

Risborough and District Model
Railway Club

Summer 2007

FOOTPLATE



D&RGW K-28 #476 blasts out of Mud Tunnel heading upgrade with the San Juan express past a lonely phone box, on Mick Moignard's HOn3 home railroad

President	David Powell
Chairman	Paul Wright 01844 275748 rdmrc@btinternet.com
Secretary	Richard Neil richard@mris.freeseve.co.uk
Treasurer	Neil Fairbairn kieraneil@yahoo.co.uk
Members Reps.	Anthony Mead David Lane Ian Gearing
Membership Secretary	Robin Lane
Railex Manager	David Lane
Risex Manager	Ian Roll/Donald Rintoul ian.roll@terina.co.uk
Webmaster	Anthony Mead acm@gotadsl.co.uk

Committee meeting on Thursday 19th April 2007



Railex was the dominant subject here as we checked all the final details of the logistics and finances and found everything well organised. The club dinner details were discussed and approved. We also discussed the state of the clubroom (messy as usual) and had a layout project update. The O gauge project may be built in two phases starting as an end to end and then becoming a complete loop. The P4/EM layout is also progressing with the plan being changed to give a longer run and consideration is being given to low viewing angles. The idea of a club trip was also raised and thought to be a good idea.

WELCOME

Summer is now here and the number of model exhibitions decreases so that should mean we have more modelling time. Do you prefer the specialist shows or the more general exhibitions? Do you go to see specific layouts or is it traders that attract you to a particular venue? I suspect it is not often the catering which if done commercially is often disappointing. Clubs providing home made cakes etc will always be popular, so let your fellow members know where they should be visiting.

Railex has now passed so we can relax. This is our major showpiece exhibition and although I may be accused of bias, I think it is easily one of the best exhibitions in the country. David does a first rate job of getting the right layouts and trade and the rest of us support him in making it come to life. Railex setup went smoothly, car parking seemed much better this year as Saturday was dry we could use the school field which greatly expanded capacity. Stadium parking went well and as we had a planning session Friday night we were able to squeeze in more cars than before. Sunday was wet but there was just enough space available. Next year we will have to get even more parking. Break down took longer than last year due to the rain. All the exhibitors wanted to get close to the door and unfortunately some had to wait a little longer than we would have liked. It is worth noting that we have 8.5 hours for setup and only 3 hours for breakdown. Feedback from visitors and magazines has been very positive with the only criticism being of the catering which we have very little control over. So very well done to everyone who helped over the weekend and especially those doing outside jobs in the rain.

We are having our Club's 35th anniversary dinner on Sept 8th, at the Spread Eagle Hotel in Thame, full details on page 20. It is a little later than we had originally planned but better late than never. All members and past members and their families are invited.

The workshops are going well and the results can be seen on pages 6 & 7. These are an opportunity to have a go at some of the scenic techniques and to discuss how models can be made.

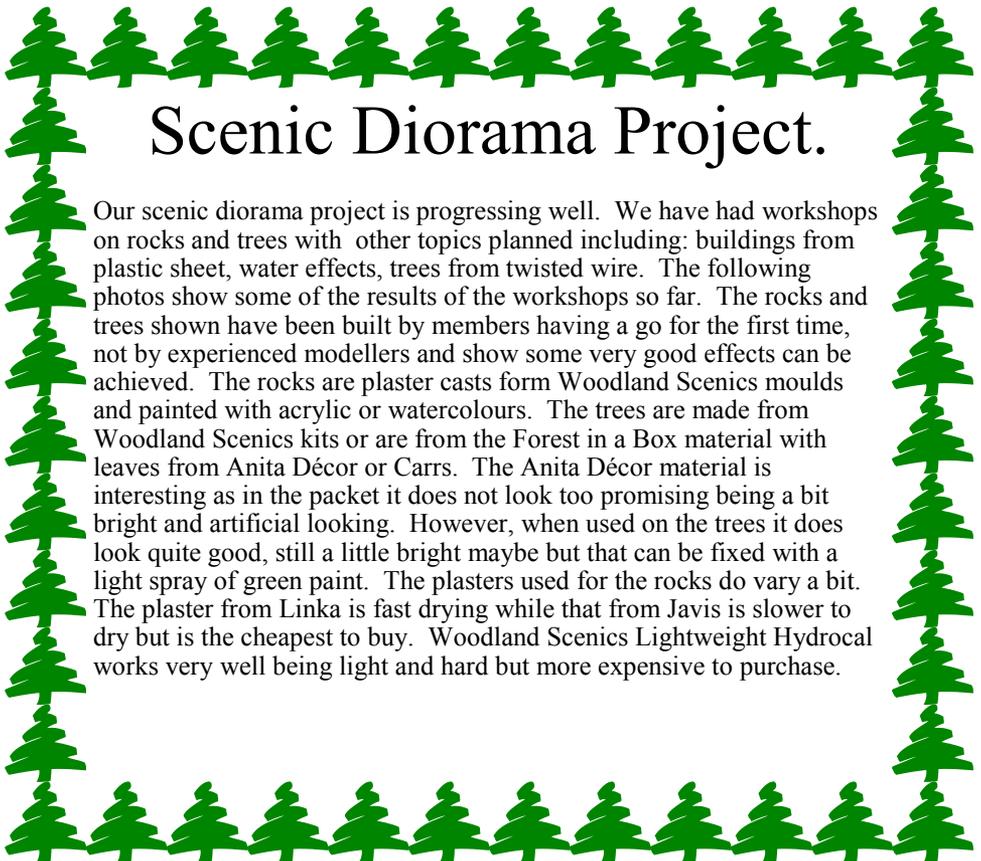
Later this year we will have the Club's Openday and also the Vintage Hornby day both of which are more relaxed events and great fun.

More Saturdays have been booked for modelling and layout planning, see diary on page 23. These will be every month for the rest of the year so we can get more modelling done particularly on the layouts and dioramas.

Coach Total Operational Processing System (TOPS) codes

TOPS Code	Coach Type
BCK	Brake Composite Corridor
BFK	Brake First Corridor
BFO	Brake First Open
BG	Brake Gangwayed Bogie Van
BPOT	Brake Post Office Stowage Van
BSK	Brake Standard Corridor
BSO	Brake Standard Open
BSOT	Brake Standard Open Trolley
BV	Eurostar / DMU / EMU Barrier Vehicle
CK	Composite Corridor
DBSO	Driving Brake Standard Open
DLV	Driving Brake Van
FK	First Corridor
FO	First Open
FOT	First Open Trolley
GUV	General Utility Van
HSBV	HST Barrier Vehicle
LFK	Lounge First Corridor
MFBV	Mark IV Barrier Vehicle
MLW	Motorail Loading Wagon
MRCF	Motorail Car Flat
NGV	Nightstar Generator Van
OBS	Observation Car
POS	Post Office Sorting Van
POT	Post Office Stowage Van
RB	Restaurant Buffet
RBR	Restaurant Buffet Refurbished
RF	Restaurant First
RFB	Restaurant First Buffet
RFM	Restaurant First Modular
RFO	Restaurant First (No Kitchen)
RLO	Restaurant Lounge Open
RMB	Restaurant Miniature Buffet
RMBT	Restaurant Miniature Buffet Trolley
SK	Standard Corridor
SO	Standard Open
SLE	Sleeping Car
SLEP	Sleeping Car with Pantry
TCSD	Trailer Conductor Standard (Disabled access)

TF	Trailer First
TGS	Trailer Guard Standard
TRB	Trailer Restaurant Buffet
TRFB	Trailer Restaurant First Buffet
TRFK	Trailer Restaurant First Kitchen
TRFM	Trailer Restaurant First Modular
TRSB	Trailer Restaurant Standard Buffet
TS	Trailer Standard
TSO	Tourist Standard Open
TSOD	Tourist Standard Open (Disabled access)
TSOE	Tourist Standard Open (End coach)
TSOT	Tourist Standard Open (Trolley)



Scenic Diorama Project.

Our scenic diorama project is progressing well. We have had workshops on rocks and trees with other topics planned including: buildings from plastic sheet, water effects, trees from twisted wire. The following photos show some of the results of the workshops so far. The rocks and trees shown have been built by members having a go for the first time, not by experienced modellers and show some very good effects can be achieved. The rocks are plaster casts from Woodland Scenics moulds and painted with acrylic or watercolours. The trees are made from Woodland Scenics kits or are from the Forest in a Box material with leaves from Anita Décor or Carrs. The Anita Décor material is interesting as in the packet it does not look too promising being a bit bright and artificial looking. However, when used on the trees it does look quite good, still a little bright maybe but that can be fixed with a light spray of green paint. The plasters used for the rocks do vary a bit. The plaster from Linka is fast drying while that from Jarvis is slower to dry but is the cheapest to buy. Woodland Scenics Lightweight Hydrocal works very well being light and hard but more expensive to purchase.



Above & lower right: the same rock casting with different colours giving a very different effect.

Left: Darker colours have been used to show the effect of water flow and shadows from overhangs .

Right: Tree made from seafoam, dipped in glue and covered with fine leaves giving a very open effect.

Far right: Pine trees made from Woodland Scenics plastic trunks covered with granulated foam.







1. This recommended practice prescribes the ideal cross section for roadbed construction (including subgrade) so that the completed model is representative of standard railroad practice for standard gauge lines.
2. This figure shows the ideal cross section of single straight track installation. In special geological conditions, e.g. rock slopes, retaining walls, etc., deviation in the cross section of the subroadbed profile is allowed.

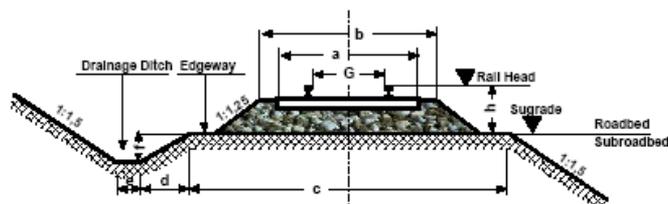


Table of Measurements

Scale	Gauge G	a ¹⁾	b	c	d	e	f	h
Z	6,5	12	16	28	3	2	2	4
N	9	16	22	38	5	3	3	6
TT	12	22	28	50	7	4	5	8
HD	16,5	30	38	70	9	5	6	10
S	22,5	40	52	94	13	7	9	12
O	32	58	76	134	18	9	12	16
I	45	82	106	188	26	12	17	22

Note 1): Applies only to track with wooden sleepers.

3. In multiple track situations (see NEM 112), a continuous roadbed may be installed. When adjacent tracks are within a station's boundaries pathways may be placed between tracks to provide safe footing for railroad personnel.
4. Concerning superelevation in curves, see NEM 114.
5. Signals, catenary masts, and the like may occupy the edgeway, however clearances as detailed in NEM 102 and NEM 103 must be maintained.

Converting and Detailing Diesel Locomotives

In the six years or so since Saffron Street started going out to the major shows we've realised that some members of the loco fleet get noticed more than others. David's Q1 for instance or possibly Alan Gelson's Condensing Pannier but no mention is usually ever made of the diesels. However that changed last year when I decided to backdate one of Heljan's fine but flawed class 33's....

The Base Model

The Heljan 33 was released at the tail end of 2005 to very mixed reviews. The model was a huge improvement over the 1970's Lima model in almost every respect. Its one major flaw was that it had a distinctly dodgy roof profile. It represented the Cromptons in their later condition with modified exhaust port and prominent roof clips. It was available in a range of suitable liveries from green with full yellow ends to EWS maroon.

To run a 33 on Saffron Street would mean backdating it to 'as built' condition with large exhaust silencer and 'flush' roof panels. It would need to be painted plain green with the white stripes continuing around the cab front. Judging by the reaction received at shows, Heljan have made a mistake in not producing a 33 in this condition. There are plenty of Southern region Steam Era modellers who would buy a 33 in plain green livery.

The Detailing Work

First step was to remove all the Heljan details from the bodyshell. The cab interior mouldings are a tight fit and care is needed if you want to avoid scratching the inside of the glazing. The windows themselves were very easy to remove but the many separate handrails were not! Some of the handrails are extremely tight and can damage the body when released from their holes. The delicate plastic lamp irons can be carefully removed with tweezers or a sharp blade.

Next step was to cut off the later exhaust port and fill in the resultant hole. The visible airhorns also need to be filled in on an earlier machine using suitable model filler.

A sharp scalpel was then used to remove the moulded roof clips. Some of the clips are easy to remove, but the ones that straddle the central fibreglass panel on the roof and the shoulder grilles are a little tricky to say the least.....

Care needs to be taken not to cut away some of the fine shoulder grille mesh moulding. I scribed on a representation of the grille mesh on the squares that are left when the clips are removed. The end of a narrow needle file was used to open out the 'trench' between the roof panel and grilles. Fine wet and dry was used to finish. The 2 small rectangular panels underneath the bodyside Frost Grilles also need to be removed on an early 1960's loco.

The hole for the exhaust panel was cut out on the opposite end of the roof to the fan. A couple of pilot holes were drilled and the rectangular hole cut out with a piercing saw. The hole created is approximately 17mm x23mm and should fill the gap between the 4 moulded roof pips on the 33/0. A 10 thou sheet of plasticard was then glued on the inside of the roof as a base for the new exhaust silencer. This had been pre-curved to the roof profile by dropping into a cup of boiling water and bent to shape using a curved knife handle.

The rectangle of plastic that was cut out was used as the new exhaust silencer and was filed to shape but a suitably sized sheet of 60 thou plasticard can alternatively be used. After gluing in place, a new exhaust hole was drilled through it using the Clubroom vertical drill. Scraps of plasticard were then used to represent the detail on the side of the exhaust silencer.

To try and improve the much publicised roof profile issue on the 33/0, I decided to file down the sides of the cab roof. Heljan have modelled this with a distinct angle at cantrail height whereas it should be a gentle curve from the top of the horn grille to the rain strip above the side windows. Care is needed to prevent damage to the rain strip above the cabside windows; otherwise it will mean a fiddly repair job with microstrip.

This job is not required on the 33/2 as Heljan have modelled it with a much more realistic roof profile.

Painting the Model

Next step was painting the model. The 33/0's ends were sprayed in Phoenix Precision BR loco green (after masking off the window surrounds) and the roof in Precision Diesel roof grey. The white window surrounds were hand painted in Humbrol matt white to try and preserve the neat black painted window surrounds. Later weathering



toned this down to its more familiar off white colour. Precision Diesel roof grey was used on both models.

Fox transfers white stripes were used for the continuation of the bodyside stripes around the cab front (the retained Heljan painted stripes finished behind the cab doors) They were cut down to match the Heljan stripes using a straight edge and sharp

scalpel. Fox numbers from the same transfer sheet were also used.

Finally the body was given a coat of varnish to protect the transfers. We used a mixture of Ronseal 'Hard Glaze' & 'Satin Glaze' Varnish bought from a DIY store. It was thinned down with white spirit to allow it to be sprayed through an airbrush. The loco was then given a medium coat of weathering.

To represent the 2 Character headcodes, a mixture of the Heljan supplied items and numbers from the No Nonsense kits range were used.

Wheelsets were exchanged for a set of Branchlines 14mm Coach Wheels in P4 to complete the job.

Conclusion

Much interest was generated after the completed 33/0 appeared on the layout at last September's Scaleforum and Manchester shows culminating in a request from Rail Express magazine for a potential detailing article.

By this time I had decided to backdate a further locomotive, this time one of Heljan's far more accurate narrow bodied class 33/2's. The results can be seen in the July 2007 Rail Express Modeller supplement.

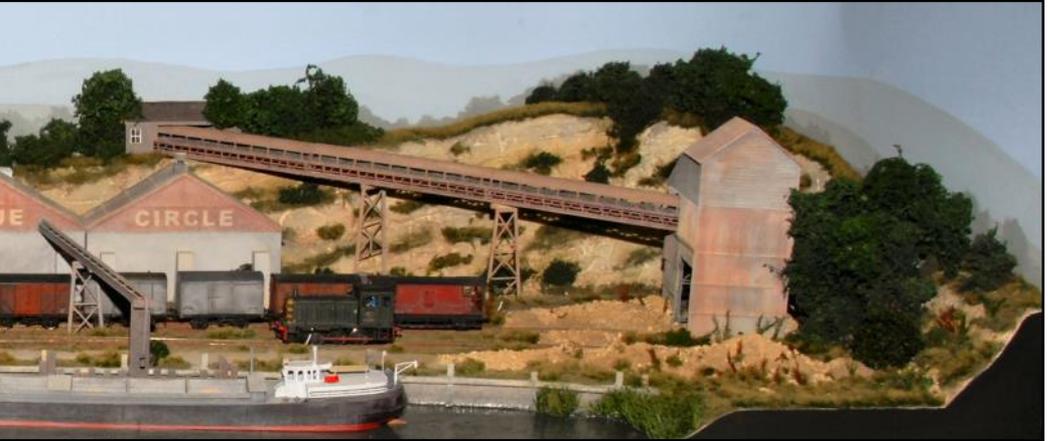
Kevin



Railex 2007

Here are just three of the layouts exhibiting at Railex this year, many more photos will be on the club website. Railex is now really setting the standard for exhibitions with the best and some of the largest layouts in the country!



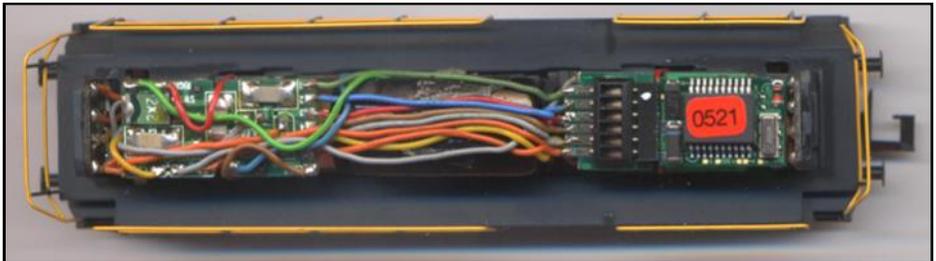


DCC decoder installation

There is no great difficulty involved in installing DCC decoders into DCC-ready models these days. In some cases, indeed, the biggest challenge can be getting inside the loco in the first place without breaking anything. It's nice to see that nowadays the European manufacturers have woken up to the fact that DCC is here to stay - most OO locos and quite a few N-scale ones now come with DCC sockets ready to go and most of them now also have space for the decoder itself as well!

That's not to say that you should just plug in and go; there are enough faulty sockets around that installation should be done with just a pinch of caution.

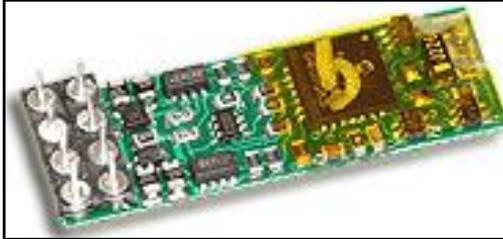
First of all make sure you know what the socket is before you buy the decoder. In OO scale, the common socket is the 8-pin NMRA socket (NEM 652), two rows of 4 holes. In N-scale, the European NEM 651 6-pin socket is much more prevalent. And then there are the 21 and 22-pin ones that ESU and Bachmann UK are starting to use. Make sure that you know which socket the locos has and then how much space is available for the decoder. Also, if you can, check the maximum current draw of the locomotive, and, if it has lights, the current draw of the light functions as well. Check that against your chosen decoder.



Above: NEM 651 6-pin small socket fitted with a Lenz 0521 (now replaced by the Gold Mini) decoder in a Minitrix NS 6400 diesel loco.

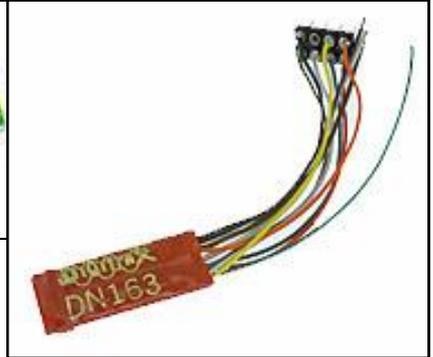
Plug-in 8-pin NMRA style decoders come in several varieties. Most have a short wire harness between the decoder and the plug. There are a few where the plug is part of the decoder itself. Now while these often sound like a neat idea, beware that the decoder circuit board may be quite large, and with the decoder plugged in, the body shell might

not go back on - this can also depend on whether the socket is fore-and-aft, or across the model. In general, wired plug decoders only have a couple of inches of wire, which is usually enough to get the decoder hidden somewhere inside the loco - but then you may find that the decoder you want to use has the wires coming out of the "wrong" side of the plug, and they need to be bent over or around the plug to get it all in.



Above: Digitrax DN143IP decoder with built in 8-pin plug.

Right: Digitrax DN163PS decoder with wire and plug.



The NMRA plug, while it has 8 pins, is usually only wired for 7 of them. On diagonally opposing corners are the track power and the motor connections. A neat piece of design, here, so that should you plug the decoder in the wrong way round, you won't do any damage; the loco will just go backwards, and the lights won't work. Though some Hornby locos do that when the decoder is the right way round! The white (headlight) and yellow (tail-light) wires and the blue function common take up three of the remaining four pins with a two-function decoder. To plug one of these in, pull out the manufacturers blanking plug, align the orange wire on the decoder plug with pin #1 on the socket and press home. Pin 1 you say? You need to look carefully around the socket for indications as to which pin 1 is. And if it doesn't work, try it the other way round. Then, as with all decoders, read the address back on a program track to check that all is well before trying it out on the track. And, do check that the manufacturer has not done something silly like wire the locos with 1.5V bulbs with the resistors on the blanking plug, or added extra lights that overload the decoder functions. These tricks, not common now, did happen in the early days of "DCC ready" locos.

Actually, before you do run the loco, pull the decoder out again, and check underneath the socket, if you can. You need to be sure that the socket, or any pins that might go all the way through the socket, won't

touch the chassis of the loco. Shorts to the chassis can be fatal (to the decoder). Ask Anthony Mead about a certain Heljan class 47!

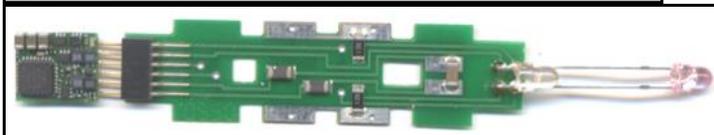
Now you have plugged it in correctly, and the locos is wired properly, and there's nothing else waiting to bite, the locos should now move forward when forward is selected, and the lights will work. If so, reassemble it, program it and enjoy. If not, start swearing.

N-Scale 6-pin decoders need a little more care: the track power is the centre two pins with the motor output on the two pins at one end and two light outputs on the other. There is no function common positive here; the lights are grounded back to the chassis instead, and so may not be as bright as with a dedicated blue wire installation. This orientation of the pins means that it matters which way round you install the decoder. Wrong way round, and the loco won't run. The lights won't work either, and there is a small risk of damage to decoder or lights too. Check the decoder and its documentation for orientation marks - often a white dot next to pin 1. Then check the socket similarly. Pull the blanking plug straight out, and push the decoder in, slowly and carefully, Double-check that it is the correct way round and again, test on the program track first. Be sure to check that you get an acknowledgement pulse from the motor when you try to read the address - if you do, then the decoder is oriented correctly.

Lastly, there is the board replacement-type decoder, more commonly used in US-prototype diesels than in European models. These decoders replace the model's existing circuit board, and quite often contain new LEDs for lights as well. The only thing you need to do here is unscrew or unclip the existing board, check which way up the new one fits, check that again, and install it. Oh, and place a strip of tape between it and any metal chassis parts (except power pickups), to avoid any shorts.



Left: Digitrax DN163KOA replacement board decoder for Kato P42, PA1 & E8 units.



Lower left: Replacement board with 6-pin socket.

Mick

Fitting a wired decoder

This involves a little more work but the first thing is to find the space. In the example below (a Fleischmann N gauge NS1600) the loco was designed with the chassis made from a solid metal block to give the maximum weight for traction. Diesel outline models may have enough space above the motor but electric locos will have a low roof profile for the pantographs on top. Fortunately there is enough space under the motor, it is just a matter of milling a space in the metal.

Photo 1: Fleischmann NS 1600 electric loco. The decoder is hidden under the motor.

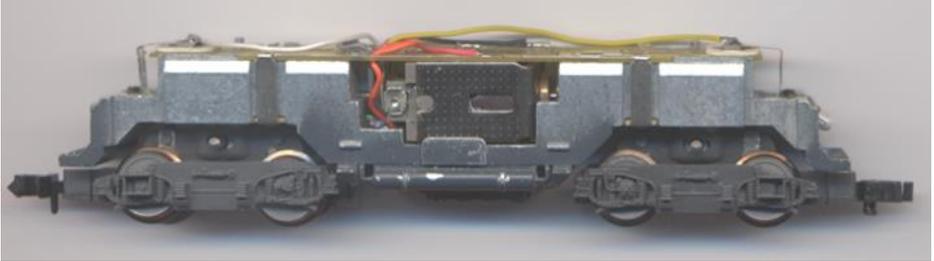


Photo 2: A space had to be milled in the chassis block to fit the decoder and wires.

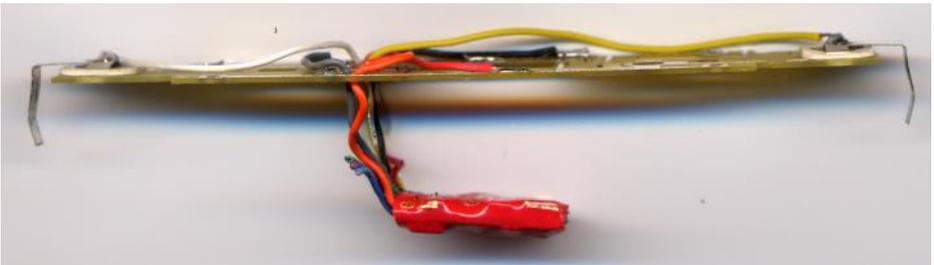
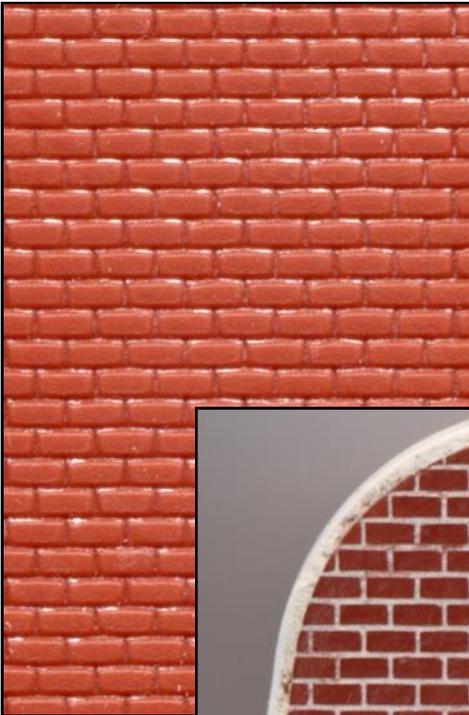


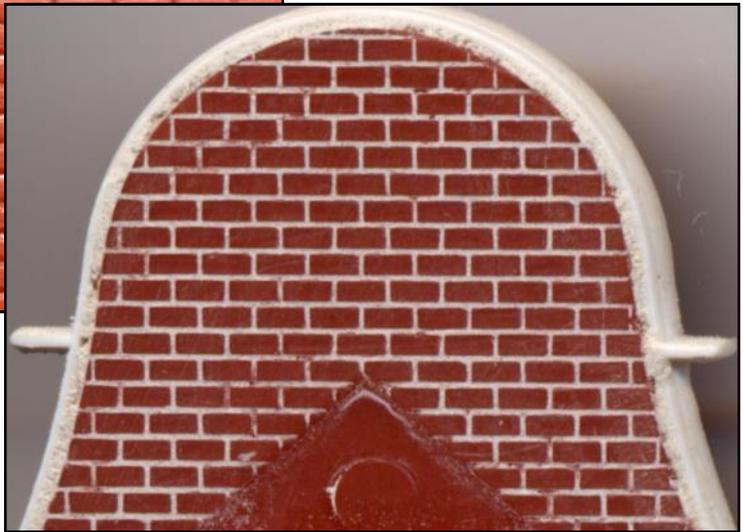
Photo 3: Digitrax DZ143 decoder fitted to circuit board which has 2 contacts that press against the motor so no wires are needed to the motor itself. Note: the motor has a tag connecting one contact to the chassis which must be removed. The tags at the end are for the white headlights which are 12V bulbs.

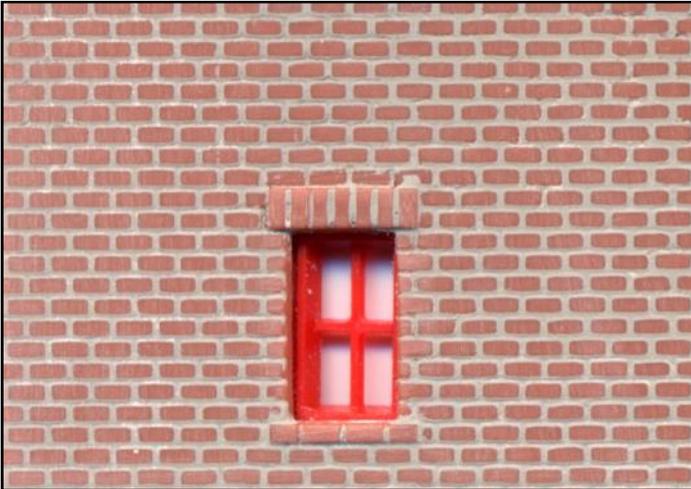
Bricks and Mortar

While making one of the building facades for my diorama I used a white model filler to fill the gap between the top of the brick wall and the edging stone. This edging piece was a perfect fit on the front face of the building but left a large gap on the rear. Since would be visible it had to be filled. Naturally, some of the filler got on the brickwork and when scraped off filled the mortar courses between the bricks quite well. I then finished the rest of the wall section in this way. This probably will not work on a painted surface as the fillers solvent and then the scraping action may remove the paint but it is effective on pre-coloured plastic brickwork from a typical kit. The finished effect is too white but will be fine when the building is weathered. The photos (below left and right) show the before and after effects of adding the mortar.



The next method I tried (photos right) was to use an artists acrylic modelling paste with a few drops of acrylic paint (black and flesh) to give a grey mortar colour. This thick paste was then spread over the model and allowed to dry, which only took a matter of 10 minutes or so. Then it was gently rubbed with 1200 grit wet and dry paper to remove the excess paste. Again this technique is for self coloured plastic walls and not painted surfaces.





A similar technique is to use acrylic paint for the mortar and wipe it away before it is fully dry trying not to wipe it out of the gaps as you do. I tried this effect some years ago on a 4mm GWR signal box and found it slow and the effect was much more subtle as less mortar was left in the gaps. I was quite happy with the final effect though. Using a thicker paste for the mortar is a much faster and easier technique which I will use on all future buildings. Using an acrylic paste for the base makes colouring very easy by adding acrylic paint and the mortar colour can be varied according to the colour of brickwork or the location being modelled or to show repaired areas of brickwork.

Another possibility is to paint the whole wall a mortar colour and then paint the bricks with a dry brushing method. This may require more patience than I have and might also be more suited to the larger scale where you can actually see the individual bricks. Exactoscale used to make an etch brass mask for 4mm that could be used to paint several individual bricks at a time in a random effect, although I am not sure if this is still available. These masks were available in English, Flemish and running bonds but are currently not in production.

Paul

Club Dinner

On Saturday Sept 8th we will be having a club dinner to celebrate our 35th anniversary. All members and previous members are welcome to attend with family and guests. The event will be held at the Spread Eagle Hotel in Thame . Cost will be: Adults £24, Juniors £12, under 12s (½ portion) Free, under 5s Free.

The club will be paying for shared taxis to and from the event. Your first drink on arrival, the wine with the meal and all soft drinks will be free all night.

The menu is below, please choose what you would like before the event and book your seat by mid August with the Chairman. We will then write menu cards for the tables in case you forget.

Menu

Starters

Chilled Melon with Sugar and Ginger
Chicken Liver Parfait with Cumberland Sauce & Seasonal Leaf Garnish
accompanied by toasted Brioche
Dressed Avocado & Seafood on a bed of Seasonal Salad

Main course

Breast of Chicken Stuffed with Scampi and served with a Sorrel Sauce
Scottish Sirloin Steak.. Available with a Selection of Sauces
Salmon & Sole Lattice with a Tomato & Basil Bisque
Baked Filo Parcels filled with Mushrooms, Spinach & Ricotta Cheese

Dessert

Dutch Apple Flan served with a Vanilla Custard
Twin Chocolate Ferrine served on a refreshing Hazelnut Sauce
Lemon & Orange Cheesecake

All desserts are accompanied by fresh filter coffee and mint chocolate.

Special Menu for the Under 5s

Tomato Soup or Orange Juice
Chicken Nuggets or Fish Fingers, or Sausages, Beans & Chips
Ice Cream

Microbrush

I saw these a few years ago and bought a couple of sets thinking they would come in handy. They were put away and only recently rediscovered and put to use. These brushes have a small head but not as small as some of the brushes I use but the big advantage is the very thin stem with the brush head. A normal brush has quite a large ferrule and the problem I had was to paint a small area of a steam roller boiler which was obscured by the piston rod and valve gear. The microbrush

fitted through the obstacles easily whereas my normal brushes would not reach far enough to paint the boiler. Problem solved. They can also be bent which may help get into awkward places and are available as regular, fine and superfine sizes. The price is £1.40 for a pack of 10 from W Hobby ltd:

www.hobby.uk.com



Club workshops.

Modelling Water	August 10 th
Trees from twisted wire	Sept 14 th
Building from plastic sheet	TBC
Painting people and animals	TBC
Resin models	TBC



Useful internet addresses:

Scale Scenes, downloadable paper models	www.scalescenes.com
IGS Hansa downloadable containers in 2 & 4mm. Would it be possible to print these on decal paper to use on plastic containers?	www.igshansa.de/igsorg.html
Hornby International website for models from Arnold, , Jouef, Lima and Rivarossi but not yet Electrotren, which can be found here.	www.hornbyinternational.com www.electrotren.com
Directory of shops, exhibitions etc.	www.ukmodelshops.co.uk
European Union of Model Railroad and Railroad Friends (MOROP). Check out the NORMs for details on gauge, tunnel profiles, superelevation etc.	www.morop.org/en/idf/index.html
Making long grass from fur and Silflor	http://siskiyou.railfan.net/model/constructionNotes/silflor.html
Helston Railway Preservation Co ltd	www.helstonrailway.co.uk
Tearoom and B&B in Yorkshire	www.cloughtonstation.co.uk
The Swanage Railway	www.swanagerailway.co.uk



Club Diary

July	14 th	CMRA Totally Interactive Modellers Event
August	11 th 31 st	Modelling Saturday End of Financial Year
September	1 st 8 th 8 th 15 th	Membership Subscriptions Due CMRA Exhibition Management Conference and Delegates Meetings, Whitewebbs Museum, Enfield 35th anniversary dinner, Spread Eagle Hotel, Thame. Modelling Saturday
October	6 th 13 th	Beaconsfield Exhibition Modelling Saturday
November	3 rd 3 rd 9 th 17 th	High Wycombe & DMRS Exhibition Vintage Hornby Day Annual General Meeting Modelling Saturday
December	1 st -2 nd 8 th 15 th 28 th	Warley Model Railway Club Exhibition, NEC CMRA Delegates Meeting & AGM, Whitewebbs Museum, Enfield Modelling Saturday Test Track

Test track



Evenings

July	13 th
August	3 rd and 24 th
September	14 th
October	13 th
November	2 nd and 30 th

Additional evenings if space is available.



MER MEC ROGER 1000 is a multifunctional rail line measurement and inspection vehicle conceived for international use on standard gauge (1435 mm). The measuring vehicle - MER MEC top-level measuring vehicle - has been engineered and manufactured to allow efficient installation and seamless integration of the higher number of MER MEC measuring and diagnostic systems. **MER MEC ROGER 1000** standard interior layout includes measuring and control desk area, two driving cabs, meeting room, toilette, kitchen, workshop, bed rooms (at Customer request). Interior layout can be customized in accordance with specific customer's needs.

Photo by Pete M taken at Zurich.