Risborough and District Model Railway Club

Oct-Dec 2017 Autumn

FOOTPLATE

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Membership renewals are now due. This is only for 7 months as we are changing the subscription year to April-March. The subs for the future will be set at the AGM.

In July we had a 3D CAD training course from David Lane. 3D CAD is quite different to working in 2D and does take some getting used to. The day was very useful and I have a better understanding of how the program works and have been able to create a drawing without assistance. I expect we will be continuing with this subject later in the year. We also have our second Weathering Workshop just as I publish this edition of Footplate and more planned in March as the first was very successful. I am currently looking into the possibility of getting someone in to do a tree making workshop. Let me know what subjects you are interested in.

David Powell gave an interesting talk on Colonel Stephens and we have Geoff Plumb returning in October with photos from 1967. David also accompanied

me to the All Things Miniature show in Haddenham, where we were promoting the club with David's small layout and a tree making demo. They made over £800 which is being split between Thames Valley Air Ambulance and Hearing Dogs for the Deaf. Many other members were at Scaleforum on the same weekend running the second-hand stall.

The club AGM is on November 10th, please try to attend as your opinion matters and we will discuss the clubs future plans.

Club equipment

If you find any defective equipment please let me know so it can be fixed, do not put it back with the good stuff. Also please put equipment back where it belongs at the end of the day.

Paul

From the Internet

RMWeb, Graham Hedges building card buildings:
http://www.rmweb.co.uk/community/index.php?/topic/115057-scratch-built-card-and-styrene-structures-based-on-real-buildings/

A blog on mould making:
https://www.oxforddiecast.co.uk/blogs/news/moulds-and-what-you-need-to-know

HARS - Connie's Home, for those that like old planes.
https://www.youtube.com/watch?v=pkX2XQcfR1Y

Ffestiniog Railway, 9th, 10th, 12th August
https://www.youtube.com/watch?v=UgiwSB56vwc

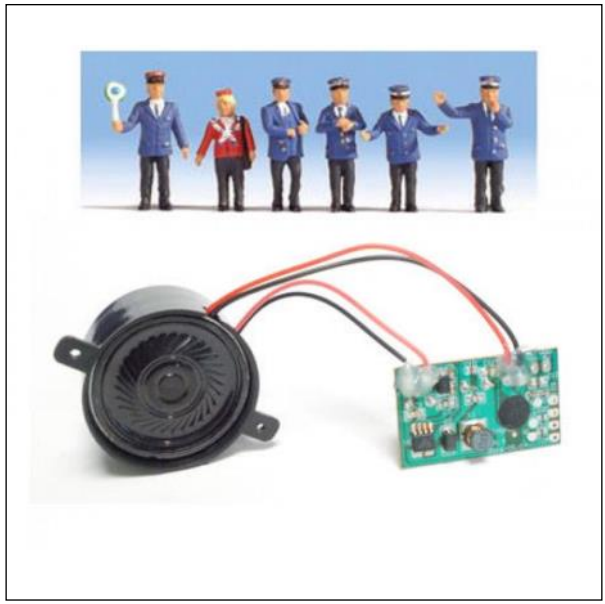
Cab ride on Welsh Highland
https://www.youtube.com/watch?v=tW525t1eYbk

Australian-British Imports 'Best of British Tour - Featuring R707 and F208
https://www.youtube.com/watch?v=oyiSoCl6TgQ

Front cover: 60103 "Flying Scotsman" arrives at Princes Risborough. Photo by Ray Gomm.

New items from Noch

Noch have been expanding their range of scenic items. They have just introduced a sound system range. This consists of a small sound unit and speaker and a set of figures. You need to supply power and a switch. So far the range includes:

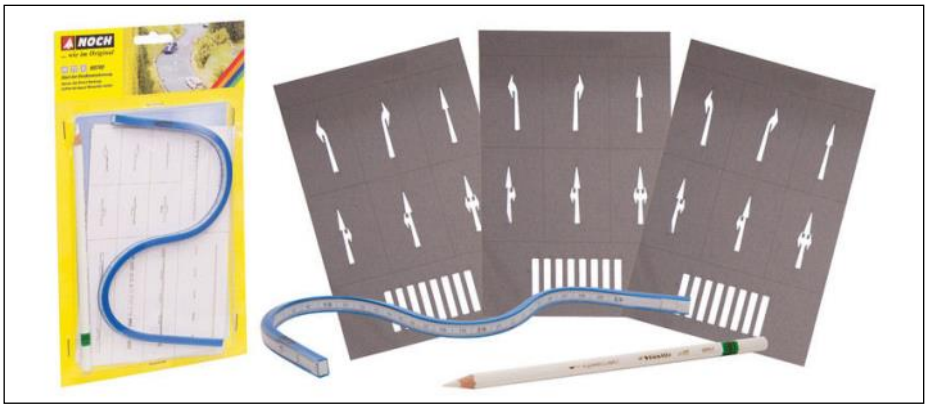


In TT and N
Street musicians
On the farm
On the Platform

In HO:
Street musicians
In the industry
On the construction site
On the farm
At the church

Another new product is a set of stencils for road markings with a white pencil and flexible ruler. The start set includes templates for HO, TT and N. Further templates are available for each scale.

http://www.noch.com/



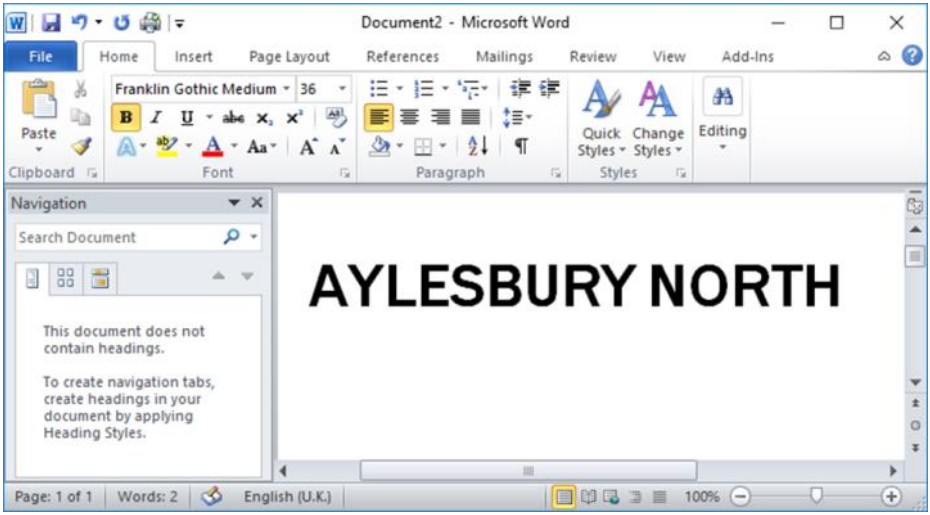
Creating raised lettering on the laser printer

The Aylesbury North signal box has a nice sign on the front with raised letters. Gary drew the sign in CAD but wanted the laser cutter to produce the raised lettering. Unfortunately, you can't do that from a CAD drawing.
The laser cutter has two modes of lasering. One is cut mode, where the laser cuts a line. The second is engrave. The latter works with a bitmap. Once the bitmap is loaded to the laser cutter, it scans the bitmap and each scan burns away a small amount of the surface of the plastic.

So, how do you produce the above?

Step 1.

Create the lettering in a suitable package such as Word. Use whatever font you need to produce the letters you require.



In this example, the font is Franklin Gothic Medium, in bold.

Step 2.

You need the lettering as a bitmap, so zoom it as big as possible on your screen and press ALT Print Screen. This will copy the screen image to the clipboard. Then load a paint package and paste the image above into it. I use Paint.net which can be downloaded from the internet at the following address:
https://www.getpaint.net/download.html#download
Paint.net does not work on Windows XP or earlier.
Once you have the whole of the Word window in Paint.net just cut out the lettering you need so you end up with this:

AYLESBURY NORTH

Step 3.

The laser will cut the black and leave the white, so to get raised letters you will need to invert the colours. Paint.net has a menu option to do this. Use "adjustments" and "invert colours" to get this:

Step 4.

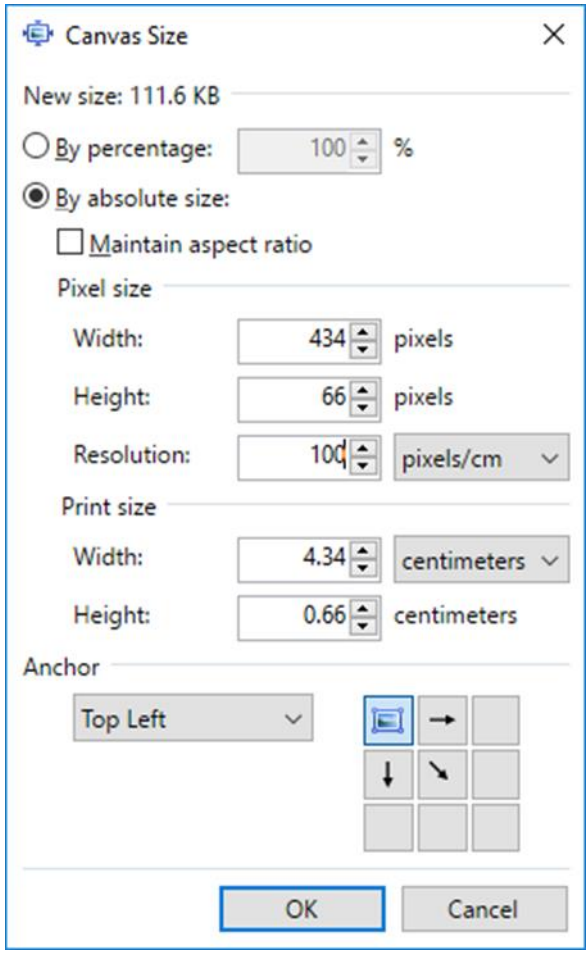
It may be that the sign is quite a bit larger than the area occupied by the letters, so you may need to extend the black area. Use the menu option "Image" "Canvas size" to change the size of the canvas. The dialogue looks like:

Rubbish and Recycling

Please remember to put a black plastic bag in the dustbin before use and empty it when full. There is a wheeled metal bin at the end of the community centre; please put our bags in there when they are full. Spare bin bags are under our fridge.

Recycling will be collected each club night, this includes card, plastic bottles and cans. Please leave it in the kitchen.

It is really useful to change the resolution of the image to 100 pixels per cm. Immediately, you can see exactly how big the image is. Make it about 1mm higher and 1mm longer than you need. Once you have the image the right size, use the package tools to fill any new space with black and move the lettering to the middle of the image.



If the image is proportioned correctly, but still too small or too large, use “Image” “Resize…” to change the overall size of the image but maintaining the proportions. Save the bitmap to a suitable file. Make sure you save it as a 24 bit colour bitmap. Yes I know it is only black and white, but the laser cutter software will not load a file saved as black and white! I don’t know why.

Step 5.

You now have the bitmap finished. You will need a cut outline. Use the CAD package

to draw the rectangle you want to cut out. Because the black colour will be used for the engraving, make the rectangle a different colour like red. Save the cut outline as a DXF file.

Step 6.

Run the laser cutter software, and import the bitmap. Press CTRL Y to centre it in the work area. This is an essential step. Then import the cut outline and centre that too using the same command. The bitmap and the outline will now overlay each other. Now define that the black is to be engraved at a setting of 100mm/s and a power of 30%. Set the red line to be a cut, with suitable speed and power for the material thickness being used.

Step 7.

Download the data to the laser cutter and cut out your sign. Clean with Meths and a stiff brush. All done.

James

Bending Brass

Very often in brass kits there are parts to be bent to shape. In this case the side etching for the tank and cab. The first step here was to add a tube of the appropriate size to the tank to bend around, this also adds strength to the tank. Then use a blow torch (in this

case borrowed from the kitchen) to heat the brass over a suitably heat proof surface. This softens the brass which is usually too hard to bend. Then the etched part can be held in place and bent around the support to give a smooth bend with a perfect fit.

Rob

Scenes from New Zealand

Some model railway/prototype railway photos from a recent trip to NZ……..

Now there's a combination you don't see very often!

I had to investigate and it turned out to be an ex-pat. He married a New Zealander (the cheesemaker), moved to NZ and built a very large 'barn' to accommodate his expanding model railway – oh and a (small) cheese counter.

Meanwhile back on the road…….

Beware of oncoming traffic – including trains!

Left upper: One of the three road/rail bridges in NZ. Fortunately the trains don't run that frequently.

Left lower: Finally, a shot of the cable car in Wellington which runs up to the botanical gardens and the observatory.

Roy

Experiments with Ballast

I have been looking at ballast for my N gauge layout and there is quite a range of materials, colours and sizes. Woodland Scenics seems to be the only company that gives the actual size of their ballast and they have a good colour range.

Ballast Scale Reference Chart

SCALE	FINE Particle size: 0.0103"-0.033" (0.26 mm-0.83 mm)	MEDIUM Particle size: 0.033"-0.049" (0.83 mm-1.24 mm)	COARSE Particle size: 0.05"-0.082" (1.27 mm-2.08 mm)
Z	2.2"-7.3" (5.58 cm - 18.5 cm)	7.3"-11" (18.5 cm - 27.9 cm)	11"-18.3" (27.9 cm - 46.4 cm)
N	1.6"- 5.3" (4.06 cm - 13.4 cm)	5.3"- 8" (13.4 cm - 20.3 cm)	8"-13.3" (20.3 cm - 33.7 cm)
HO	0.9"- 2.9" (2.28 cm - 7.36 cm)	2.9"-4.3" (7.36 cm - 10.9 cm)	4.4"- 7.2" (11.1 cm - 18.2 cm)
S	0.6"- 2.1" (1.52 cm - 5.33 cm)	2.1"-3.2" (5.33 cm - 8.12 cm)	3.2"- 5.3" (8.12 cm - 13.4 cm)
O	0.5"-1.6" (1.27 cm - 4.06 cm)	1.6"-2.4" (4.06 cm - 6.09 cm)	2.4"- 3.9" (6.09 cm - 9.9 cm)
G	0.24"-0.8" (6mm - 2.03 cm)	0.8"-1.2" (2.03 cm - 3.04 cm)	1.2"-1.9" (3.04 cm - 4.82 cm)

The fine ballast is still too large for N at 0.83mm so I have been sieving some to see if I can get the size I want. They claim the size is 0.26 to 0.83mm so I got a set of sieves from Rapid Electronics with 0.5, 0.25, 0.125 and 0.063mm meshes plus a base and top (£20 plus delivery and VAT). A bag of ballast was selected at random and found to weigh 236g. When sieved I got the following:

Mesh size	weight/g	percentage/%
>0.5mm	approx. 3	1.5
0.25-0.50mm	180	76.5
0.125-0.250mm	48	20.5
0.063-0.125mm	approx. 2	1
<0.063mm	approx. 1	0.5

The approx. readings are due to the limitation of the kitchen scales. I have now sieved a couple more bags with wastage of 3.6 and 1.4% of the bag.

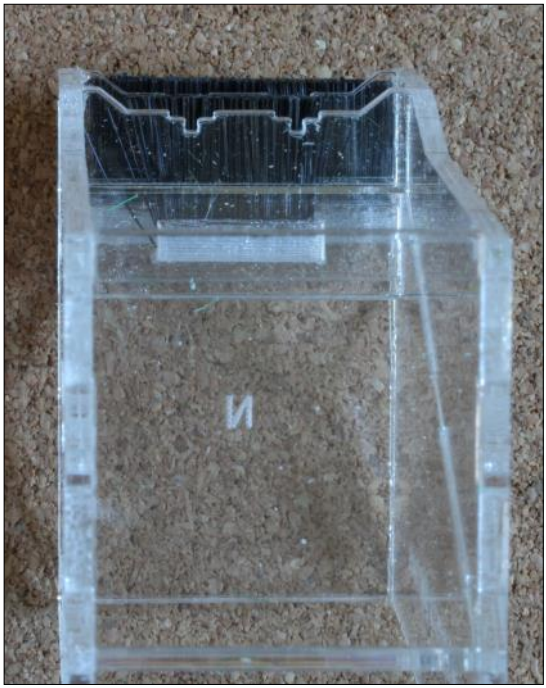
Real modern ballast (it may have varied in different eras) is <63mm and ideally not less than 14mm so at 1:160 that is approx. 0.1 to 0.4mm.

Passing	%	1:160/mm	1:148/mm
63mm	100	0.394	0.426
50mm	97-100	0.313	0.338
37.5mm	35-65	0.234	0.253
28mm	0-20	0.175	0.190
14mm	0-2	0.088	0.095
1.18mm	0-0.8	0.007	0.008

So taking everything above 0.5mm and below 0.125mm out of the Woodland Scenics ballast should be just about OK and that only removes about 3% of the product. Taking the <0.25mm portion only might be better but wasteful. Woodland Scenics have done a good job of sizing their ballast. Ideally a sieve at 0.4mm and another at 0.1mm would be needed to get it exactly right but that is probably not practical or cost effective. Take a look at the photos on page 16 and see which you prefer.

Test laying.

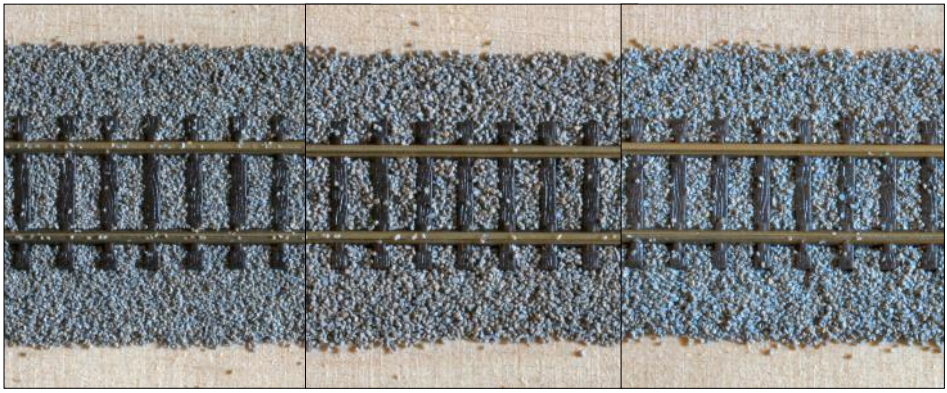
My ballast spreading device is made by Digitalzentrale.de and has 2 brushes built into it. There are currently 11 different versions for N to suit different track! It is made of laser cut Perspex so you could make your own unit with the club's laser cutter! Green Scene make a similar device but without brushes and that would be much easier to obtain. Assembly is easy and the parts are a good tight fit which is fixed with a little Plastic Weld. All these spreaders work in the same way, place on the track, fill with ballast and move along the track. It



seems to do a good job with minimal cleaning up with a paint brush needed afterwards.

Colour of the ballast varies quite a lot so I have light grey, grey, brown and dark brown to mix as required (there is also iron ore and cinders (black) in the range). The light grey will be used on the section of track that is newly laid with concrete sleepers, the browns will be the base for the colour through the station. So a variety of mixes will be required and that will take more experimenting.

Below: real ballast on the Thameslink line north of St Pancras.



Above left to right: 0.125-0.25mm ballast, 0.25-0.50mm ballast and a mix of the 2. The difference is subtle and it may be the colour that gives the realistic effect with the texture not so important in this small scale. I think I prefer the mix rather than the larger size on its own.

Paul

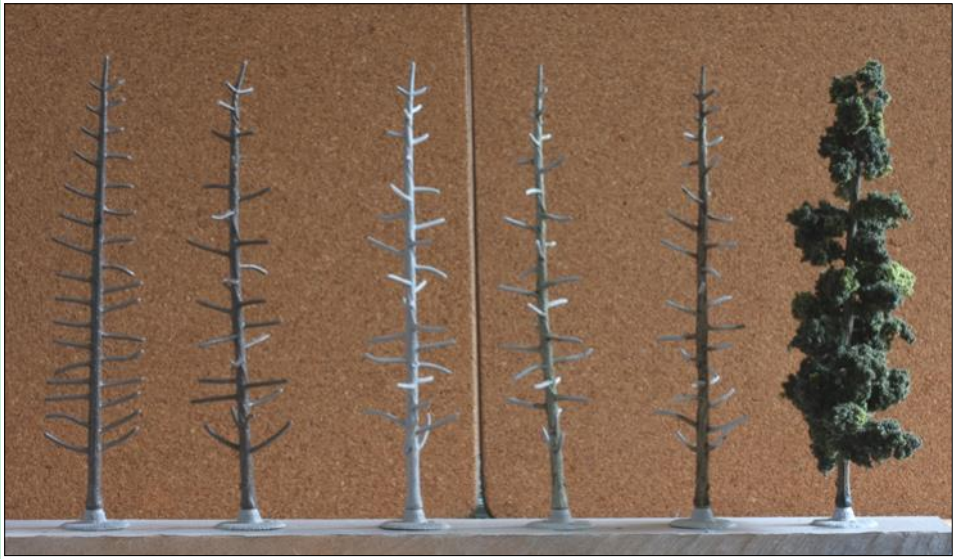
Basic Trees

I have been making a lot of trees lately, some rather large ones for Okehampton and many more smaller trees for my own layout. Here is how I make the simpler ones:

Woodland Scenics conifers:

1 These come as a pack of flat armatures, in this case plastic but some are whitemetal.
2 twist the trunk (you can soak them in hot water to help) so that the branches are pointing in all directions. If you do not twist enough you get a spiral effect.
3 Spray with grey primer, in this case Tamiya, available from Hobbycraft.
4 Paint with Games Workshop washes (earthshade and camoshade) to get the required colour. In this case the first wash is earthshade and then followed by camoshade while this is still wet.
5 When dry another coat of earthshade is added. This gives a slightly brown tint suitable for these conifers.
6 Add foliage, here I have used Woodland Scenics Forest Green bushes which is Conifer Green with some lighter highlights. Conifer green and

dark green would also be suitable. I used superglue for speed but any adhesive with a bit of instant grip will work. Some of the clumps of foliage were pressed over the spike of the branch while others were attached to the sides.



These will be background trees, 1 or 2 deep on my N gauge layout. They work out to be a scale 22.4 metres tall or 74 feet tall. I think that is a good size for a railway tree. The effect I wanted was for the trunk to be visible through gaps in the generally dense foliage. Looking at the forests out the window of the trains while I travel around Europe you get just this effect. When the sun shines you see the brown trunks. A small spotlight may be needed on the layout!

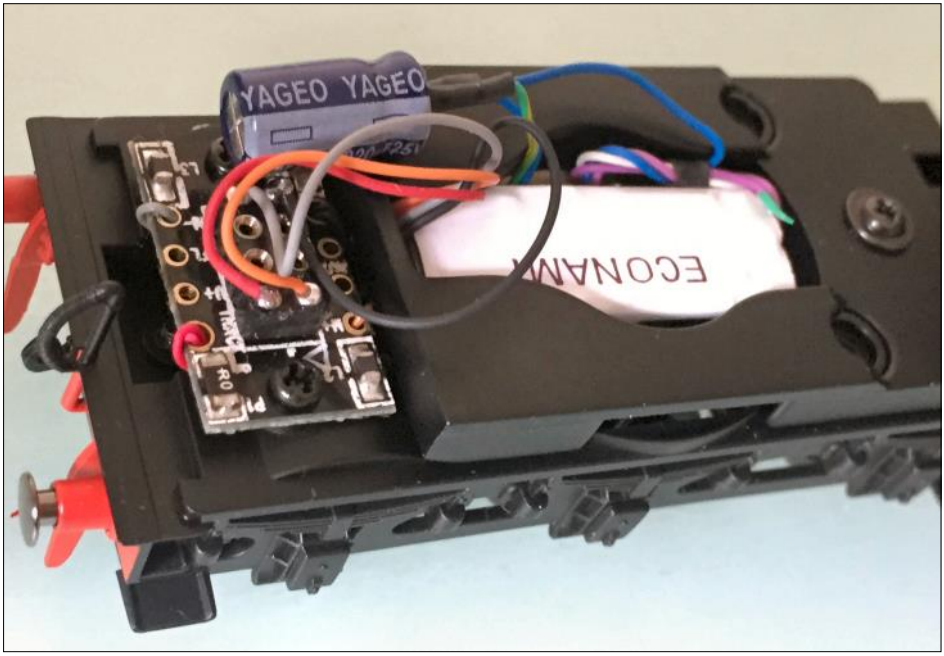
Paul

Installing a Soundtraxx UK Steam Econami in a Hornby J15

I'd been idly looking for a vehicle to showcase Soundtraxx's new UK Econami decoders, when Ted Smale offered me a Hornby J15 at a very decent price, from an estate sale that he was handling. Having seen the J15 before, I felt that this would make a good subject, so a deal was done. My goal was not just to install sound, but to place the speaker in the smokebox - no chuffing tenders here - and also to add a single freight headlight to the front buffer beam.

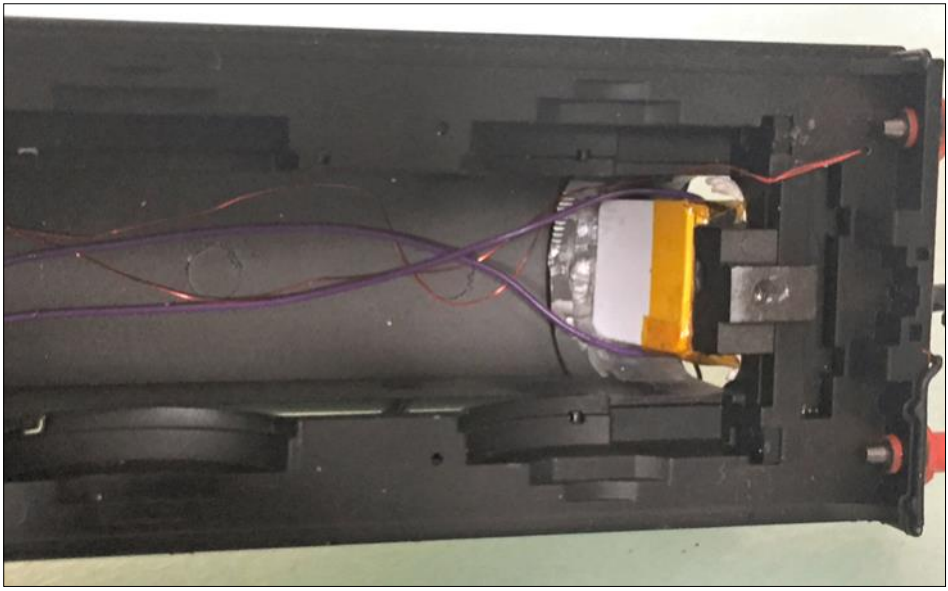
The J15 loco comes with little space inside it. In the tender, there is an 8-pin socket, and space for a 28mm speaker, but precious little for anything else, including the decoder itself. In the loco, there is even less space. The loco and tender are coupled with a screw-fitted drawbar and a 4-pin tether, which carries track power to the tender for the decoder, and motor power back to the loco. I would need to add 4 extra wires to that, two for the speaker and two for the headlight. I planned to use a DCC Concepts LED-powered BR pattern headlight with a10k Ohm resistor in the circuit to protect the LED. That would also dim it down towards the level of an oil headlight - basically invisible in daylight unless you look closely, but decently visible in the dark. I also chose to use the ECO-100 1-amp version of the Econami, plenty powerful enough for this loco and small enough to fit in this tender. I also toyed with adding a firebox light, but, mostly from inertia, decided in the end not to bother.

So, I started with the locomotive. One screw at the front removes the body from the chassis, and fortunately all the loco work happens in the body, the chassis remains untouched. But, the body is a Mazak casting for the boiler and running plate, and there is a large chunk of it inside the smokebox. 30 minutes with an end-mill in a Dremel later, that chunk was converted into swarf, leaving just enough space for a 15 *11mm sugar-cube speaker to be mounted vertically in the space with the magnet pointing forward. We'll come back to that magnet in a moment. Before you start this milling, however, you need to remove the smokebox door, which you do by tapping it out from inside. Don't try to pull if off from outside, you'll risk damaging it. And while you do the milling, be very careful, especially in the lower portions of the smokebox opening, not to enlarge that opening at all,



else you'll need to make some repairs. I did. The smokebox door only just overlaps the edges of the opening. You will also need to ensure that at the top of the area you mill some spaces for the corners of the speaker. But don't remove the bottom of the pillar, else you won't be able to screw the body back to the chassis.

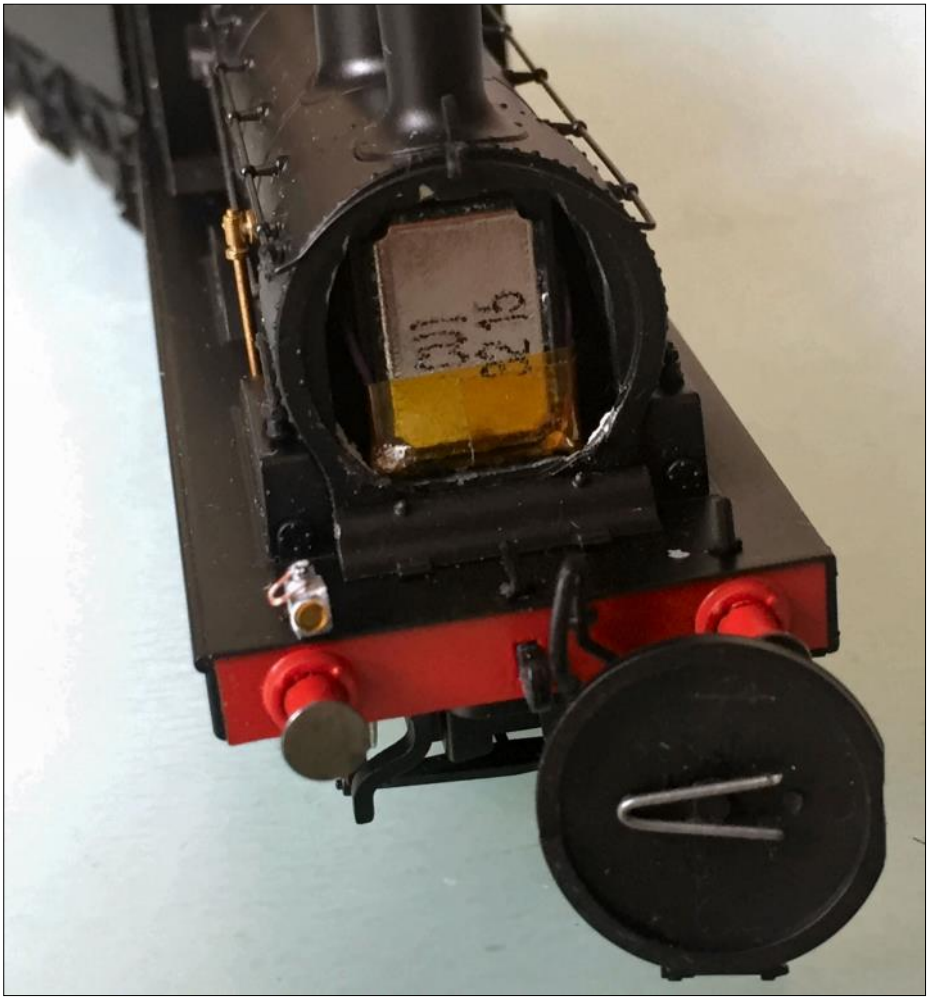
Once all that was done and the swarf cleaned up, a small hole - 0.5mm - was drilled through the running plate by the right-hand lampiron, and the DCC Concepts light glued in place. The wires run through the hole and into the chassis cavity behind the splasher and then onwards to a small piece of PCB carrying the 10k Ohm resistor. That was placed in the rear of the firebox, and above the gearbox. I then added black, instead of white, and blue wires from there, along with two purple speaker wires soldered to the speaker connections. These wires need to be quite fine - mine are around 28AWG, or about 0.6mm in diameter - sourced as NMRA decoder wire from LEDBaron. There is no space for anything larger than that. The speaker's soundbox is made on our own laser cutter from my CAD drawings. With the soundbox added and the terminals insulated with Kapton tape, it was wedged into the smokebox and glued in place with superglue, pushed as far forward as it will go, and as noted, magnet forward. You'll probably have to angle the top of the speaker slightly backwards, but be aware that there is only about 1mm of space between the speaker box and the flywheel when the chassis is re-installed.



Finally, I removed the two mounting pips from the back of the smokebox door which used to fit in holes in the now-removed Mazak pillar and added a piece of steel wire to the back of the door; that steel wire is attracted gently to the speaker magnet and holds the smokebox door in place. You should be able to see all of this in the photos.

The 4 wires from the speaker and light are then carefully teased rearwards under the footplate, and glued with superglue side by side next to the wheel splasher - so that they will mate into the chassis wiring slot used for Hornby's wires. A 4-pin 1.27mm spacing plug was soldered to the end.

Now to the tender. First thing here is to drill a 1.5mm hole through the frame just in front of the Hornby electrical socket and to the right hand side of it - right hand looking forward. This will then place the extra loco-to-tender plug/socket resting diagonally across the tender/loco gap, below the drawbar but above Hornby's wires, and will ensure that they don't affect the movement of tender to loco on curves. You'll need to remove the weight and the decoder socket and the front-end electrical socket first. I then added the supplied 220uF capacitor to the decoder blue and green/yellows leads as described in the decoder paperwork, leaving as



much as possible of the blue lead beyond the capacitor. Next I threaded the blue, white and the two purple speaker leads through the hole and soldered on a 4-pin socket. Having done that, pull the wires back into the tender so that there is enough to couple the loco and tender together, but no more. Reassemble the weight and decoder socket to the tender frame. I soldered the four decoder wires directly to the socket to save space, as the Econami doesn't come with a plug, and anyway I have no intention of ever removing the decoder.

That done, I tested the whole installation before I reassembled loco and tender, just to be on the safe side. First, always, read the decoder address to check that the pickup and motor wiring are OK, then set the address, I tested the motor still turned the wheels, that the headlight lit on demand, and that that speaker spoke. Then I reassembled the entire thing and tested it again. Reassembly of the tender takes care just as the loco does: check the photo to see how I placed the decoder and capacitor. Did I say that these tenders don't have much space in them?

But you're not completely done - now is the fun part of converting that new installation into a real working replica of 50 tons of steel, coal, water and dirt. Well, not dirt, yet, the loco so far isn't weathered. First, select a whistle. I have an Argo Transacord record, Exhibitionist Engines, which just happens to have a track of 65405 on the Watlington Branch, so I used that as a guide for the whistle. The closest match on the Econami is the traction engine sample, so I chose that and set its volume to maximum. I then reduced most of the other volumes to around 30 to 50% or less, set the master volume and synchronised the chuff rate to the wheels. Next, I set lots of momentum, especially deceleration momentum, so that on closing the throttle the loco will coast without chuffing, and then I set the brakes so that I can actually stop it when required. I guess I now have to weather it, add coal and a crew, and maybe convert it to P4 as well to run on Aylesbury, given that two of them were shedded there from 1957.

Mick

Modelling Saturdays

The following dates have been booked 09.00 to 17.00

Oct 7 (Openday), Nov 4, Dec 9.

I try to arrange modelling Saturdays not to clash with other events but this is not always possible. If you are involved in or know of events that are likely to be of interest to our members then let me or Ant know so we can put them in the diary.

Paul

Test Track Nights

Oct 13, Nov 17, Dec 15

Here is the list of proposed test track nights. If you want to make use of the test track then you need to get it out and set it up in the Cherry Baker room. Don't wait for someone else to do it.

Articles for Publication in Footplate

Articles should be sent at least 1 month before publication dates, i.e. beginning of March, June, September and December for publication in April, July, October and January

Laser Cutting Materials

In stock we have:
0.5, 0.75, 1, 1.5 & 3.2mm white plastic (Rowmark) with some 1.5 & 3.2mm in black. Sheets are 1220 by 610mm.

Clear acrylic in 0.5 & 1mm. Sheet sizes vary but some are 1000 by 1000mm.

MDF in: 1.5, 2, 3.2, 4 & 6mm, sheet sizes are 1220 by 600mm

The max size the cutter takes is about 350 by 450mm. The larger sheets will be cut down to approx. A3 or A4 and we will calculate the prices.

Club Diary

October	6	Trustees Meeting
	7	**Club Openday**
	13	Test Track
	14	TAD-Rail 2017, Cottesloe School, Wing.
	14-15	Kirkmellington at Farnham and District MRC Exhibition, Alderwood Leisure Centre, Aldershot
	20	**Railway Talk by Geoff Plumb,** "That was the Year that was - 1967"
November	4	Modelling Saturday
	4	Wycrail, Cressex Community School, High Wycombe
	10	**AGM (Annual General Meeting)**
	17	Test Track
	25-26	Warley National Model Railway Exhibition, NEC, Birmingham
December	1	Trustees Meeting
	9	Modelling Saturday
	15	Test Track
January	6	Marlow, Maidenhead & District MRC Exhibition, Cox Green Community Centre
	13-14	Chiltern Model Railway Exhibition, Stevenage Arts & Leisure Centre, Stevenage
February	2	Trustees Meeting
	16	Risex Setup
	17	**RISEX 2018** Exhibition, Community Centre, Princes Risborough
March	3	Modelling Workshop - Mick Bonwick's Introductory Weathering Course
	4	Modelling Workshop - Mick Bonwick's Intermediate Weathering Course

Above: 37706 at the rear of the train hauled by Flying Scotsman.
Below: GB Railfreight 66713, “Forest City”, passing through Quainton with the spoil train.

Photos by Ray