measured Rylstone station and made my own plans from these measurements, then using the plans and lots of photos to build the station building from Evergreen styrene sheet.

The cement works was kit-bashed using kits from Walthers and photos of



Activity in the yard at Mudgee, with steam locomotives being serviced and a 49 idling between runs. A 30T shunts wagons in the sidings on the other side of the main line.



P8

Tim's model of the house his family moved to Mudgee from Glen Davis in 1955. Passing in the background is the up Coolah mixed covering the few hundred yards to its destination in Mudgee platform, just out of picture to the left.

Steam dominates in Mudgee yard, with 32 and 30T class locomotives occupying the shed roads, 3026 shunting and, off down the Sydney end of the yard, a lone 49 class waiting to depart with an up goods.

P9



the Portland Cement works. In 1969, while doing a survey out at Marrangaroo, I stumbled across the remains of the Ivanhoe coal mine; I took lots of photos and measurements. The Ivanhoe coal mine was built out of concrete from the Portland Cement works and was closed down in 1960. I built my coal mine from scale timber and plywood coated with Polyfilla, which I embossed with a mould of scale timber in the shape of the form-work.

The next and final station is Capertee. This is where I think I made my one mistake of making it too prototypical and built the track into Capertee on a 1 in 20 (5%) gradient and a number of DJH and other kit locomotives with unsprung chassis have great difficulty pulling a decent load up the hill. All of my diesels are fine, but my preferred steam locomotives have to work very hard! This station is built from a plan I drew from measurements that I took of the original building. It is constructed from 2 mm plywood covered with scale brick sheet; all roofs are corrugated iron with hand-made ridge capping.

The backscene behind Chandos and Capertee is my only attempt at painting landscape. It was painted using acrylic

folk-art paints bought at Spotlight with my wife Barb. Unfortunately, she contracted bowel cancer during this time and passed away in June 2001; as one can imagine, this took the wind out of my sails and progress slowed. To re-ignite my interest in modelling, my friend Eugene then suggested we build a second, more portable exhibition layout, and *Duck Creek* was created. We exhibited this for five years, taking it to regional NSW and as far as Adelaide, Brisbane and Melbourne.

A few years ago my eldest son, Geoffrey, found some of the photos I took of Mt Frome back in the 1960s and took them to a friend who, using a photo editor, repaired and joined them and then printed them out 300 mm tall and 1.8 m long. This was applied to a flexible backing. Lo and behold, a whole new perspective was added to the 'Mt Frome' (Burrundulla) section of the layout.

I am very thankful for my hobby; it has gotten me through a number of hard times and has given me immense pleasure and some life-long friendships. I am over 80 now, still active in the hobby and still loving it! 



P10

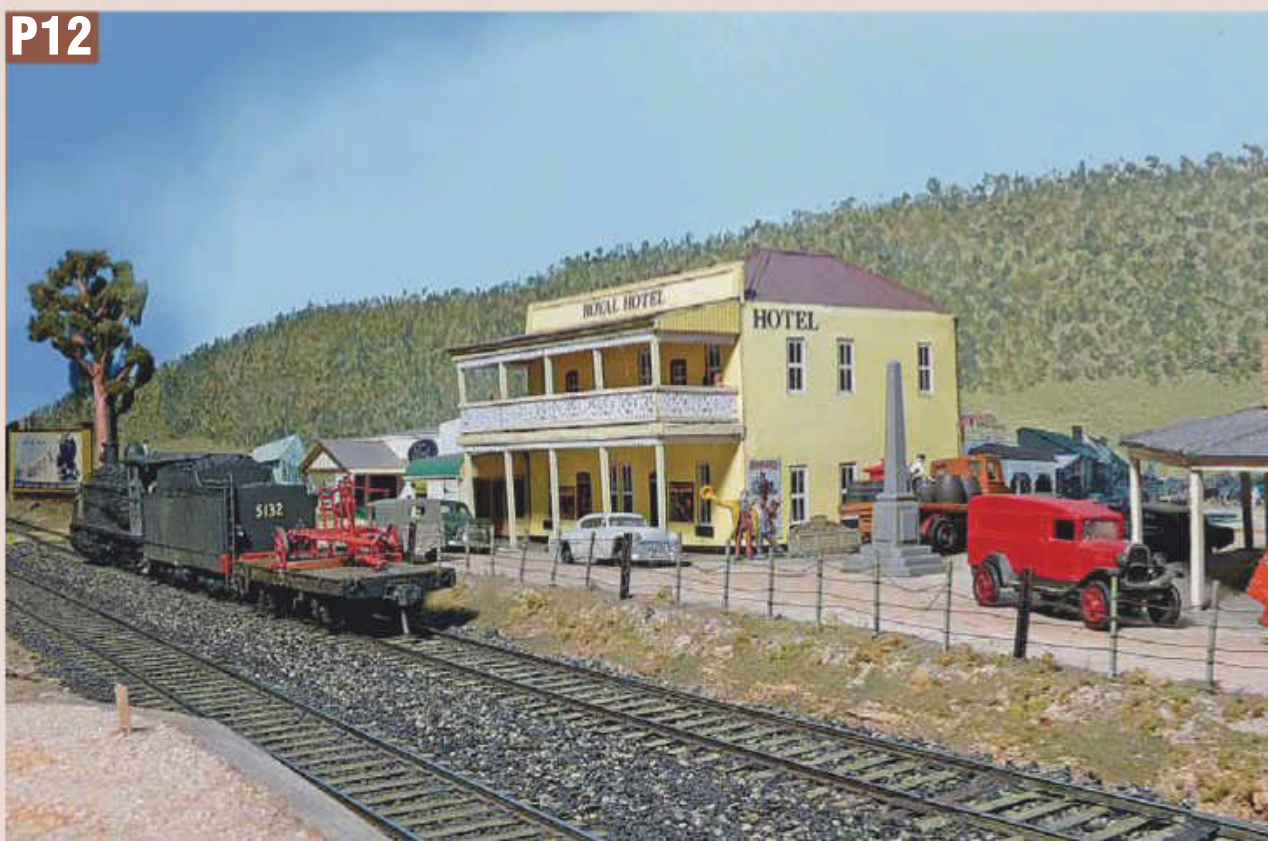
Standard Goods, 5353, rolls across the Cudgegong River bridge on the outskirts of Chandos with an up train formed completely of empty cement wagons, bound for the cement works at that location.



P11

The connecting service from Lithgow, today formed by R car set 109 hauled by 3307, stands in the platform at Chandos, waiting for the section ahead to be cleared by 5353's up goods.

P12

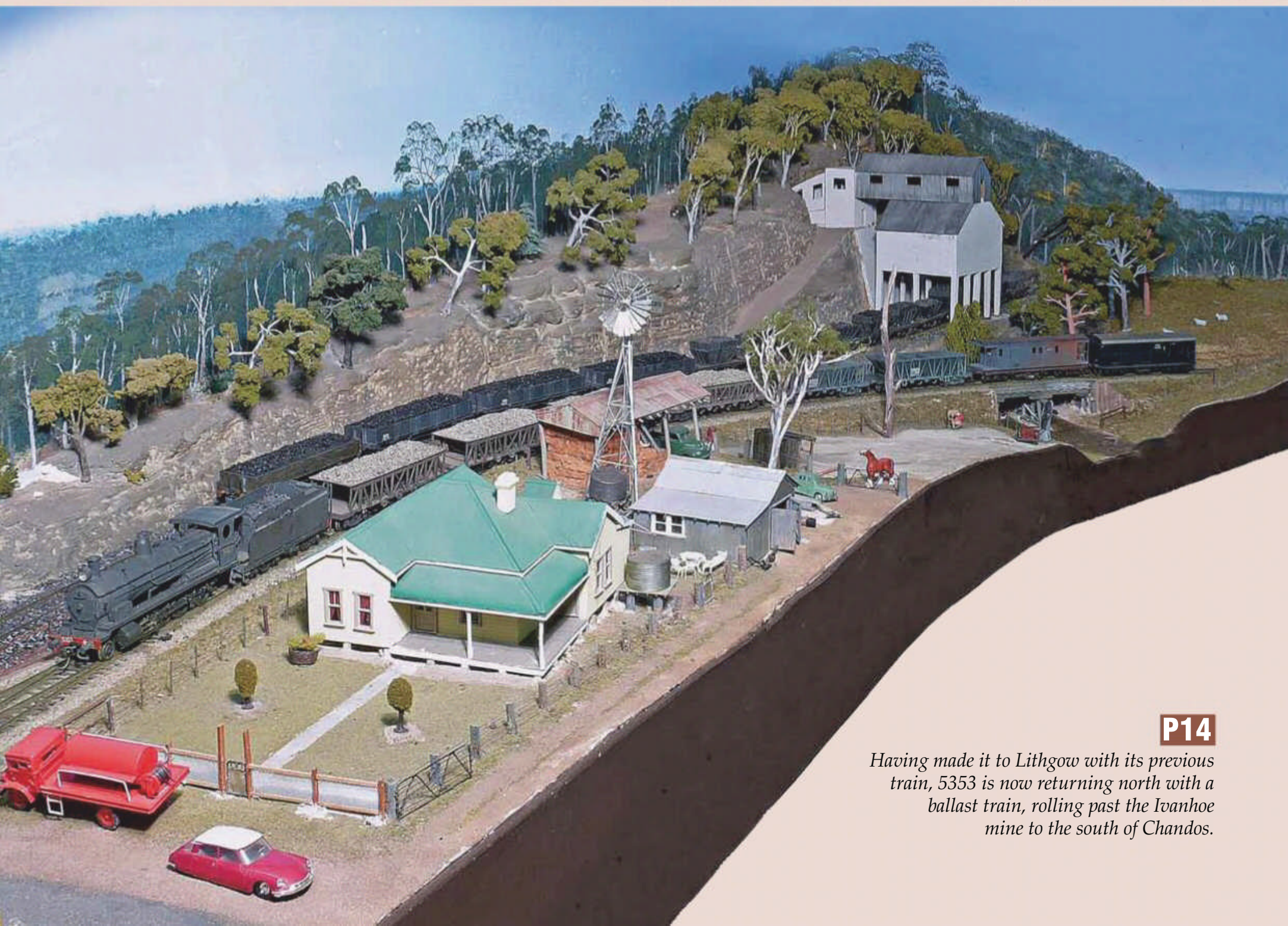


Locomotive 5132 pauses near the Royal Hotel while shunting a KF loaded with agricultural machinery into position for unloading in the goods siding at Chandos. Perhaps the crew are observing the antics of the pair of 'gentlemen' who appear to have been sampling a fair quantity of the libations available at said Royal establishment!



P13

Having crossed the down passenger, 5353 shunts the cement works at Chandos.



P14

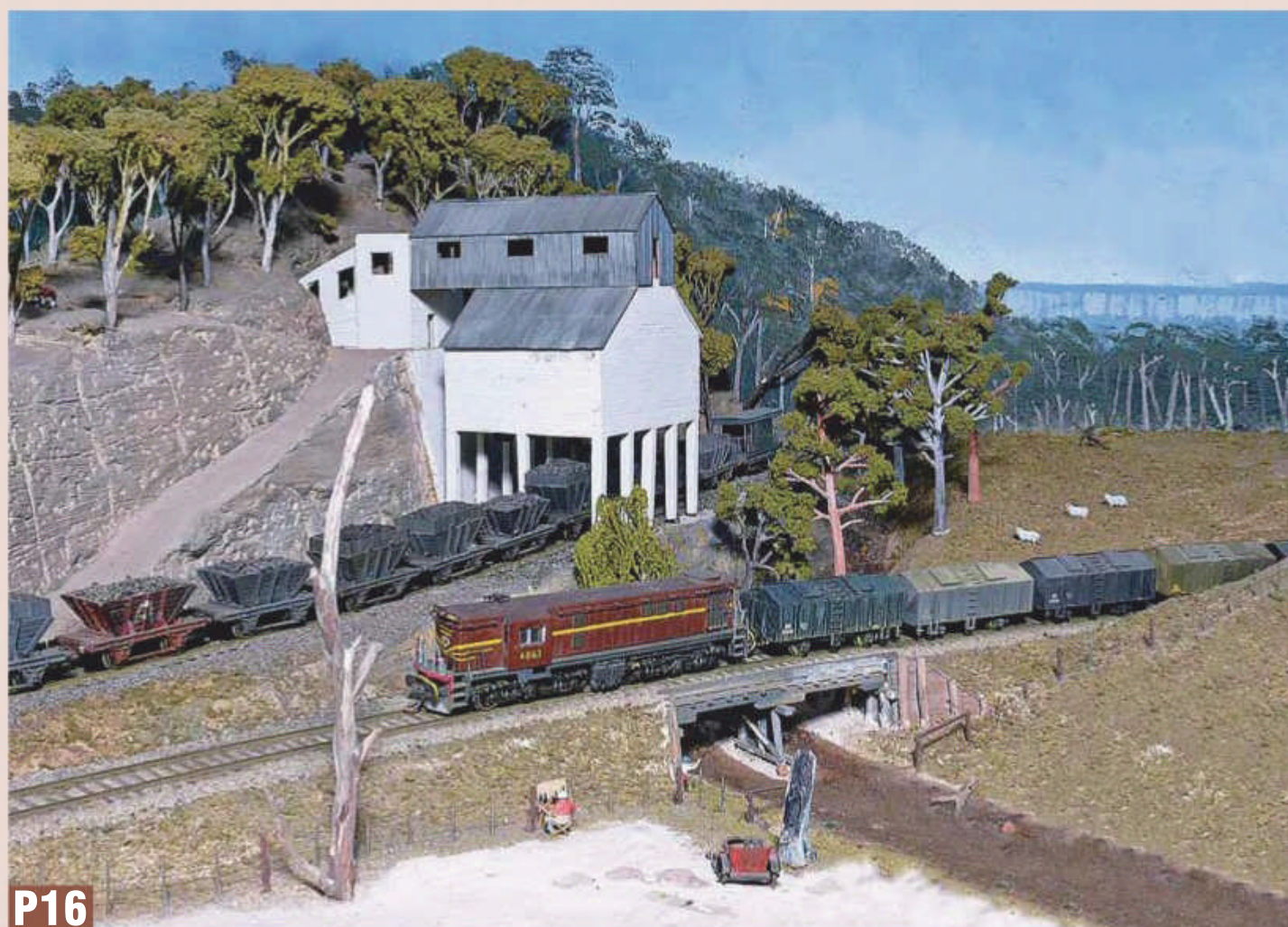
Having made it to Lithgow with its previous train, 5353 is now returning north with a ballast train, rolling past the Ivanhoe mine to the south of Chandos.

Some of the detail incorporated into the layout, in this case near the house just south of the cement works at Chandos.

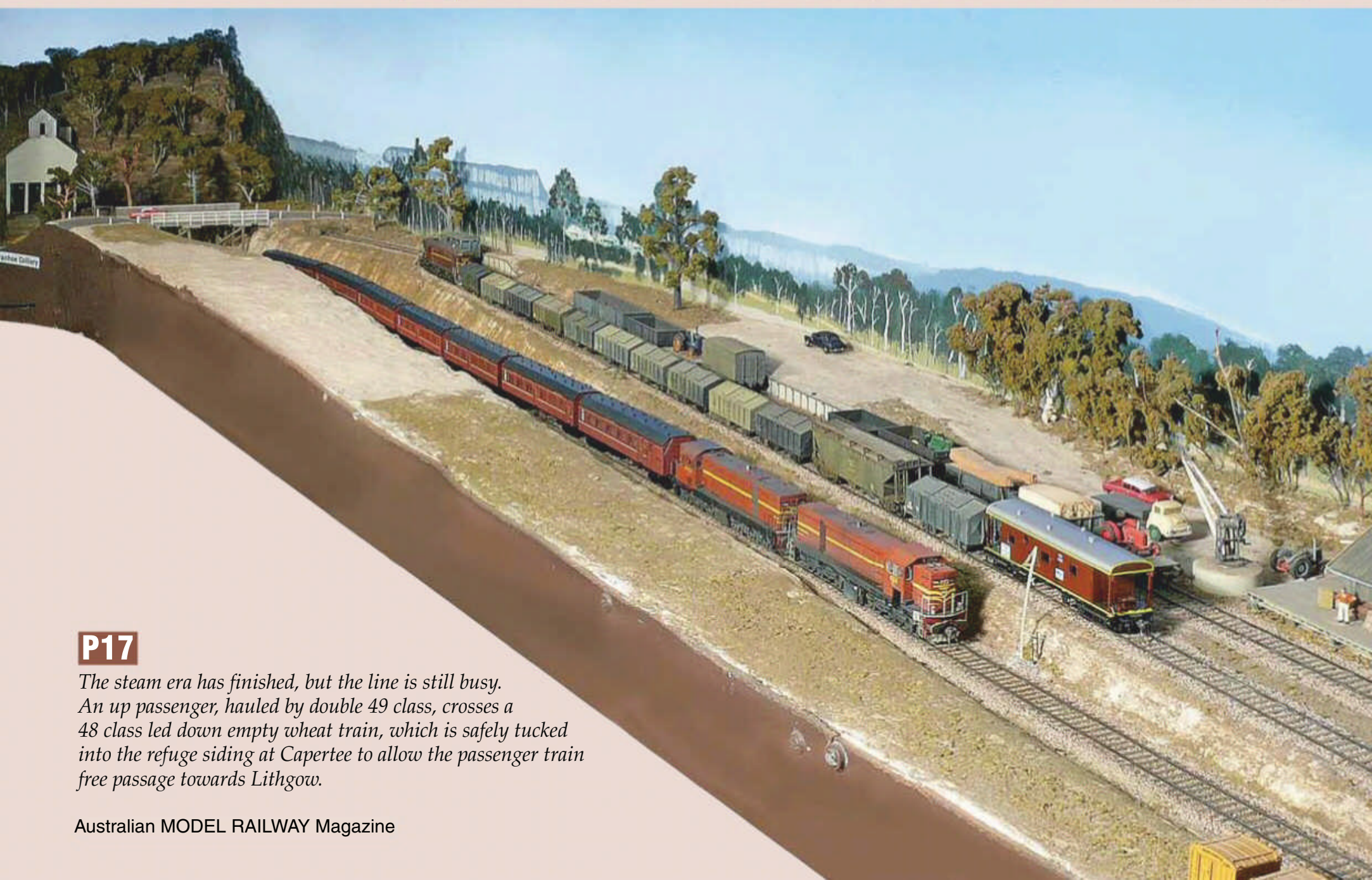


P15

A motley collection of loaded coal wagons awaits collection from the Ivanhoe mine as 4863 rolls north over a 'Whitton' trestle with empty wheat wagons bound for the wheat lands to the north-west of Mudjee.



P16



P17

The steam era has finished, but the line is still busy. An up passenger, hauled by double 49 class, crosses a 48 class led down empty wheat train, which is safely tucked into the refuge siding at Capertee to allow the passenger train free passage towards Lithgow.

Point Construction

R G Kosmider presents a general guide to point construction. Photos by the author.

This article is on point construction, giving the basic procedures, without bombarding the reader with soldering techniques and basic workshop practice. There are two very good books on point construction (refer to the bibliography) which go to great lengths and into great detail, but these were written as in-depth books.

I'll be describing point construction using printed circuit board (PCB) sleepers, because that is what I use. It is the cheapest of materials and very forgiving of mistakes (just unsolder and redo!).

Point construction is not difficult as long as you adhere to standards and measurements, and this is easily attained with the use of gauges and jigs. These can be purchased from various specialist suppliers, model railway societies and even be home-made.

There is no better time to start than now and remember if you make a mess, start again – as I have done many times; again the

beauty is that nearly all material can be salvaged and there is minimal waste.

Why build your own points?

1. Build track work that flows and you are not constricted to manufacturers' configurations.
2. Price – materials (PCB and rail) for an O gauge point is about \$20.00 and less than half of that for, say, an HO point.

Point Templates

The first items you will need are templates for your points; there are a number of computer programs that help you design a layout and also allow you to print up templates. I use 'Templot', but I would not recommend it for a beginner as it is definitely not a layout design program, is not intuitive and is for producing your own track work. Although seemingly a contradiction to what was written above, you can download free templates from the Peco website, this is the best way to go if you want to give it a try.

Tools

Many modellers will have most of the tools required. These are shown in Photo 1 and you'll note the various gauges and jigs on the left. In addition you'll need a good soldering iron (I use an 80 W temperature-controlled model – it's large because I model in O gauge) and a small bench grinder (or grinding wheel) will save lots of time as will a cutting disc on a Dremel-type tool. A continuity tester, preferably a multimeter or at least a battery/buzzer set-up.

Point Nomenclature

Drawing No. 1 shows the various parts of the point referred to in the article.

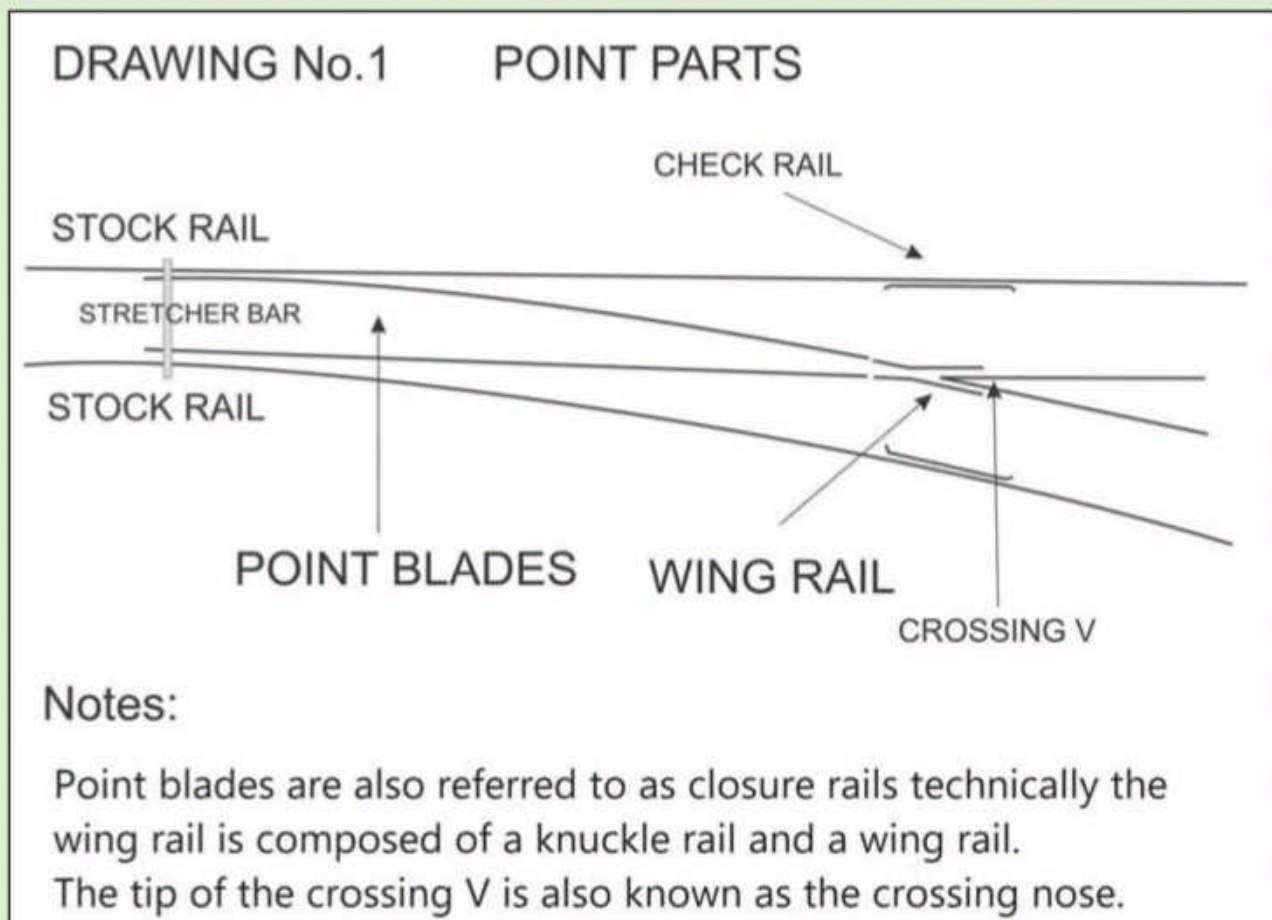
Construction Start

I like to mount my template on a piece of 5 mm foam core board. Solid laminate top off-cuts can also be used, but I like the core board because if there is in situ filing to be done – if I didn't do something properly or there needs to be fine adjustment – then you can file through the core board which you cannot do with a piece of laminate, medium-density fibreboard (MDF) or whatever. However, make sure the board is flat and – if necessary – glue vertical strips to the underneath.

I simply tape the template to the core board (not glued) and lay the pre-cut and pre-gapped sleepers fixing them with either double-sided sticky tape or art gum – but *not* contact adhesive, PVA etc. (Yes, I did so at the beginning!)

Laying the First Rail

You can start by either laying the first stock rail (the straight one) or the crossing vee (see Drawing No. 1). I prefer the stock



rail and my suggestion is don't try building your first point as a curved one as you have two curved stock rails. Photo 2 shows the template with the first stock rail soldered in place – the rebate for the point blade has already been done, of course.

You'll note I have not put in all sleepers. I've done this here simply to save material! I am building a crossover for a light railway and the sleepers will be completely covered in ballast. Of course, if required, I can always add some sleepers later.

Drawing No. 2 illustrates how to file the rail for the stock rail rebate.

The sleepers should be pre-gapped, but you may find this difficult the first time and if you're not sure, it's best to leave till finished – you'll not want a gap (that is, no copper) where you may want to solder a rail.

Making the Crossing Vee

Drawing No. 3 shows how to file the two rails to make the crossing vee and also shows the rebate in the stock rail.

Photo 3 shows the crossing vee gauged off the straight stock rail. You'll note that the crossing rail is over-length – I always prepare my components over-length and then trim to suit. Photo 4 shows the rebate in the stock rail.

The 'cut X' written on the template (Photo 3) is my reminder that the rail has to be trimmed there.

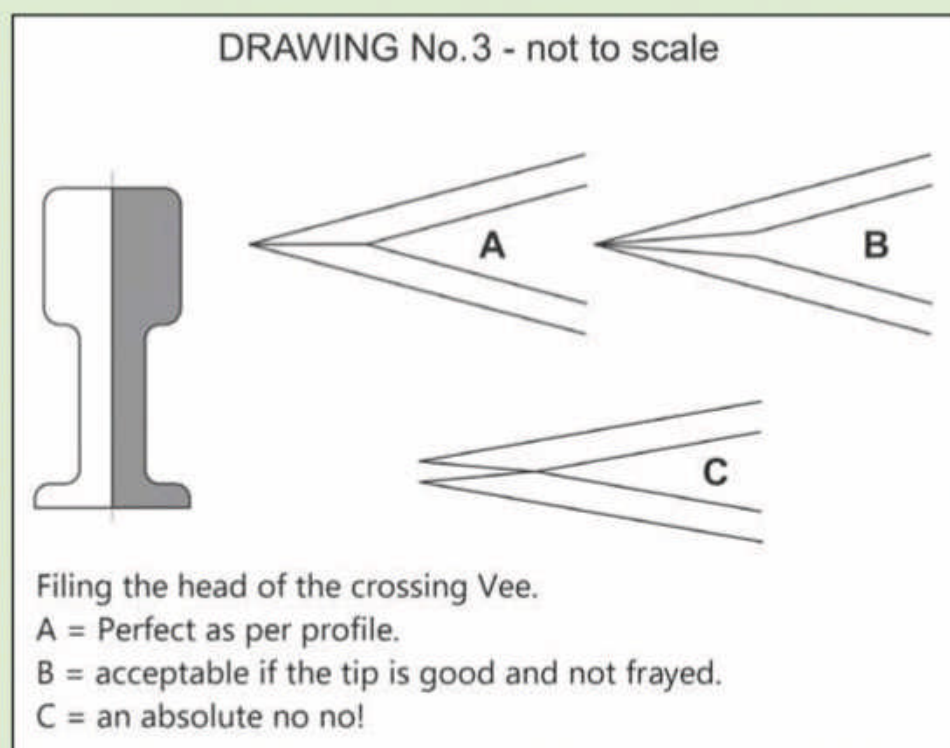
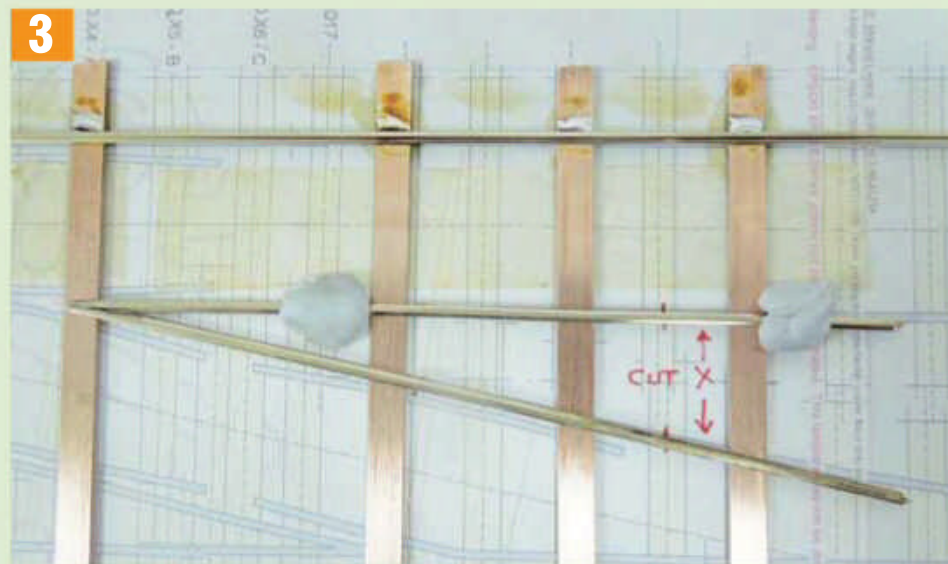
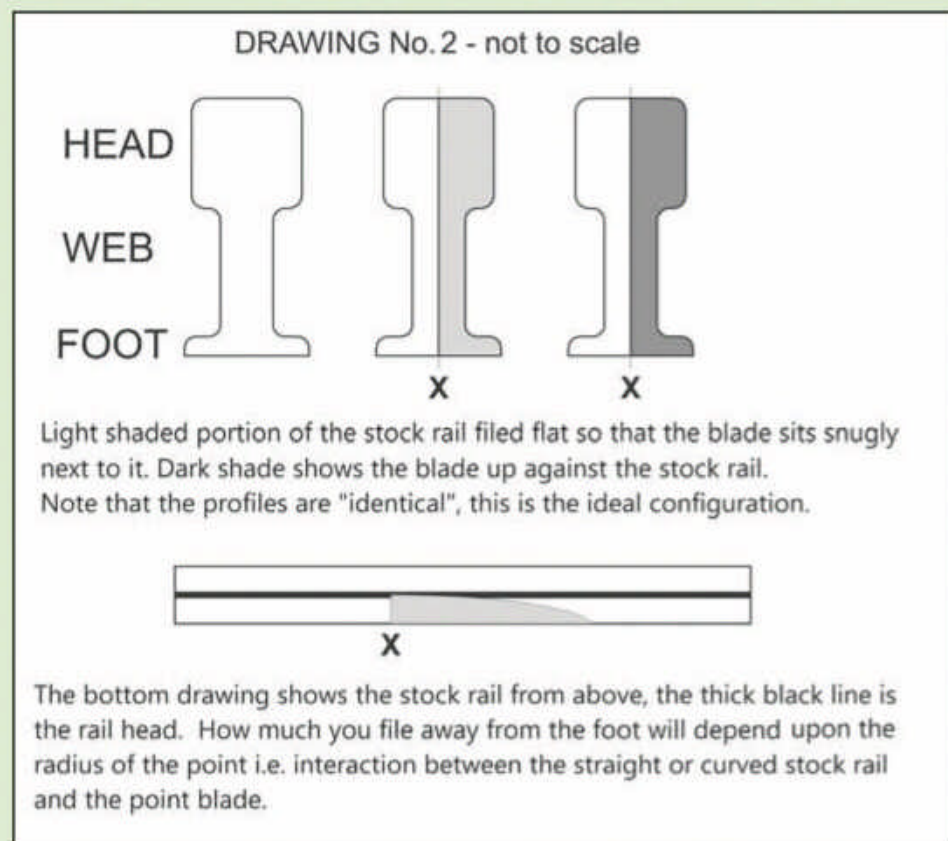
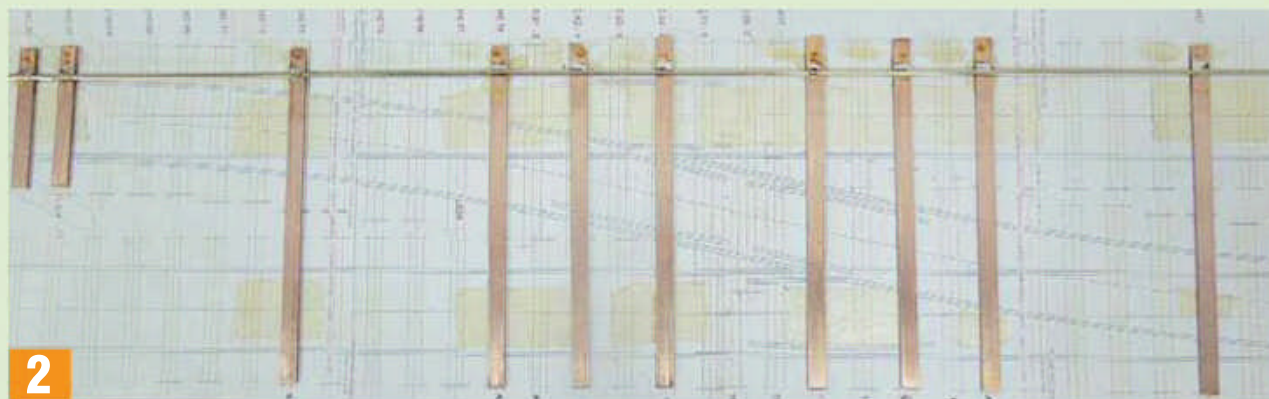
Photo 5 shows the crossing vee again with the roller gauge in place and shows what NOT to do or, at least, avoid.

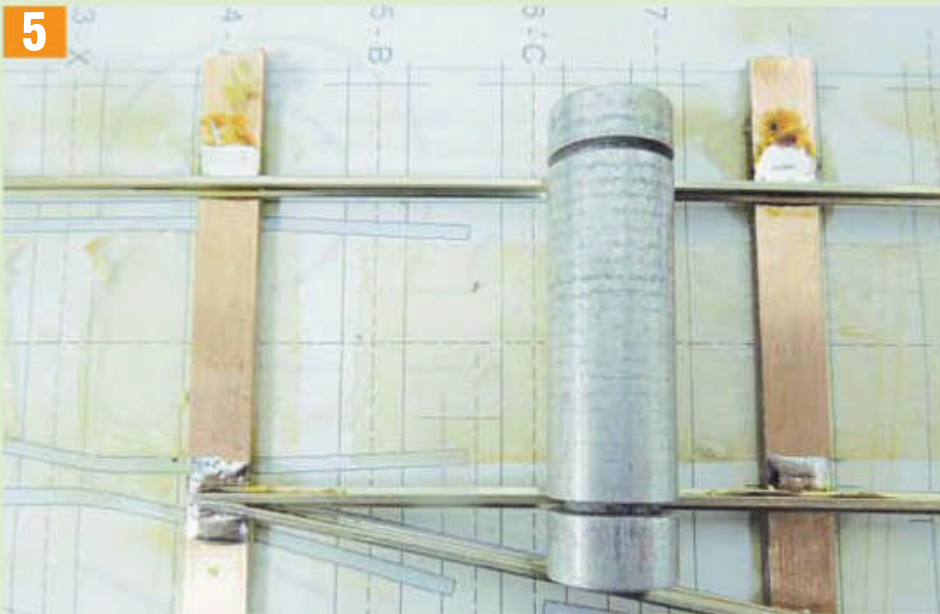
Photo 5 shows an excessive amount of solder at the tip of the crossing vee, the crossing nose. This will have to be removed by either filing or flicking away the molten solder with a fibre-glass brush. The reason is that with so much solder you may not be able to seat the wing rail accurately which is your next job. Also, if the crossing vee is somewhat like 'B' in Drawing No. 3, then the gap can be filled with solder or conductive paste. In fact, as you get more experienced you'll find it easier not to solder at the tip at this juncture, leaving it until later.

The Wing Rail(s)

The shape of these rails is shown clearly in Photo 5. Two short lengths of rail are trimmed and bent to shape. A tip about bending the rail into a sharp angle – make a vertical cut in the rail-head, foot and through into the web. This will give a nice clean angle with the cut on the outside of the 'V'.

You'll also note from Photo 5 and Photo 6 (with the gauges in place – held with Blu Tack) that the 'wheel run' is in an absolutely straight line through the crossing vee. And you can ONLY achieve that if the two tips of the 'V' in the two wing rails are directly opposite each other. If you don't get this correct your point will not work no matter what you do; you might as well start again.





Making and Laying the First Point Blade

Filing of the point blade is effectively shown in Drawing No. 2 and shown in Photo 7.

Photo 7 shows the blade held in place with a hair clip and a piece of Blu Tack. You'll need to file your blade tip to fit a stock rail rebate as in Drawing No. 2 and you'll also need to shape it into a curve with your fingers *slowly* working your way along the length. If there is a lip at 'X' (see Drawing No. 2), then the rebate should be filed further (here's the advantage of core-board) or the blade thinned at the tip. As with the crossing vee, care should be taken that the tip is not so thin as to become fragile and then prone to damage. In a large gauge you may be able to get away with a fraction of a millimetre lip, but not in HO: you will definitely get rough running at best or derailments at worst.

Installation of Second (Curved) Stock Rail

The next stock rail needs to be prepared and installed. When filing rebates don't forget which way they are handed. It's so easy to file the mirror image of what you want. Photo 8 shows installation of the curved stock rail with a prepared rebate and gently curved to an approximate (but as accurate as possible) shape. This is then held in place with as many gauges and jigs as required.

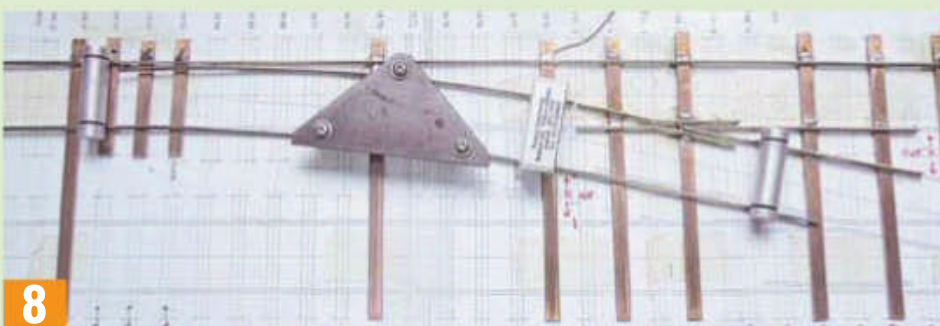
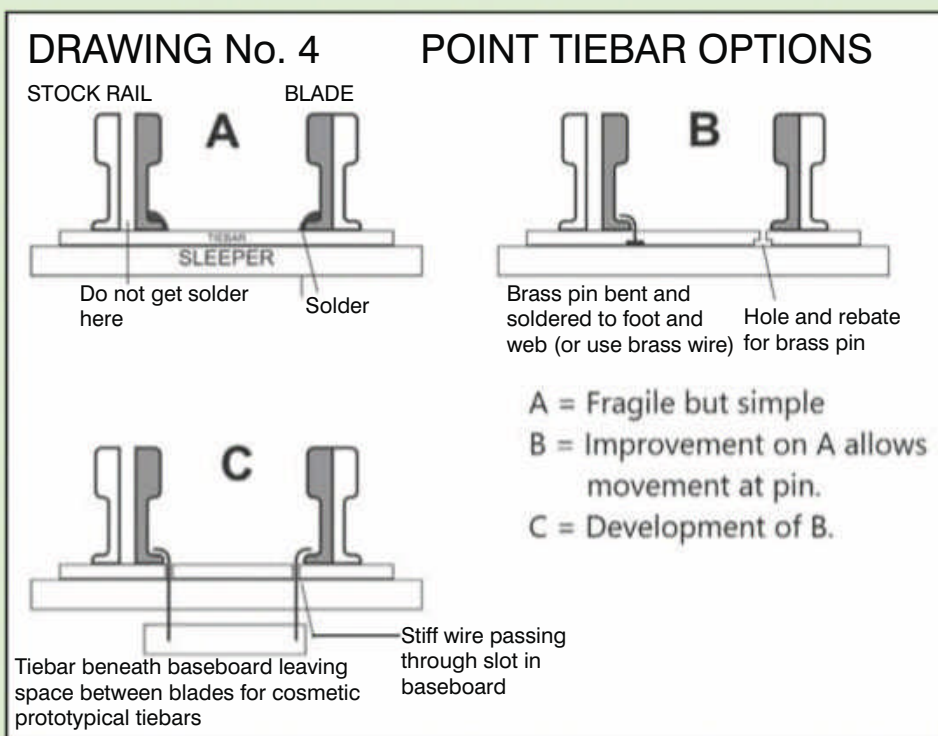
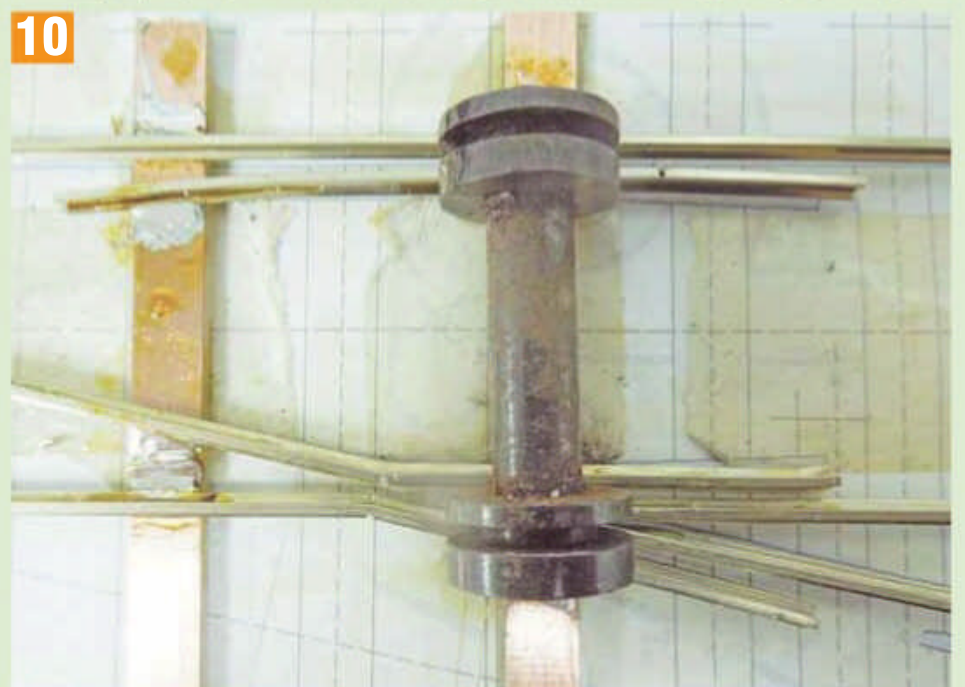
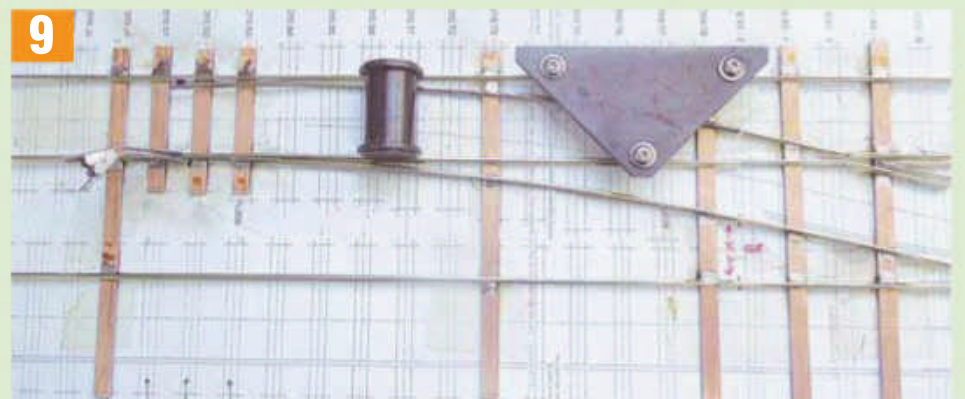
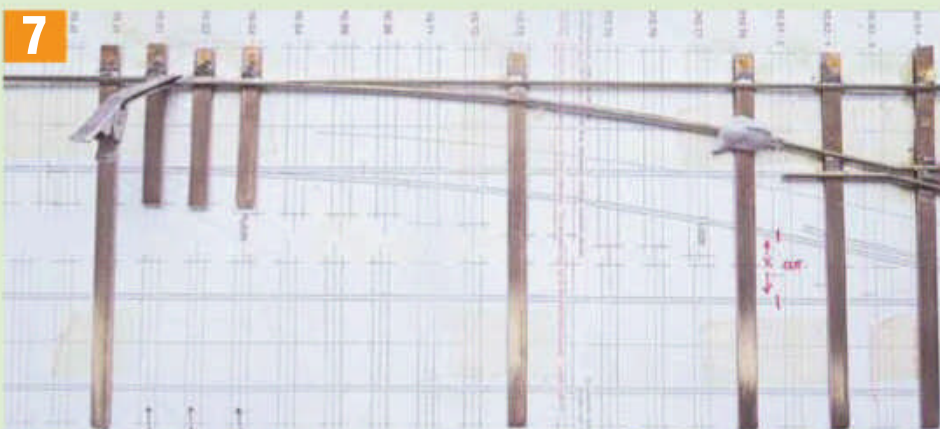
The two outside gauges are plain (home turned) roller gauges, a professionally produced triangular gauge for setting out curves and, finally, (what looks like a metal block) a plain track gauge (that is, non-roller) that also includes a gauge for setting out wing rails. (Both the latter are professionally produced.)

You'll note that the curved stock rail terminates in the picture just past the crossing vee. If this were a stand-alone point then the stock rail would have been longer, extending to the right of the picture. However, in this construction I'm building a cross-over between two running tracks, so the right hand end of the stock rail in fact forms part of the second point's crossing vee. This can be seen on the template.

Installation of Second (Straight) Blade

For installation of the second blade you'll need roller gauges and a gauge that straddles the other blade. This is illustrated in Photo 9 and is achieved by use of the triangular gauge. This is the other use of the triangular gauge, the first being on curves.

You'll notice the rail gaps just to the right of the triangular



gauge. These are required for electrical purposes and are produced automatically in that the wing rail and the blade(s) are made out of separate parts. What you see here is effectively a completed point, but we still need to install the check rails and work on the point blade tie-bar.

Check Rail Installation

On a stand-alone point the final installation is that of the two wing rails. These are the two rails opposite the crossing vee that guide the wheels through the nose of the crossing. These are gauged off the crossing vee and are directly opposite the tip. In Photo 10 you'll see a proprietary gauge that sits on the 'V' tip, straddles the check rail and locks the opposite wing rail into position.

You'll note bends in the check rail which are produced in the same way as in the wing rail; also the 'straight' section of the check rail directly opposite the crossing vee is parallel to parts of the crossing vee and wing rail. The outer parts of the check rail are bent in the fashion shown to guide the wheel-set into the crossing vee. This is a most crucial dimension and needs to be correct. Having said that, if you haven't got the specialist gauge then with PCB track (and here is another plus) you can adjust by measurement, trial and error until you are happy (I have done so at times!) Photo 11 shows the completed crossing and again illustrates the straight-through 'wheel run'. Of course, there is a check rail on the other side of the point crossing.

Tie-bar Installation

The type of tie-bar you use to operate your point is really a matter of what you feel comfortable with – ruggedness, prototypical fidelity etc. There are a number of ways to achieve this and, for the purposes of this article, I have used the simplest – a length of PCB strip (which needs to be thinner than the main sleepers). Photo 12 shows a simple gauge used to space off the blade from the stock rail before soldering.

An important tip – only solder the blade to the tie-bar with a gauge in place; this will prevent solder creeping in under the rail and soldering your blade solid. So when one blade is done, move the tie-bar and use the gauge again on the other blade.

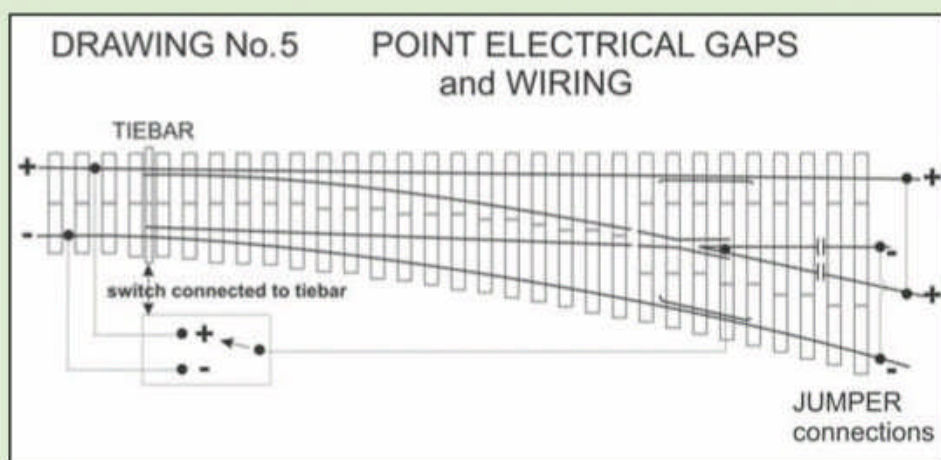
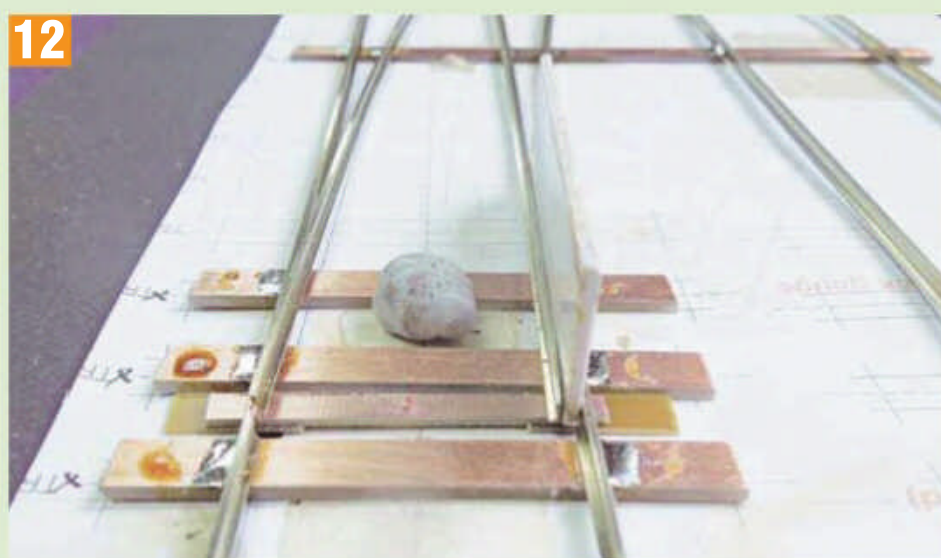
Drawing No. 4 shows different methods of tie-bar installation. 'A' is the simplest and needs no measurements, holes drilled out etc. However, because it is a soldered construction it is not recommended for regular exhibition layouts or where snap-action solenoid motors are used. It fares best with slow-action motors, such as Tortoise and Cobalt, and these two also have the advantage of built-in microswitches to change the polarity of the crossing vee.

Removal of Paper Template

Not a big thing you may say, but this will be a test of your soldering. Do all your electrical gaps in the rail and PCB sleepers whilst still on the template on the board. You may consider installing the jumper leads as well. If, when peeling off the template, some sleepers come adrift – even if only partially – don't be tempted to resolder where you think they will go from the marks on the solder. Always use a gauge! Drawing No. 5 shows where the sleeper gaps need to be and connection to the crossing vee polarity switch.

Photo 13 shows the completed crossover.

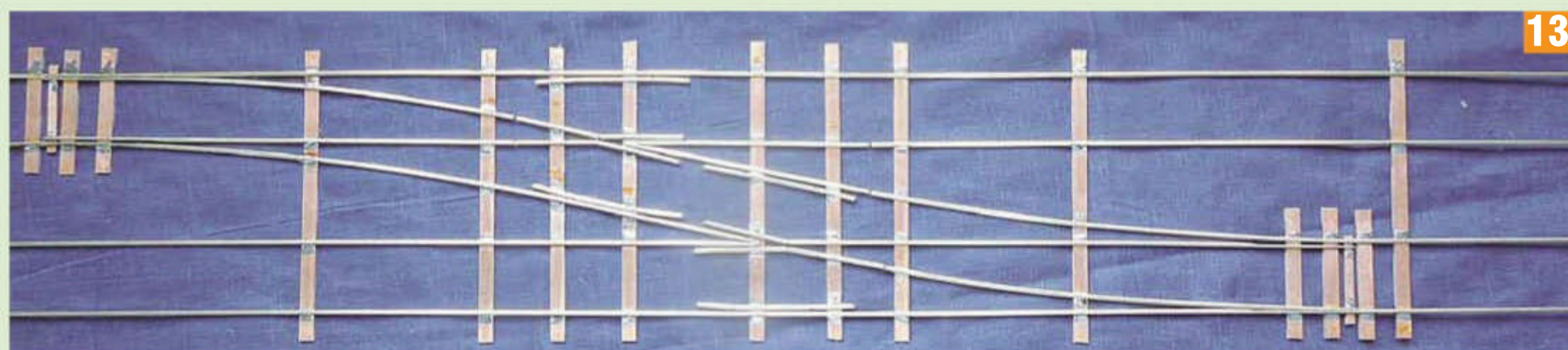
Hopefully, this article is of interest to readers and encourage some to have a go, even if it's to make one or two points whose

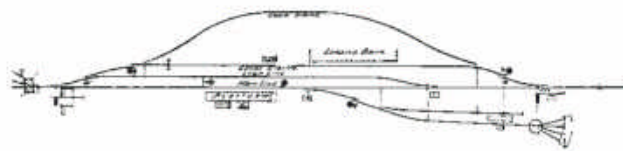


configuration is not catered for by off-the-shelf points and would make the flow of your track work that little bit (or is it 'big bit') better.

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IN THE LOOP

Fidelity vs Practicality

Trevor Hodges tackles the question of Fidelity vs Practicality. Photos by the author.

Fidelity (noun): faithfulness, loyalty, exact correspondence to the original (*Concise Oxford Dictionary*). The word 'fidelity' refers to how faithful a reproduction of something is to the original item. This has application in the hobby of model railways because, whenever we make a judgement about a particular model or layout, what we're doing is assessing its fidelity compared with our perception of the prototype.

I use the word 'perception' of the prototype very deliberately because, in my experience, it's quite rare to have a definitive resolution to a question about some aspect of the prototype's way of doing things. I doubt many topics have generated more heated debate over the years than the colours applied to various models.

While it's possible that modern scanning and colour reproduction technology have to some degree helped to take the heat out of this issue, the root cause of the 'colour wars' of past years is essentially because we all tend to perceive colours quite differently. We often fail to take account of the difference scale makes to colour perception and the fact that we are probably physically a lot closer to a model locomotive than we are ever likely to be to the real thing. Light alters colours significantly; the further away from an object you are, the time of day, the long-term effect of sun, dust and grime changes the colours on prototype locomotives. If you combine all this with the faded colour photos from the middle of the 20th century and filter it through the rose-tinted lens of memory, it's little wonder so many of us have looked at a model and thought "there's something not quite right about the colour applied" to the item under examination.

This difference in perception of the prototype isn't confined to colours; there are many other examples, but they are beyond the scope of this article.

All have been the subject of endless debate and contention by modellers and, in many cases, those involved in the preservation scene.

For many of us, the ultimate objective of our involvement in the hobby is to someday build a layout and, when we do, all our opinions and theories about fidelity to the prototype will be seriously tested against the hard reality of practical operation.

For me, the pay-off for all the work of building a layout comes when a few friends drop by and we operate the layout I'm building. I built *Morpeth* to be operated in a way that mirrors my perception of the prototype — as opposed to casually running some trains around the layout.

The goal of eventually hosting operating sessions on my layout has guided most decisions I've made as I set about planning and building it. To some degree, this has guided my choices of rolling stock, locomotives and building kits over the past 20 years or so, long before I commenced construction.

When I first started working in O scale, I used Kadee couplers on my stock; I'd been using this brand of coupler for about 10 years while I worked in HO and was always impressed by their reliability in operation. However, what might have been the default choice in HO wasn't quite so simple in my new, larger scale. To start with, the range of available couplers in O was, at the time, limited to one style: No. 805 (equivalent to No. 5 in HO). In addition to this was the fact that not all the kits available were designed for the Kadee No. 805. To fit them required the removal of a fair chunk of the

lovely detail surrounding the coupler pockets on the wagons I was building.

If one of your reasons for moving to a bigger scale is the beautiful detail that's possible in a size you can see, then having to hack into that detail with a razor saw to accommodate the housing of the couplers was in some regards defeating the purpose of the exercise. In addition to this was the way the couplers used a spring to self-centre. This was housed at the rear of the coupler and was quite different from the way the standard HO couplers like the No. 5 self-centre. This arrangement resulted in a noticeable conga-line effect as the wagons bounced back and forth against each other as the train moved.

However, what really made me consider my options was the size of the coupler heads and the gaping hole surrounding the coupler's shank. These were probably equivalent to those in HO stock. However, they were so much more noticeable in O that I made the decision to change from the use of Kadee couplers to a more prototypical coupler that uses a scaled version of what a real coupler does in operation.

At this point the story should end. Chalk up a win for fidelity. The scale couplers I've installed on my models for the past 17 years look very nice and operate exactly as the prototype. You use a magnetic wand to lift a coupler pin and the jaw of the coupler opens so that uncoupling can occur.

However, running my trains on *Morpeth*, as opposed to thinking and planning for this to happen, has revealed that aiming for a higher level of fidelity isn't always compatible with the practical needs of operation or of human operators with over-scale hands, less than perfect eyesight, and knees and backs that are well into their fifth or sixth decade.

I'll be honest and admit that I can't say I've ever managed to get prototypically accurate couplers to operate reliably in the way I need them to. However, before I had a layout where operations were the object of the exercise and reliability was crucial rather than something to be aimed for, it didn't matter all that much.

The couplers come factory-assembled to an acceptably consistent quality, they look the part and can be installed relatively easily with a bit of tweaking and appropriate height adjustment. However, I've had real problems getting the jaws to open and close reliably despite lots of tweaking and I've just about given up on the system of self-centring supplied with them.

If you think about it, operators interact with their trains in two fundamental ways on an operations-based layout: through the throttle in their hands that controls direction and speed (and other functions if DCC is used) and through the couplers so wagons can be shunted. If the couplers on the rolling stock are unreliable and/or difficult to operate, then 50% of the operation becomes an exercise in frustration rather than a pleasurable challenge.

I hosted an operating session on *Morpeth* for the Borderline Operators. As we're spread each side of the NSW and Qld border, the recent border closures affected our gatherings for a few months, but have started again recently.

Because of the COVID-19 restrictions and the length of time between sessions, I got quite ambitious and made some major upgrades to the layout prior to this most recent gathering. After installing the diamond crossing I wrote about in my last *In The Loop* column I also installed the industrial siding this

crossing leads to. I've re-installed the coal line and have gone on to build the track for the coal branch loop that will allow locomotives hauling coal trains to run around their trains.

I also assembled several coal wagons so that this train can now be added to the list of jobs available to operators who make up the operating crew.

After months of work and lots of thinking and planning through a lengthy break, I was more than ready for another operating session on the *Morpeth* branch. I don't run trains during these operating sessions myself. I tend to just bounce around trying to sort out problems as they arise and generally get in the way. I'm hoping that this troubleshooting role will be less needed as the layout develops and I address the issues that crop up during these sessions, especially as the operators become more familiar with the layout and its operational requirements.

Nevertheless, I did get some time to watch as the operators set to running some trains and putting the layout through its paces. Aside from the occasional derailment, the trains ran quite well and I seemed to have fixed most of the track and wiring problems we'd encountered last time. My list of jobs to do is a lot shorter than last time.

However, I could summarise almost all the problems that emerged during this session with one word: couplers. Trains running along plain, level track uncoupled many times for no apparent reason. I could see my operators were struggling to shunt the yards because they couldn't get the couplers to work without a good deal of fiddling.

They were working in pairs and I heard several conversations that included words to the effect "It didn't couple." or "I can't get it to open/close.". This resulted in everything taking far longer than it needed to and my carefully-constructed operating sequence started to hit some bumps.

What I did in the days following this operating session was assess what went right and what didn't — and what I need to do to address these issues. Theoretically, the couplers I use are far closer to the size and operation of the prototype and, as a modeller who values modelling that strives to mirror the prototype, this is important to me.

Finally, I have the satisfaction of knowing my operators are undergoing an experience that closely resembles one of the mundane tasks carried out daily on the real railways, thus leading to a more deeply satisfying operating experience. Now we've considered the theoretical, let's look at the practicalities. The flipping couplers don't work! After the session I posted a message to my operators on our message board that included the lines *"I feel there's a very fine line between interacting with your train in a prototypical manner and being given a right royal pain in*

the rear end by fiddly couplers. I have a feeling things were dropping on the pain in the rear end side of the line yesterday".

I build pretty much everything that runs on my layout: I choose everything from the numbers applied to the locos and rolling stock, the type of wheels used and the variety of couplers installed. In the case of the couplers I unpack them, check their operation, apply lubrication, ensure they're sitting at the correct height, then install them. By the end of this process I'm familiar with how they operate, and I still struggle to get them to work. If I can't get them to work reliably what chance do my operators have of getting them to work?

Over the years I've been involved in organising and hosting trivia nights. I've come to realise that the trick to a successful trivia night is what I'll call the 'pitch' of the questions. As well as including questions aimed at different age groups, you also need to pitch the level of difficulty just right.

When you get the pitch right you hear the tables buzz with excited whispers; when you get it wrong you hear lots of frustrated grumbles.

Pitching the level of challenge for a layout is similar to assembling trivia questions. I want my operators to enjoy the challenges as they work through the tasks assigned to them as a train crew. Occasional derailments and un-couplings are a part of the daily life of a railway. However, if these occur every five minutes, they cease to be a part of the operating challenge and simply become bothersome and frustrating. I'm still working on my layout's pitch.

Regardless of scale, getting a train to run in a circle asks little of a coupler.

However, *Morpeth* was built to be operated, so I must balance the desire for a coupler that looks prototypically correct against one that operates reliably and won't drive my operators insane. I want them to enjoy themselves and wish to come back; *Morpeth* needs them.

I'm currently evaluating the options available to me. It's likely that I'll install Kadees on at least one of my locomotives, a brake van and a few wagons in preparation for the next operating session so my operators and I can make some comparisons.

It turns out that over the intervening years Kadee have broadened the range of O scale couplers. While not as extensive as the HO range, they now have extended shanks, and under- and over-set heads, so modellers have options that weren't available when I started using them.

While I consider myself a scale modeller who is interested in accuracy, I'm afraid that when fidelity is confronted by operating practicality, practicality almost always wins. 



NSWR 0-6-0 1919 runs around its train of coal hoppers on the newly-laid loop on the Raworth Coal branch.



Locomotives CLF2 and 602 have almost completed loading at Bowmans on 19 November 2000. Photo Mark Carter.

Bowmans

The AMRM Team presents a location to model: Bowmans, South Australia. Photos by the AMRM team unless otherwise stated.

The consolidation of grain handling and storage facilities within South Australia has created 'super' bunkers at various locations across that state. These 'super' bunkers have high grain storage capacity and have high-speed dumpers (700 tonnes per hour, against an average of 120–200 tonnes per hour at traditional silo facilities). Thus, a 50-wagon grain train can be loaded in about four hours. In 1999–2000 one of these 'super' bunkers was constructed at Bowmans by

Ausbulk Pty Ltd, formerly South Australian Co-Operative Bulk Handling Limited (SACBH), now Viteria.

Bowmans is a crossing loop situated at 101.5 km on the Adelaide to Crystal Brook standard gauge line. This line was constructed/converted in 1982. Prior to that time, Bowmans was a broad gauge four-way junction, between the Adelaide–Port Pirie line and the cross-country Balaklava–Kadina line. With standardisation, the original station location was bypassed and a new 'station'

was built south of this location, thus removing two curves from the mainline. The standard gauge Bowmans then consisted of a crossing loop, a goods loop, a concrete loading bank, a relay cabin and a repeater tower.

Sites such as Bowmans were considered 'green field' sites, where there is plenty of room for expansion and efficient loading and unloading, and storage of grain.

Four permanent bunkers are provided to feed the grain bins, along with four



The site of Bowmans, South Australia. Bing Maps.

auxiliary bins, each being approximately 12 metres in diameter. Four overflow bunkers are also provided, to be used as needed.

Asphalt roads have been built to provide all-weather access, along with reception roads and weigh stations for vehicles using the facility. As the grain is stored in bunkers, the facility also has a large dam constructed at the east side of the up end. This is a mitigation for any possible flooding of the facility.

Possible expansion was built into the design and another two overflow bunkers were built at the northern side of the permanent bunkers. Later, another four overflow bunkers were built, again at the north side, along with another dam at the east side of the up end.

Australian Southern Railroad (ASR) serviced the silo complex, using their ex Australian National (AN) AHGX and AHHE (AHHH and AHHY) grain wagons, and 600, 700, 830, ALF, CLF, CLP and GM class locomotives and, later, their 22 class (ex-State Rail Authority of New South Wales 422 class). ASR became the Australian Railroad Group (ARG) in 2002. Ex-Westrail WWA grain hoppers were also used in South Australia and were used on Bowmans grain workings. To supplement the grain fleet, Chicago Freight Car Leasing Australia (CFCLA) CGAYs were also leased.

In June 2006, ARG was split up and became Genesee and Wyoming Australia (GWA).

Some examples of grain workings are:

- GM1 in Commonwealth Railways livery, 846, 847 AN patch, with two WWAs and AHGXs (March 2002);
- 847, 846 AN patch and CLP16 in ARG livery (October 2002);
- CLP12 ARG and 907 ARG (April 2004);
- Pacific National (PN) 8173, L251 PN and 8171 to Parkes, NSW (March 2008);
- CLF1 and RL307 Green Trains livery (February 2011);
- EL58 CFCLA, 2216, GM37 and ALF22 (March 2011);

- VL357, GM46 AN patch and 2216 (April 2011);
- 2216, 701 and 2210 (May 2014);
- 703, 2214 and CLP16 (January 2015);
- GM42 and 2216 (January 2016);
- GM42, GM38 AN patch and GM43 (July 2014);
- CLP17 and CLP14 (January 2017);
- ALF18 GWA and FQ04 FreightLink (August 2017);
- CLP17 and CLP16 (May 2018);
- CLP17 and ALF21 (June 2018);
- CLF6 and FQ01 (June 2018);
- G533 Freightliner and GWA009 (April 2019);
- GWA004 and GWB103 (November 2019);
- CLP17 GWA and G533 Freightliner (December 2019);
- FQ02, CLP17 and GWB101 (January 2020); and
- GWA007, FQ02 and GWB101 (February 2020).

With persistent drought conditions in NSW in 2019–20, a number of feed grain trains operated from NSW to Bowmans and return. Some examples are:

- SSR with G513 and C504 with BGKF, BGVF hoppers to Peterborough (December 2018);
- SSR C507 and C509 using BGKF hoppers (March 2019);
- PN DL43 AN patch, DL47 PN and 8251 using ex-Australian Transport Network (ATN) XGAY hoppers (March 2019);
- PN DL41, PN 8257 and 8236 PN (April 2019);
- SSR C509 and C510 using BGKF hoppers (August 2019);
- SSR with SSR101 and SSR102 October 2019);
- PN 8257 and NR51 (January 2020);
- Aurizon 6022, 6010 and 6044 with 49 AGUYs (March 2020); and
- PN 8235 and 8238 (March 2020).

Grain was also shipped to Victoria from Bowmans, an example being G520 in Freight Australia patch livery, BL26 and 8175 PN livery with VHGFs (May 2019).

Operations

The line from Dry Creek to Crystal Brook operates with centralised traffic control (CTC) as the method of safe working. The mainline points are CTC powered; all other points in Bowmans yard, except for the point that leads to the grain dumper, are switch locks. The Balco points are remotely unlocked, therefore communication with the train controller is required when shunting, to release points etc. Derails are provided at access to the goods loop or Balco.

Instructions are fairly simple: set up grain hoppers at the Nantawarra side of the loading chutes (or as instructed by the grain agent), then load towards Long Plains. Both bins are used to load two wagons at once, three or four stop-and-go movements are needed between each pair of wagons.

At about the 29 wagon loading point, one of the bins will run out of grain, slowing the loading process. Semi-trailers would then run from the bunkers to the dumping grid near the bins to top up the bins.

In this era of privatisation there are a number of operational complexities that can be modelled which will increase operational time.

Fifty wagons are regularly dispatched to this location. Previously they would dispatch 40 wagons which fitted in the goods loop fine, with clearance to spare. However, with 50 wagons and having some of the longer CGAYs in the consist, the clearances would be very tight. Due to sharp curvature of the goods loop to the crossing loop at the Long Plains end, sometimes the couplers between the locomotives and the last wagon would not line up, even with the couplers dragged to their fullest extent.

The crew would have to find the 'sweet spot'; sometimes this would mean that one wagon would be straddling the Nantawarra end derail (not an ideal situation). Each time they would have to go back and forth, to get the consist in the



Locomotives 3102 and CLP12 haul 4V52 ex-Bowmans on 19 November 2003. In the consist are three near-new CFCLA CGAYs; these wagons would later dominate GWA2's grain haulage tasks. Photo Terry Martin.



The grain bins. There are two outlets for loading and steps for staff to accomplish and supervise the loading operation from a mezzanine level. The track is sunk in asphalt so road trucks can be loaded using the same bins if required.



This is the distribution tower that sits between the two dumper bins and the four auxiliary bins. To the left of the tower is a bottom dump facility for road vehicles, enabling quick additional top-ups to the bins.

sweet spot. In the end, they would have to leave a couple of wagons on the crossing loop and then run around using the main line.

Modelling a smaller version of this, you could build the run-around with a sharp section that would stop your crew coupling up at the sweet spot, so coupling on the straight would be required. (The loop is just that little bit too short, ensuring that double shunting is required at each operation, by leaving a couple of wagons on the crossing loop so you can correctly couple up without running over the derail at the Nantawarra end.)

CGAYs are fitted with pneumatic operating roof doors and bottom discharge doors through the installation of dual air pipes, thus CGAYs need to be marshalled next to the locomotive if the

air doors are required to be actuated. AHGX wagons had hand-operated roll-top and bottom discharge doors. At the time they did not have dual air pipes, thus you could model additional shunting to get AHGXs out of the middle of some CGAYs. You may also need to shunt the consist to get the CGAYs on the front of the train to enable the air doors to be operated.

BALCO

In 2003 Bowmans intermodal was established to initially export containerised hay from the surrounding area for Balco (Balaklava Co-Op). To service this new container terminal, a dead-end siding was built, branching off the crossing loop at Bowmans at the up end and following the old broad gauge mainline formation to a dead-end just before

Balaklava Road. Storage sheds were built along with a processing plant.

A hardstand was built next to the siding and a Fantuzzi Reach Stacker CS42K is used to strip and back-load the containers.

CLF1 and CLF4 (both in ASR livery) delivered the first rake of container flats for loading on 4 July 2003. A joint venture with Patrick PortLink SA locomotives used on these workings were varied to say the least.

Patrick PortLink had three locomotives dedicated to the service: 103, a chopped nose NSWGR 45 class (ex-4537), and two ex-Westrail N, NA & NB class, converted to standard gauge in 1994, sold to Austrac, delivered in February 1998, sold to Patrick PortLink in 2004. Both were repainted in Patrick livery in November 2004, named *The Dove* and *The Pigeon* respectively.

Some examples of BALCO workings are:

- 42207 in hybrid ASR blue and yellow (January 2004);
- VL359 and DL50 in PN livery (April 2004);
- HL203 in patched Austrac livery and 4468 in hybrid Tuscan livery (November 2004);
- GM10 in yellow and black SSR livery and 1872 (September 2005);
- 4514 and 1872 (February 2006);
- 44s1 (ex 961 in AN *Explorer* livery) and GM46 (in AN livery with GWA branding) (April 2006);
- B76 (CFCLA) and 1872 (January 2007);
- 103 and 1872 (November 2007);
- TL153 and TL152, 1872 (December 2008);
- 44s1 and 103 December 2007.
- GM47 AN-patched and 1873 (January 2008);
- GM37 and 103 (January 2008);
- AN1 in NRC charcoal patched (NRC lettering with symbol painted out and PN branding) and AN6 in AN livery with PN branding;
- DL43 and 1872 (January 2009);
- DL45 in PN and DL48 in AN livery (March 2009);
- 1873 and DL39 (April 2009);
- 1872, 103 and 1873 (August 2009);
- DL48 in 'no-name' AN livery (patched) and 1872 (September 2009); and
- AN1 and 103 (February 2011).

Locomotives 1872 and 1873 were later sold to El Zorro in September 2011 and thus were withdrawn from Balco service. From then on, CFCLA locomotives were used on the Balco service. Some examples of these are:

- G512 in CFCLA livery (October 2012);
- S311 and S300 in CFCLA livery (August 2013);
- GL108 and CM3309 (March 2018);
- GL111 and GL108 (September 2018);
- EL63 and GL112 (May 2019); and
- GL111 and GL112 (April 2019).

Operationally, some attempts were made to top and tail these workings (that is, a locomotive at both ends of the train); this operation would save a run-around



The four auxiliary bins.



The northern end of the permanent bunkers.



To store grain at the semi-permanent bunkers, these moveable dumpers are used to feed the bunkers, a road vehicle dumps the grain through the grates, and then the auger arm drops the grain into the bunker.



The southern end of the permanent bunkers can be seen, five semi-permanent bunkers are in various stages of being filled; behind that is the Balco siding and warehouses.



Looking north. The main line is on the left, then the crossing loop; the third track is the dead-end siding fed by the grain bins. The roads within the facility are all-weather asphalt roads.



Looking south. To the right is the main line, then the crossing loop, with the crossover to the goods loop. Between these two points you can see the derail. The siding closest to the relay cabin is fed by the grain bins. The repeater tower can be seen behind the relay cabin. The goods platform has been used in the past to 'top up' grain trains while loading, using portable augers.



One of the few 'railway' buildings at Bowmans: the relay cabin.



For a time, 4514 was regularly rostered on the Balco train. Here, 4514 and 1872 are at the Balco hardstand; the 20 ft containers are used for equipment stowage. Photo Mark Carter.



Locomotive 4468 sits at the northern end of the Balco siding. Like most modern industries, the use of ATCO huts as working office space and separation of flammable equipment. Gas bottles are stored in a separate locked cage.



In the final stages of repainting and fit out in Junee NSW is 103 (ex-4537), in October 2006. Photo Doug Hart.

movement at Bowmans. Some examples are:

- 4468 and HL203 (October 2004); and
- 44s1 and 4514 (April 2005).

Wagons used on the Balco are from CFCLA.

Operational Requirements

Movements into this siding need to obtain authority from Balco prior to requesting a path from Train Control.

The point leading to the siding has a derail at the clearance point.

A cabinet located near the siding contains these push-buttons:

- Release – releases the points (provided the correct interlocking conditions exist); and
- Cancel – cancels the release and locks the points.

Two indicating lights are also provided:

- points released (green light) – indicates the points have been released and are available to be operated; and
- points locked (red light) – indicates the points are locked and are not available for operation (that is, interlocked with the signalling at Bowmans). Movements needing to shunt the siding shall be signalled onto the crossing loop using the low speed indication on signal 3 or signal 24 to allow operation of the point release.

Movements into the siding are required to be set-back moves, thus any movements from Long Plains are sent into the crossing loop, to run around and get in position to set back into the siding, unlock the cabinet and operate the point to gain access to the siding. Once in clear, they can then relinquish control.

Departures are much the same as arrivals without the need to run around.

If the Balco operations manager is on duty at the time of the train's arrival or departure, the operations manager would work the points of the Balco siding. If no operations manager is on duty, the crew would work the points and thus would require additional push-back moves to pick up their mate working the points.

Modelling Notes

A sample track plan has been provided to show how this location could be modelled in HO scale for a standard rumpus/pool room (7.9 m x 4.5 m). Aisle access of 900 mm is provided on the operating side and 760 mm on the fiddle yard side. This plan has about 6.1 m clear standing room in the crossing loop at Bowmans. The location has been replicated pretty much as is with the BALCO siding slightly bent to create a narrow peninsula. The use of curved points will allow five staging yard tracks, again with about 6.1 m standing room each. Thus, your ultramodern trains will also be a fairly respectable length. The five trains would be:

- Balco,
- ASR-ARG-GWA grain train,
- AD1-DA2-GWA intermodal,
- MP9-PM9-SCT intermodal, and
- PN-MP5-PM6 intermodal.

If you have the space you could increase the width at location A with additional tracks for, say, the *Indian Pacific*, the *Ghan* or a PN steel train.

A curved 3 mm MDF backdrop will showcase the Bowmans section. Another section of straight scenery is provided for at the fiddle yard side; sometimes it is nice to see trains just going through some countryside.

In operation, location B will enable the mainline operators to view or peer in to see both ends of the fiddle yard, so there is no need to duck under in operational mode. For maintenance access, the backdrop will stop short at location C to enable access to the points at this end of the yard; this allows any maintenance or a rescue of derailed rolling stock at this location. It should not be seen from the Bowmans side of the layout.

The goods loop is shorter than the grain siding which means that (for longer grain trains) a double-shunt will be required. Any grain train needs to be just a little longer than the clearance points of the goods loop to make things interesting.

The Balco hardstand is located around the mid-point of the siding; this is so that both the front and rear sections of the train can be stripped and back-loaded by shunting back and forth along the siding without the need to encroach on the clearance point. On the fascia you could have the control box for the Balco siding which would make for more prototypical operations, with the train controller relinquishing the control etc.

If you have additional width in the room, you could add two dead-end sidings at location D to stage the Balco and the grain train. This way each train would depart the fiddle yard and go through the open countryside at the back of the layout to arrive at the down end of Bowmans. Otherwise they can depart the fiddle yard, go through Bowmans on the main, then through the countryside section to arrive at Bowmans (this just gets you a little extra run).

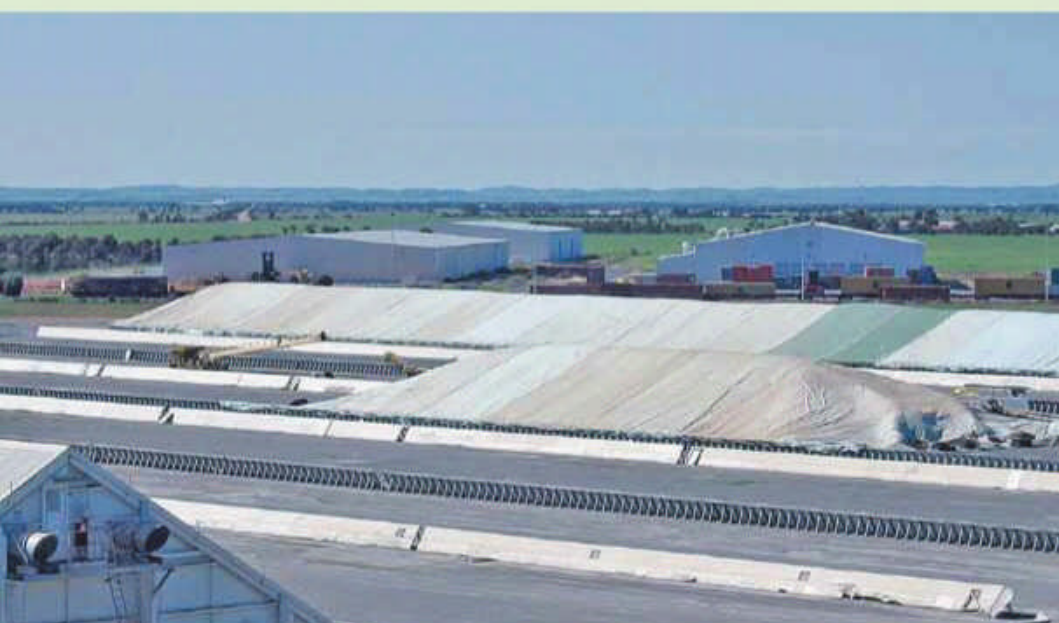
Track could be Peco code 83, timber and concrete for the main and the Balco siding. The grain dumper could be kit-



The Fantuzzi Reach Stacker CS42K is used to stack containers for rail shipment. The 20 ft China Shipping containers are available from Walthers. Photo Mark Carter



The Fantuzzi Reach Stacker services both road and rail transport. Photo Mark Carter.



Over the expanse of bunkers, the Balco facility can be seen with the arrangement of the warehouses and various access doors.



An easy, modern era modelling feature. To keep the bunker tarpaulins in place, use old plant equipment tyres.

bashed from a Walthers Cornerstone kit (Walthers Part No. 933-3123 (big grain storage bin), Walthers Part No. 933-2940 (conveyor bridge and support tower – photo-etched kit) and Walthers Part No. 933-3124 (grain conveyor).

There is a farmhouse located on the opposite side of the main line, which could be replicated using a Walthers Part No. 933-3777 (ranch tract house). Signals can be furnished from San Mateo.

For populating the Balco hardstand area there are many manufacturers of international 20 ft and 40 ft shipping containers. For the reach stacker, Oxford Diecast produces a good OO scale stand-in reach stacker; you will have to do a little repainting.

Locomotives and Rolling Stock in HO

- Auscision: 422 (HL203), 830 class, ARG 22 [Editor's Note: This model is only good for the first four converted.], 600 class, (available late 2020) 4468 (repaint), 45

(103 will require a kit-bash and repaint), AN class, B76, EL class in CFCLA livery.

- AR Kits: 600 class (out of production, but available on the second-hand market).
- Austrains: 700 class (out of production, but available second-hand), CLF, CLP and DL class.
- Trainorama: 44s1 (930 class will require a repaint), 4468 (repaint), 830, GM10 SSR, GM (repaint), S class (repaint).

Currently, there are no ready-to-run models of the Westrail NB class, but a Bowser C630M, M630 or M636 would be a good start (although Dofasco bogies are used).

An Austrains or Auscision 442 class could be kit-bashed into a GL class, but a CM class is a little more difficult, only the 442 class bogies would be a start.

Rolling Stock

Grain: Auscision AHGX, roll-top version required. Frateschi hopper cars could be

kit-bashed into an acceptable CGAY-AHAY.

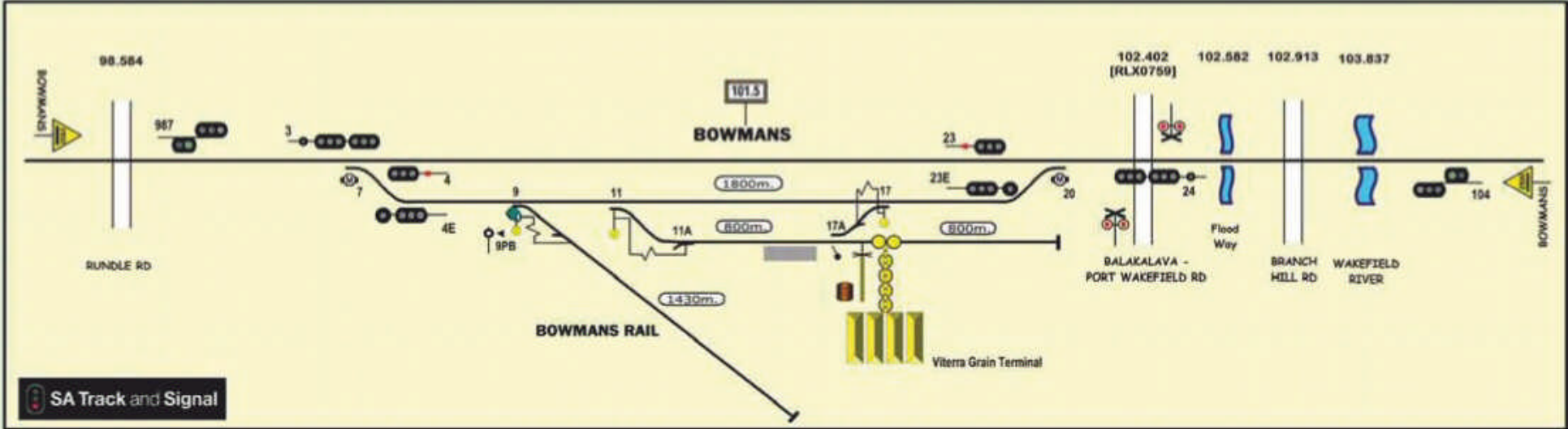
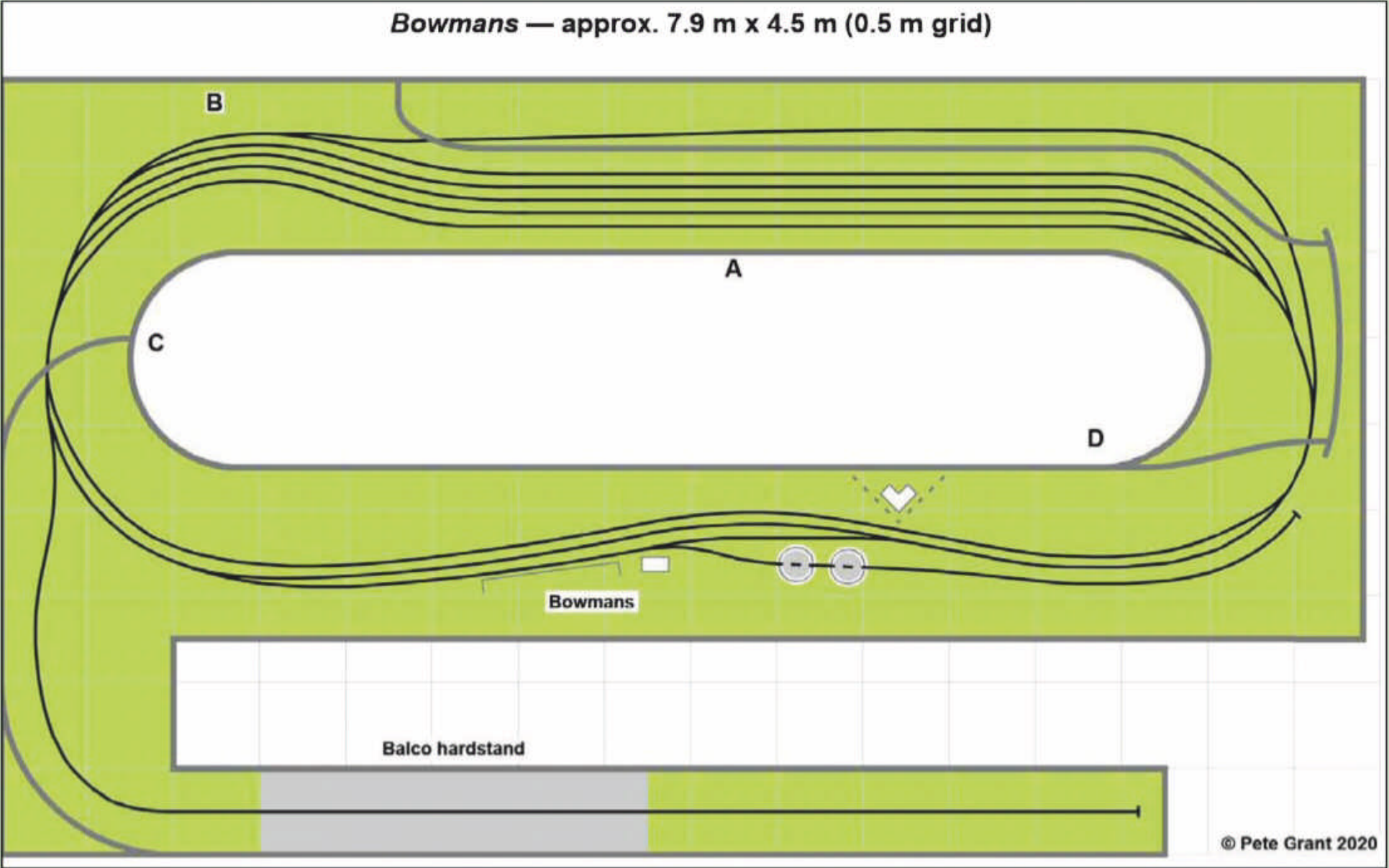
Balco: Auscision RQIW, CQBY. SDS models RQJW kit-bash required.

Hopefully, this has provided some inspiration and gives some insight to the modelling possibilities in the ultramodern era.

[Editor's note: The AMRM team has about 140 additional detail photographs of the bins, bunkers, equipment and environs. These are available for the modeller who is serious about modelling the location.]

Bibliography:

- Various operational manuals, operational staff interviews.
- Balco website history.
- Viterra website history.
- Graham Vincent of SA Track and Signal.
- <http://www.sa-trackandsignal.net/>



Bowmans signal diagram. Graham Vincent.



1

381M at Ringwood station.

DETAIL HOUND

Victorian Railways Tait Car details

Phil Jeffery describes the Victorian Railways Tait cars.

The Electric Railways of Victoria, published by the Australian Electric Traction Association in 1979, shows that the *Tait* carriages were built prior to the electrification of the Victorian Railways (VR) suburban system.

Perusal of the Public Records Office of Victoria (PROV) website reveals a January 1910 photo of DDE 750 with a six-car train of *Tait* cars prior to conversion to electrification (H 1133). These cars were to become either trailer cars or driving trailers, after electrification had been completed.

The website also has photos of 2AP, 1BP and 1ACP as photos H 1207, H 1206 and H 1208. Photo RS 0327 shows a seven-car set in the rose/grey colour scheme.

The trains were originally released as six-car sets and, by 1914, the VR expected to require 195 motor cars, 161 trailers and 385 driving trailers. By the time of my photographs, seven-car sets were the norm.

The original electric suburban car coding followed the passenger car coding scheme of the day with 'A' for first, 'B' for second



2

371M at Greensborough, February 1977.



3

371M.



4

371M.



5

371M.

and 'C' for guards. Added to this were: 'M' for motor, 'D' for driving trailer and 'T' for trailer. This coding structure led to the swing-door cars carrying many car codes depending on the passenger compartment configuration. Motor cars could be coded as ACM, BCM and ABCM. Driving trailers were ACD, BCD and ABCD; trailers were coded AT and BT. *Tait* car coding followed this practice with the addition of a 'P' to denote *Tait* cars, giving codes like ACPM, ACPD and APT.

In 1921 this coding structure was decided to be too cumbersome, so the suburban electric stock was recoded: 'M' for motor, 'D' for driving trailers and 'T' for trailers.

It is now 2020, and both TrainBuilder and Auscision (pending release) have models of the clerestory-roofed *Tait* cars, so the time seemed appropriate to dust off the negatives to show AMRM readers some details for their models.

In February 1977 I visited Greensborough just to see what was around. Some suburban trains were stabled at Greensborough over the weekends and, as I have always been interested in suburban rolling stock, I took the opportunity to take some photos of 371M. (I thought that someday I might need details for a model.) Cars 338M, 396T and 88G formed part of the four-car block at the up end of the train. The full train would have been a seven-car set at that time.

Photos 2 to 7 inclusive show roof top details of 371M.

To celebrate the 76th 'birthday' of the *Tait* cars, Elecrail ran shuttle trips to and from Ringwood, using carriages 317M, 381M, 208T and 230D. Photos 1 and 8 to 11 inclusive illustrate this special train. As these cars have been backdated to the original condition, the TrainBuilder and Auscision models would all require modification to restore the windows alongside the sliding doors. From October 1971, these panels were covered over to simplify car cleaning.

Four M cars were modified in the late 1960s for use on the lines from Camberwell to Alamein, Newport to Altona and Eltham to Hurstbridge during off-peak periods and weekends. These cars were renumbered as 470M, 471M 472M and 473M. 472M was a one-off conversion with an inter-car connection door alongside the new driving cab.

In January 1984 I took time out to photograph the Hurstbridge line's weekend shuttle service car (471M) that was stabled at Hurstbridge. The location of the car allowed me to walk all round the car paying particular attention to photograph the underframe details, as shown.

The Auscision models (pending production) are clerestory-roofed motor and trailer cars. TrainBuilder has produced both clerestory and arch roof cars that represent all the cars covered here.

The diagrams in this article are from the Victorian Model Railway Society's rolling stock books and have been reproduced here to illustrate the styles used for various *Tait* car builds.

Further illustrations can be found in:

- *Brief History of the Victorian Railways* (Volume 10)
- Train Hobby book *Victorian Railways Suburban Electrics 'The Reds'*
- Channel 5 DVD *Suburban Salute*.





6

371M.



7

371M.



8

Electrail shuttle train 381M/208T/230D/317M at Ringwood, January 1986.



9

Tait 381M.



10

Tait 381M.



11

Tait 230D.



12

Tait 471M at Hurstbridge, January 1984, with the later Mordialloc cab (also referred to as the square-end canopy type)



13

Tait 471M.



14

Tait 471M.



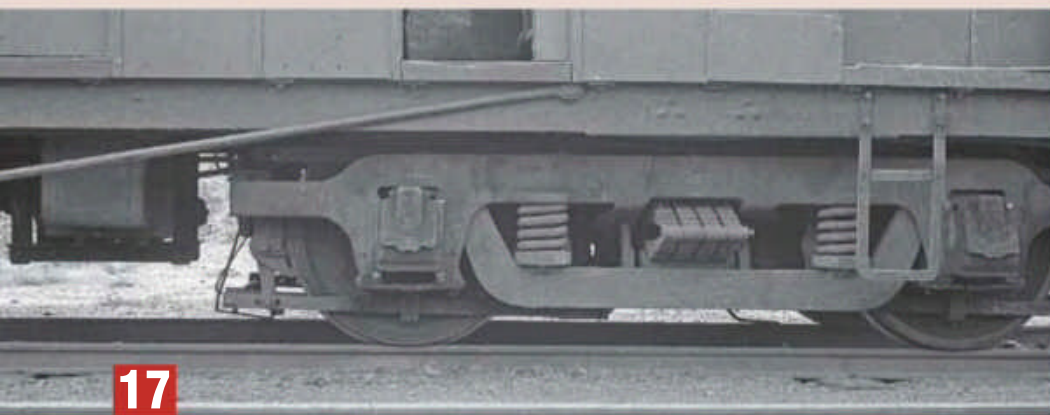
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Tait 471M.



16

Tait 471M.



17

Tait 471M.



18

Tait 471M.



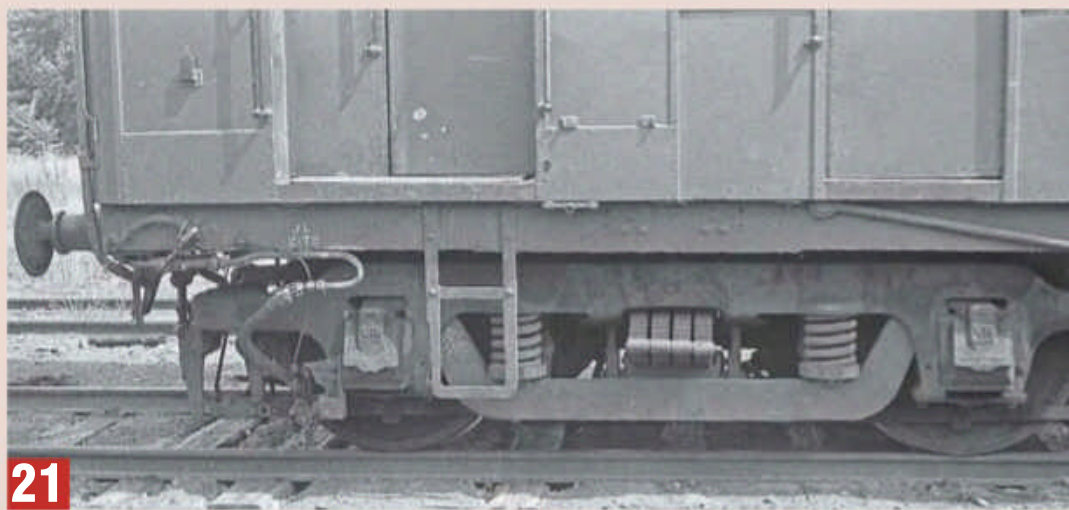
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Tait 471M.



20

Tait 471M.



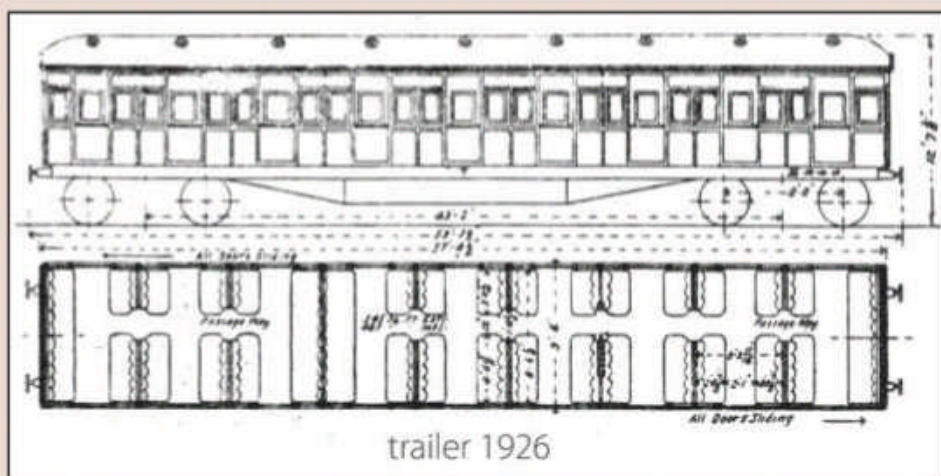
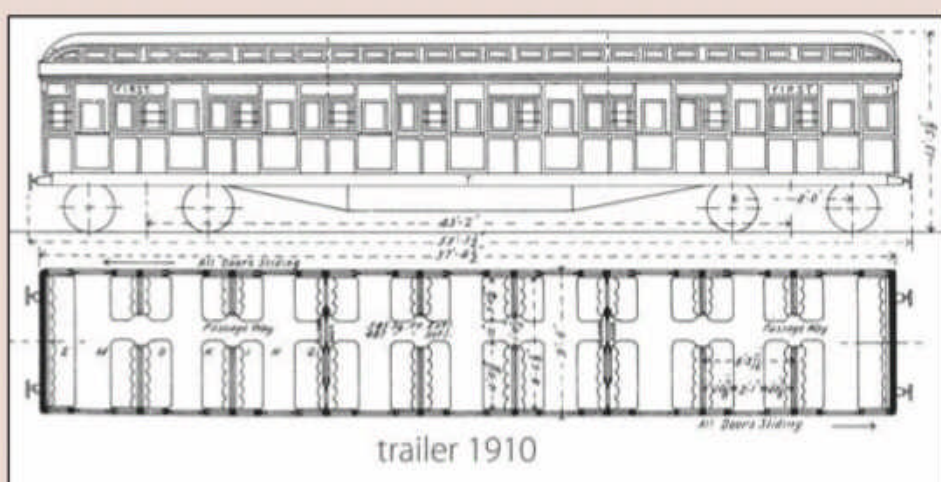
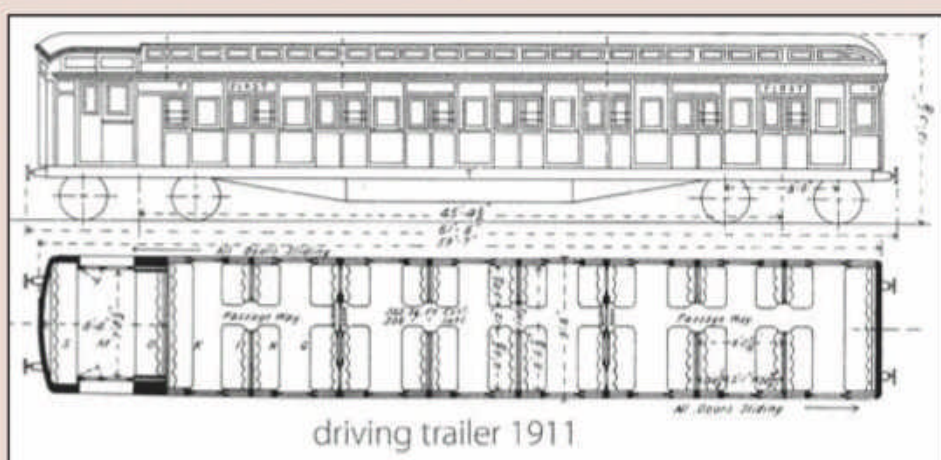
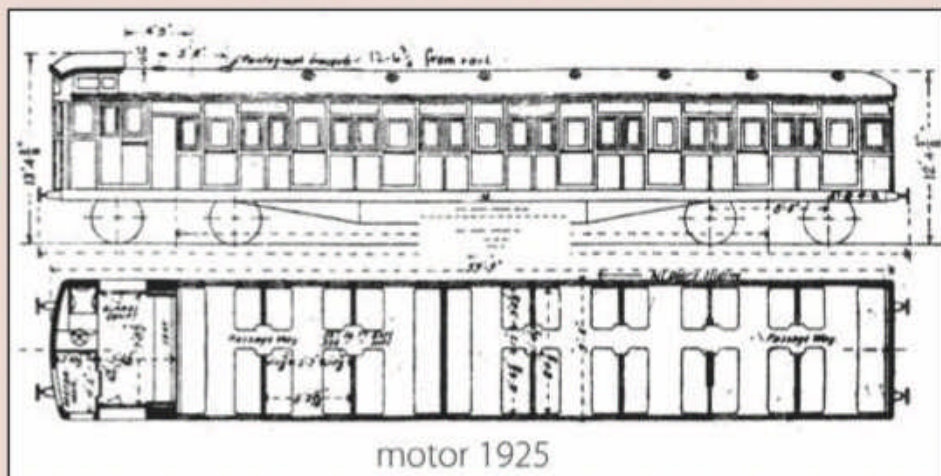
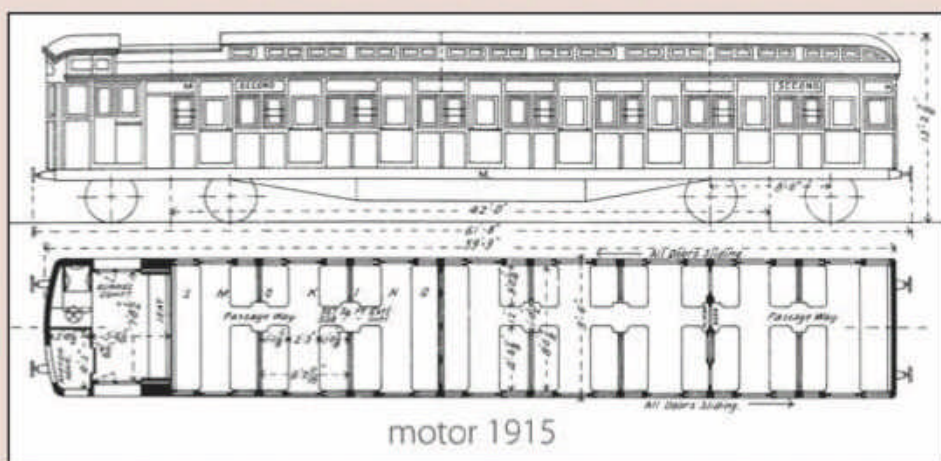
21

Tait 471M.



22

Tait 471M.



Trailer Cars (Coded 'T')

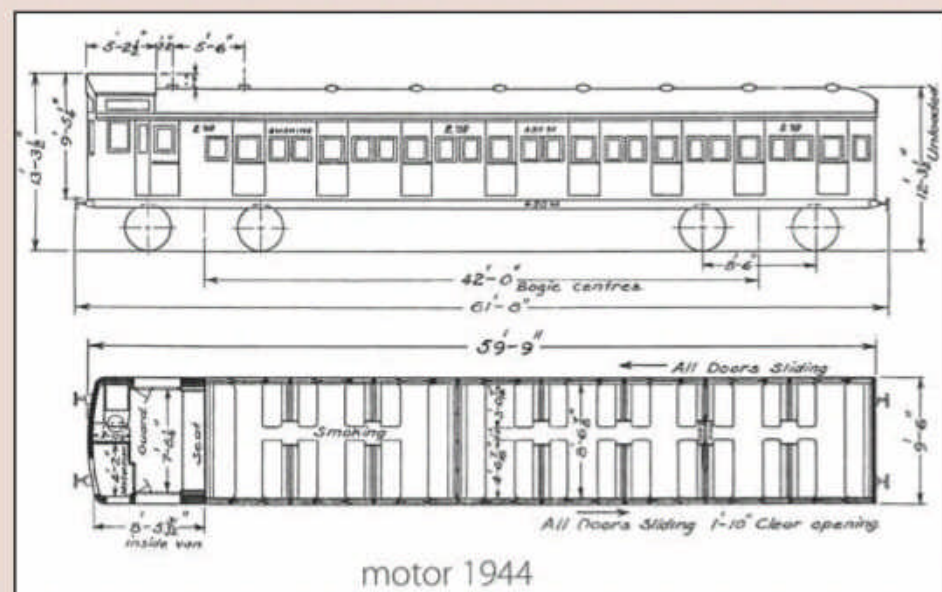
Nos 201 to 372 built at Newport workshops, 1910–13
 Nos 380 to 400 built at Newport workshops, 1922
 Nos 401 to 424 built at Newport workshops, 1926–27
 Nos 425 to 442 built at Newport workshops, 1944–50

Motor Cars (Coded 'M')

Nos 201 to 411 built at Newport workshops, 1915–22
 Nos 412 to 441 built at Newport workshops, 1925–26
 Nos 442 and 443 built at Newport workshops, 1936
 Nos 444 to 461 built at Newport workshops, 1944–50

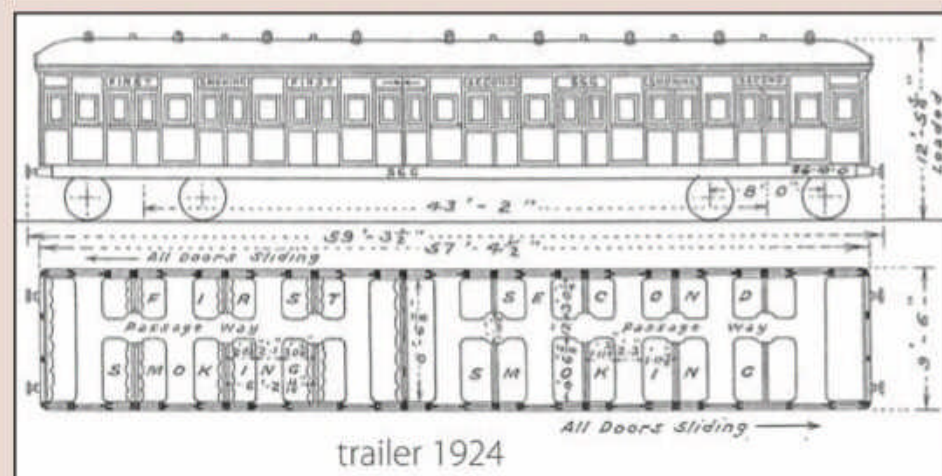
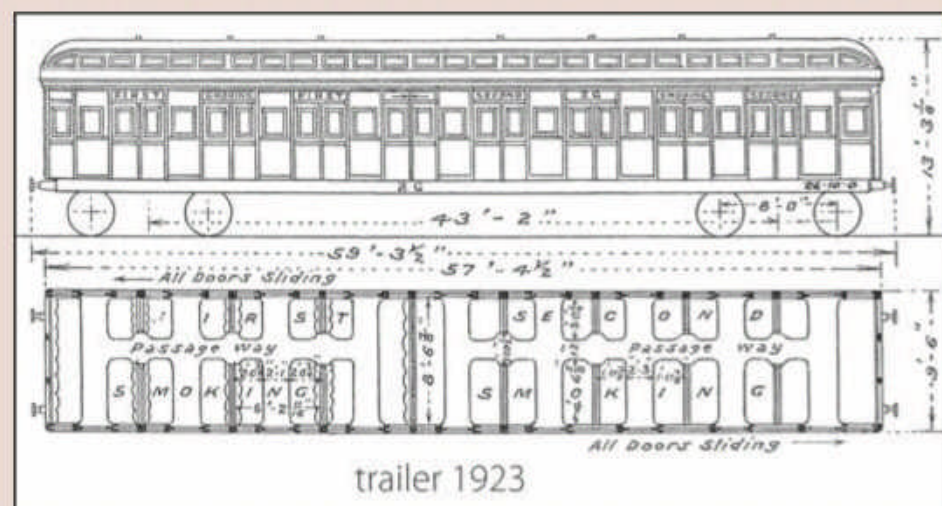
Double-ended Motor Cars (Coded 'M')

Nos 470 to 473 converted at Newport workshops, 1968–70 from 300M, 398M, 244M and 397M respectively
 Drawings — M1, M2 and M3



Driving Trailer Cars (Coded 'D')

Nos 201 to 218 built at Newport workshops, 1911–13
 Nos 219 to 224 built at Newport workshops, 1926–27
 Nos 226 to 265 built at Newport workshops, 1964–72 (converted from trailer cars)
 Drawing — DT



Trailer Cars (Coded 'G')

These cars were equipped with Pintsch gas lighting for use on country trains.
 Nos 1 to 55 built at Newport workshops, 1923–24
 Nos 56 to 97 built at Newport workshops, 1924–26
 Nos 98 to 103 built at Newport workshops, 1944–50
 Drawings — G1, G2



Scratch-build a NSW Timber Road Overbridge

Mitchell Campton scratchbuilds an HO scale model of a NSW road overbridge. Photos by the author.

Preparation

The plans can be scanned or photocopied [*Editor's note: To ensure correct measurements, do not scale.*] to produce templates that can be used to fabricate the various bridge components. A scale guide is also provided to ensure the template (drawings SK02 or SK03 as applicable) is to the correct scale.

1. Print the template and place it onto the foam block or board. Secure it into position by inserting 50 mm T-pins in the locations marked on the template. This will not only hold the template to the foam, but will also provide markers to show where the timber pieces need to sit when assembling the bridge parts.
2. Ensure all timber components are straight and reasonably smooth. If there are any rough edges, they can be gently passed through a piece of steel wool or a scouring pad several times until the rough edges have been removed.
3. Cut each piece of timber to size (as per the dimensions on the template). A guillotine or 'chopper' will make the task much easier; otherwise, a sharp hobby knife and careful cutting with a bit of sanding to tidy up can also produce neat results. Sand the cut edges to get rid of any rough parts by moving it gently across the sandpaper.

Piers

Use 4 mm diameter dowels (348 mm in prototype size) to provide the primary support to the bridge. They can be 'roughed up' a little to provide some variation to the finish. However, I opted not to do this as a lot of round timber sections are milled quite neatly, and the weathering effects provided the look I was after.

4. Cut the timber pieces to size, as shown in drawing SK02. Use scale 8-inch x 4-inch lumber for the two cross-braces, trimming the ends down as shown in the drawings. As the two outer posts are set at a slight angle, factor this into the cutting. You can file small, flat notches into the top of each post to mark the orientation and make the later installation of steel straps much easier (photo 1).
5. Lay the cut pieces of timber in between the pins you placed on the template in step 1. If required, additional pins can be inserted into the template to ensure the parts are held together securely.
6. Take note of where the parts will be glued together (photo 2). Then, using a tea/coffee stirrer (or Paddle Pop stick) as an applicator, apply a small amount of PVA glue to the ends of the dowels and press the top beam and bottom braces on. Avoid having any excess glue running from the joints as this

can affect the appearance of weathering effects later. Allow to dry.

7. Glue on the cross-braces and the horizontal brace. It is best to install one cross-brace at a time and wait at least an hour for the glue to dry before flipping the pier over to install the second cross-brace (photo 2).
8. After all the beams and braces have been installed, lay the pier flat and place a small weight on top of it for several hours while the glue dries firmly. The end result is seen in photo 3.

Materials and Tools Required

Materials

To construct, and paint and weather the bridge, you need the following materials:

Northeastern Scale Lumber:

- | | |
|----------------------------|--------------------|
| • 4 mm pine timber dowels | piles |
| • 11" x 4" x 2" (1 pack) | handrails |
| • 11" x 10" x 2" (1 pack) | handrail kickboard |
| • 11" x 6" x 4" (3 packs) | bridge deck |
| • 11" x 8" x 4" (1 pack) | pier braces |
| • 11" x 10" x 4" (1 pack) | base of pier |
| • 12" x 12" x 11" (1 pack) | main beams |

Evergreen styrene:

- No. 291 – 0.060" (1.5 mm) angle handrail support
- No. 8103 – HO scale 3" x 1" steel strips/struts

Detail parts:

- Tichy Train Group No. 8082 nut-bolt-washer
- Kadee No. 439 nut-bolt-washer

Tools

You will also need the following tools:

- a sharp hobby knife
- files (small and large)
- PVA glue with applicator (small tea/coffee stirrer)
- superglue (a superglue pen by Loctite)
- foam block/board
- 50 mm hobby T-pins (approx. 40–45)
- steel wool (without soap)
- 400 grit sandpaper
- toothpick
- ruler

A guillotine cutter for strip wood is optional and would definitely make things easier. As I didn't have one, I used a sharp hobby knife and some foam board templates instead.

Readers should refer to the prototype plan published in Issue 344, October 2020 of AMRM.

Main Deck

The bridge deck is a relatively simple construction; the main bridge beams are made from scale 12-inch x 12-inch lumber, with 6-inch x 4-inch 'planks' serving as the road surface.

9. Follow the outline in drawing SK03 to cut the lumber to the correct size. There are two layers of beams; the bottom one that spans between the piers, and the second one is laid above this.

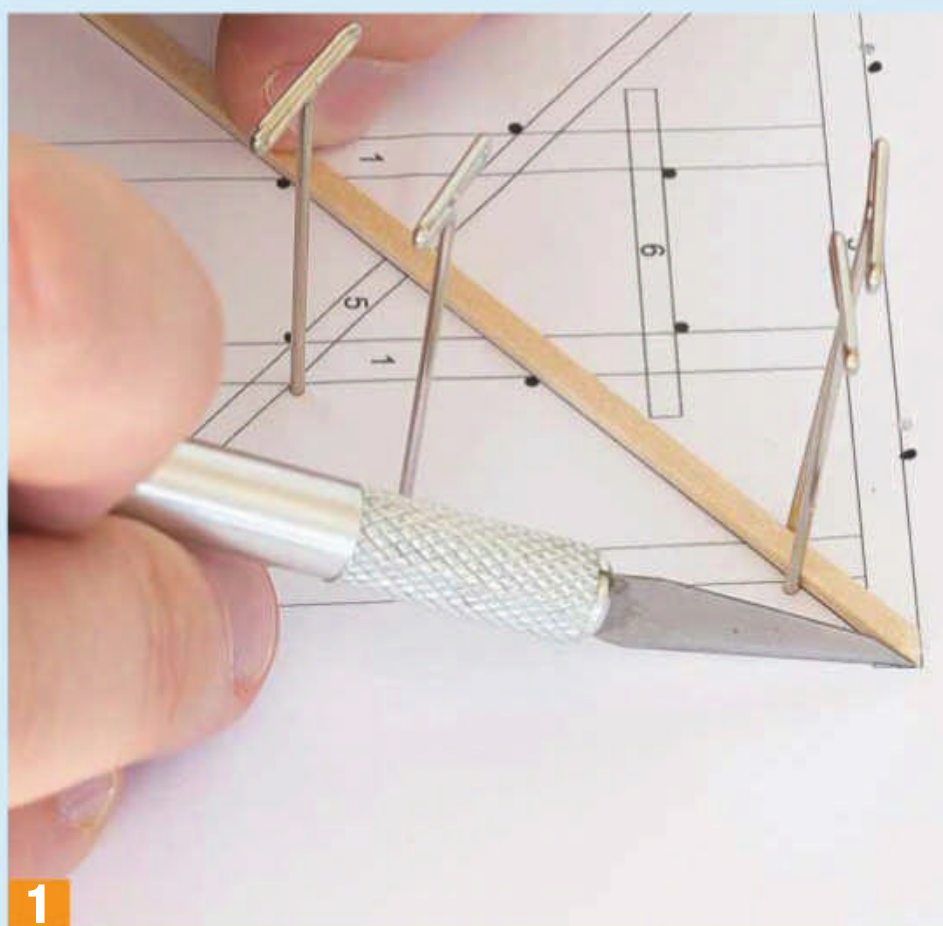
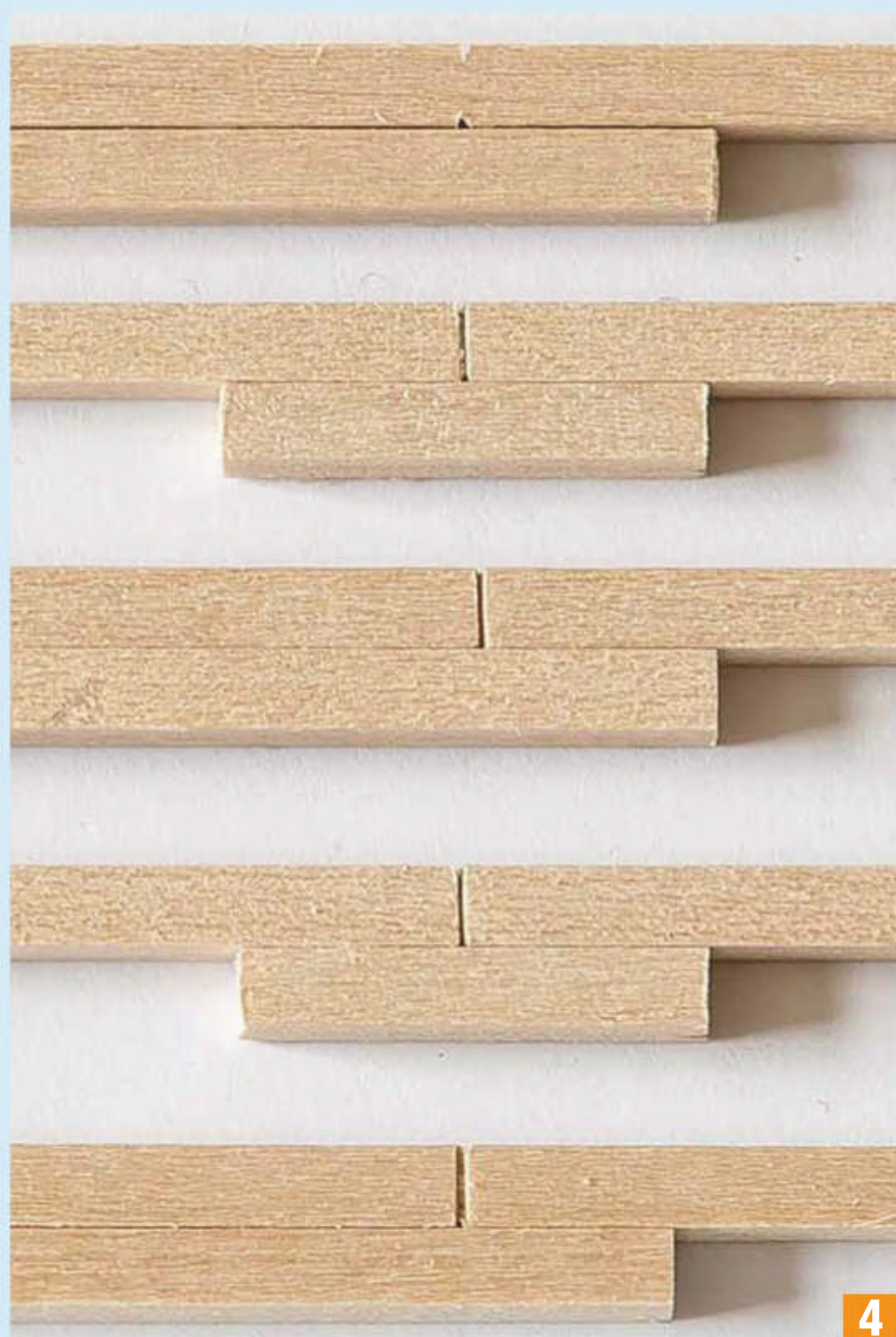
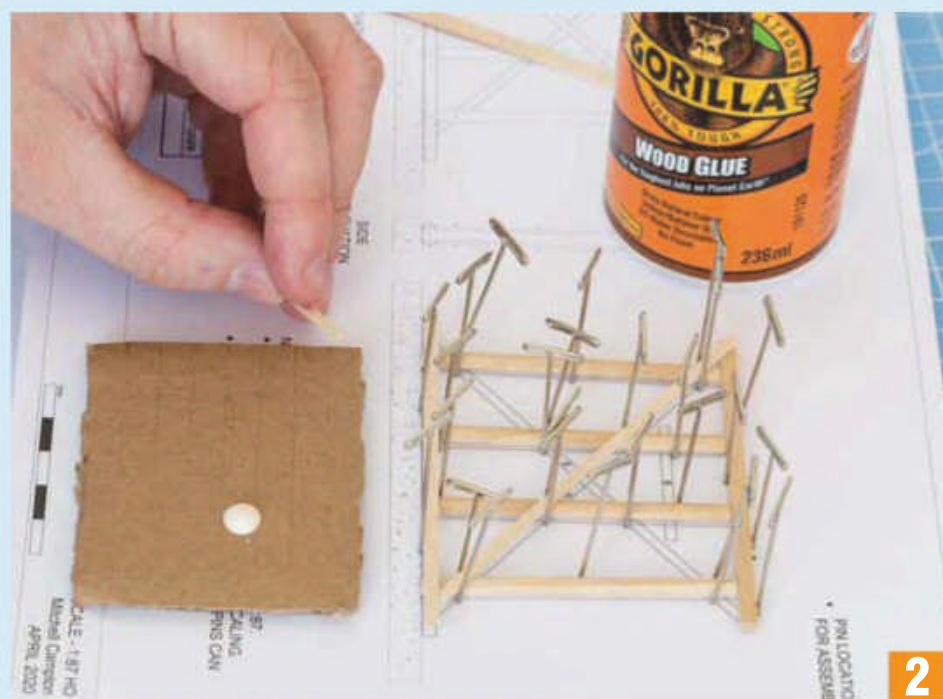
Note: In reality, the top members would be cut into three separate lengths. However, to maintain the structural integrity of the model, cut small notches (as wide as two knife blades — about 1–1.5 mm deep) into the top member in the locations shown to simulate these joints (photo 4).

10. Insert the pins onto drawing SK03 then place the top (long) beam into place, against them. Glue the corbel (that is, the lower beam) into position (photo 5). The assembly can be held down with the pins until the glue has *just* set, then moved to a flat surface and held down with weights until the glue has completely cured. Repeat this step for the remainder of the beams and corbels.

Note: There wasn't much spare 12-inch x 12-inch lumber, so to save on material, I only made the two outside and middle beams full depth; the 'intermediate' beams only had two layers where the piers sat (photo 6).

Also, as the bridge is not symmetrical on both sides, it's important to remember the orientation of each beam so they face the correct way. One way to do this would be to only cut a notch on the outside face of the beams (photo 4).

11. After the five beam/corbel pairs have been assembled, cut the 6-inch x 4-inch planks that will form the deck of the bridge into shape. There are 130 planks altogether; 119 longer planks and 11 slightly shorter. Take note of the location of the short planks as these are required to allow for the handrail posts that will be added later (photo 7). Cutting the planks to size is a repetitive process, so a guillotine or chopper is recommended. However, you can use 3 mm foam board to create a template and cut the planks with a sharp hobby knife.
12. This step requires some patience. Using the template, place the beam/corbel pairs along their correct position and orientation, using pins to secure them into position. Make sure everything is square; I used a piece of foam board at the end of the beams and along one length to help with this (photo 8).
13. Carefully start laying down the deck planks. I worked in small segments of about 10 mm at a time, applying a thin layer of PVA, to prevent the glue from drying too much before the plank was positioned. Continue along, moving the pins as you progress (photo 8), until all planks are installed.

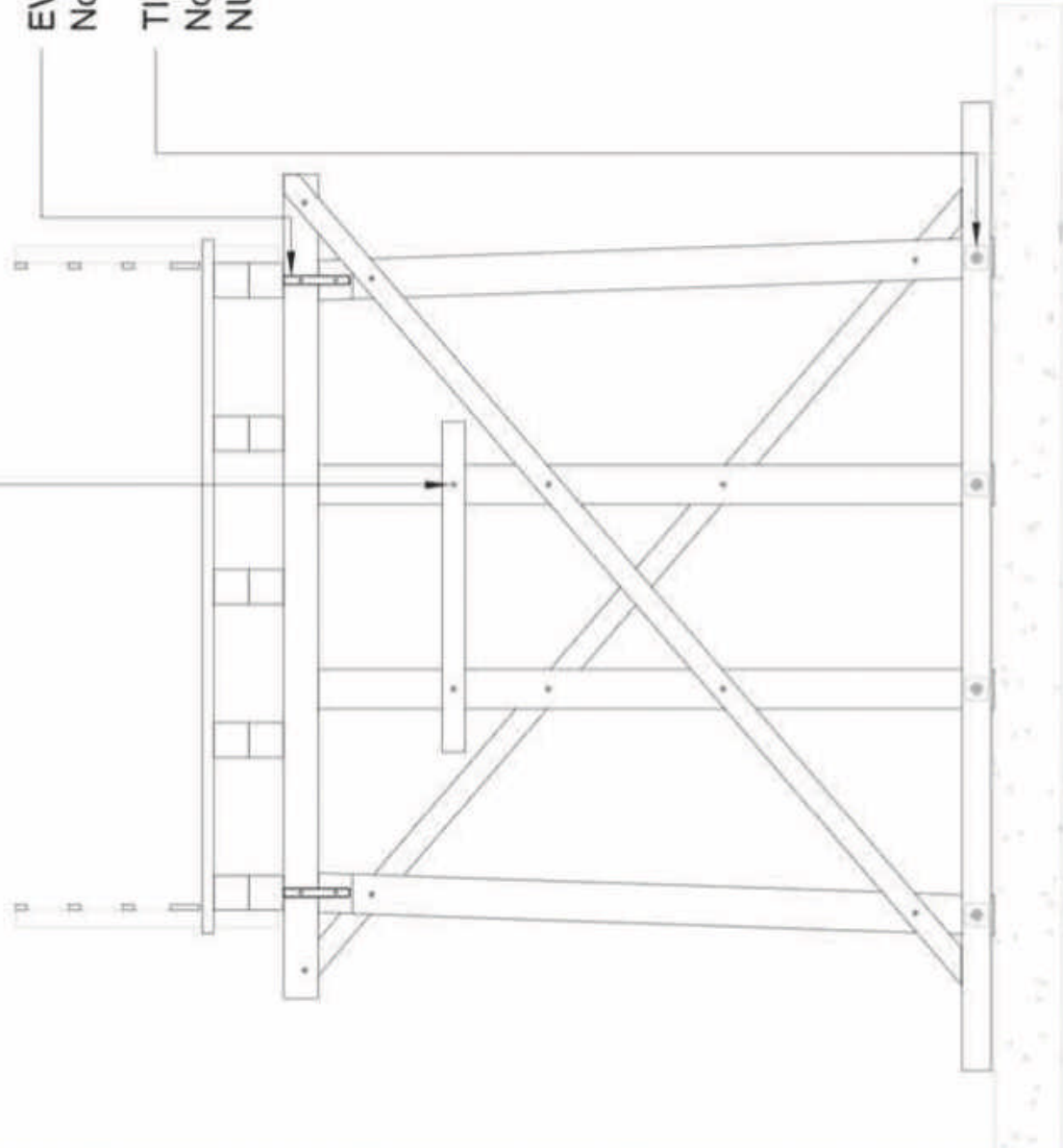


KADEE No. 439
NUT, WASHER AND BOLT

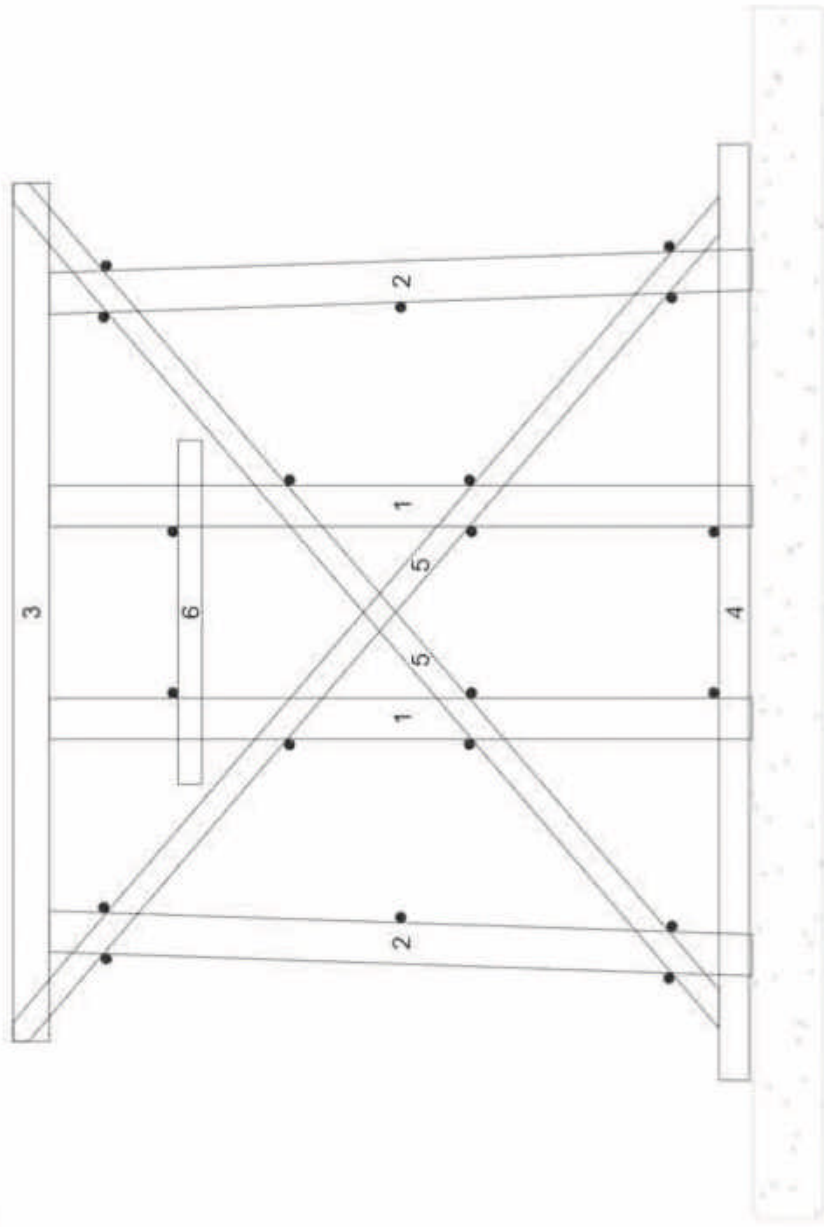
EVERGREEN STYRENE
No. 8103

TICHY TRAIN GROUP
No. 8082
NUT BOLT WASHER

PIN LOCATIONS
• FOR ASSEMBLY



SIDE
ELEVATION



TEMPLATE

ELEVATION

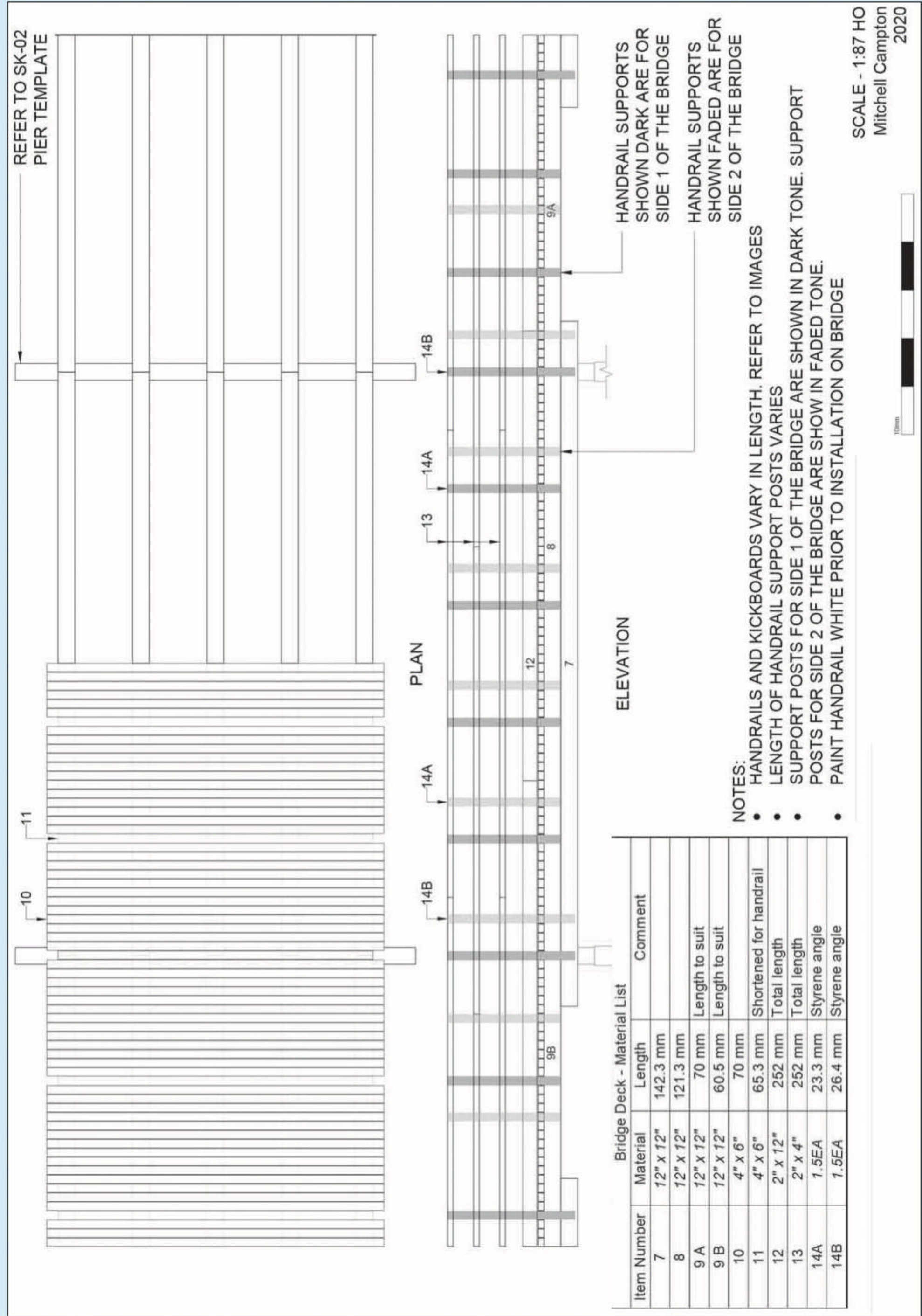
Pier - Materials List			
Item Number	Material	Length	Comment
1	4mm dowel	68.0 mm	
2	4mm dowel	68.1 mm	Angled 2°
3	12" x 12"	83.1 mm	
4	4" x 12"	90.7 mm	
5	4" x 8"	106.6 mm	Trim edges as template
6	4" x 8"	33.0 mm	

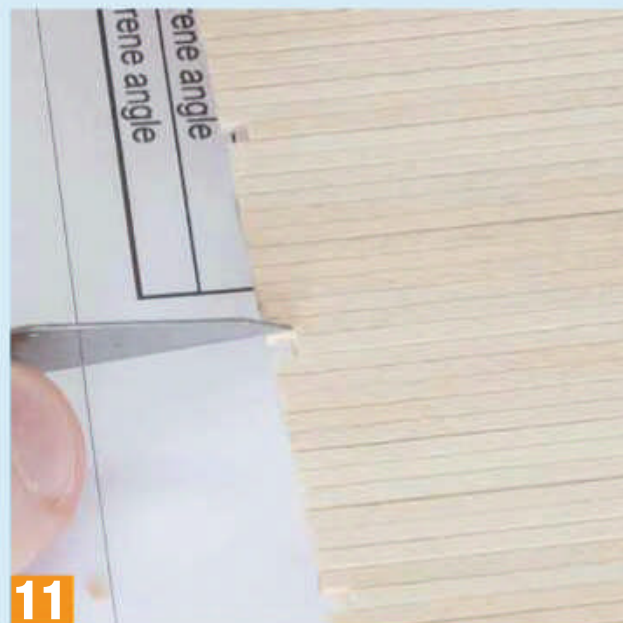
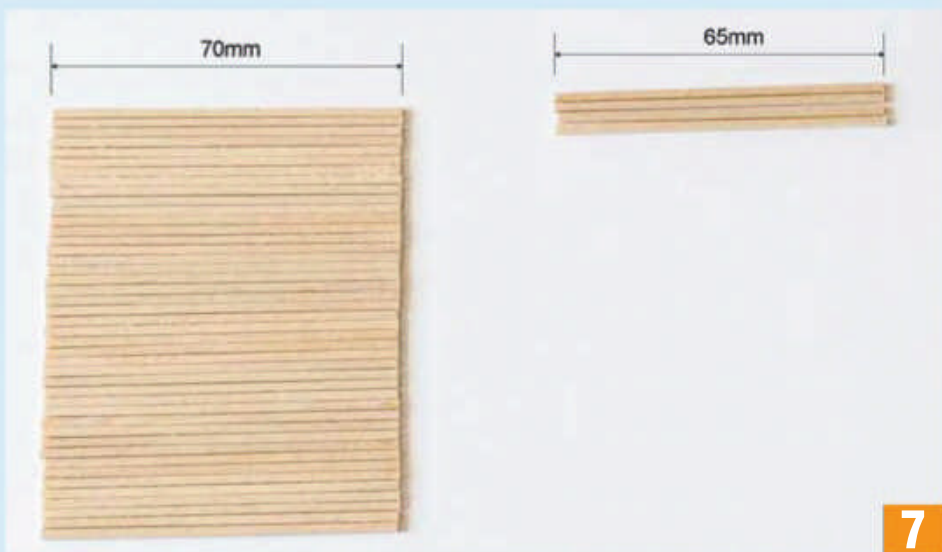
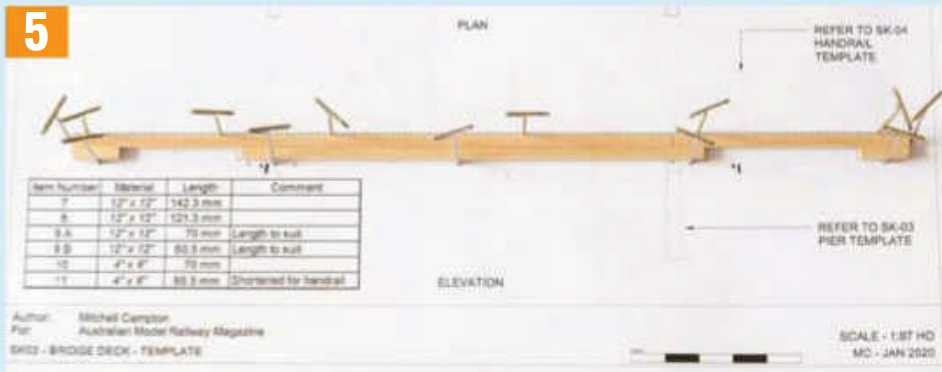
NOTES:

- ABOVE TEMPLATE DRAWN TO HO SCALE 1:87.
- SEE SCALE GAUGE IN TITLE BLOCK FOR SCALING.
- KEY PIN LOCATIONS SHOWN. ADDITIONAL PINS CAN BE INSTALLED AS REQUIRED.

SCALE - 1:87 HO
Mitchell Campton
2020







Do your best to keep the boards square and try to avoid putting the planks too hard against each other, as small gaps will provide some realism. Make sure to take note of the locations of the shorter planks for the handrails (see the arrows on photo 8).

- Allow the glue to set for about an hour, then move the bridge over to another flat surface and weigh it down with whatever you can find (I used shampoo bottles) for about 24 hours to let the glue dry completely.

Handrails

The handrails are formed from three rows of scale 4-inch x 2-inch lumber and one row of 10-inch x 2-inch lumber as a kick-board or toe-board and are supported by 1.5 mm x 1.5 mm upright styrene angles.

- Lay the strips of lumber onto the handrail template and secure them with the pins. The pieces should be straight and as flat as possible, though minor upwards curvature can be corrected later during installation.
- Using the completed deck as a guide, mark the location of the support post notches onto the handrail template. Locations of the posts are shown on the drawings, but slight changes may have occurred during assembly of the deck. Add a very small amount of superglue to the lumber pieces and press on the angle supports. I used a superglue pen for this as it provides extra control over the amount of glue applied (photo 9).
- For the second handrail, remember that the posts will need to be aligned to that side of the bridge deck, so will be mirrored to the first handrail (see drawing SK03). Again, the positions are shown on the drawings, but make sure to check with the bridge deck first. You can use a different coloured pen (red in this case) to mark the location of the support post notches onto the template using the bridge deck as a guide; repeat the process described in step 16 (photo 10).
- After the handrails have dried (this should take five minutes or less) test-fit them onto the bridge. If the support posts don't quite line up with the 'notches' on the bridge deck, gently trim back the planks until they *do* fit (photo 11).

(Tip: For added realism, you can cut joints into the handrails at staggered intervals. Be warned, though, they are quite fragile and need to be handled with care!)

Now the main components of the bridge are completed, it can be test-assembled. Admire your handiwork, but not for long, as the bridge is way too clean (see photo at top of page 44) and needs to be weathered!

(To be concluded in Part 2)



New Bogies for Old

James McInerney revitalises some old models. Photos by the author.

Most of us, if we have been in the hobby for any length of time, have any number of older models (in my case, some dating back to the early 1980s) that, while not up to current standards, are not so objectionable that they get removed and retired. Every now and then though, one or two

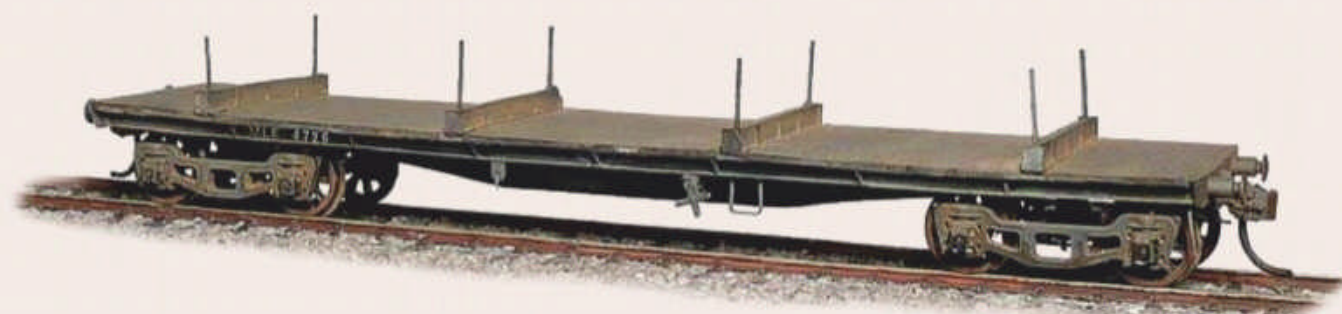
come to my attention for various reasons and some upgrading work takes place. Here are the stories of two vehicles that have been long term residents of *Lambing Flat* that have recently had 'make overs'.



This is an original Stephen Johnson Models epoxy kit of a NSWGR SHG goods brake van. It was constructed (and 'backdated' to earlier condition with dogbox doors each side of the guard's compartment and end windows in the far end of the vehicle), painted and weathered, using Floquil enamel paints, in January 1985.

A few years ago the original whitemetal bogies were replaced with new, r-t-r, SDS Models G type bogies as the old ones, while very good for their time, had sagged with age and no longer ran freely. I had not got around to painting the new SDS bogies and, as can be seen, the weathering on the rest of the van had become very 'tired' as well.

A day or so later and the SHG now looks like this. The bogies have been painted and weathered. The sides were reweathered with Bragdon Enterprises weathering powder, 'Ash' in this case, the bogies and under-frame Bragdon 'Weathered Brown' and the roof with some Carr's black weathering powder. A few minutes' work for a big difference in appearance.



This MLE flat wagon is an original Rails North epoxy kit, which I first constructed circa 1980 and then rebuilt and redetailed in 1985. It originally rode on a set of Kadee bogies, the closest match to a suitable NSWGR bogie I could get at the time. It had been trundling around the layout ever since, doing its job as a flat wagon in an unobtrusive way. Recently, however, it 'came to attention' when it started to derail for no apparent reason. It was 'red carded' to the workbench for attention, where I intended to just see if I could work out why it was derailing, fix it and put it straight back into service.

While I was working on it, a sudden thought came to me that many of these flat wagons (in the period I model), rode on 2BJ bogies. Up until recently, the 2BJ bogie had never been made available commercially, so there aren't too many (model) MLE flats running around on them. Luckily, Casula Hobbies filled a big gap when they made their 2BJ bogies (produced for their MLV/MLK bulk milk van) available separately. I just happened to have a set in my 'stores'!

The old bogies were quickly removed and the new bogies screwed on. No other adjustment was needed. The bogies were painted and weathered and the deck reweathered with some of the Bragdon 'Ash' and 'Weathered Brown' weathering powder. A few minutes' work and not only do I have an old wagon back in service with a bit of a 'spruce up', but I also have a hitherto unmodeled variation on the type.



SD40Rs 3088 and 3086 and SD70Ace 4316 push loaded ore cars through one of the Nelson Point dumpers (23 September 2007). Locomotive 3088 can't hide her Southern Pacific (SP) origins with their array of lighting options, with the Gyalite light cut-out on the nose and plated-over high head lights. She is now only half-blinded with operating low-nose lights and high ditch lights.

Modelling notes for the BHP Billiton SD40 and SD40-2s

The AMRM team provides modelling notes for BHP Billiton's second-hand EMD fleet.

There are a number of model manufacturers that have produced EMD SD40 and SD40-2 models, in Z, N, HO and O scales. However, the configurations of some of these models don't quite match the BHP Billiton fleet. We will attempt to show you the models that have been produced which better replicate the BHP Billiton fleet, along with a detailed description of the differences in locos in the fleet.

- **Bachmann** released an HO scale train set (Desert King No. 00801) containing an oval of track, a controller, four ore cars and a late-series SD40-2 with saw-tooth grilles painted in the BHP 'bubble' livery. This model is clearly aimed at the toy end of the market.
- **Broadway Limited Imports** produced Paragon2 HO scale series No. 3093 and No. 3097 in the BHP 'bubble' livery, along with IC&E livery version with road numbers 6277 and 6418. These are all based on SD40-2s with early radiator grilles (thus these models are longer than they should be).
- **Athearn** released the Southern Pacific (SP) SD40R in HO scale. This model is a post-General Rehabilitation and Improvement Program (GRIP) version and closely matches

the BHP versions. Although now discontinued, this model would be the best base for modelling BHP's SD40 model fleet.

Comparing Athearn's range of SD40Rs with the configuration of the BHP SD40 fleet based on the accompanying table, the following can be ascertained as models best matching the individual locomotive configurations:

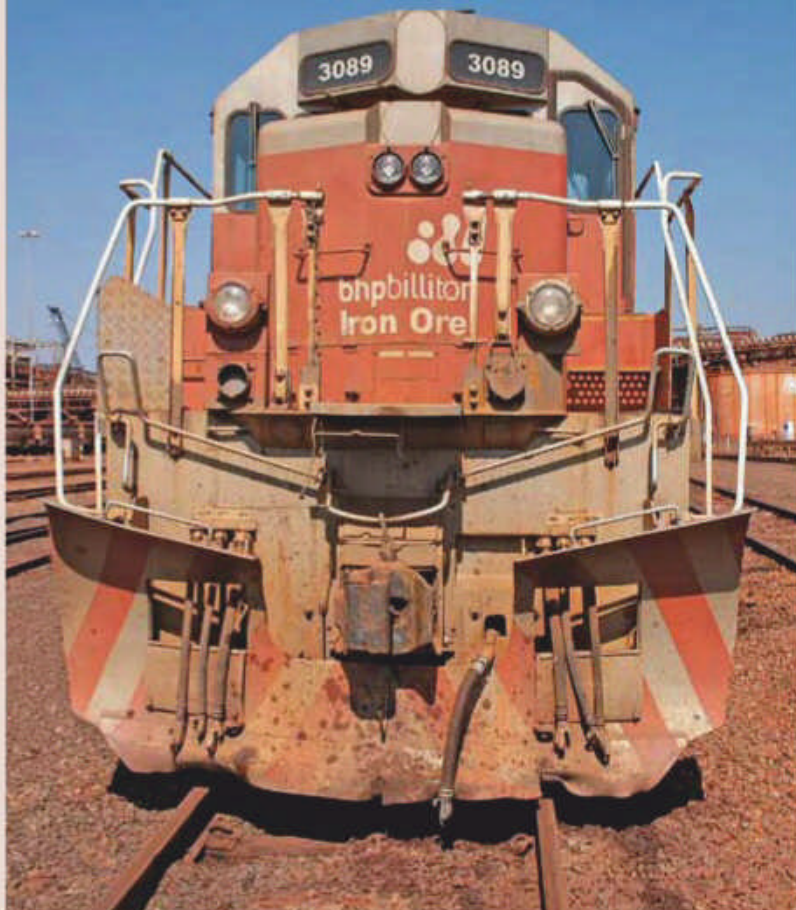
- SP 7305 or 7372 = 3087 and 3089;
- SP 7310 = 3078 and 3091 (changing the snow plough for a small version) will be close for 3079 and 3097;
- SP 7319 = 3080, 3090, 3093 and 3095; and
- SP 7350 = 3088 and 3096.

However, there are modifications that will still need to be done, such as installation of ditch lights, air conditioners, reduced-height radiator fans etc.

For the five ex-Union Pacific (UP) SD40-2s, Athearn make the easiest model to replicate, with the correct pilot, radiator fans, saw-tooth radiator grilles, and low plough and ditch lights with the 88-inch nose.

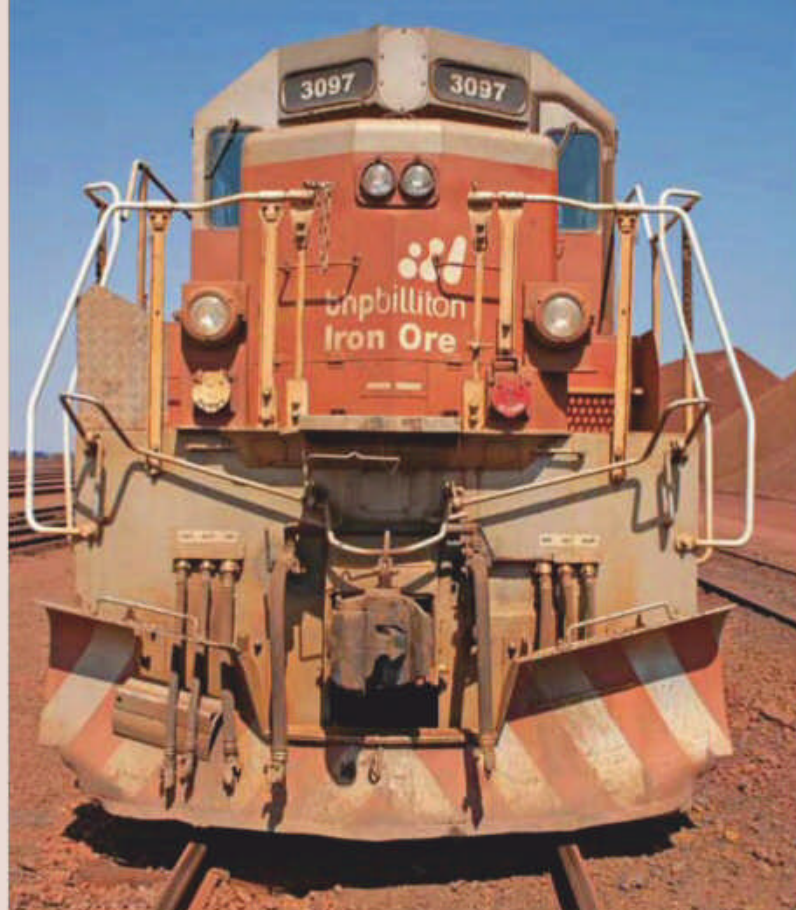
The accompanying table outlines the configuration of each member of the fleet.





◀ Locomotive 3089 is fitted with high ditch lights, the dummy multiple unit (MU) receptacle on the driver's side, the GRIP six-stanchion ends, high snow plough (which clearly has had a rough time in the Pilbara), blanked Gyalite light and high head light.

▶ As compared to 3089, 3097 has a smaller, lower plough, dual main reservoir (MR) hoses and filled-in Gyalite light housing.



Road No.	Base model	radiator fans lowered	ratchet-type handbrake	handwheel-type handbrake rear mount	handwheel-type handbrake	air conditioner mounting on walkway	fire extinguisher fitted to nose	grilles in rear radiator doors	low straight snow plough	high-flared snow plough	air conditioner fitted on side walkway	air conditioner fitted in nose	UP-style MU cable holder	narrow brake linkages	HTC bogies	Gyalite light nose cut-out	low-mounted headlights	high mounted headlights	three-chime air horn fitted to cab roof	high-mounted ditch lights	mid-mounted ditch lights	low ditch lights
3078	SD40	Y	Y			Y	Y	Y		Y	Y			Y			Y			Y		
3079	SD40	Y	Y			Y	Y	Y	Y		Y			Y			Y			Y		
3080	SD40	Y		Y		Y	Y			Y	Y			Y			Y		Y			Y
3081	SD40-2				Y					Y			Y	Y	Y			Y	Y			Y
3082	SD40-2				Y					Y			Y	Y	Y			Y	Y			Y
3083	SD40-2				Y	Y				Y			Y	Y	Y			Y	Y			Y
3084	SD40-2				Y					Y			Y	Y	Y			Y	Y			Y
3085	SD40-2				Y				Y				Y	Y	Y			Y	Y			Y
3086	SD40	Y	Y			Y				Y	Y						Y			Y		
3087	SD40	Y	Y			Y		Y		Y			Y			Y	Y			Y		
3088	SD40	Y	Y			Y				Y				Y		Y	Y			Y		
3089	SD40		Y							Y						Y	Y			Y		
3090	SD40	Y		Y		Y				Y				Y			Y				Y	
3091	SD40	Y	Y			Y				Y	Y		Y	Y			Y			Y		
3092	SD40	Y	Y						Y		Y						Y					Y
3093	SD40	Y		Y						Y				Y			Y				Y	
3094	SD40	Y	Y			Y		Y	Y		Y			Y			Y			Y		
3095	SD40	Y		Y						Y			Y	Y			Y					Y
3096	SD40	Y	Y							Y		Y		Y		Y	Y			Y		
3097	SD40	Y	Y			Y			Y					Y			Y			Y		

Notes:

Blank = not applied or not installed at the time observed.

Y = applied or installed at the time observed.

3079 & 3092: Fitted with one high radiator fan.

3087: Mix of high and low radiator fans installed.

3088: Aluminium chequer plate squares placed over the No. 2 end marker light positions.

SP re-designated their SD40s as SD40Rs to reflect locomotives post-GRIP, thus both designations have been used in this article.

These notes are a companion to Peter Clark's description of BHP Billiton's SD40 and SD40-2 fleet article in AMRM issue 344 (October 2020).



▲ Locomotive 3093 displays the mid-height ditch lights arrangement, with the dummy MU receptacle sitting below the driver's side ditch light. Fitted with dual MR hoses, and both 'flaps' (walkway steps) are in the up position.

▶ Locomotive 3092 displays the lower version of the ditch lights, sitting proud of the pilot.



Locomotive 3091 No. 2 end shows the GRIP six-stanchion ends, a dual MR hose arrangement and UP-style MU hose holder.



In comparison with 3091, 3094 has a dummy MU receptacle instead of the UP 'can', one MR hose and the spare knuckle holders are lower on the pilot than 3091.



Locomotive 3086 shows the low radiator profile, sand hatch at the top of the radiator section and the earlier pattern radiator side grille.



As strange as it may seem, not all locomotives fitted with air conditioner frames were fitted with air conditioners. The frame, while rudimentary, does the job. A later modification was to place a step in the walkway handrail so the assembly can be removed sideways from the locomotive.



▲▶ Locomotive 3088 shows the 'BHP Billiton Iron Ore' lettering on the cab. [Editor's Note: A keen eye will notice the 'Train Top' lettering just below the 'P' in BHP. We are unsure why it is there or if it is intended to designate this as the top of said train. If anyone can confirm there is a corresponding 'Train Bottom' placard, AMRM would like to hear from you.]

▶ If you wish to make your model of a BHP SD40R unique, model 3096 with this air conditioning installation, its success is only gauged by the fact that this is the only unit modified as such. Observation of this locomotive in storage confirms it has since been removed.



As far as BHP was concerned, Daikin cornered the market in SD40R air conditioners, here is a detail image of the installation.





Unique to 3096 it is clear just how much the air conditioning inverter 'bites' into the nose of 3096.



BHPs SD40-2s were at best utilitarian; covered in overall grey, they lived up to their utilitarian look, with low ditch lights, dual MR hoses, and the UP 'can' for the MU cable holder.



Locomotive 3081 No. 2 end incorporates the six stanchions and the UP 'can'. Both flaps are 'up' and the knuckle holders are positioned low on the pilot. The eagle-eyed modeller should be able to spot the reason why 3081 is in the 'shop' road of Nelson Point.

◀ Initially, holes were cut into the doors at the No. 2 end to provide air for the air conditioner compressor located inside the car body. However, as the Pilbara region has a tropical climate, louvers were a better option.



The SD40-2s have HTC bogies, the three holes on each side of the central axles are one of the identifiable features.



The SD40Rs have two versions of brake hangers, one thick 'L' angle the other square hollow section steel; this shows the former version.



◀ Compared with the previous image (above right), this bogie shows the thin square hollow section (tubular) brake hangers.



Bachmann's version of a BHP SD40R is a little off with the colours, however it can be recovered to a point. Using Humbrol paints the hue of the model has been changed to reflect the prototype; thus is a quick and cheap 'passable' model.



FMG SD90MAC diesel-electric locomotive in HO scale, by Athearn-Horizon Hobby Inc. Prices in text.

Years ago, when most Australian modellers thought of Athearn, it was because this manufacturer was the usual choice for repowering early Australian models and we were only interested in the bogies and drive mechanisms. Athearn produced 'bullet-proof' mechanisms and had a 'one-size-fits-all' approach to its bodies. (That is, locos would have multiple liveries of the one body shell, all with the same detail features, even if they weren't appropriate for particular prototypes; any detail they had was moulded on!)

Fast-forward to now: Athearn is a very different company, providing very accurate models for the North American market. It has shrugged off the 'one-size-fits-all' approach. Athearn has released its first accurate Australian model, the Fortescue Minerals Group (FMG) SD90MAC-H2. We know, what were they thinking: "Um, what...?"

As obscure as it seems, Athearn's first dedicated Australian model is from the Pilbara, in Western Australia. FMG is the only operator of the SD90MAC in Australia. All members of this class are second-hand from Union Pacific Railroad in the USA, originally built in 1999. For FMG, they were renumbered in the '900' series. 901 to 904 were delivered to FMG with the 6000 h.p. 256H-series engines; these are the subject of the Athearn models. 901



to 904 have since been repowered with 710-series engines.

Other SD90MACs in the series are 905 to 909. These were rebuilt with 4300 h.p. 710-series engines before export to Australia and are

designated SD9043MACs. There are slight detail differences between the first and second batches. 910 to 917 are SD90MACs delivered with 256H-series engines.

The model is part of Athearn's Genesis series of locomotives packed in a dark blue hard cardboard box, with internal foam surrounds. Inside this is a clear plastic carrier; remove the carrier from the box, slide off the clear plastic sleeve then, with the model bogies-down on a flat surface, lift the plastic clam-shell at the No. 2 end; this will free the model from the packaging.

Also included is an exploded diagram and the usual warranty cards etc.

The reviewed model is the DC version and was originally sourced from Orient Express Hobby shop in Adelaide SA at \$385.00

Body and Finish

An inspection of the model shows its comparison with the prototype is very close. The snow

plough has the right number of yellow 'tiger' stripes, but the small partial stripes on the very edge and inside edge of the plough are missing. Ditch lights are in the correct position and are functional. The lettering is crisp, and the SD90MAC lettering is at the aft bottom of the isolated cab. A panel count and louvre count turned out to be very accurate.

The correct double-rung handrails have been installed on the anti-climber and long hood walkways. The handrails are accented in yellow, again as per the prototype; the 'FMG' lettering on the engine hood is the correct size and matches the style on the prototype (see comparison photos). A small 'FMG' symbol is also added to the end of the dynamic brake hood. The paintwork is also crisp and the blue livery is a good match. However, the white on the long hood and cab is not as vivid as on the prototype; it looks like an antique white or off white was used. If you refer to the comparison photos, you can see the difference of the white used on the FMG lettering compared with the engine hood colour. Maybe a judicious wash with some Humbrol 34 white might be the easiest way to balance out the white.

The radiator grille work is outstanding and replicates the prototype really well; even the grille under the dynamic brake is 'see-



Prototype comparison engine hood FMG SD9043MAC 907, has a swing-gate in the double-rung handrails and a digital fuel gauge, with the road number on it.



Model comparison engine hood.



Prototype comparison radiator hood FMG SD9043MAC 907; the fire extinguisher activators are under the walkway near the step wells. Note this is an SD9043MAC and there are differences such as the bogie frames and the door configuration under the radiators.



through' (see comparison photos). The frame has a lot of 'busy' piping that seems to match where it needs to. The walkway steps have see-through mesh and have the correct triangular angled wedge in the well.

Athearn's SD90MAC is modelled in an as-delivered configuration, thus does not have the swing-door in the double-rung handrails on the long hood walkway, the strobes on the cab roof, nor the emergency fire extinguisher activators (the orange boxes seen in the prototype photo) located under the walkway near each step well. Interestingly, the Global Positioning System bubble on the cab roof seems to sit at an odd angle. The couplers are plastic; if you are intending to haul decent loads with your FMG SD90MAC, we recommended you replace them with your favourite metal type couplers.

Adding a DCC Decoder

No instructions are provided to remove the body, but it is a relatively easy process. Place the locomotive upside-down on a piece of

foam. With a small Phillips screwdriver, remove both coupler screws. There are another two screws in the frame hidden by the bogies at the ends closest to the fuel tank. Turn the bogies until you have clear access to the head of the screw in the frame; you will need to put the screwdriver through the hole in the bogie to mate with the screw head. It is black-on-black so it might be difficult to see, but they *are* there. After these have been removed, the body can be removed from the frame.

The lights looms are connected to the body; there is plenty of wiggle room. There is a printed circuit board that distributes the lighting looms and power etc. On top of this board is a standard 21-pin dummy socket which can be removed and replaced with your favourite DCC decoder. When re-assembling the model, make sure the light looms are clear of the body sides as you don't want to get the wires caught between the body and the frame.

Mechanism

Each bogie has a gear tower attached to universals leading to two brass flywheels, one at each end of a half-open framed skew-wound motor. With a heavy metal frame this model will have good operational characteristics.

Summary

Overall, the FMG SD90MAC is definitely not just a repaint, it has prototype matching details (with exceptions noted previously); it shows that Athearn has really worked on the attention to detail. The radiator grille work is outstanding, Athearn has really captured the look. It's a great 'first' for modellers of Pilbara ultramodern equipment; all these locos really need is a liberal coating of red Pilbara dust!

Hopefully, we might see some more Australian models from Athearn, maybe some FMG ore cars?

AMRM Team

SAR/ANR/AN 800 class locomotive in HO scale by SDS Models PO Box 804 Winston Hills NSW 2153, email: sales@sdsmodels.com.au

In 1956 the South Australian Railways (SAR) received ten 750 h.p. locomotives from English Electric to handle shunting and goods transfer duties between its various goods yards. The class became synonymous with Port Adelaide and Gillman yards and the myriad industrial sidings served in the area. For prototype information, refer to AMRM issue 88 (February 1978), *SAR 800 Class Diesel Shunting Locomotive* and Railmac Publications' book *800 Class Profile*.

SDS Models has released these locomotives in all the possible liveries:

- SAR tangerine (silver roof);
- SAR traffic yellow, with silver roof and maroon roof, including 803 with experimental yellow pilots;
- Australian National Railways (ANR) yellow, with and without stripes, including 805 that worked with yellow bogies;
- Australian National (AN) green and yellow; and
- 801 preserved.

Models retail for \$295.00 for a DC-powered locomotive; a DCC model with sound retails for \$415.00.

The models come in cardboard box with a silver coating and a colour rendering of the locomotive; a number is applied to the end of the box. This is handy for those modelers who store their models in the box on a shelf: you can easily see which model is which.

A polystyrene foam insert and separate foam stand-offs help protect the handrails.

The box is sealed by a thin clear cellophane dust cover; this is easily removed by running a sharp knife along the base, in the gap between the top of the box and the base.

There is a thin section of opaque film plastic that will help you remove the model from the foam packaging.

Products reviewed were 805 in ANR livery, 802 in AN livery and 801 as preserved.

Each model has details that reflect the era.

Features include:

- A and B end see-through mesh pilot steps,
- fine radiator grille with full-relief radiator fan,
- separate engine door handles,
- fine prototype-specific grille work,
- brake cylinders are full relief and have separate air lines,
- correct positioning of marker lights for each era,
- re-railer and destination holder fitted to A and B end pilots, and
- well-detailed battery boxes.

A dimensional check using English Electric Company of Australia drawing No. P3203/044 confirmed the model is dimensionally correct.

The window glass is flush with the cab sides and does not show any moulding steps.

Other items of note (some of which are becoming industry standards) include separate air hoses, metal couplers, open exhaust etc.

Installing a DCC Chip

To gain access to the 21-pin plug, place the model upside down on a foam base (to protect the air horns, bell etc.).

Use a Phillips screwdriver to remove both couplers and pockets; they can be removed by pushing them out through the pilots.

Turn the model right way up, gently grasp the body sides and wiggle the body off the mechanism. Resist the urge to grab the



bogie sideframes to give yourself some additional leverage.

With the body off you will see that there is a printed circuit board that runs the length of the frame.

There is an arrow pointing to the long end of the model.

At the other end is the 21-pin plug (see the related image); it is mounted upside down. Use a small flat-bladed screwdriver to wiggle the plug away from the pins; try not

REVIEWS

The products covered in the Review pages have been supplied or made available by the manufacturer, producer, importer or retailer listed in each product heading. AMRM welcomes access to new product lines for inclusion in the Review pages and requests items be addressed to the Editor at Australian Model Railway Magazine, PO Box 345, Matraville 2036. Readers are reminded that the prices quoted in the reviews are those applicable at the time of going to press. Those using the prices as a guide to purchasing products by mail order should always add extra for postage, or contact the supplier for the additional cost for mail order.

Editor

to use too much oblique angle force as you will just end up bending the pins.

After you have the plug free, note the orientation and install your preferred 21-pin DCC chip. For this purpose a DCC Concepts 21-pin Zen chip was used.

If you are using a 'keep alive', there is U-shaped space between the frame where you can thread the 'keep alive' wires through to the other end of the frame as there is room over the gear tower to house the 'keep alive'.

Use a tape to ensure the wires are clear of the flywheels.

Operation

The mechanism is a standard twin-axle bogie with gear tower; all wheels are powered by a worm gear at the top and universals, driven by a sealed DC motor with two brass flywheels.

Pick-ups are via brass bushes held in place by a metal keeper plate.

Using an NCE DCC system, the model has smooth speed control, operating in both directions without any hesitation.

Testing the minimum radius using a

piece of Peco flex track, the model happily negotiated a 300 mm radius curve!

Headlights are warm white LEDs, thus appropriate for the era.

Finish

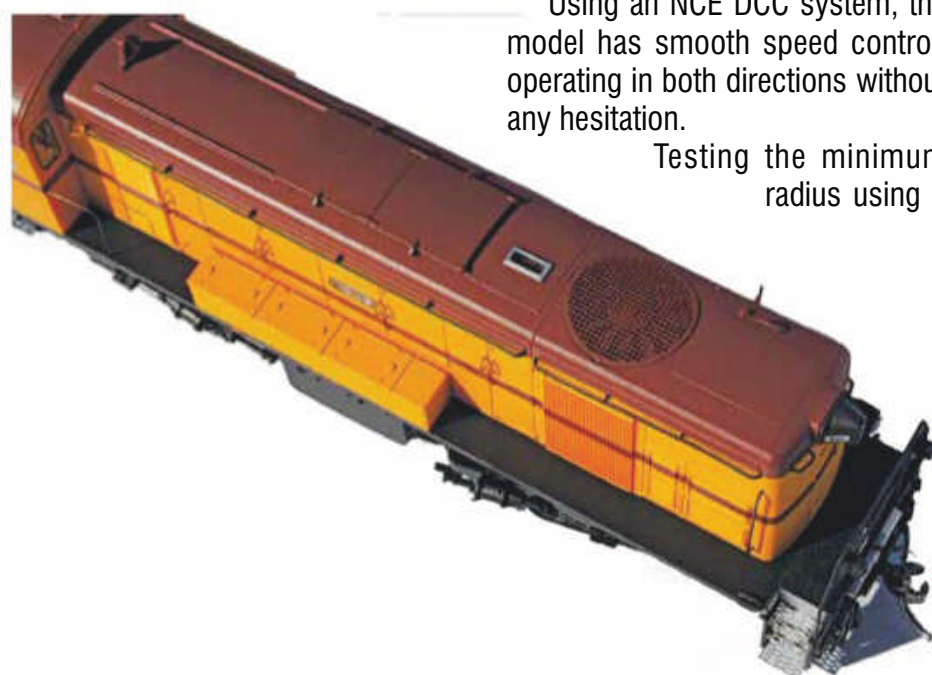
Paint separation is sharp and matches the prototype positioning. For example, the cab side numbers

on 802 were the original stainless steel numerals just painted yellow, and that same shape has been replicated on the model.

Summary

This model has some really impressive features and simple design improvements.

The LED lights are placed on the PCB board so there are no flying leads from the body to the frame and thus no wires to be





squashed between the body sides and the frame.

The bendable plastic pilot handrails spring back straight away if they get knocked accidentally.

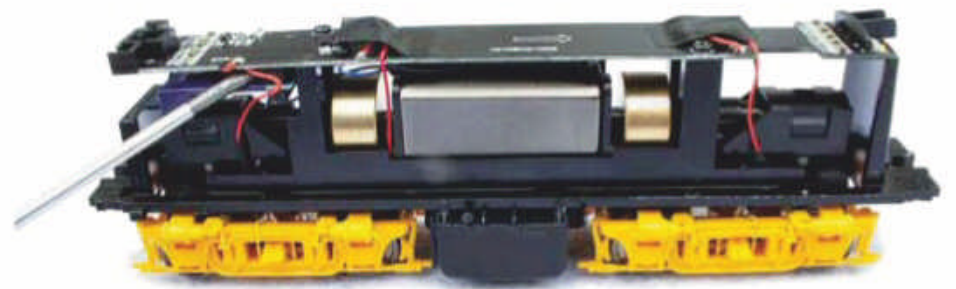
The model can negotiate very tight curves, considering the prototype spent its working life shunting tight industrial sidings around the Port Adelaide area. This is very beneficial for modellers as they can take advantage of this with their

track layout design (it opens up a lot of modelling possibilities).

The model has fine bolt and grille detail.

This iconic model fills a gap in the South Australian modelling scene, covering all prototype eras. Dimensionally correct, this loco has a smooth, very capable mechanism with great features and detail; it is an impressive model.

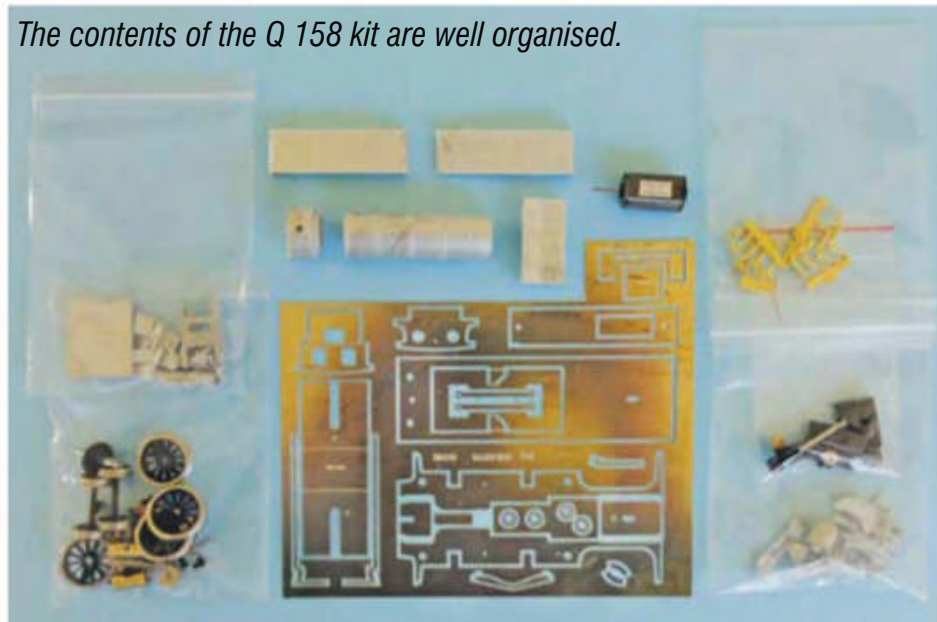
The AMRM team



NSWGR Q158 4-4-0 loco kit in HO scale by Ezi Kits, 48 Bundy St, Higgins, ACT, 2615. Email: bj48@grapevine.com.au. Price \$265.00 plus postage

The latest kit from Ezi Kits is a loco from the earlier years of New South Wales (NSW) Government Railways, which was successful in suburban traffic, but with only six in the class it does not figure prominently in the Railways' history. The class Q 158 was built by Beyer-Peacock and introduced in 1880. They were heavier than intended, but nonetheless were well regarded in Sydney suburban services. They were being withdrawn from this role by 1900, but with the concerns about the D 351 class following the Sydenham accident in February 1901, they returned to suburban service and continued until replaced by the S 636 class. After a variety of other duties, they were converted to 4-4-0 tender locos for country services. Victorian Railways had a near-identical design, the M class, built by Beyer-Peacock and Phoenix Foundry, Ballarat. With such a

The contents of the Q 158 kit are well organised.



complex history, the loco should appeal to 'early days' modellers, as well as those who simply enjoy kit construction.

The kit consists of white metal body parts, etched nickel-silver chassis and cab, and cast brass detailing parts. All are up to Ezi Kits' usual high standard. The loco is powered by a Mashima motor, via a North Yard gearbox. Crew figures are included and a selection of lamps appropriate for use on this

loco. Low-temperature soldering is the preferred method for white metal kits.

However, the straightforward nature of this kit means it could be satisfactorily assembled using fast-setting epoxy glue and superglue. The instructions are clear and comprehensive, with all parts well identified with pictures. There are several photos of the model at various stages of construction, avoiding any ambiguity about the location of

parts. A couple of points in the instructions could be misleading (but are harmless); reference is made to fixing the smokebox door in position, but in fact it is moulded integrally with the smokebox.

Mention is made of fashioning a regulator handle from brass wire; this is not necessary, as a cast brass regulator is provided. Finally, it is stated that the worm gear is an interference fit onto the motor shaft. I found that it was a good sliding fit, needing Loctite or superglue to secure it. The motor shaft needs to be cut to length and this requires use of a cutting disc (it will blunt any saw blade).

WARNING

Always wear eye protection when using a cutting disc!

Two very useful tools are included on the etch sheet. One is a neat jig for quartering the wheels when fitting them to the axles. The other is a template for folding the handrails. The wheels provided are North Yard wheels with plastic centres. They have too few spokes (12

spokes) whereas photos of the prototype show 16. ('Spoke counting' is almost as bad as 'rivet counting'!) The plastic centres should be checked before assembly; I found that on two wheels, the centres came out of the tyres when handled — a few small spots of super glue fixed this.

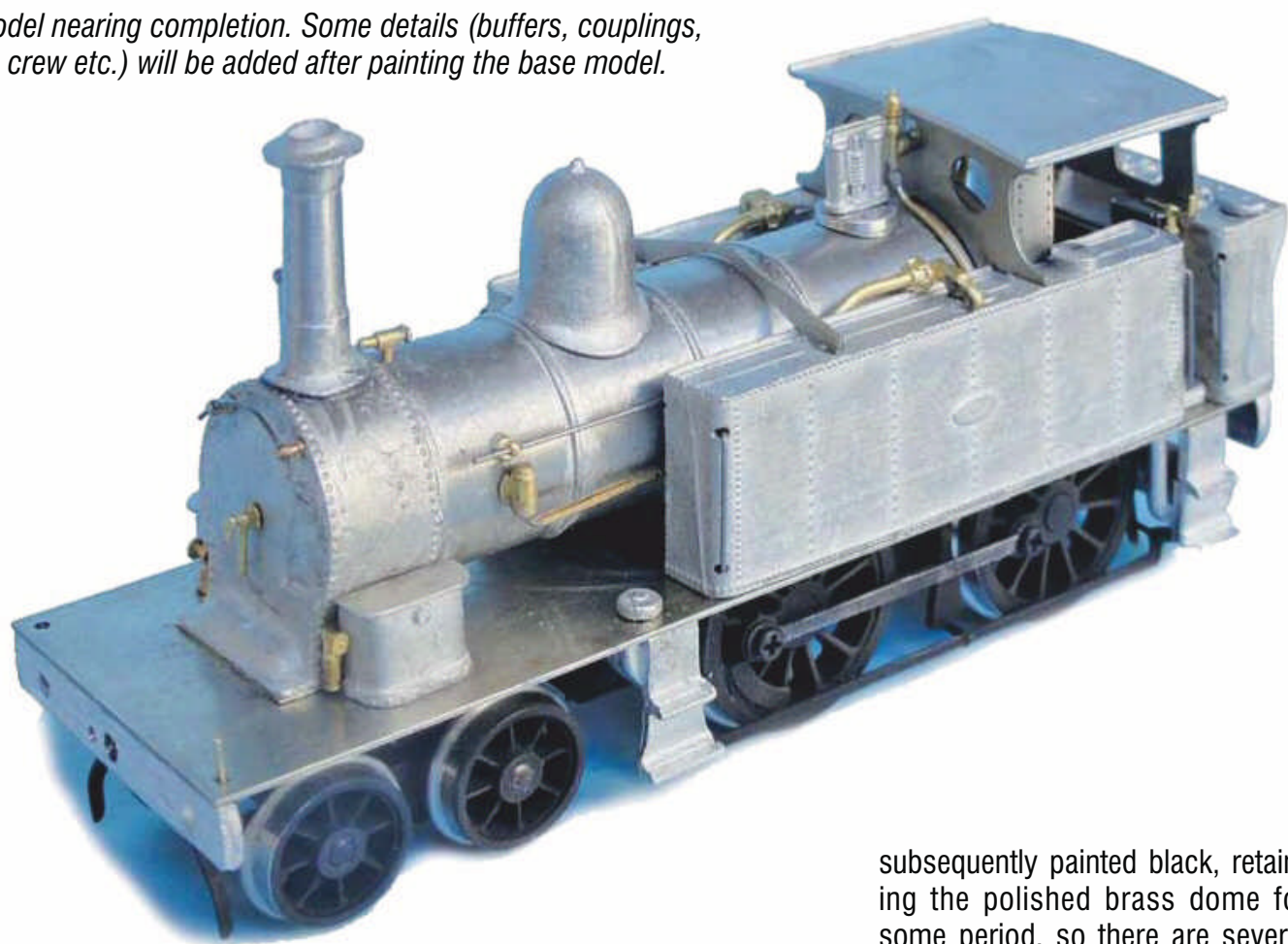
Before assembling the driving wheel and axle sets, it may be useful to use a reamer lightly on the bearings; I found that they were marginally tight. It is necessary to fit the wheels to the axles as a force fit, quartering the wheels using the jig provided. Quartering the wheels requires care, but it is not difficult. It is important to ensure the finished wheel and axle sets run true, without 'wobble'.

The chassis is constructed from etched nickel-silver frames fitted to brass spacers with bolts. The axles run in bronze bearings that are held in the hornways by a retaining plate — a very straightforward and reliable method. The coupling rods have *very* close clearances with the footplate at the top of their throw, but the precision of the chassis frames is such that it is unlikely to cause any problems. If the coupling rods do just touch the footplate, a couple of passes with a fine file on the top of the bearings at the ends of the rods will resolve matters. There is no provision for working couplings, but the instructions outline a simple modification to fit a Kadee coupling at the rear. (It is unlikely these locos did much bunker-first running.)

Construction of the body is not complicated, but several points require a little care. The boiler fits into the smokebox, but there is no alignment marking apart from the dimples to be drilled for the dome and safety valves. As the boiler will be supported on two lugs inside the side tanks, it is essential that it be correctly horizontal and the dome is aligned with the chimney. Some dry runs here are a sensible precaution. Fastening the smokebox and the bunker to the footplate is made by threaded brass plugs in the underside of the smokebox and bunker, into which bolts are fastened from underneath. The instructions imply that the holes for these plugs are pre-existing, but though their locations are marked, the modeller needs to drill them out with a 2.5 mm drill.

The loco cab is a good example

The model nearing completion. Some details (buffers, couplings, lamps, crew etc.) will be added after painting the base model.



of design that simplifies construction, without compromising accuracy. The front and back fold up neatly and fit easily to the boiler and bunker. The cab roof does not have any locating ridges underneath, and the cab front and rear plates simply butt up against the underside, so care is needed to position it squarely and fasten it securely. With the cab front fastened in place, I found it best to temporarily clamp the cab rear in position against the bunker, then hold the roof in the correct position with rubber bands. The roof was then soldered to the cab rear giving a strong joint and ensuring correct positioning when the assembled

cab rear and roof are subsequently fixed in place after cab detailing is finished.

The jig for folding the handrails was very pleasing; the resulting handrails all fitted into all the holes first time. Trying to judge the folding of handrails by eye can be frustrating, so this jig is a welcome inclusion. I used steel wire rather than the brass wire provided; the handrail jig dealt with this without difficulty.

Basic painting information is given and modellers may find the information on the relevant colour schemes in *New South Wales Railways in Colour* helpful. The initial livery was emerald green, with brass trim and dome. They were

subsequently painted black, retaining the polished brass dome for some period, so there are several options for painting. After comparatively few hours of enjoyable work, the modeller will have an attractive and powerful little loco that embodies the prevalence of British loco design that guided the railways in the 1880s. The loco has enough power to easily handle five bogie coaches — quite a powerful little beast, just like the prototype!

Overall this is a very appealing kit, with several excellent features and no significant drawbacks. It's good value for the price and will reward the NSW (and perhaps Victorian) modeller with some satisfying construction work and an interesting addition to the motive power roster.

Warren Miller



The finished Ezi Kits' Q 158. This is another fine addition to their range of NSW locos from the 19th century.



Auscision has also released the Railways of Australia 'Indian-Pacific' coaches in HO scale. Available in ten-coach packs, these include MGM power car, ER dormitory car, ARL first class twinette, ARJ first class roomette, ARM first class deluxe twinette, AFC lounge car, DF first class dining car, CDF second class club-cafeteria car, BRJ second class twinette and an HM luggage car. Both the MGM and HM have working marker lights. A three-coach add-on pack (two ARLs and one ARJ) is also available. Available in the following series are 'Indian-Pacific' (four versions), 'The Ghan' (three versions) and 'Southern Spirit'. The add-on pack includes one MGM power car and two BRG 'platinum' coaches.



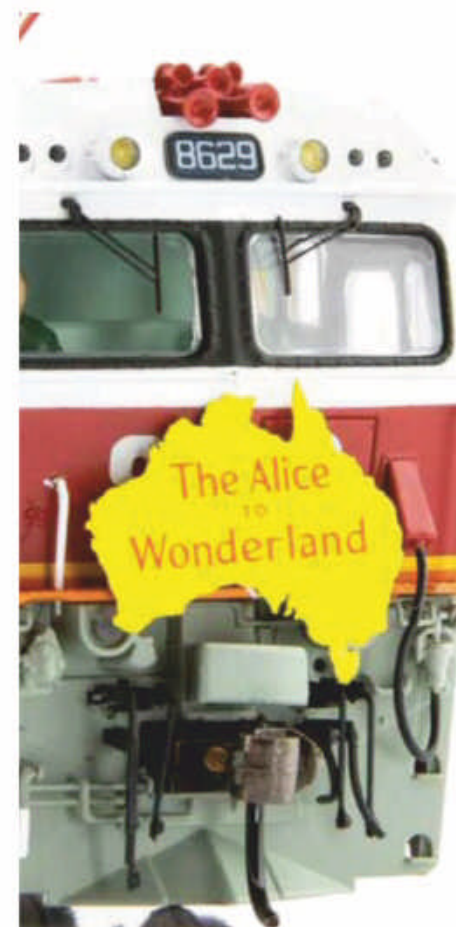
Auscision unannounced release: a Great Southern 13-coach pack in HO scale. Another unannounced release is a BRG 'platinum' coach two-pack for both the 'Indian-Pacific' and 'The Ghan'.



Auscision unannounced release of the NSWGR FAM coaches in HO scale. They are available in two versions as a four-coach pack.



SDS Models has released its NR class locomotive in HO scale with sound, equipped with a ESU Full Throttle sound decoder. A unique feature of this production run is that the quick start-up guide is applied to the inside of the model box. You won't lose these instructions! The ditch lights are timed to flash with the activation of the air horn. The AMRM Team has created a quick demonstration Youtube video: https://youtu.be/sjbU_SRq-zQ.



Auscision has also released 'The Alice to Wonderland' (Sydney to Alice Springs) headboards, along with the original 'Indian-Pacific' tail board.

AMRM News

All Aboard — On the Move

After thirty-six years located on the main road from Sydney into Mittagong, Victor (Vic) and Christine Bernasconi and the All Aboard crew are moving to a location on the main road into Bowral, about a ten minute drive away.

All Aboard and the concept of a model railway display and shop on the same site was the brain child of Bill Webb, a Fleischmann modeller, was looking for a permanent base away from the Illawarra coast where Bill and Marg Webb were raising a family and running Bill Webb Model Railways, a mail order business concentrating on European models. The couple and their family were regular attendees at exhibitions and, as the children grew, one of them met a bloke who became the public face of the business when Bill and Marg stepped away from the day-to-day work leaving the task to Vic and Christine.

Bill was not known for doing things in a small way, and the opening of the display and shop at Mittagong was a wonderful event;

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Stephen Johnston Models has released NSW vehicle number plates in HO and 7 mm (O scale).



it is still remembered to this day. From the outset at Mittagong, Vic and Christine were heavily involved in the business taking over into the new millennium as the parents stepped away from the business. Sadly, Bill passed away in 2008.

The new shop will be located near the Bowral shopping centre. Like the Mittagong site, there is some on-site parking. While there will not be any display, the new shop has given the Bernasconis the opportunity to freshen up their showcases. As the Mittagong showcase displays were pretty good, this is something to look forward to.

HO Scale

Auscision Models

The *Indian-Pacific* coach sets and NSWGR FAM coach sets have

arrived; please see *Recent Releases* for more details.

Available as spare parts are the *Indian-Pacific* bogies (with and without pick-ups), Mk 1 sign board, *The Alice* headboard and HO scale metal chain 60 cm blackened.

The pilot models of the NHTF, NPEF, NGVF and CTS hoppers, and *Tangara* EMU sets have arrived (the expected production runs are February 2021 and December 2020 respectfully).

Finally, Auscision is looking at putting into production a set HO Scale figures of the Auscision team, including Jamie, Jeff, Max, Little Pete, Peter, Panda, Jason, Aaron, Lauren and Lawrence.

Australian HO Freight Models

Australian HO Freight Models has released art work for a line of modern 40 ft containers. The company has also amended their 20 ft container offering, please see the accompanying images.

Australian Railway Models

Australian Railway Models (ARM), a part of Southern Model Supplies (SMS) have in production, a new HO scale model of the New South Wales Government Railways C38 class 4-6-2 locomotive. This new model will be the non-streamlined version, numbered 3806 in the green livery. SMS is the Hornby distributor in Australia. Overseas, the locomotive is being distributed by Hornby International. Part of this release is the three 12-wheeler 72 ft 6-inch cars previously in the Lima range. The C38 is expected to arrive between late 2020 and early 2021.

ARM's C38 class will feature:

- detailed model with separately fitted parts,
- authentic knuckle-style couplers,
- dual-position drawbar for close tender coupling, and
- digital capability.

Casula Hobbies

The NSWGR Z19 steam locomotive has progressed with PCB board design signed off, with initial tooling. A pilot model is expected around November 2020, along with the line of LV, CW and GSV NSWGR four-wheelers.



Available as a spare part from Auscision models the 'Indian-Pacific' sign board in HO scale.

Ezi Kits

Adding to their growing range of NSW 'early days' locomotives, Ezi Kits has released a kit of the Q158 tank loco. The kit features a Mashima can motor and enclosed gearbox, with North Yard wheels.

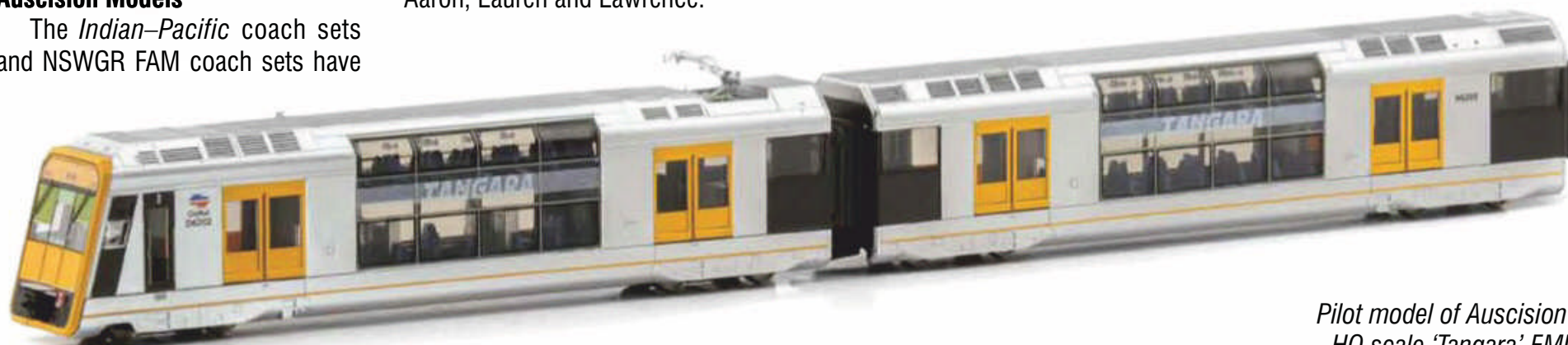
In a first for Ezi Kits, the masters for the major white-metal body parts were 3D printed, giving much finer detail than would otherwise have been possible.

On Track Models

On Track Models has recently



Pilot model of Auscision's HO scale NPEF hopper wagon.



Pilot model of Auscision's HO scale 'Tangara' EMU.



Australian Railway Models new HO scale model of the New South Wales Government Railways C38 Class 4-6-2 locomotive, 3806.

celebrated its 13th year of operation. A small flash sale was conducted to celebrate this milestone with an appropriate 13% off! Congratulations to Graeme

and the team at On Track Models.

Powerline Models

Powerline has received the ACZ

and BCZ coaches in V/Line orange and V/Line passenger livery 1, the red and blue livery.

SDS Models

NR30 *Warmi* and NR52 *Kungara Mankurpa* are now available in DCC Sound; all pre-orders are being dispatched.

NR18 *Ghan Mk 3 Journey Beyond* and NR76 *Overland* (proposed) are also available but in limited numbers.

All other versions of the NR range and with DCC sound will be available this month. the Great Southern NR models and the new PN colour scheme of 'Real Trains not Road Trains' NR units have been allocated a production slot. These models will arrive towards the end of 2020.

The new smooth-sided PL cars and a small re-run of the BCPL sliding door carriages will arrive early in 2021.

Engineering of the Phoenix Reproductions VR D³ model is complete and the model is in production with an expected delivery in January 2021. SDS Models will release a limited number of this locomotive with an early 'flare top' tender replicating two engines from the late 1940s period.

TrainBuilder

TrainBuilder has announced a new order of the famous Victorian Railways H class *Heavy Harry* 4-8-4 steam locomotive in HO scale brass.

It has been 10 years since TrainBuilder last offered the H class and this will be a very limited build.

Wuiske Models

Wuiske Models has completed its third 'made In Queensland' ready-to-run wagon, the PCS container wagon. These early container wagons entered traffic in Queensland from March 1970. A total of 68 wagons were built. Several lasted in traffic until the early 2000s. The PCS wagons saw service in all regions of the state throughout their lives and were particularly employed on smaller branch lines and for use with over-length containers.

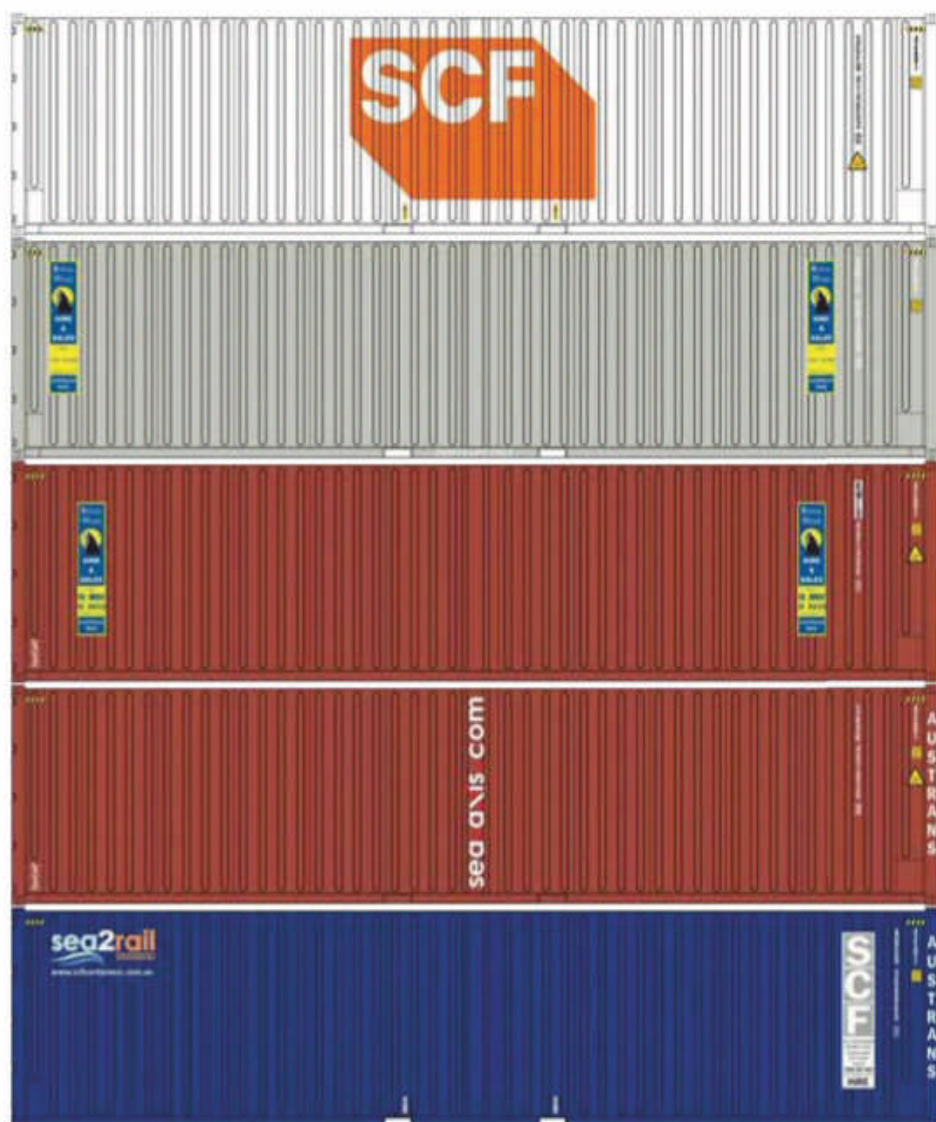
Available in HO_n3½ and HO, in five different three-packs.

Other News...

Featured in the October issue of AMRM, Gary Lamb's layout *North Coast National* is about to undergo a transformation. Gary is a self-confessed 'tinkerer'. He expects to dismantle *North Coast National* in December. However, all is not lost: Gary is going to build a new layout! The prototype will be 1990s Queensland Railways, but it will incorporate dual-gauge trackage. Gary will update AMRM with his progress.

Small Changes

Keen-eyed readers may notice that the AMRM team are making small changes to the presentation of feature articles, including a photo location key in the layout diagram. Your feedback would be appreciated.



Australian HO Freight Models' rendering of its proposed line of HO scale 40 ft containers.



Australian HO Freight Models' revised line of HO scale 20 ft containers.



Wuiske Models' Queensland Railways HO scale PCS series container flat wagons.

Diary

EXHIBITIONS & EXPOS

COWES – VIC. January 16-17, 2021. Phillip Island & District Railway Modellers Exhibition. 10am–5pm (Sat) & 10am–4pm (Sun). Senior Citizens Hall, 6 Lions Court, Cowes. Admission \$8 Adults, \$5 U/15, \$20 Family. Secretary Geoff Bowen, 0429 419 011. piadrm@gmail.com

POSTPONED – CORIO – VIC. January 23 – 24, 2021 at the Centenary Hall, Corio.

BUNDABERG – QLD. 20-21 March 2021. Model Train & Hobby Expo, Bundaberg Multiplex Sports & Convention Centre. Invitations to exhibitors have been sent. The club will monitor COVID-19 restrictions in the coming months to evaluate impact on 2021 expo.

VALE

Robert Phelps

We regret to announce the passing of Robert (Bob) Phelps on Monday 28 September 2020; he had been ill for some time and will be missed at the club (AMRA Western Australia). Bob was one of those people who was a font of knowledge, anything from N Scale to the outdoor layouts. His patience was a virtue and scenery was his forte. He was very popular around the club.

He had a good knowledge of modelling and, as usual, his voice was a decibel higher than the others around him. He had a fondness for N scale, his scale of choice at home and at the club.

His advice was always well received. Our condolences go to his wife Maureen and family.

Ron Romero

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Mailbag

Australian 3D Printing Models

As I sit in front of the computer typing out this letter to the editor of AMRM and thinking about what to do next on my modelling table, a thought came to me about the future of modelling in Australia and where it is heading as more and more people use 3D printers. When they start out modelling, most people have the time but don't have the money; toward the end of their working life, they have the money but not the time. Every person involved with this hobby has different talents and works hard at improving their weaknesses as they get more involved with modelling.

I know of many people who scratch-build, build kits, modify RTR and plonk (straight out of the box). Some of the people will either weather the models or not weather the models. This also includes those people who build layouts, buildings and lineside industries.

One of the areas of the hobby on the increase is 3D printing; some people like it and some people don't. But to the person who can't scratch-build or kit-build, 3D-printed one-piece models offer an introduction to the hobby or make something that is just not offered by the mainstream model manufacturers.

Over time 3D printing is on the rise as some people don't have the money to lash out on RTR items or kits — or perhaps they just don't have the time or inclination to do these.

For myself I have brass, RTR and some 3D-printed pieces of rolling stock; most of these have their good and bad points. I lack the time to scratch-build and why would I as there are plenty of

brass, RTR and 3D-printed items on the market now.

Some people would say that I am not a real modeller, but — in the end — we now have many different options to enjoy such a diverse hobby.

After all, beauty is in the eye of the beholder.

Andrew McCulloch
Perth, WA

BHP Billiton SD40Rs and SD40-2s

Congratulations on a great first issue under the new management and editorship. I received my copy in the post and I read the issue from cover to cover in a single sitting.

I really liked the article about the BHP locomotives in Australia. The three blue and gold SD40s, purchased from General Electric Transportation Systems (GETS) were originally for the Iowa, Chicago and Eastern Railroad (ICE); they had an interesting history. The three locomotives were ex-Southern Pacific SD40s 8422, 8461 and 8482; the first two were built in 1966 (EMD order No. 7861) and the third in 1968 (EMD order No. 7083).

The Southern Pacific took delivery of a total of 89 SD40s between 1966–68.

In model form, Broadway Limited released an HO scale model of the blue and gold BHP loco (No. 3078) in its Paragon 2 DCC/DC range. Both the ICE and DME have been well served in model form (in HO scale) with SD40-2s from Athearn, InterMountain and ScaleTrains. Broadway Limited also produced HO scale locos liveried for BHP Billiton, such as the AC6000CW from Broadway Limited.

Railways and the mining industry have a long history. I must compliment AMRM for looking at modern-day mining railways as a way of exploring new model railway opportunities.

Congratulations again on a great issue and I look forward too many more.

Brad Hinton
Curtin ACT 2605

[Editor's note: Thank you, Brad, for the additional history on the ex-ICE SD40s. As a follow up, we have published (in this issue) a Modelling Notes article to complement Peter Clarke's SD40 SD40-2 historical article. This includes modification differences across the fleet, models available that can be used to match the prototype (what modellers need to know). We also agree with you that modelling modern Australian mining operations such as those in the Pilbara region of Western Australia are great modelling opportunities.]

Austrains NEO PL cars review

I'm concerned that Phil Jeffery considers the Austrains NEO carriages are under-weight. Phil is correct in stating they are well below the National Model Railroad Association (NMRA) recommended practice, but they are not too light. 95 g is within the tolerance of both the Australian Model Railway Association (AMRA) mass standard and the European Association of Modelrailroader and Railroad Friends (MOROP) European model railways (NEM) standards.

I have operated six of these coaches behind a pre-production Victorian Railways D3 4-6-0 steam locomotive up a 1 in 40 grade on a 760 mm radius curve. They tracked flawlessly over curved

turn-outs as sharp as 600 mm radius, including track varying from Peco code 100 turn-outs to AMRA fine tolerance code 55 turn-outs. If these carriages were weighted to the NMRA standard, the maximum length train that could be pulled would be decreased by 36%: that's only four carriages instead of six carriages. The NMRA weight recommended practice (RP) was designed for US prototypes and may not be practical for today's RTR Australian prototype equipment.

Terry Flynn
Sydney, NSW

[Editor's note: Thanks for your feedback Terry. It is important for a model to be fit for purpose and, given the prototype is not expected to be rostered in long rakes, we see your point. In regards to the Austrains PL cars review, the reviewer merely noted the discrepancy.]

MAILBAG

Australian MODEL RAILWAY Magazine welcomes letters on any pertinent model railway subject for inclusion in Mailbag. Letters should be sent to Mailbag, SCR Publications, PO Box 345, Matraville 2036, emailed to amrmagzn@tpg.com.au. All Mailbag contributions must include the writer's name, address and phone number to permit verification. Contributions without this information will not be considered for publication.

Editor



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The annual model railway club listing will be published on our website in January 2021. All submissions must be received before 31 December 2020 and must be made by an official of the club. Send details including club name and address, phone number (if available), secretary or contact person, meeting days and times, specialty and website and email details to:

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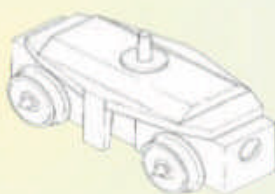
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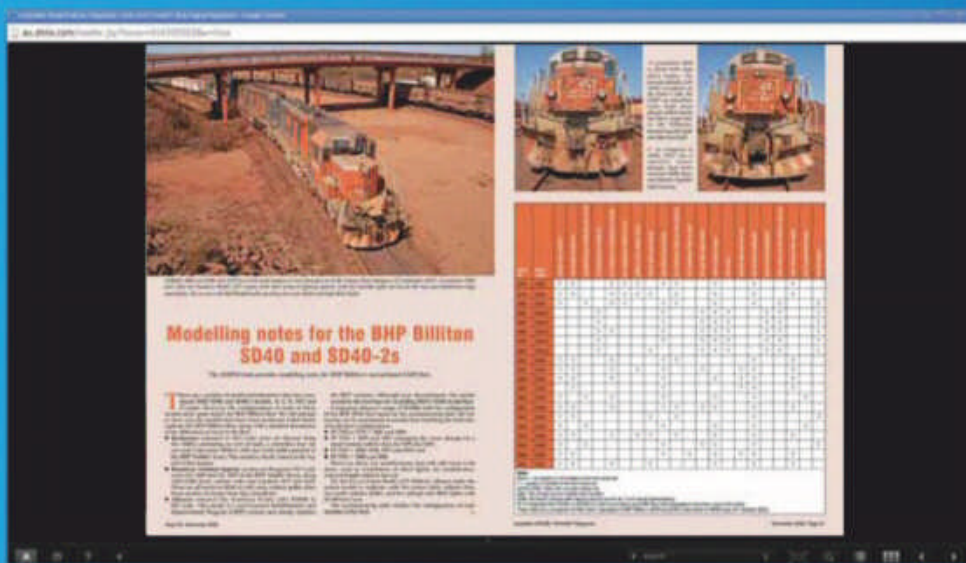
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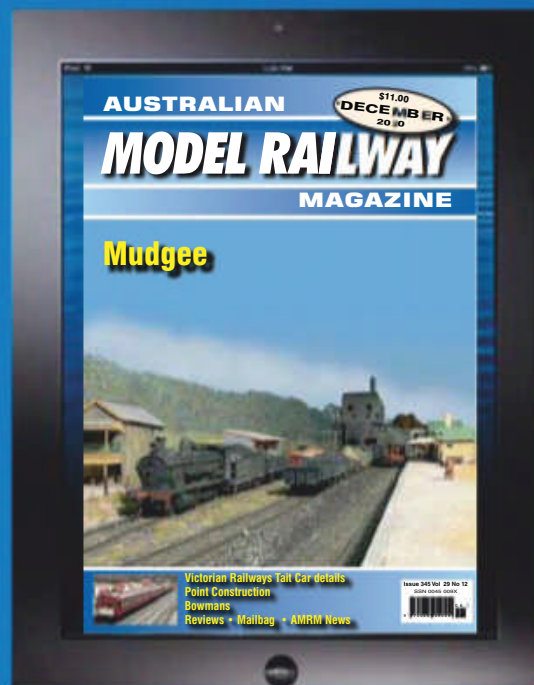
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The 2021 steam calendar features NSWGR 2-6-2 2605 departing Portland Cement Works on the cover. Inside NSWGR 3675 and 6014 on a goods train near Toongi, VR J558 hauls a goods train to Korong Vale, QR D17 262 on a Brisbane suburban service near Vulture Street, Beyer Garratt 406 under lights at Peterborough, NSWGR 3144 near Talbragar ballast siding, WAGR G233 shunting wagons on the jetty at Bunbury, NSWGR 5167 slogs up the grade near Mandurama, VR R748 at Serviceton on a train from Dimboola, NSWGR 3324 approaching Galong with a mixed train, QR Mayne Locomotive Depot with a variety of locomotives, NSWGR 5919 at Warnervale on the Short North, WAGR Dm587 outside the shed at East Perth depot.

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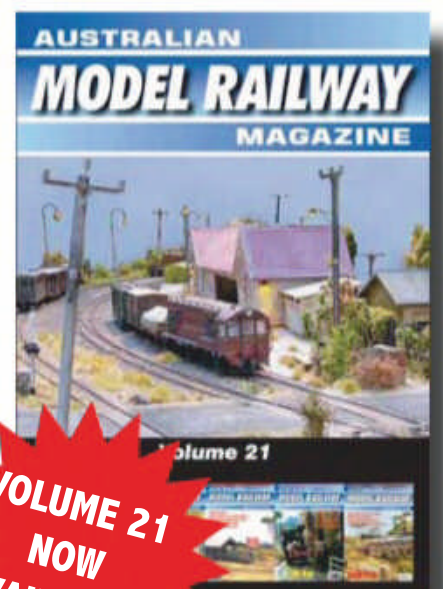
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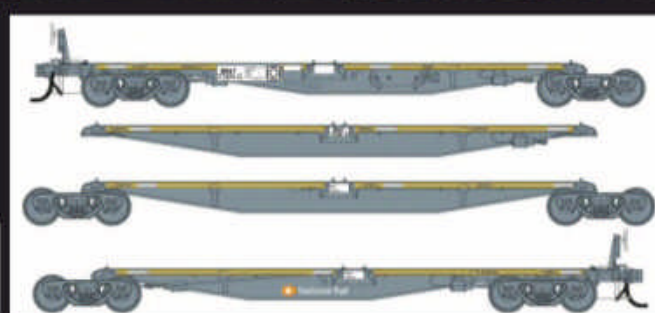
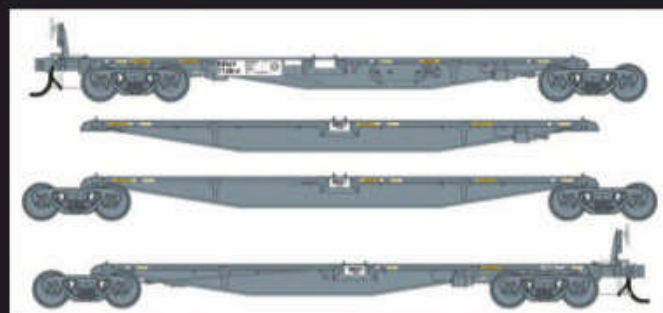
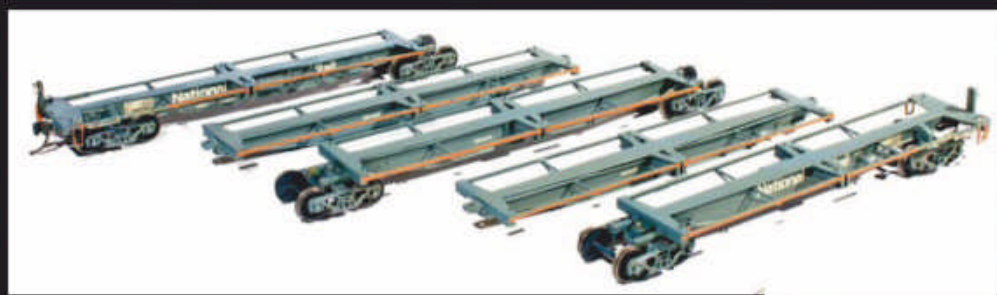
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