

GARDEN

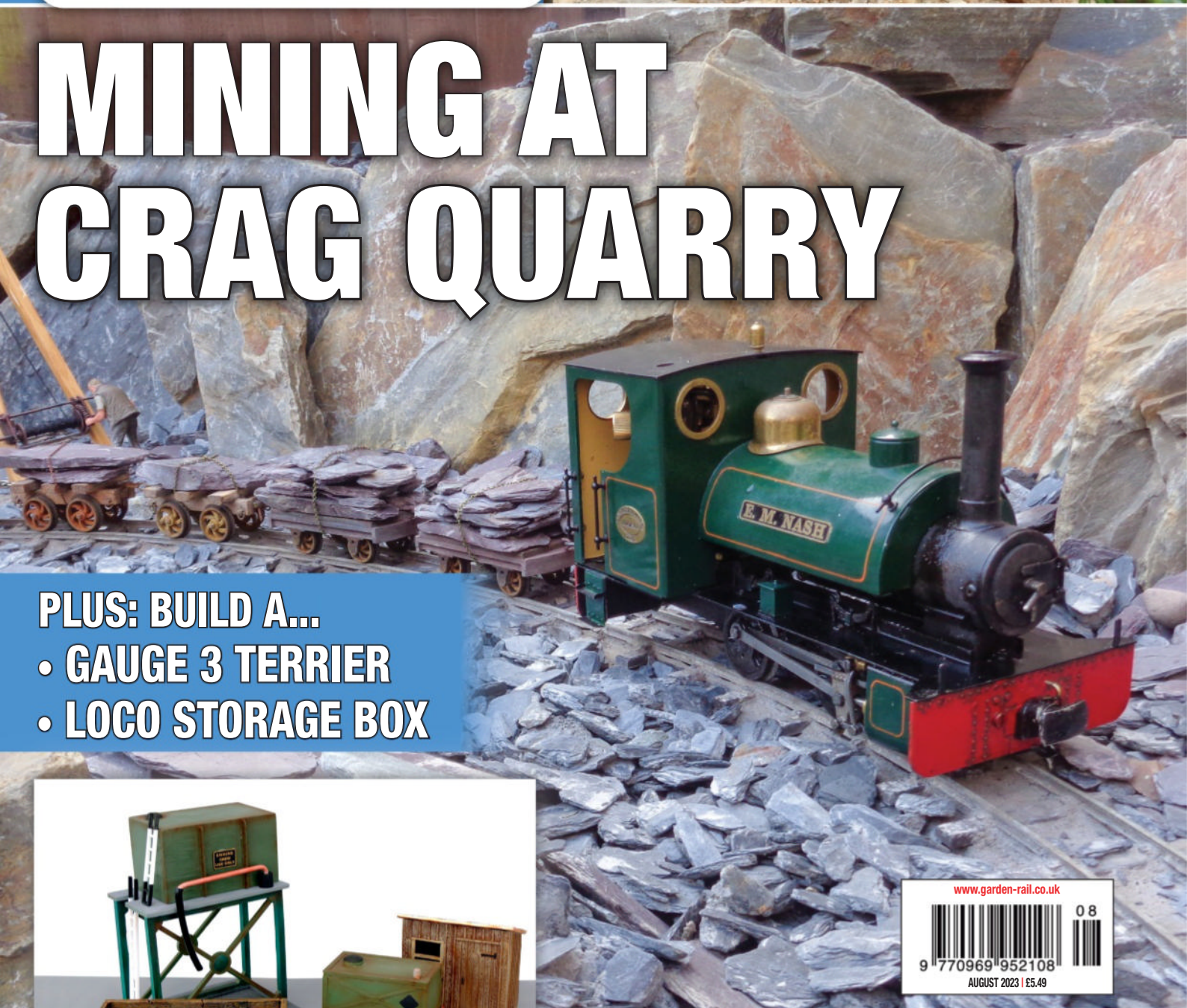
AUGUST 2023
ISSUE 348

Rail



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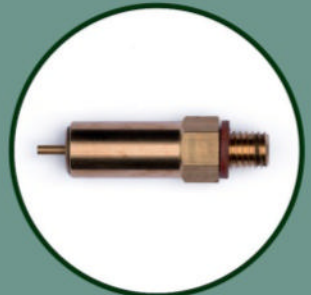
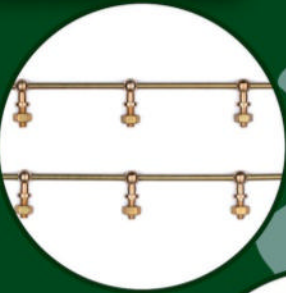


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WORLD Issue 348 August 2023

Publisher: Steve Cole

stevec@warnersgroup.co.uk

Editor: Phil Parker

phil.parker@warnersgroup.co.uk

T: 07879 664 383

Design: Ruth Jamieson

Advertising: Sarah Jarman

sarah.jarman@warnersgroup.co.uk T: 01778 392055

Advertising Designer: Amie Carter

amiec@warnersgroup.co.uk

Production Executive: Allison Mould

01778 395002 allison.mould@warnersgroup.co.uk

Contributors: Steve Burnett, John Carmichael, John Conder, Paul Galyet, Mark Pretious, Craig Shepherd, Dave Skertchly, Mark Thatcher

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APPRECIATING ART

I can't claim to be the greatest model maker in the world. You name it, there is someone else with far more skill to be found. It doesn't matter, though. I'm, generally, happy with the things I build, and, more importantly, I enjoy the process of creating them.

This doesn't stop me from appreciating the efforts of those whose skills I can only aspire to. Each month, as I bring together the articles for this magazine, I can look at the efforts of those good enough to write for us, and learn a little, perhaps even resolve to up my game a bit.

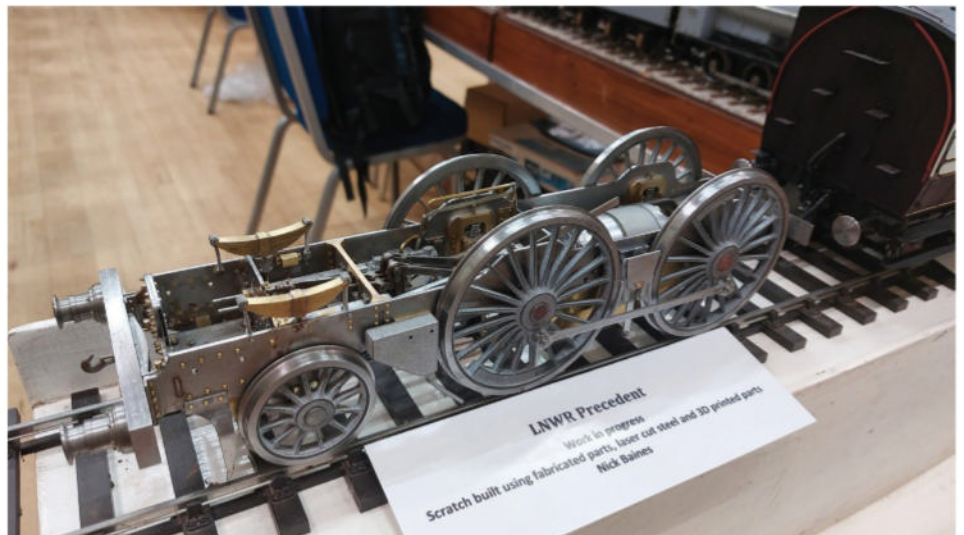
The discussion as to whether model railways count as 'art' has gone on for years, but, in many ways, a lot of art is easier than what we do. After all, I know how to hold a paintbrush, and even which end the colour goes. Sadly, it

seems that there is more to painting a great picture than this – I'm certainly no Canaletto.

Our hobby involves tools and equipment that I don't really understand, and probably for everyone's safety, shouldn't be allowed to touch without adult supervision. At least this partly explains why I'm not a great engineer!

But, engineering, like art, involves skills acquired through practise and persistence. If you don't get your hands dirty, you aren't going to get any better at it either.

Which brings me to a question – is there a skill or technique you would like to develop? Let me know, and I'll go and find someone who might be able to help us all through these pages.



Spotted at the Gauge 3 Society AGM, this absolutely stunning LNWR Precedent chassis, built by Nick Barnes. He was good enough to talk me through some of the work, and made it all sound so easy!

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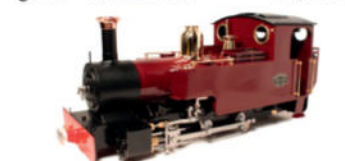
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Crag Quarry

Paul Galyet builds a railway modeller's dream rockery.

The railway, in its present form, is the second I've made at this address in the space of just over a year.

The first had a larger running line, with a switch back through the middle and other sidings. This was also a slate quarry, but for various reasons, I wasn't happy with it, so ripped it up and started again.

I had a railway at my old house, this featured in *16mm Today*, Feb 2019, and the track and much of my stock comes from that line. This too went through a number of changes over the course of about six years, starting as an ironstone line before becoming a limestone quarry.

I like all sorts of industrial prototypes when it comes to narrow gauge and modelling but had always stayed away from slate

quarries because they've been so extensively modelled in just about every scale, and are probably the most widely known and publicised narrow gauge subject.

The slate itself is what got me thinking about it as a prototype this time though. It scales very well, it looks similar on the small scale to how it does on the large. This is due to its angular nature, which also makes it easy to arrange and build with.

The stones in my quarry are built up like a dry stone wall, the only mortar I've used is in the track bed. This makes it easier to make changes if desired. Just recently, I swapped over the tunnel and workface sidings. The new tunnel is now enough to hide a short train properly off scene, the old one being little more than a portal its

position and not allowing for more.

The large quarries of North Wales are probably what springs to most minds when it comes to slate quarrying and associated railways, however, they did also exist in parts of Scotland and Cumbria. Many of the Cumbrian workings were much smaller affairs, with wagons moved by manpower or small battery locos. Mining for slate in the hills here was very much the favoured mode of operation, and a number of deep open cast quarries started out as mines that were later untopped. Also, the Burlington quarries at Kirkby-in-Furness were a more extensive area of open cast workings with a rail system and IC locos.

What I've built is very much a free-lance model taking its inspiration from a



The line under construction.

number of such sources. I have just enough room for one level, which is the continuous run I need for my manual control live steam and battery locos.

Below this, I dug out a sink, which wasn't easy due to much builder's waste in the ground, on the floor of which are some tracks that aren't loco worked. The spoil from digging the sink I used to backfill behind the quarry face and create the hillside that the quarry is set in.

I have some parts for a Blondin type hoist, that will eventually be set up to lift wagons from the quarry floor to the upper levels. Setting this up to work properly and look right will be quite a project in itself I suspect, and I've been rather busy upstairs building Great Coates Sidings No1 in 00 much of this year, so the Blondin is still on the to-do list.

There is a rake of nine slate rubbish wagons with Blondin 'eyes' I that I bought specifically to use with the hoist. Also, I've added a number of flat and slab wagons to my stock to make suitable trains for a slate quarry. Most of these have been Phil Sharples kits that are very affordable and simple to make, plus they have a nice chunky appearance that looks right for the subject. These detail quite nicely too. I've scored wood grain into them with a blade and stained them. The wheels on the slab wagons I've given the rust treatment too with spray glue and iron powder treated



Testing the track. Several tons of rock are in place, but more is to come...



'EM Nash' handles a long train on the lower level.



A derrick for loading large lumps of slate onto wagons.

in copper sulphate solution. I had already used this method of rusting things on my old railways fleets of skips and tubs after reading an article about this a while back, think it may have actually been here in *Garden Rail*.

My loco fleet started with The Roundhouse Bertie, which I first used to run on an oval of track on the patio. Then, after building a proper railway, I got an Accu-craft Edrig, I've added some detailing parts and lined both of these myself, something I didn't find so easy, even coming from an art background.

After these, I built a few small industrial diesels from kits by IP Engineering, and one from Bole Laser Craft. These were not too difficult to put together and made very nice prototypical scale models.

I do like to bring the pursuit of realism in railway modelling out into the garden also, even if it's on a budget and in a small space. The most recent acquisitions are two radio control ready-to-run battery diesels from Bole Laser Craft. These are great for the small shunting layout on the top level above the main quarry. At the time of writing, this area may be about to change. I have just ordered some Faller e-track. This has very tight curves not suitable for the live steam, but OK for the small diesels. If it will fit, I may set up some small circuit or switch back on the top level.

Like the prototype quarries, my layout is continually developing. Hopefully, I'll be able to bring you updates in the future. ■



Dragline and diesels.



A PS Models Simplex in action.



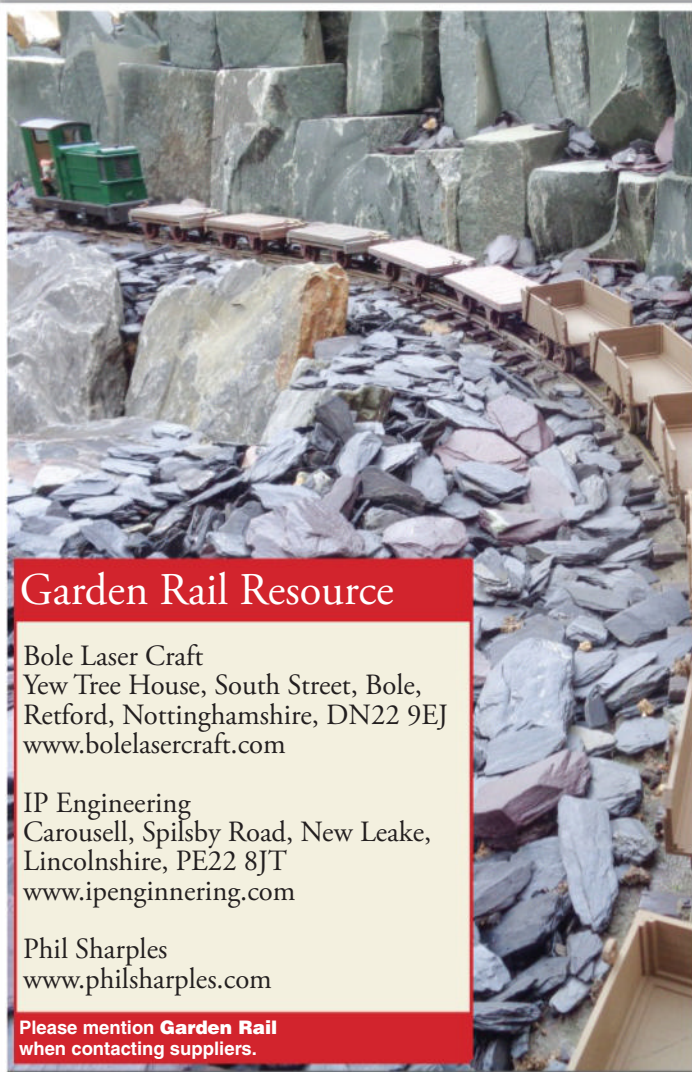
My Bole Laser Ruston 20DL locomotive was bought RTR but suitably weathered for a hard-working quarry machine.



Looking into the quarry, we see the Ransomes And Rapier loco working the top level.



Accuraft Edrig 'William Nash' on the high level line.



IP Engineering Hunslet in action.



A busy day in the quarry.

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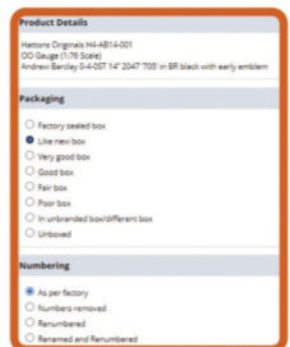
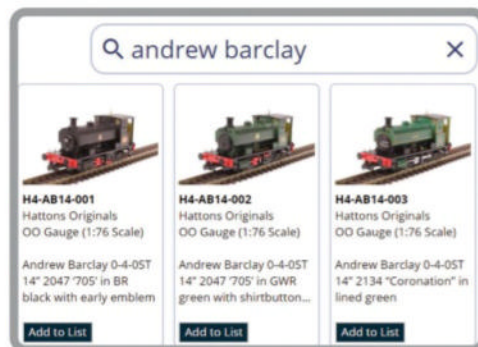


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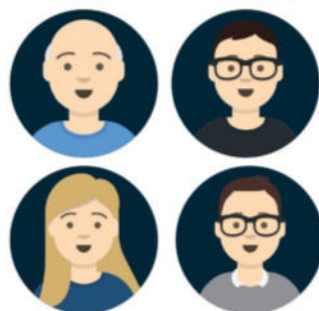
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A Gauge 3 Terrier

Mark Pretious builds the wonderfully named 'Wonersh'.

The Garden Railway Specialists (GRS) Terrier kit has been around for a while, and I have built 10, including this one. Of these, three of them are my own personal models, which are all Isle of Wight locos.

I was approached last year by a new member of the Gauge 3 Society to build and paint this, the last terrier kit from GRS into London Brighton South Coast Railway's Improved Engine Green, Mr Stroudley was allegedly colour blind, as No77 'Wonersh'.

Prototype History

No.77, 'Wonersh', was one of the last batch of eight Terriers built and outshopped in 1880 from Brighton Works and was pressed into service on 21st July of the same year. The Terriers were initially

employed on commuter trains, eventually being displaced to lighter duties as train weights increased. In later life with the LBSC, No.77 was added to the duplicate listing becoming No.677 and painted into the LBSC Marsh Umber Brown livery. No.677 was rebuilt to an A1X in November 1911. At grouping in 1923, No.677 took on the identity of B677 under SR ownership.

In 1930, B677 was sent to Eastleigh works along with two other Terriers (2650/W9 Fishbourne and 2678/W4 Bembridge) and became W3 'Carisbrooke'. Bunker modifications were done at Eastleigh works prior to the shipping of the three terriers to the island in 1930.

The renumbering of Terrier W3 to W13 occurred in 1932 to make way for the four LBSC E1 tanks that were being sent over to take the island No's W1-4. W13

was auto fitted and was regularly used on the Ventnor West branch with the LCDR four-wheel set 484 and latterly the LBSC bogie coach push pull set 503. W13 had the distinction of being the only terrier to be painted into SR lined malachite green in 1947. She was sent back to the mainland in 1949, surrendering the name to the last of the Islands' 02's, which took over duties on the Ventnor West Branch.

Upon its return to the mainland, W13 assumed its BR number as 32677 and still retained its lined malachite green livery until its next major visit to the works emerging in BR lined black livery. She spent most of her remaining life working the Hayling Island branch until withdrawn in September 1959, and was scrapped at Eastleigh in April 1960. During the scrapping process, the IOW bunker was grafted onto classmate 32662 (Martello), which

is now preserved at Bressingham Railway Museum.

The Build

The chassis was bolted together, with equalising beams, axle boxes, keeper plates, guard irons, brake rigging as well as the axles, wheels and motor/gearbox as supplied. Painting was done using Halford's etched metal primers, satin black and Ford Rosso red. The wheels were painted by hand using Phoenix Precision paints. These include the yellow ochre, sage green and the frame claret. For the wheels, I had to create imitation balance weights, these are made from 20thou Plastikard, cut using a circular cutter. Once fitted, these were painted green and, where the spokes of the wheels meet the balance weight, the yellow ochre colour is painted to give the impression the balance weights are not actually there, and the spokes carry on through to the rim, this is something I've noticed on preserved Terriers Stepney and Boxhill, so I felt it right to do the same.

As the loco kit is designed as an A1X, particularly based around No.32636 Fenchurch, a few bodywork details needed to be addressed. This included the shortening of the smokebox by 7mm, salvaging the smokebox door, building up the sandboxes against the front splashers, and, possibly the biggest alteration, the creation of the front wing plate and changing the smokebox shape to an early pattern D shape as designed by Mr Stroudley. At this point, the loco is now an 'A class' as built. The chimney, as supplied, is the later pattern, so a friend of mine has agreed to create a new chimney on his lathe to show the loco off in 'as built' condition.

The main bodywork components are comprised of four resin mouldings. They are the smokebox/short boiler section, tank/cab/bunker/toolbox, firebox back head and the cab roof. The smokebox/short boiler section and tank/cab/bunker/toolbox parts were positioned on the steel footplate and the holes were drilled through the resin mouldings to allow the self-tapping screws to hold the bodywork to the footplate in the correct position. The chimney, dome, tank vents, handrail knobs, splashers, whistle and other items are all a mix of brass and white metal castings that are glued or screwed in place. The cab floor in the loco is made up from some scrap 40 thou plastic, and scribed to represent the wooden planks prior to painting.

Radio Control

The radio control I have fitted is supplied



The un-started GRS kit, with all the major components laid out.



Chassis bolted together including the buffers, wheels and keeper plates.



Test fit of the footplate and resin body sections, with an old Hornby 00 Scale terrier for comparison.

from Fosworks radio control equipment. The loco is running on 11 AA batteries, which are located inside the boiler barrel and the tank space. Also inside the tank space is the receiver and sound card. The speaker is mounted under the footplate, which is directly below the smokebox, so the sound comes from the correct location. The switch and charge socket are located inside the bunker space.

Painting

When I was at the painting stage, I used Halford's white plastic primer. Once the first coat had dried, it was given a light rub back and then a second coat of primer was applied to the body shell. The yellow ochre and the green borders were entirely brush painted, for this job I purchased a brand new flat wide brush from my local art shop. I was able to apply three thin coats

of the yellow ochre, rubbing back after the first and second coats to make sure that the final topcoat would be perfect. For the green borders, I purchased another brand-new brush and painted this free hand. Once all the paint touch-ups had been done, the model received a spray of gloss varnish.

Lining

Prior to building this kit, I had built and painted in the smaller scale of 00 three models of the Gladstone loco kits from Lytchett Manor models. When it came to painting these models, the base coat of the yellow ochre and the green borders were brush painted. I then approached a friend of mine, Mark Seward, from Taunton, who is very good at making bespoke transfers for models. Previously, he had produced some superb transfers and lining for a few Ffestiniog locomotives in 7mm narrow gauge.

The principle of how the transfers were designed and applied to the model is the same regardless of scale. For example, the tank panel is one single transfer, which includes the lining and the name of the



Wingplate fitted to the front, and the sandboxes added to the front splashers.



Smokebox shortened by 7mm. Five of the 11 AA batteries will be inside here in a circular fashion at a later stage of the build.

modeller's choice, in this case, the name is 'Wonersh'. To get the best out of these transfers, the model must be painted to a good finish then gloss varnished and allowed to dry for at least a week.

Then the waterslide transfers can be applied. Time and great care is needed to make sure that the transfer is not damaged in handling, and it is positioned correctly. Once I had all of them in position, I was then able to spray the whole model with more Railmatch gloss varnish to seal in the transfers. Normally, at this stage I would then spray varnish the model into a satin or matt finish depending upon the model, however, this loco deserves to be in a gloss finish.

The etched brass makers plates and number plates were supplied courtesy of Diane Carney, these came in an unpainted state. I had to paint the makers plates into black and wipe away the excess leaving the recessed lettering painted black. I did the same process on the number plates but used blue paint instead.

It would be nice if GRS was able to reissue this kit, but I do understand that manufacturing costs are an issue, so all I will say is that we, the G3S, would not be as far advanced without Garden Railway Specialists, and we all owe them a great debt of gratitude.

As you can see, the loco No.77 'Wonersh' looks superb, and I am slightly envious that the loco is not my loco. However, I have had the immense pleasure of building a superb kit and finishing it into an instantly recognisable livery. ■



The D shape of the smokebox was created by adding sheets of Plastikard with lots of filler and rubbing back.

Tempted by this project?
Visit the Gauge 3 Society
www.gauge3.org.uk

Garden Rail Resource

Garden Railway Specialists
6 Summerleys Rd, Princes Risborough
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Test fit of the transfers prior to the final print being approved.



Building the Walmer Branch Shuttle Service

Steve Burnett builds a South African train.

In 1908, two 4-6-2 locomotives, designed and built by W.G. Bagnall, were put into service on the Walmer branch line, which ran from Port Elizabeth on the Avontuur line to Walmer up to 22 times per day. The two engines were later numbered NG33 and NG34 when the SAR was formed and ran on this line until its closure in 1929.

Although there is a fair bit of information around, images are few and far between. Looking at the photographs in *24 inches apart* and *Railway To Adventure* and speaking with a few people, it looked like the most common makeup of the Walmer train consisted of two of the

Suburban Carriages in combination with a CGR Brake.

A great resource for those modelling South African Narrow Gauge is the Facebook 16mm SAR/South African Narrow Gauge group. Not long after joining, I was introduced to Andrew Giffen.

Andrew produces quality models and was thinking about building the Walmer Bagnall's, if he could get enough interest. Needless to say, I ordered one straight away. This was delivered at the back end of 2020 in a flight case type box and did not disappoint. The workmanship was excellent and the engine ran absolutely brilliantly - inspiration to get my finger

out to complete the coach builds.

Building the Walmer coaches

David Williams, of Resurgam, informed me that a prototype of the Walmer carriage was about to be produced, so I ordered two suburban carriages, plus a CGR brake to make up the branch shuttle service.

A comprehensive set of well-detailed instructions for the bogies and the carriages, and a parts list, also accompanied the kits. This detailed set of instructions is 40+ pages for the Walmers, a comprehensive

and complex kit screaming out 'Build Me'.

As with all kits, it pays to read the build instructions prior to commencing, this was done over several cups of tea, with a couple of dry runs. The instructions were well thumbbed! Eventually, I decided to build them as is, with the exception of compensating the bogies.

Starting with the bogies, these were built as per instruction, using sanding sealer as I went, and Halfords rattle cans for the main colour, which gave them a decent look. They are compensated using rivets in opposing directions to each other to enable the bogies to rock. I have always found gives a far better and smoother running vehicle, and is easy to do.

The bodies have internal and external engraved sides, as do the compartment dividers. All were assembled as per the instructions, and the seats were built and added, prior to the external sides being attached, but once the roof formers had been added.

On the second coach, I left the seats out as some on the first were damaged when handling the model. They were fitted after the body had been built and painted. The internal and external sides were also glued



The bogies are fitted with round top rivets. The chassis sits on these and can rock slightly, providing compensation.



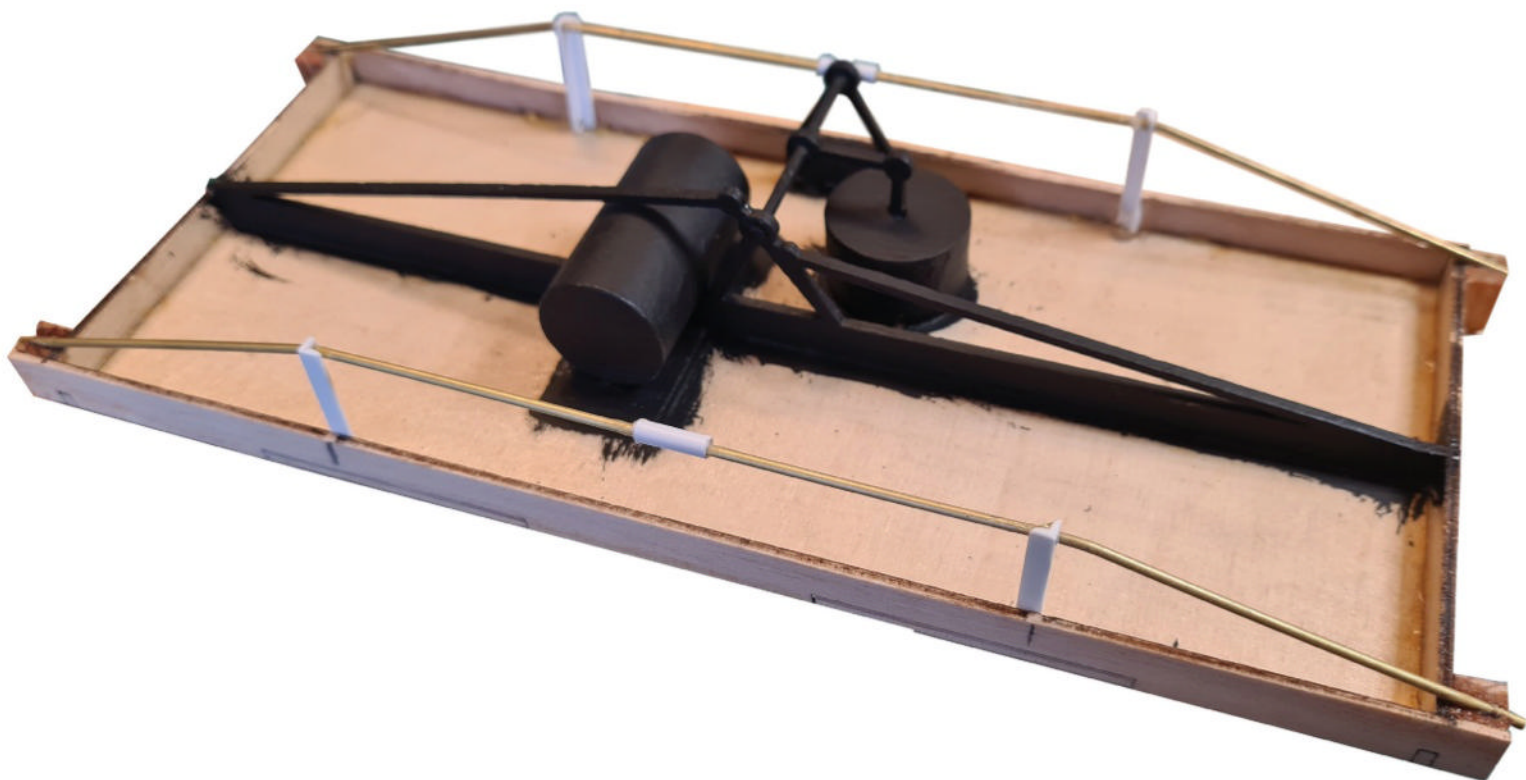
Assembling the roof on the second coach.



Etched lines make forming the roof curves a lot easier than a plain sheet, but it will need to be covered to hide them.



Fitting the internal details.



Some wooden chassis detail was replaced with metal for robustness.

together on the second build prior to assembly, this I found much easier to do and gave it more strength while assembling the other bits to it. Also it enabled me to put both sides under weight along their lengths, to ensure there was no warp in the wood.

When doing it this way, you just need to make sure you don't leave any glue on the internal window frames so the perspex windows fit correctly later on in the build.

The next stage was to glue the roof on. There is a tight radius that runs along the length, however, with the use of loads of elastic bands, this shape was achieved more easily than I expected.

Efforts to cover the roof with tissue were a disaster, but rather than trying to take it off, I built the roof up with paint, drying it between coats, until I had a nice smooth surface. Five coats went on before I got a finish I was happy with and would be suitable for spraying over.

The balcony roof end pieces curve through 90 degrees in the vertical and horizontal axis, making them a little tricky to do. Using superglue, the balcony end section was stuck on first, clamped with a peg with another supporting and left to dry for 24 hours. Once this piece had dried, the rest was superglued and weighted with a disused battery, again for 24 hours to allow it to dry. Finally, it was trimmed to size and filled then rubbed

down, this gave it a nice finish.

The remaining external door fascias were added and the side trim along the length of the coach.

This was then given another light rub down prior to the undercoat being added and then the top coats, with another light rub down between the two top coats.

Once dried, the lettering was added, these were obtained from Cornwall Model Boats, then the whole coach sprayed with lacquer, the windows were then fitted.

Moving back to the chassis, it was built up in two main sections, the main chassis with balcony ends, and a sub section for the vac system, brake rigging, etc.

The main chassis was started and built as per instructions, with the exception of the rivets/bolt detail, these were drilled out and pin heads added for that little extra detail. Apart from replacing rivet and bolt detail with pins, everything was built exactly as the comprehensive instructions show. A few delicate wooden parts were substituted with brass, as I could see them getting broken when running them out in the garden.

CGR/SAR First Class Brake

This arrived with the two Walmer coaches and came well-boxed and packaged with a comprehensive set of instructions and the

same hidden tab and slot principle you find in all Resurgam kits. This was also ordered in plywood. The instructions were followed loosely, and by that I mean I jumped or bought forward sections of the build, such as the internal and external body sides.

The two coach body sides and internal etched parts, which I marked out to ensure I got the correct final positions, were assembled on a flat surface and left to dry. Once dry, the chassis floor was covered in clingfilm, and was used to build up and help keep the main body square. Once all the sides and partitions had dried, the instructions tell you to remove the floor, but I left it until the roof had been stuck on using a large amount of elastic bands. This made for a nice sturdy coach body that could take a bit of sanding and sealing without worrying too much about damage.

The duckets were built off the body again, not following the instructions as I found it easier to build these and fill and shape prior to fixing to the body.

The coach body again had a rub down, masked off then undercoated, and a couple of top coats added with a wet and dry rub down between them. Once it had cured for a couple of days, the yellow lining was added and the door furniture was added, along with the lettering, and given a couple of coats of lacquer.

Prior to the windows being added, the internal furniture was fixed in place, this allowed fingers and tools to be used through the windows to aid the fixture of the fittings. Windows were then added.

Conclusion

These are good kits, with a good set of build instructions, and they follow the hidden tab and slot principle you find in

all of Resurgam kits. Once built, you end up with a very nice coach.

Normally a scratch builder, would I buy other kits from Resurgam? Without a doubt. I currently have three vans under construction, and will be looking at purchasing other carriages to make up another rake for my NG 16 and 15. ■

Garden Rail Resource

Resurgam Rolling Stock
2 Alltwen, Llysfaen Colwyn Bay,
Conwy LL29 8PG
www.resurgamrollingstock.co.uk

Cornwall Model Boats
Unit 3B, Highfield Industrial Estate,
Highfield Rd, Camelford PL32 9RA
www.cornwallmodelboats.co.uk

Please mention **Garden Rail**
when contacting suppliers.



The brake under construction.

All painting was carried out with Halfords spray cans.





A O-4-2 Peckett

John Conder adds a pony to his locomotive.

At the National Garden Rail Exhibition, I was very lucky and won the 5th prize in the raffle - a beautiful rake of Talylyn coaches. These, I decided, would be a perfect train for my Accucraft Peckett, but before they ran, I intended to make some changes to the locomotive.

I purchased Brandbright sprung buffers and used the sprung buffer centre to replace the Accucraft centre.

As I wanted full radio control, I cut the rear sheet from its frame of uprights with a very thin slitting disc and used it as the rear of the new bunker, which I made from some steel angle from the bits box. This bunker contains four AAA batteries, switch and charging socket, radio control unit and servo for direction control, the servo for regulator control being in the firebox under the loco. Rear frame extensions and flooring was made from brass from the bits box.

Unfortunately, all this weight made the loco very heavy to the rear, so a rear bogie was required, I made a sprung loaded one again from the bits box, but this proved to be insufficient as when steamed the loco

performed excellent wheelies and derailed. So, I made another solid one with an adjustable screw, which allows the amount of play as it bears on the floor of the cab.

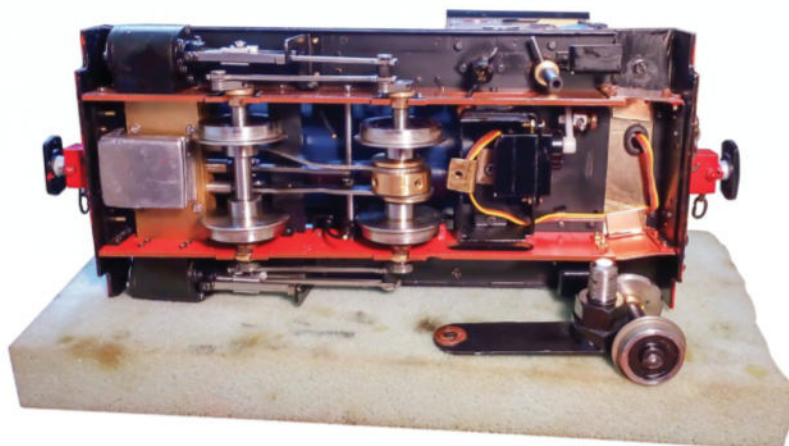
I also made a lead weight for the front, which fits behind the buffer beam and under the valve block. This is bolted through the front buffer housing to a threaded bush soldered into the lead weight, I have left approx 1mm gap between the valve block and the lead weight to allow the valve block to warm up quickly (don't ask how I found out this was necessary). ■

Garden Rail Resource

Accucraft UK Ltd.
PO Box 394, Hereford, HR1 9QN
www.accucraft.uk.com

Brandbright
www.brandbright.co.uk

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The underside, showing front weight, rear bogie and frame extensions.

DIARY DATES

Date: 25 to 28 August, 2023

Event: Aylsham Minor Running Weekend

Venue: Bure Valley Railway, Aylsham Station, Norwich Road, Aylsham, Norfolk, NR11 6BW

Times: 10am to 4:30pm

Web: www.bvrw.co.uk

Date: 25 to 28 August, 2023

Event: The Big Model and Hobby Show

Venue: Formby High School, Freshfield Road, Formby, L37 3HW

Times: 10am to 4.30pm

Web: www.modelandhobbyshow.com

Date: 30 September, 2023

Event: Yorkshire Garden Railway Show

Venue: Barrow Hill Roundhouse Railway Centre, Campbell Drive, Barrow Hill, Chesterfield, Derbyshire, S43 2PR

Times: 10am to 4pm

Web: www.yorkshire.16mm.org.uk/Yorkshire16mmShowhomepage.html

Date: 28 October, 2023

Event: Exeter Garden Railway Show

Venue: The Matford Centre, Matford Park Road, Marsh Barton Ind Estate, Exeter, EX2 8FD

Times: 10.30am to 4.30pm

Web: www.exetergardenrailwayshow.com

Date: 12-15 October, 2023

Event: Midlands Model Engineering Exhibition

Venue: Warwickshire Event Centre, A425, Southam Road, Leamington Spa, CV31 1FE

Times: 10am to 4:30pm

Web: www.midlandsmodelengineering.co.uk/

Date: 2/3 March, 2024

Event: Midlands Garden Rail Show

Venue: Warwickshire Event Centre, A425, Southam Road, Leamington Spa, CV31 1FE

Times: 10am to 4pm

Web: www.meridienneexhibitions.co.uk/events/midlands-garden-rail-show

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Sometimes, Small is Beautiful

Mark Thatcher attempts to build four essential lineside buildings on a tight budget.

It is funny how I get dealt the review opportunities for Garden Rail. Often boxes just turn up on my doorstep, and it is a real voyage of discovery for me as a welcome surprise hides inside. But, other times, I know what I would like to review and set about doing just that. An example of this was getting the chance to build and review the amazing Cornish mill engine house from Kippo Models recently. This was by far the largest and most expensive kit I have ever built to date – oh – and well worth the money by the way if you have space for it.

That got my mind working, as I pondered just what are the real essential

buildings that are ‘must-haves’ for a small garden line, or even an estate railway with limited funds, and how cheaply I could source these. You see, the most basic of railways will have an equally basic infrastructure, and I figured these might include a coal staithe and water tower to feed hungry steam locos, a diesel refuelling point for non-steam locomotives, plus some sort of engineers or platelayers hut, which would provide the most basic of shelter from the elements, or maybe could be used as a small and very simple station building.

And my budget? My aiming point was to source all four of these buildings for less

than £100. And (spoiler alert) I tried and failed, but only by a penny.

Also, building four buildings at once would allow me to theme them with a certain look and style. I like to keep my colour palette simple, and these buildings allowed me to further experiment with brickwork, wood, iron and steel finishes. I also tried a new technique to realistically paint a wiggly tin roof. All the buildings are available from Modeltown, and the only one that needed much assembly was the water tower, which was also the largest of the buildings. But I like to ease myself in gently with any build, and clearly the easiest to tackle first was the coal staithe.

Coal staithe

This was presented as a one-piece moulding, so there was literally no assembly. I needed to choose a base colour over which I could add various other layers to bring out the texture in the well-detailed relief surface.

Black was the obvious choice here. I did not wish to make the wood panelling look too light, as I figured things would get pretty grubbed up with coal dust around this area, so I just opted to dry brush a very fine application of wagon brown. I went really lightly with this effect. It is far easier to add more paint afterwards, slosh too much on to start with and you will be back to stage one and will need another base coat.

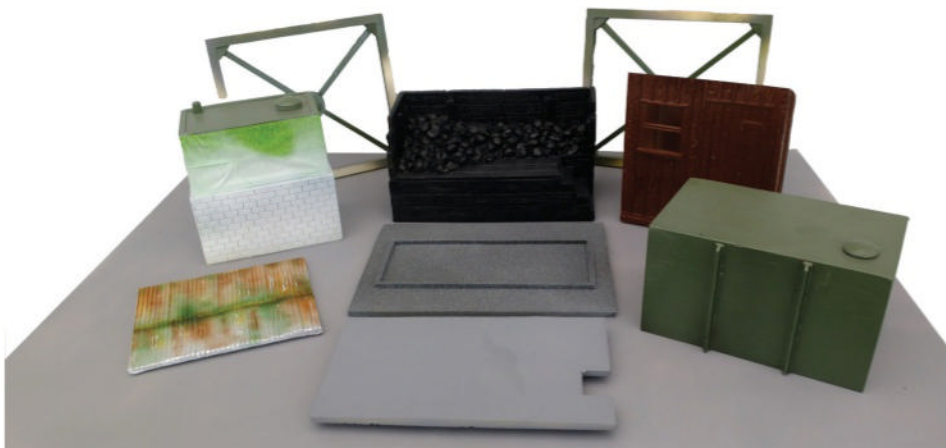
After that, I added an equally small amount of light tan to the floorboards onto the raised staithe where the coal lives. This had a pleasing effect of delineating this area from the rest of the wood, which I was very happy with. A light application of slate grey was applied to the steps and then partially wiped off with a tissue to reveal the black undercoat, to provide a quick and easy weather-worn tread effect. I needed to repaint the edge of the coal black, where inevitably the dry-brushing caught it, but this was an easy touch up, and the job was done in no time at all!

Lineside hut

Now, I could have just copped out with this hut and used the same colours that I did for the coal staithe, but where's the fun in that? Besides, I wanted to illustrate how you can change the physical overall look on a small building with just one slight colour variation. I come from the 'quick and easy' school of building and painting, while I have admired from afar the excellent painting and weathering skills of both Model Earth Design and Steph Hickling. I am no match for their skillset. One thing both these folks have taught me is that adding a lighter colour over a brown base really looks good, and the wood looks really dry and aged doing this.

So, this time, the base coat was a medium brown and a tan colour was then dry-brushed over this. Then, I added a hint of cream to further enhance the details of the raised wooden batons and door and window frames. Again, this was quick and simple to do, and should not be beyond the skill of anyone really.

If you fancied a small station halt instead of the lineside hut, then one of these is also available for £24.00, which is great value.



Making decisions as to how you want the end result to be early on in the build/paint process will dictate what colour base choices you use and will pay dividends later on.



The coal staithe has now been dry-brushed in mid-brown. I will touch up the coal load later.



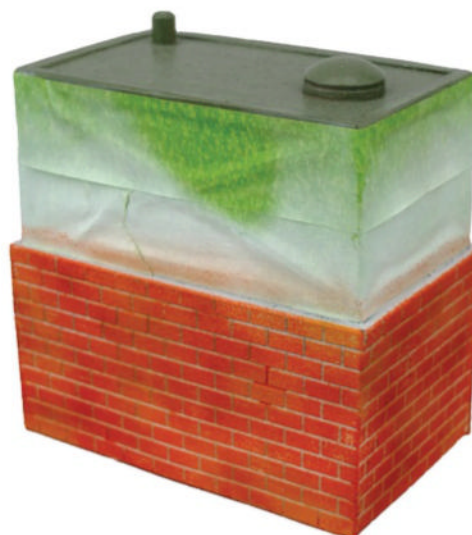
A lighter colour was added to the planking and the steps were picked out in mid-grey.



The base coat for the hut was brown, with a dry-brushing of tan added to pop out the planking detail.



A further splash of cream was added to attempt to replicate the dry-aged wood on the sides of the hut.



It may look too bright when you lay the original brick colours on, but these will be severely toned down later, so I suggest you keep the colours bright for now at this early stage.

Create a realistic wiggly tin roof



Grab some tin foil from the kitchen cupboard and then Superglue it to the existing roof. Don't worry if the foil splits in certain places, that all adds to the realism. Just form the tin foil over and onto the existing roof section with your thumb or finger, or use a curved wooden spatula.



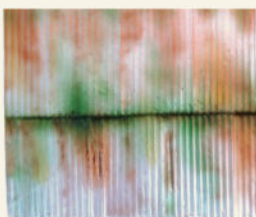
When dry, tuck and glue the tin foil to the underside of the roof, bearing in mind to have enough spare foil on the underside as there is a little roof overhang.



Once everything is dry, your roof should look something like this.



These are the pre-mixed Vallejo airbrush paint colours that I chose to weather the roof with. But don't worry if you have not got, or can't use an airbrush, as a light spray from rattle cans will have a similar effect. Now here is the trick: as the paint does not adhere well to the tin foil, when dry you can further distress the roof by scraping off a little paint from the raised sections with your thumbnail or cocktail stick.



Once you are happy with the finish that you have achieved, it is worth sealing in the paint with a light spray coat of matt varnish.



After a light coat of Vallejo's Mahogany, the C&WW black wash was applied. Again, it looks too dark initially, but when the wash settles down and dries, it will all be fine.



And here is the finished result with a natural looking weathered brick effect.



I considered where rust might appear on a real diesel tank and tried to mimic it on this model.

However, turning my attention to the wiggly tin roof, while I could have used an aluminium or chrome spray paint from a rattle can, I wanted to try a new technique to add further realism and to the left are the steps that I took to achieve this.

Diesel refuelling tank

Again, similar to the coal staithe, this was a one-piece moulding, so no assembly was required. In fact, this and the coal staithe comes from Modeltown's easy range of kits, which are designed to provide you with basic kits to get you up and running quickly and easily.

Anyhow, the base colour for the tank was Vauxhall Leaf Green from a Halfords rattle can, and then I airbrushed Vallejo's Mahogany at the very edges of the tank, to model a little rust, where perhaps the rust may well appear in real life. Now these Halfords spray cans are inevitably gloss, but I have found, that with only a light shake and then a light coat leaves you with a nice matt finish. I found this out by both accident and laziness, but not shaking the rattle can! Perhaps fewer shakes equal not mixing the gloss finish into the paint so much... I really don't know, but it worked for me.

The brickwork was achieved in a

four-stage process. I used a white primer sprayed onto the brickwork, before sponge-painting brick red, followed by dabs of orange. This can look so garish and wrong at this stage, but hang on in there, as I then toned the whole brick surface down with a light coat of Vallejo's Mahogany, which was airbrushed on. Finally, the whole finish was tied together with a thin black wash. Again, don't panic at this stage, as it looks too black when initially laid on, but let it dry and the weathered brick effect pops through.

At this point, I should probably give an unashamed plug to my good friends at Coach & Wagon Works, who kindly supply me with all the paints, glues and sundries that I need to carry on creating these models for you. Thank you, C&WW!

Iron-framed water tower

I think out of the four kits, this one is my favourite and also the most substantial, plus it had a lot of added detail to bring it to life. The tank itself is a separate component, making it easier to paint than the diesel tank. I used exactly the same colours and methods to paint this as the smaller diesel tank, however, I switched things up on the iron frame that the tank is mounted to.

I used Vauxhall Pine Green as well as Leaf Green just to offer a little variation to the greens on display. The contrast is very subtle for sure, I but I think it works OK. Also, I was able to use C&WW Tallylyn Green to pick out the circular detail of the cross bracing. For the base, I used a dark grey textured paint from Rust-Oleum, which mimics Tarmac quite realistically. Now this is one rattle can that you really need to shake well, otherwise, the nozzle gets easily blocked with the flecks of this textured paint if there is not enough liquid to let it squeeze through the nozzle.

A worthy exercise?

I think I have proven that, while it is great having lofty modelling aspirations, you don't need to start off in this hobby by trying to re-create King's Cross Station (although if you do, then Brunel Models have got your back and make fantastic buildings on commission). But, with modest plans and an equally modest budget, you can achieve a plausible small railway infrastructure to give you scenic points and stops for your locos to trundle past, or stop at and top up with the necessary consumables.

I also think that Modeltown is very good at making very appealing products at very keen price points, and really, I have only dipped my toes into its vast range of buildings. There are plenty of others available, all priced between £20 to £40 and I would urge you to pop over to its website. You might just find something you fancy, and it won't break the bank either! As for my budget? Well, these four buildings cost exactly £100, hence me being 1p over my "less than £100" budget. Still pretty good, eh? ■



The base of the water tank, using two tones of green and a little faux rust.



The detail on the water tower is great, and this is easily my favourite of the four buildings in this article.

Garden Rail Resource

Beecholme, 6 Station Road, Halton
Holegate, Spilsby, Lincs, PE23 5PB
www.modeltown.co.uk

Lineside hut £20
Diesel refuelling tank £20
Wooden coaling stage £20.00
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and accessories £40.00

Coach & Wagon Works
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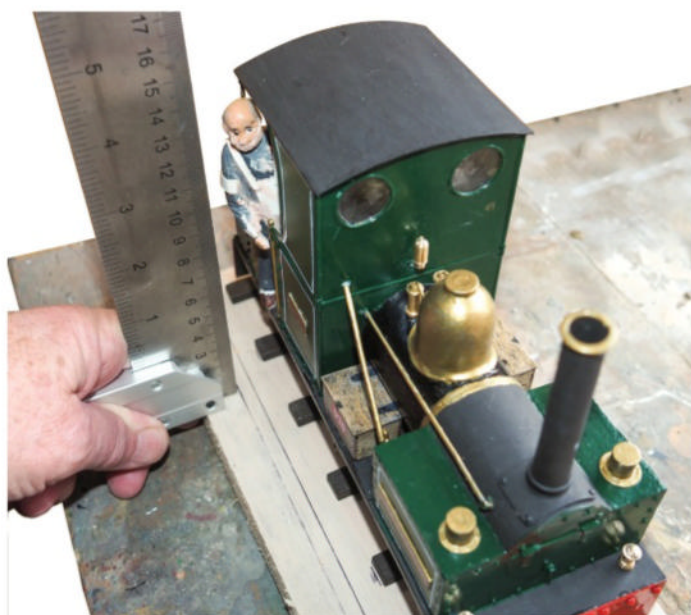
Dave Skertchly tries to keep his locomotives safe.

There is no doubt that our locomotives are special to us. Whether expensive purchases, or much-loved scratch-builds, they deserve to be looked after. There are just so many projections that can be knocked off and paintwork scratched or damaged, that it seems appropriate to protect these treasured possessions.

Of course, if you have spent a substantial amount of money on a locomotive, you may prefer to buy a professionally made box from the trade, however, for those cheaper engines, my version might work well for you.

This box uses very cheap readily available materials. A sheet of 1/8" (3mm) hardboard can be bought for just a few pounds, and the thicker base materials from 1/2" (12mm) plywood or MDF can often be spotted in the off-cuts box.

1



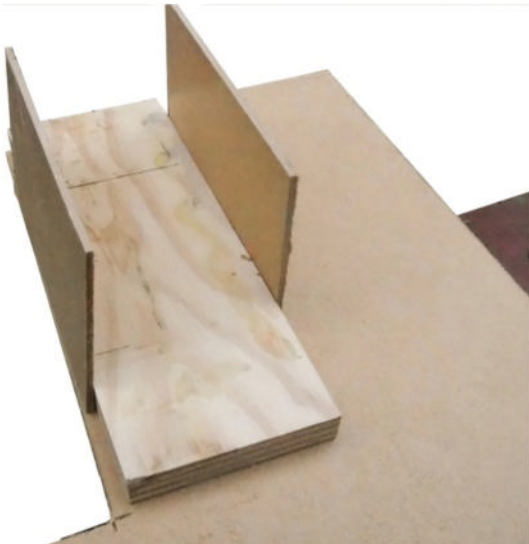
Start by marking out the size of the locomotive on the thicker base material. It doesn't have to be a tight fit, and don't forget that bits often stick out on one side and not the other, such as my drivers, who seem always to lean out of the right side. Cut the ends from hardboard to the same width as the base and over height by about 1 1/2" (37mm).

2



Take a piece of foam, a car cleaning sponge will do if cannot buy a slab, and mark out the height on the end from the top of the base to the top of the foam, with allowance for a bit of squash in the foam. Cut the end to size.

4



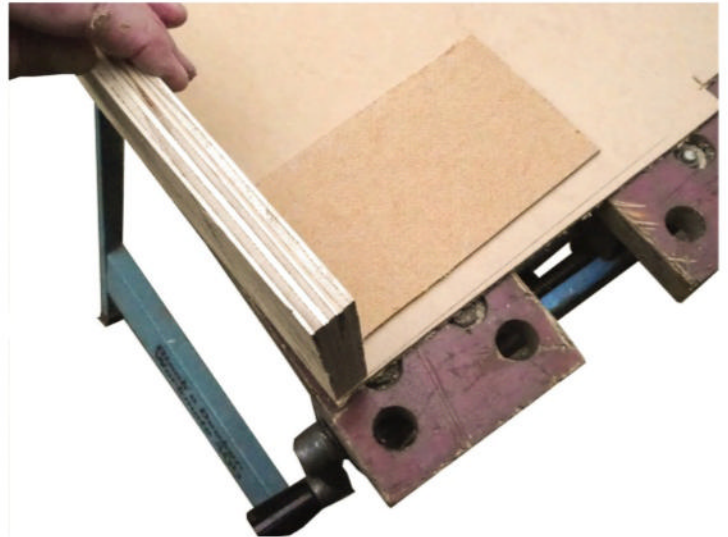
The top should be the length of the base and the width of the base plus the thickness of the sides. Mark out and cut.

6



Fix the sides to the base with sticky tape - do not glue!

3



Now mark out the height of the sides, which should be from the bottom of the base to the top of the foam as marked on the ends. I use the ends as a reference. Cut to size.

5

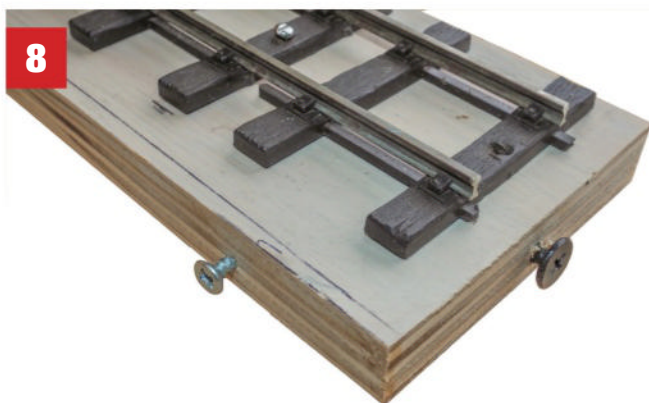


Here are the bits cut out. The handle is made from a pine off cut and the handle spacer from offcuts from the base materials.

7



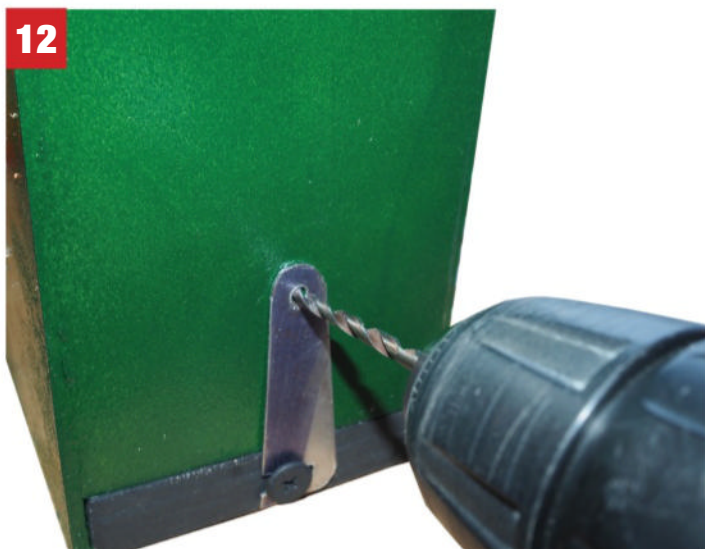
Fix the ends between the sides tacking to the sides, but not the base, with quick-setting glue such as cyanoacrylate. You might want to trim the sides with a sander or sanding block to get the top flat before fitting the lid. Fix the top roughly to the sides and ends with cyanoacrylate and, when set, remove the lid from the base. Rub, and I mean rub, PVA adhesive into all the joint lines.



Select and cut a length of track that is twice the thickness of the ends shorter than the base. Fix a PK screw in each end of the base. If using multiple thicknesses of foam, you might want to orientate the cover so a small screw can be fixed to the front of the base to engage with the slot in the cover. Since you are screwing into plywood, drill a pilot hole first.



The handle and spacers should be glued roughly together and the ends sanded to shape. Drill M4 clearance and drill the lid through the holes in the handle so they line up.



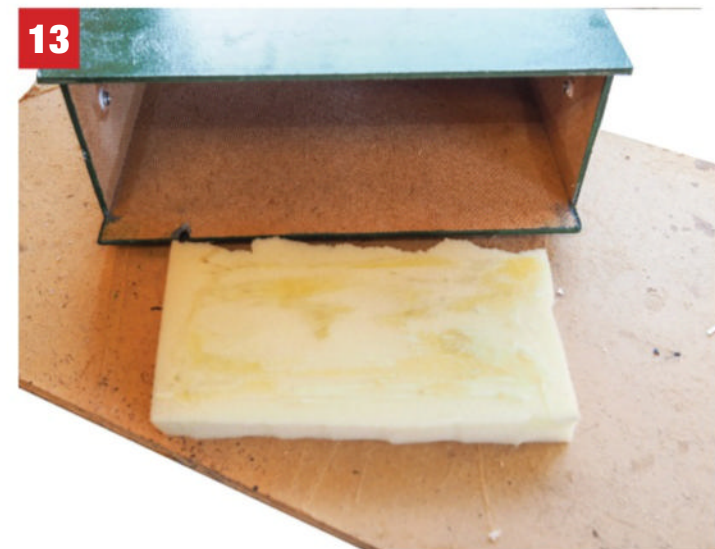
Rather than try to mark it all out, I fit the latch and then drill the mounting holes M4. Cut the M4 bolts to length and fit with the head inside to limit the height.



It's not essential, but I like to ballast my tracks, and paint the base matt black.



I have tried these latches from the hardware store, but they tend to flip undone, so they have an angle lock made from MDF. Since the loco is heavier, I also reinforce the plywood with a piece of 1/8" (3mm) ply to stop the ply from delaminating. I prefer to cut a simple latch from 1/16" (1.5mm) steel scrap.



Fit the foam to the inside of the lid with contact adhesive. The foam presses the locomotive onto the track and stops it moving around, there is no need for foam on the sides and ends.

As I sit on my rustic park bench outside the Sheep Shearers Arms, I am glad that my locomotives will be safe wherever I travel. And then I start to worry, will I be able to find a pint of Fine Auld Phagbutt in the local hostelryes?



Letters are welcomed on any aspect of large scale railway modelling. Please email the Editor: phil.parker@warnersgroup.co.uk or post to The Editor, Garden Rail Magazine, Warners Group Publications, West Street, Bourne, Lincolnshire, PE10 9PH

REAL PLANTS



A while ago, you did an article on scale trees and plants, which I found very interesting.

The problem with trying to grow scale trees alongside a garden railway, as the article pointed out, is trees are much bigger than we think they are. Another problem is that, unless you have a few acres to play with, most garden railways are very short when taking scale into account, so having full-scale size trees actually distorts the picture that some, probably most, garden railway builders are trying to create.

As an example, on my railway from the greenhouse (Ty Gwydwr) to the shed (yr Sied) is 59 scale chains (just under 3/4 scale mile), or approximately 59 metres. The big railway in the valley (Central Wales Line) passes beneath Kinsley Wood for a distance of about 3/4 of a real mile. I don't know how many trees there are in the wood, but it is quite likely in the millions, so recreating even a very small wood is not practical. From the top of

Panpwnton, the big railway passes through another wood 800ft below and disappears from view before crossing the viaduct at Knucklas. As we tend to view our garden railways from above, if we grew scale trees, we'd never see our trains!

Condensing the horizontal distance is essential because 3/4 of a scale mile is 4min 30sec running time at a scale 10mph or 3min at 15mph, so building a scale length line of, say, 7 miles (Tallylyn Railway) a trip would take between 28 and 42 mins. Besides having to maintain and keep clear an enormous amount of track, keeping a steam loco fueled and watered would be difficult if not impossible. We'd probably also be reluctant to run trains very often on such a line!

Another Garden Rail article featured a transportable railway with real plants. Obviously, the "trees" were well under scale, but they looked the part and that is what matters most.

Tom Taylor

A CRACKER OF A LOCOMOTIVE

Time passes quickly and the NGRS is becoming a distant memory. I see that you and Dave Skertchly are looking at building a live steam loco without using a lathe. The main problem is the actual engine, the piston and cylinder. Adjacent to your request in June Garden rail is Tony Green Steam models. Tony sells ready machined oscillating engine kits at a quite reasonable price. Boilers for "Ellie" are available, as are wheels and gears. It should be possible to make something up.

Dave asks about using shellac on card coach sides, I have Mr Boreham's book to hand, the shellac is applied at the end of the build before painting. Another name for banana oil is WD40! I believe. Deluxe Materials do a model aircraft finishing varnish and Coach and Wagon do a suitable material with their satin finish varnish.

John Manning

Editor: Thanks for the advice, John. We now have an article on Cracker locomotives in the works, so watch this space...



An 'Ellie' tram spotted at the Midlands show earlier this year.



A Funicular Garden Railway

John Carmichael is going up in the world.

It all began in 2010, when I finally had the time and resources to pursue a dream that started in the 1980s when I learned about garden railways. I wanted to make one. The internet and magazines taught me enough to get started.

It was important to me, as a horticulturist, to emphasize the garden part of a garden railroad. I designed the longest mainline that would fit in the available space at my home in Tucson, without interfering with the largest plants. We named

it the Cholla Patch Railroad because of the abundance of cholla cactus. The result is a mostly trestle elevated pretzel shape design - like a dog bone folded back on itself.

By 2019, all the blank spaces had finished rockeries, except for the biggest island north of the tree house near the centre of the railroad. Something special had to go there. I had several ideas, but none of them were that great. Then, I stumbled across a video of a funicular, often called an 'incline' in the eastern US or a 'cliff railway' in

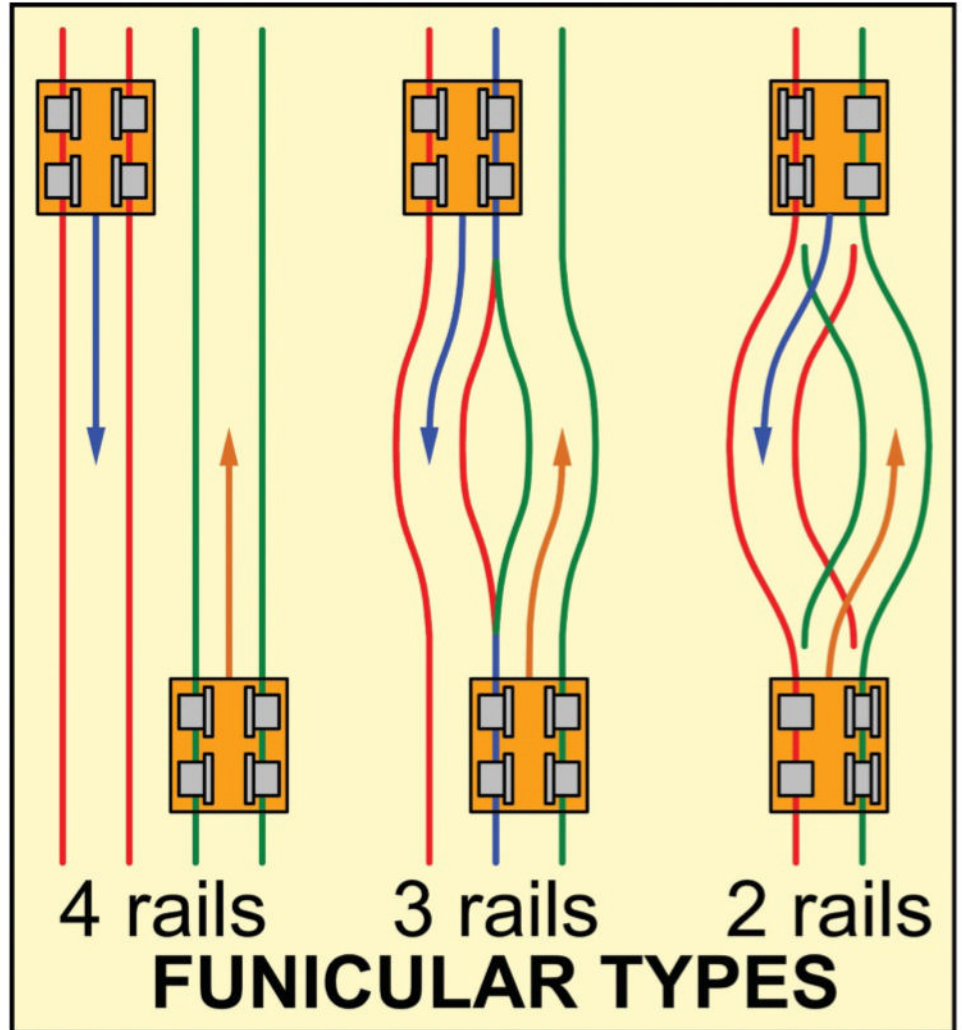
Britain. I had never heard of them before since there are few in my country. They're wonderful! In the 1820s, the mining industry used the first simple versions. Passenger versions began appearing in the 1850s, and many have been built since then. New ones are still being built. Long ones can travel over two miles and reach fantastic heights. Tourists love them, so they are big money-makers.

The dictionary says the first use of the English word funicular from the 1600s,



originally meant ‘relating to a cord under tension.’ All funiculars have two cars of nearly equal weight, which are connected to each other by hooks and a single long cable. They move people and freight up and down inclines as steep as 45 degrees. Like ski gondolas, the cable goes around a large pulley at the top of the incline. Nowadays, most are powered by an electric motor connected by reduction gears to the large pulley (called a ‘drive wheel’). The great thing about this arrangement is that the cars balance each other, so the motor has little lifting work to do. Some of the old Victorian ones used water to fill a tank beneath the floor of the car in the upper station. The added weight causes the heavier car to go down and the other car to go up. When the heavier car reaches the bottom, the water drains out and the process is repeated. A brakeman and braking system is needed on most full-size funiculars and on all water-driven ones to slow the stop.

There are three basic types of funiculars,



A lighter colour was added to the planking and the steps were picked out in mid-grey.

that differ only in track design: two rails, three rails, and four rails. The earliest ones were four rail (two track) funiculars, but they are the costliest to build because rails are expensive, they take up a lot of space, and they need double stations. More advanced three rail funiculars are less expensive but a little harder-to-build because they require a passing switch. The least expensive is the modern two rail funicular. They use less iron rail, don't need double stations, and occupy less space, but have the harder to build passing section. This unique type of funicular was invented in 1890 by Swiss engineer Carl Roman Abt (1850–1933) for the Giessbach Hotel funicular, which is still in operation. It was made possible by his innovative and revolutionary ABT passing switch - the only railway points without any moving parts! Abt called it the “automatic turnout” solution. It became an instant success and most funiculars constructed afterwards use the ABT design to this day.

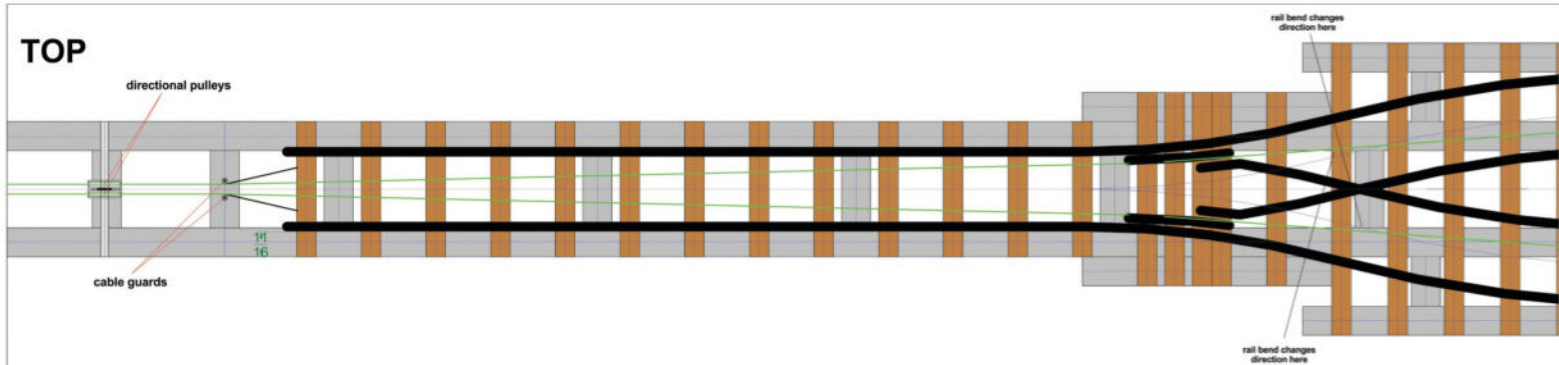
A G-scale funicular of any type would be a fantastic addition to the existing railroad area, but there was little information available, I was on my own, using old photographs and videos, common sense and experiments, to design and build the track

and other elements. The design required precision and CAD drawings to create.

After two months, construction began and had to be equally precise. For example, the split-level cars had to stop exactly in line with the split-level boarding platforms, and the cable hooks had to pass through the exact centre of narrow cable gaps in the switch.

I built it in my studio on a sturdy iron support structure with composite wood footings. This was necessary because it would be almost impossible to build in place on a mountain since constant testing and design revision was required. After thorough systems testing, and coating the iron structure with Flex-Seal to prevent rusting, we moved it outside to the big island, where we built a mountain range around it, burying most of the iron structure. To the lower station, we added the Victorian ticket booth I modelled after the precious upper station at the Saltburn Cliff funicular. A wooden suspension bridge connects the upper station to the Treehouse complex about five feet away. The entire project took about 12 months to finish and I never realized how much work it would be, but it was all worth it.

TOP



My funicular is a two rail version and features the innovative ABT passing switch, partially inspired by a video made eight years ago by a man and his grandson in Barcelona, Spain, who made a demonstration model of a similar G-scale funicular modelled after the Horseshoe Curve funicular in Pittsburgh. Their demonstration model was a little rough around the edges, and not weather-resistant, but it proved to me that a two rail G-Scale funicular was possible. I copied their use of an old 3" Meccano 19b 'V' groove pulley for the cable drive wheel.

G-scale funiculars are rare because most people don't know what funiculars are, and they are hard to build. The models that do exist are the simpler four rail type. Apparently, my two-rail ABT funicular is the first one in the world that's installed as a garden railway. It has automated station stops with programmable timed delay and auto-reverse. Speed is adjustable with a throttle, but I usually keep it at a prototypical speed of 3"/sec. It has an automatic warning bell just like the real ones, and extensive car and structural lighting. The controls are conveniently located on the outside covered rear of the gear room.

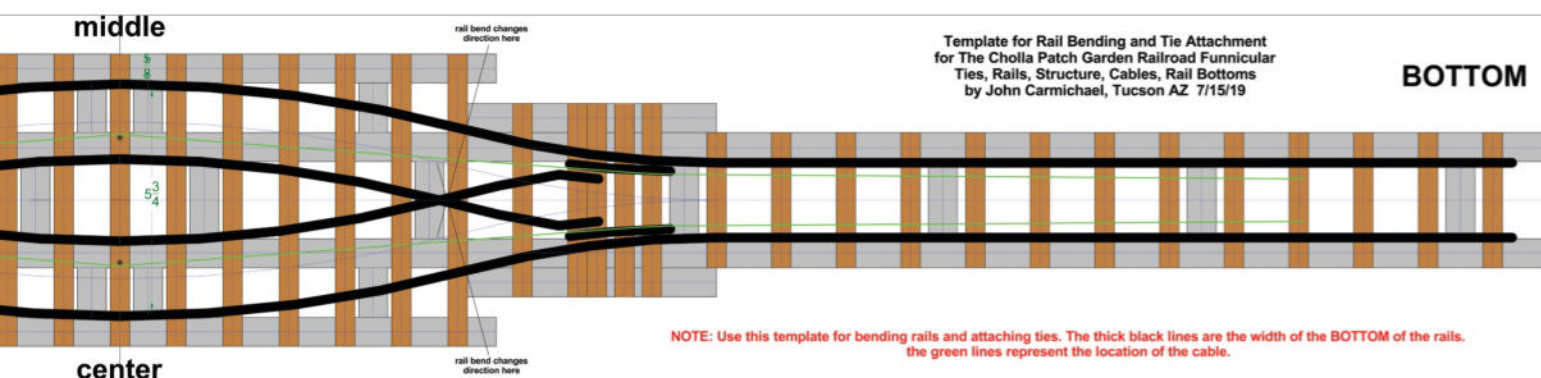
Everything is weather-resistant for outdoor use. I created the track and passing switch by cutting and bending LGB brass flexi track, and securing the rails to the sleepers with rail spikes. The sleepers and trackbed are made from redwood, reinforced underneath with 1 1/4" angle iron. Although not needed for normal stopping, there are wood and brass bumpers at both ends, which are only needed in an emergency, such as a disconnected cable. For emergencies, I put two compression springs on the lower bumper to protect a car if it falls down. The rails have brass wheel stops in the upper station dock to prevent accidental upward movement in case the controller doesn't stop the motor when it should. Thank goodness, neither of these scenarios has ever occurred during normal operation. The cable is 1/32" marine grade highly flexible stainless steel cable. The



Wheels, cable hook and control magnet passing through lower ABT Switch.



The funicular on its frame before bedding into the garden.

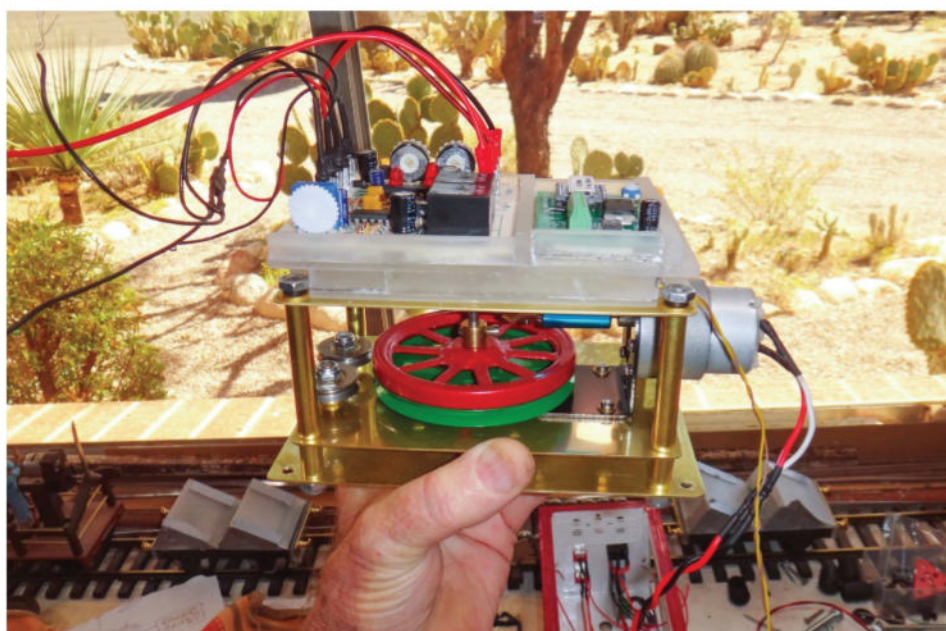


directional pulleys are stainless steel with ball bearings. And the gears are solid brass and bevelled. Meccano makes the best solid brass gears I could find. I used a small Nextrox 60 rpm high torque 12 volt motor with an internal gearbox, which simplified the brass gearbox design so that I only needed two additional gears to reduce the rpm down to the desired speed. For many reasons, I used as few gears as possible.

The ABT Passing Switch is the most fascinating part of the design. One hypnotized visitor stared at it for 15 minutes and couldn't figure out how the switch worked because he didn't notice the unusual car wheels, and just assumed they were normal single-flanged wheels. It seemed impossible! How can a flanged wheel pass over the switch point if the switch point is gapless? The solution is that one side of the car has double-flanged wheels and the other side has flangeless wheels. The outside double-flanged wheels guide the cars through the switch by using the outside guide rails, which are the only continuous rails on the track. Ingenious!

I used Bachmann all steel wheel sets, which were the biggest and heaviest ones I could find. This lowers the centre of gravity. Heavy cars are a good thing. Don't use plastic wheels! Modifying the wheels was fast and easy. To create a flangeless wheel, I simply ground the flange off of one wheel of each set by putting the axle in an electric drill and grinding the flange against a disk sander. To create a double-flanged wheel, I just epoxied a 1½" steel washer with a ¼" hole to the outside of the wheel.

The cable has a tiny loop at each end, which attaches to a small hook underneath each car. Each car weighs 750 grams, making the cable so tense and straight that I could eliminate the many cable support pulleys or rollers seen on real funiculars. Heavy cars are necessary because cable tension increases the friction between the cable and the drive wheel, which prevents the cable from slipping. Slipping causes jerky movement or stalling. Getting the cable and hooks to pass smoothly through



Circuitron controller and ITT sound module on top of brass gearbox.

the rail gaps requires precision down to 1/32". The cable must be as thin as possible and the cable crimp must be as tiny as possible. The cable I purchased came with the crimps for making a loop. I hammered tiny rail spikes tightly in place to secure the rails. Even a misplaced rail spike can cause the hook or cable crimp to hang up in the rail gap. Carpenters' string was great for some of the initial testing, but contrary to what is often seen in pictures of model funiculars, don't use it on your final model. Avoid string or rope that will stretch over time, which will cause the cars to stop and pass incorrectly. The cable must be stainless steel - just like the real ones.

I used 1/16" strong thin steel rod to make cable hooks for cars. Don't use brass rods, which will bend under load, and don't use thicker rods because they might hang up in the ABT switch cable gap. The hooks should be as small as possible and be slightly below the top of the rails so they pass through the gaps in the switch. If set too low, the hook will hit the rails or spikes. If set too high, the cable won't pass through the rail gap. The correct hook height requires precision and must be determined

by testing. Test the hook before you glue it to the attachment bracket

At the top of the track, there are two 7/8" 'V' groove stainless steel ball-bearing directional pulleys close together that redirect the cables horizontally into the two pincher pulleys inside the gear box. Just below them, there is a small upside-down 'U' shaped cable guard nailed into a sleeper. The cables pass between the two pins of the guard, which maintains the two cables in exact alignment with the nearby pulleys as the cars move up the upper straight section of track. Since the pulleys are near the centre of the track and the cable hooks on the cars are off-centre, the hooks move the cable towards the outside rails as the cars ascend. Without the cable guard, the cables would not align with the pulleys and might cause them to jump off the pulleys. The two 'pincher pulleys' are inside the gearbox close together and near the drive wheel. They pinch the cable together before it touches the drive wheel, providing extra friction to prevent cable slippage.

Before connecting the cables to the cars, I make sure that the ends of the cable are close to each other near the middle of the

track because it's difficult to connect the cables if the cars are in the stations. After connecting one car, I hold it firmly until I connect the other car. If I accidentally let go of the cable, the car will speed down the track and might get damaged. Likewise, before I remove the cars, I make sure I stop them near each other in the centre of the passing section.

The funicular controller and sound module had to be fully automated because they must be able to run unattended for long periods. Like most tram systems, it required a programmable time delay after stopping and auto reverse. Circuit boards had to be compact to fit into the gear room, and able to be activated by magnetic reed or contact switches (I used reed switches because they are small and easy to install and tiny adjustments are easy). Several different controller brands seemed like they might work, but I chose the Circuitron AR-2. With valuable connection advice from the manufacturer, it works perfectly and fits in the small space in the gear room above the gearbox. The small ITT sound module plays warning bells when the cars leave the docking stations, and is programmed at the factory to sound two trolley bell rings when activated by reed switches.

Only one car has a small magnet underneath, which activates both the controller and the sound module by tripping two reed switches located between the rails at each station. I call this the control car. Each device uses one reed switch at the top car dock and one at the bottom. I used a 10mm neodymium magnet located 1/8" above the top of the rails. A small magnet is more precise because it will let you stop the cars at exactly the right spot. The MM-D-10 style magnet by K & J Magnetics is the mounting type encased in nickel-plated steel with a female threaded hole. I screwed a short piece of threaded rod into the hole under the flat car that was meant to attach a coupler, then screwed the small threaded flat magnet onto the other end. The threaded rod allowed me to easily fine-tune the height of the magnet. This is the perfect magnet for activating the reed switches, which lay flat in the middle of the ties and parallel to the rails! For a clean look and to facilitate installation, I put two reed switches (one for the controller and one for the sound module) into a short piece of brass tubing, which I glued to the sleepers in the docks at both ends of the track. By moving the reed switch tube along the ties up or down, before the glue dried, I was able to precisely adjust the cars' stopping point so that the cars' split-level floors line up



The lower station with its Victorian ticket booth modelled after the Saltburn Cliff funicular upper station.



The upper station building with boarding platform, observation deck and gear room.



exactly with the split-level station platforms. This was a very important construction step that can only be done by trial and error. Alternatively, if you prefer, contact switches of a different sort could be used.

Don't electrify the rails for car lighting! You'll have an electrical short between the inner rails in the ABT passing switch point if you do. If you want car lighting, you must use onboard batteries. My cars have cabin lighting and LED headlights.

I'm making the HD full design drawings, electrical diagrams and construction photos available online to everybody hoping that more will be built. I suggest that if you plan on making a G-Scale Funicular with the ABT switch, you use my proven track design. Email me at jlcar michael@comcast.net to request a full-size PDF file of the trackplan, and I'll send you a copy. My track is short due to space limitations, but it can be almost any length. Surprisingly, a funicular can go around curves anywhere on the track if angled directional pulleys are placed above the ties to guide the cable around them. If you modify my design by using longer track or more curves, try to keep the cable from rubbing on the track and ties as much as possible by using pulleys, rollers, or cable guards. ■

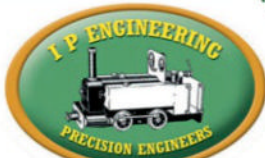


The cars stopped in the middle of the passing switch.

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Building a 'Ratcliffe' Slate Wagon

Craig Shepherd finds Harecroft's kit isn't one to be slated.

I have always loved the Quarry Hunslet of North Wales and became the proud owner of an Accucraft locomotive this year. It didn't take long before my attention turned to needing some stock to run. I have built slate wagon kits in the past, from the older Binnie versions to the newer provisions by Resurgam and Porterhouse Models.

I wanted to try something more 'Penrhyn' this time, and came across the 'Ratcliffe' pattern slate wagon, the dressed slate 'basket' used during the 1880s. Harecroft is the self-proclaimed 'Makers of the obscure and Peculiar', based in the North East of England, producing mainly 16mm scale wagonry.

Upon receiving the kit, I wasn't sure if I could still call this a kit with so few parts! The model is made up of one-piece sintered nylon body, sintered nylon wheels and axle boxes, quality laser-cut floor planks and 3mm axles. Coupling hooks and chain are omitted - Harecroft leaves this down to the individual's choice. The completed model is said to be almost indestructible and able to 'readily survive any bumps, bangs or collisions'. This is down to the high flexibility of the thin printed nylon.

Wheels are contained within the one-piece body. Two of the axle boxes form part of the 3D-printed body, and the remaining two axle boxes are attached underneath. To get started, I removed the wheels from the body using a pair of small

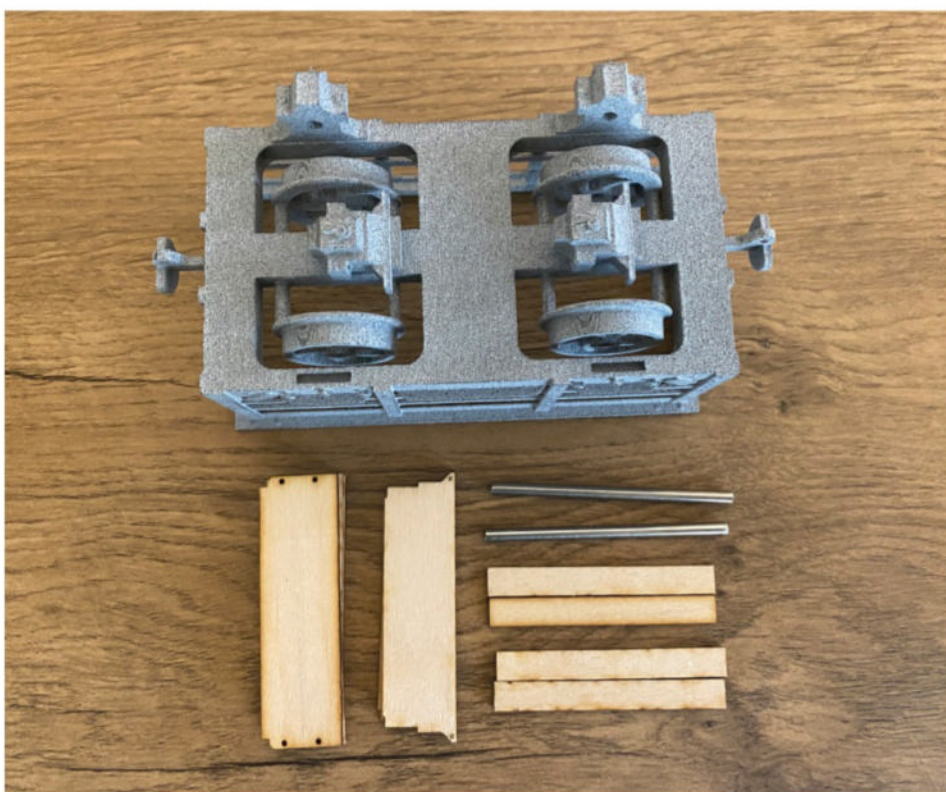
wire cutters, starting with the joining sprue and then the sprue on the back of the wheels, each time cutting as close as I dare to save cleaning up.

The body requires no treatment at all, and is a stunning example of quality and detail in abundance. The material used for the body leaves an interesting textured finish that makes the finished item look

all the more realistic. The finish is like a slightly roughened metal, which hopefully shows in the pictures.

The parts requiring finishing were the back of the wheels, two axle boxes and the areas these parts were separated from the body. I used a mix of small files, sandpaper and an emery board.

The kit comes with some quality



Can this really be called a kit? There are so few parts!



Fitting and distressing the wooden floor.



Finished, dirtied, and ready for action.

laser-cut plywood planking for the floor and ends. A trial fit showed no sanding or trimming was required, the parts fit perfectly first time.

I had decided I wanted to have a go at weathering and to have a finished item of rolling stock that would look suitably battle scared. To this end, I carved bits out of the planks so, to my eyes at least, they would look used and like a large amount of heavy slate had been carried over a period of time.

Once I had the desired look for the planks, I glued them in position. I used UHU glue as I happened to have some, but I would imagine other glues would also work just as well.

Despite building a fair amount of stock over the years, I haven't really attempted weathering to any great extent. I decided to give the whole wagon a good spray with Halford's red oxide paint. My thinking here was that I would have the red oxide as an undercoat. On top of this, I would hand paint a grey acrylic paint. Once dry, I would then be able to scrape off paint in desired areas to help provide the distressed look I keep referring to.

Before I got the tin out, I slotted the two axle boxes in place so that the wagon would sit upright to avoid any runs of paint. A few light coats later and I was happy with the results. I left the paint to dry fully overnight and then proceeded to apply the grey colour by hand. I used 'Black Grey' by Model Color, which gave the result I wanted when dry. I tried to ensure I didn't give it too thick a coat, a single one being enough.

Now it was the time to fit the wheels and finally fix the axle boxes. The latter required a small amount of clean up, so that

the axles would fit easily and run smoothly. Those on the one-piece body were fine and required no work. The remaining axle boxes simply required a 3mm drill bit to be 'twizzled' inside. This cleaned out a light white powder residue with little to no effort. The axle boxes have a shaped piece on top that locates into the base of the body. This fits into a preformed slot and is a good fit. This ensures you are going to have the axle boxes lined up for free running. The fit was tested with axles fitted.

Next, I gently slid the wheels onto the 3mm axles and set the back-to-backs to 28mm, for 32mm gauge track.

Once both wheel sets had been set, I mixed some slow-setting epoxy and put it in the axle box slot. I slid one end of the axle into the axle box that was part of the body. I lifted the axle upwards slightly as I slipped on the remaining axle box and then pushed it into the slot. The axle box was a good tight fit into its slot and required no clamping in place. This was repeated for the final axle box and left to dry.

Moving back to the weathering, I got a sharp modelling knife and started to scrape away the grey paint in places I thought would be suitable to show wear and tear. With a light scrape, the grey paint was removed showing the red primer. This gave the look I had in mind. Next, I used some fine sandpaper and rubbed over the flooring planks, moving with the grain, revealing the red primer and, in some places, close to the bare wood.

To finish, I used some Tamiya weathering powders, simply dry brushing some gunmetal and rust colour powders in places, I thought would look realistic. I used it on the body and on the underframes and axle boxes. This finally brought about the

tired and used look I was after.

The final touch for the model was some coupling hooks. Ebay provided some 16mm scale ones that looked to be the right size, and cheap enough. When they arrived, I had a rummage in my 'just in case' tin and found some bath chain. I removed one link for each side, and opened it up just enough to pass the hook over and to side onto the model. Once through, I simply bent up the link again, and we had a completed slate wagon.

In conclusion, I found the kit to be very simple to put together. I think it is a kit you can do as little or as much as you like with. I certainly don't claim to be brilliant at weathering, and think there is probably even more you could do to bring it to life. That said, even without painting, etc, you still end up with a realistic model that would look good on any garden line with a slate theme.

The level and quality of detail is really good, and the fact there is no clean up required means you don't run the risk of sanding or filing some of it away. The finished kit is very sturdy and would, I believe stand up to anything you throw its way.

While it is at the higher end of the price point when you look at other producers, in my mind, it is worth the extra and will certainly last the test of time, which I think speaks volumes. ■

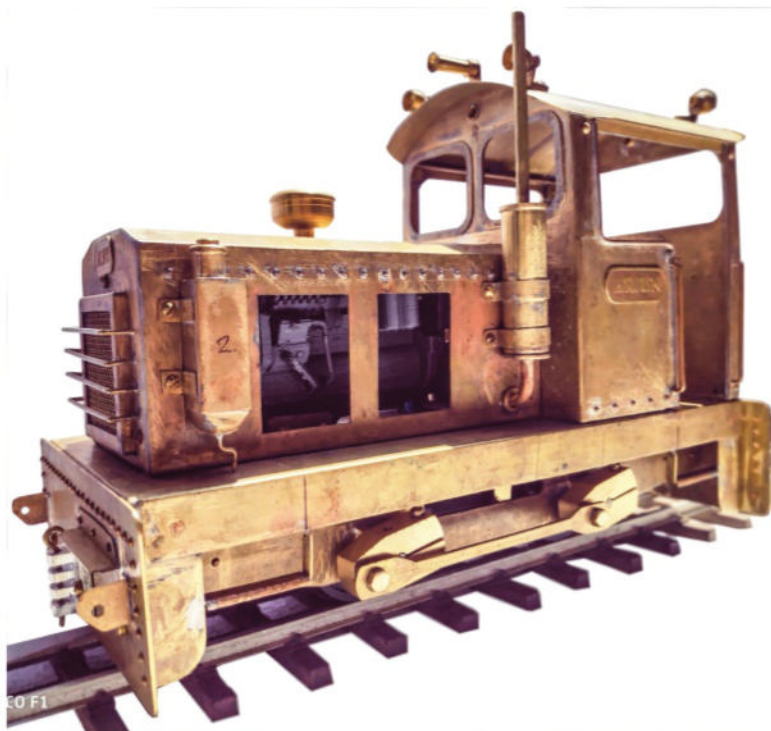
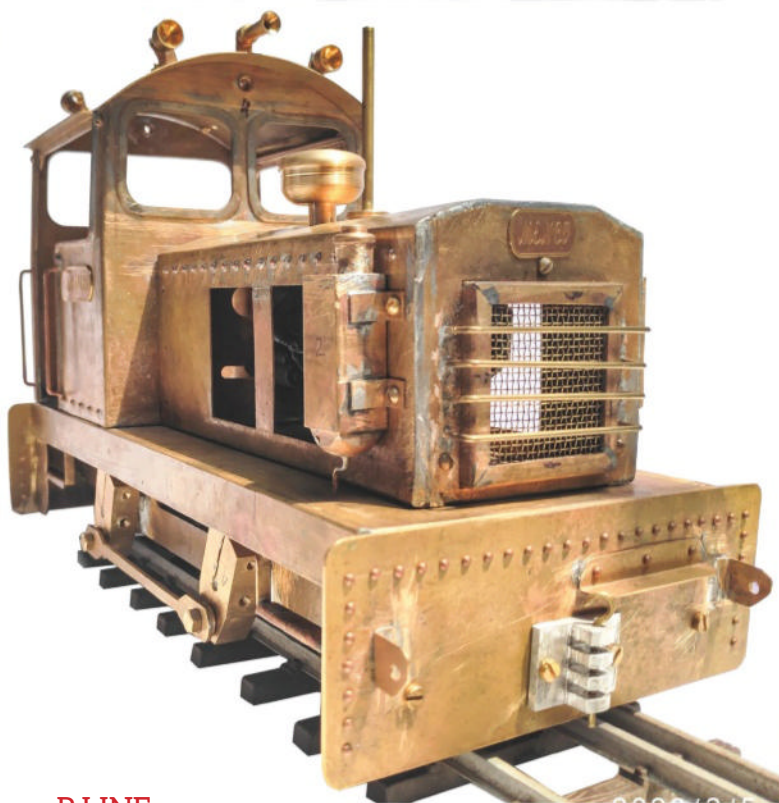
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P LINE

7/8ths scale Plantation Diesel kit or RTR

The kit contains all essential parts, castings, photo etches, hardware, motor, wheels, gear drive, couplers & electricals. Needs only paints, RC, battery pack and basic hand tools to assemble.

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- * Actual scale round head copper rivet work on the body shell.
- * Wheels chemically blackened steel and gauge adjustable (32/45mm gauges)
- * Directional working head/tail/marker LED lights
- * Models are powered by brass bevel gears and a 12v 300rpm metal geared motor giving an overall reduction of 1:54
- * Photo-etched brass name/maker's plates and foot boards

Build time is estimated to be about 10 hours. Skill level, intermediate.

The models are available in the following versions:

1. Complete unpainted kits, includes everything required to build the model. All you need are simple hand tools and your own paints, RC/WiFi smartphone controller, sound unit and battery pack.

Price: USD857 + shipping charges

2. Factory assembled, almost ready-to-run model in Industrial Yellow or Field Grey or Ford Tractor Blue, with factory-installed Loco Remote Maxi 12v WiFi smartphone controller. All you need to add is your own 11.1v Lithium-ion battery pack.

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Shipping charges are additional and available either through UPS Saver Service or Air Cargo. Additional Duties and Taxes in the buyer's country (if any) may also apply.



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A set of unpainted mugs is also available.

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Fully finished: £9

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Unpainted: £4



SLR Models

www.slrmodels.co.uk

PIKO

G scale Christmas Models

The festive season approaches, it will be here before you know it, and Piko America has sent up details of some of its new models.

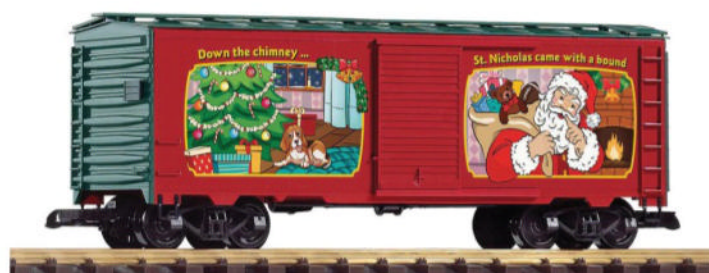
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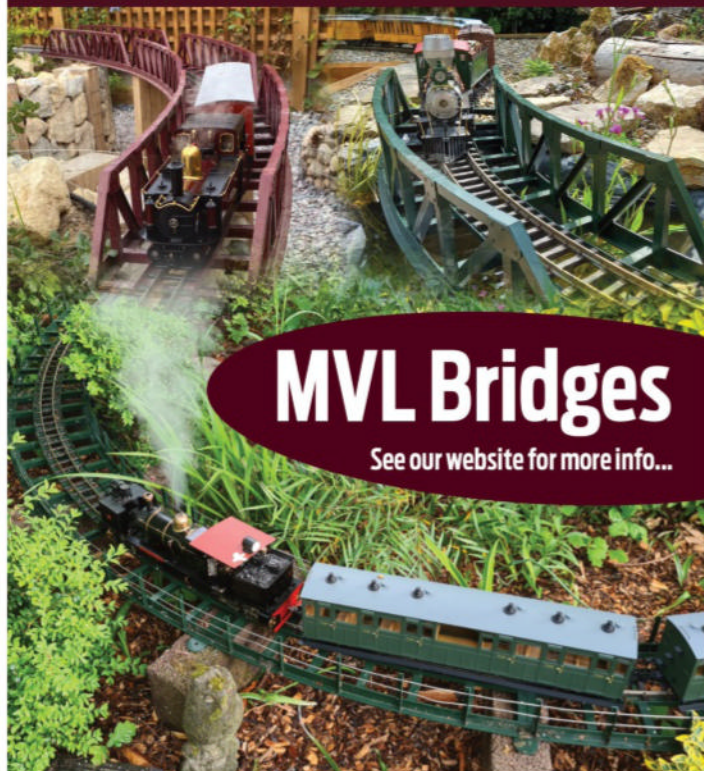
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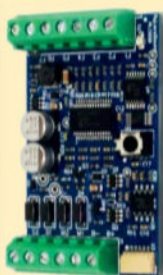
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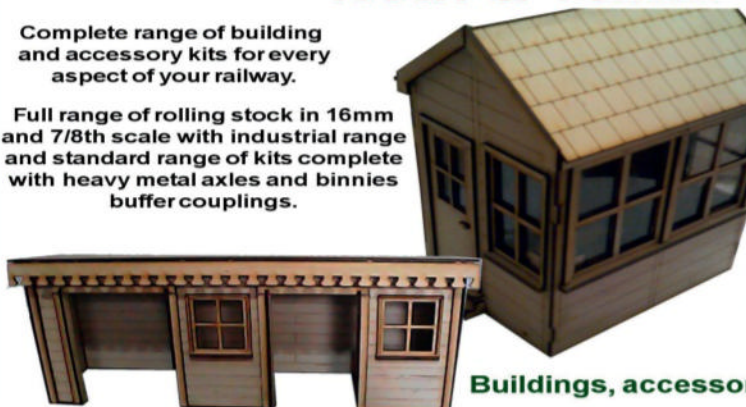
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Readers' Models



This was my first model building for our new garden railway, the Large Halt from Modeltown. I found the experience very enjoyable, the instructions provided with the kit were very easy to follow and referencing the many helpful articles in your brilliant magazine I think I have achieved quite a good finish for my first build. I'm particularly pleased with the "moss effect" on the roof. I've started to add some small details to bring the scene alive, including signage, door handles and posters with frames made from the ever-versatile coffee stirrers. Also included in the scene are some gifts from my children, a bench and bottles in crates from Trenarren Models. **Mark Andrew**

Mark Reader and his team have spent the last few months beavering away building a whopping 90-metre-long, 45mm gauge, outdoor running track at the Leamington & Warwick MRS clubrooms. The line was opened in June and he's sent us a few photos taken by Stephen Bonneywell. Full details can be found on the club website: www.lwmrs.co.uk



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