7th Heaven

Journal of the Aus7 Modellers Group Inc.
No 54

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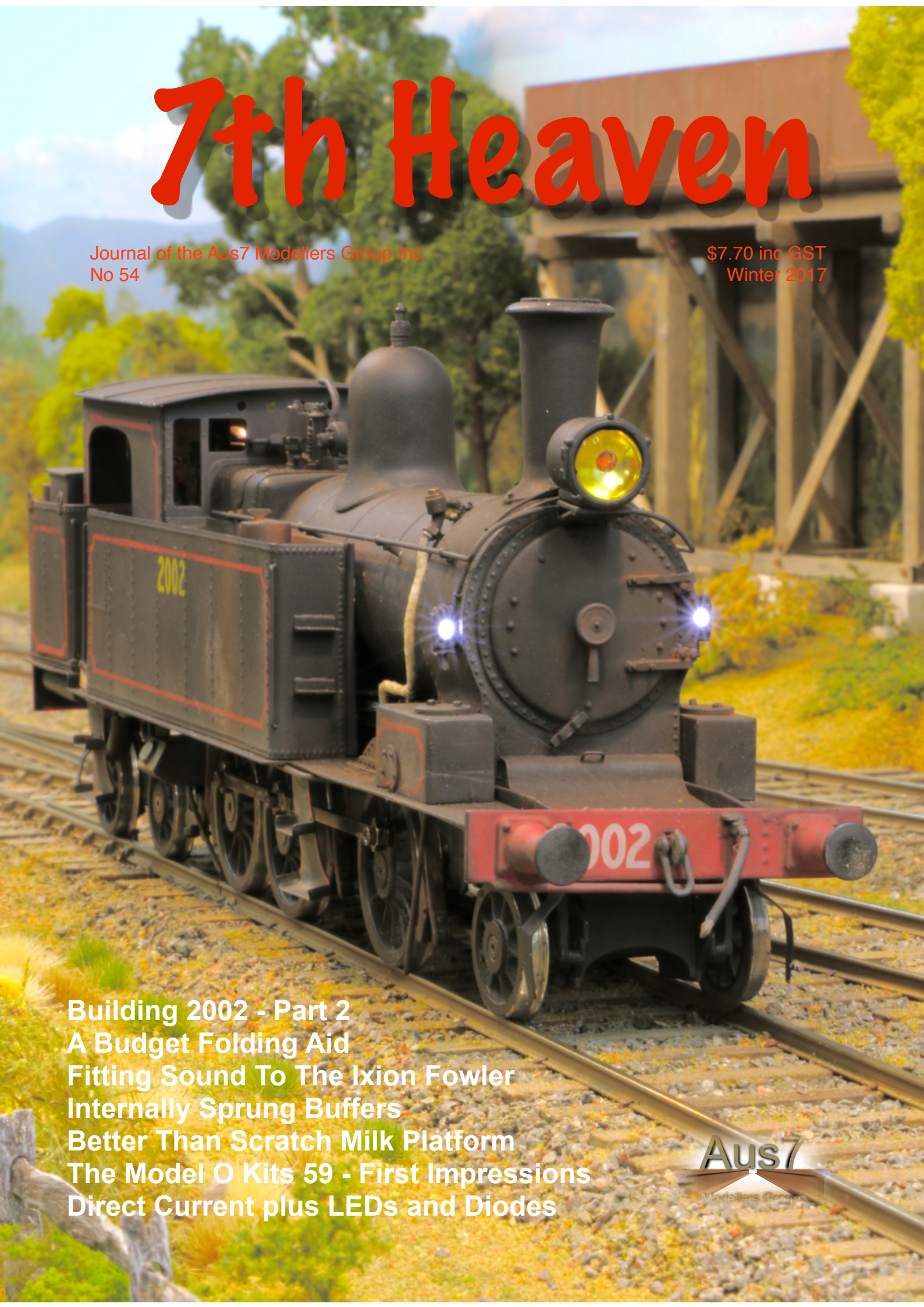

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Aus7
Modellers Group

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Please

Don't let your membership lapse

Membership of the Aus7 Modellers Group costs just $AU35 per year.

Memberships are due for renewal by June 30th no matter what time of year you joined. Please forward payment to the Treasurer, Anthony Furniss at PO Box 3404 Asquith NSW 2077. You must be a financial member to vote at the AGM in October. For renewal and new membership forms follow the link on the Aus7 Blog at http://aus7.org/2014/10/12/welcome/

If membership is not renewed this is the last issue you will receive. To receive all four issues per year you need to renew before September.

Renewals can now be done through online banking. Deposit directly to the Aus7 account BSB 062-233 Account Number 1017 2076

Be sure to supply your name.

Please note that the Membership Plus three year memberships associated with the PSM C38 promotion in 2014 have now expired.

Straight Down the Line - Opinion

by Paul Chisholm

Vale 7th Heaven?

Well not quite but it is certainly not in good health.

I thought long and hard about writing this editorial as I didn't want to sound like I was chastising anyone but we have reached a situation where the viability of the magazine is at stake simply because it is not getting sufficient support from the membership by way of contributions to make regular publication.

You may not have noticed but this issue and the four previous ones have all been up to a month behind the usual publishing date and that is simply because I have not had enough material to fill them until one of our dozen or so regular contributors came foward with something. In fact looking back over the last few years the number of new contributors outside this stalwart bunch of regulars can be numbered on one hand.

So it simply comes down to this. If you want a quality magazine devoted to O scale to come out on a regular four issues per year basis you are going to have to support it by writing or photographing something and sending it in to fill those pages. It's no good saying someone else will do it because no one is!

I have often pondered why members are reluctant to become authors and I can only surmise it's one of just a few reasons a) they are armchair modellers and don't actively do anything b) they think their efforts are not worthy of showing off or writing about or that they may not interest others c) they don't feel confident that their literary or photographic skills are good enough. I can't expect much from group a) except maybe to have the magazine inspire them to get out of that armchair but if you fall into groups b) or c) let me assure you that you don't have to be a super modeller or following a mainstream interest to submit something because most of us, including me, are not modelling geniuses either. If literary skills are the problem don't worry. As an ex primary school teacher I have spent half a lifetime correcting grammar and spelling errors so you won't be a challenge at all.

So, if you have recently built a kit or scratchbuilt something tell us about your methods or at the very least send a photo. If you have discovered some great tool that helps your modelling tell us about it. If you know a bit about some aspect of the prototype that would be of interest inform the rest of us. If you have a layout a feature article would be great.

I prefer articles in Word and photographs as JPEG and large enough to reproduce clearly (i.e. about 500 KB minimum) but I will even accept typed or handwritten submissions and can scan photographs if they are of high enough quality. So not being computer literate is no excuse!

Enough of the rant. I won't nag you any more - but

SEND ME SOMETHING PLEASE !!!!!!

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On The Cover
Another view of 2002 as it arrives in Morpeth. This issue Trevor continues the story of its build.

2002 - A Thirteen Year Long Scratch-Build

Part 2 Trevor Hodges

The side rods for 2002 were sourced from DPMS as a nickel silver etch. The rods were made up from four layers of NS cut from the etched sheet, soldered together and then filed and filled until they were ready to use. The various chassis jigs available, including the Hobby Holiday's version I wrote about in the previous instalment of this article, use the locomotive side rods to set the spacing on the jig to ensure accuracy. So after I'd used these to do this small task I set the rods aside until I had the chassis soldered up and the horn blocks installed. Once the chassis was assembled I installed the rods on their wheel bosses, installed the motor/gear box and gave the chassis a test run under DC power (Photo 1). This first test was pretty satisfactory however there was a tight spot in the mechanism and I worked on this till I was satisfied. Getting a smooth running mechanism is no dark art, all it takes is a chassis jig, some taper brooches and a bit of perseverance. So the sequence is; apply the side rods temporarily and test under power; take the side rods off and shave what you think is the offending hole with an appropriate brooch; apply the side rods temporarily and test under power; repeat ad infinitum until the tight spot disappears. Two points to note are to never use needle files in this operation and keep at it till the chassis runs smoothly. The tight spot will not disappear with running in, you need to find it and remove it with patience and perseverance. This applies to kit built locos as much as it does to scratch built ones.

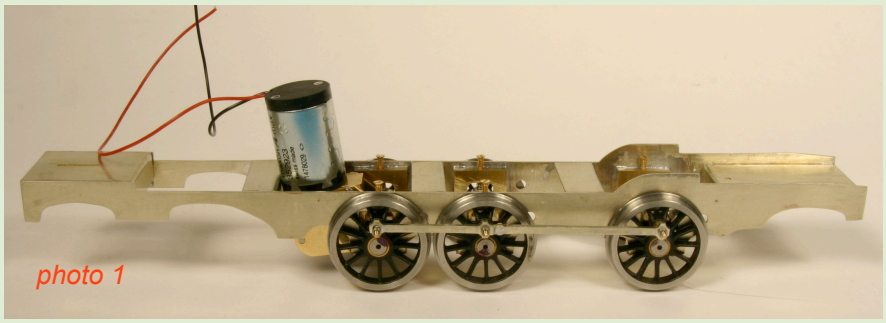


photo 1

Once I had the chassis running satisfactorily I moved onto the trucks at each end of the mechanism, starting with the trailing (4 wheel) truck. As can be seen in Photo 2, I set the chassis up on a flat surface and placed the nickel silver blanks of the truck (with a section of the paper plan glued to them) behind the wheels to check their interrelationship with the chassis. I used exactly the same method of cutting out the trailing truck frames as I described in Part 1 of this series for the main chassis. Two blanks of .7mm NS sheet are tack solder together, a piece of plan is glued to one side of these blanks and this is used to guide the cutting of the shapes with a piercing saw. I drilled the holes for the brass wheel bearings and then separated the two pieces of tack soldered NS. Once separated I applied some rivets to each frame following the Data Sheets plan, made up a spacer from K&S brass rectangular tube and soldered the bearings into position and tested the wheels on their axles to see if they would

spin. They did so I soldered into position some cross members to add strength and rigidity. I then installed a section of brass angle into the rear part of the main chassis and bolted the truck into position using a spring to apply some pressure onto the truck. It took a little experimentation to get the correct tension from a spring and I went through two or three different types from a mixed bag of springs I purchased from Micro Mark in the US before I found the correct one for the job (Photo 3). This method of securing a truck to a steam locomotive chassis will be familiar to anyone who has built a DJH HO loco. The internal detail on this truck is difficult to detect from normal viewing angles but I felt leaving it off would leave a lot of empty space under the chassis so this is why I applied it and they also add weight to the truck to help with tracking. The brass castings are from Laurie Griffin in the UK. They aren't quite the correct pattern and I had to cut them about a bit to get them to fit but they serve the purpose. Once painted and under the dark loco they certainly look the part and saved me hours of work if I had made them myself (Photo 4).

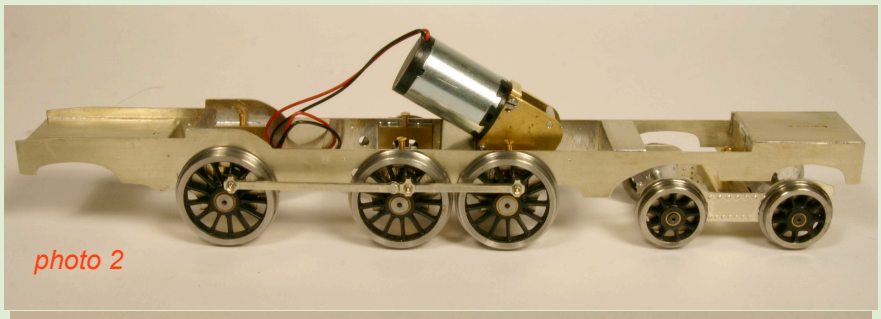


photo 2

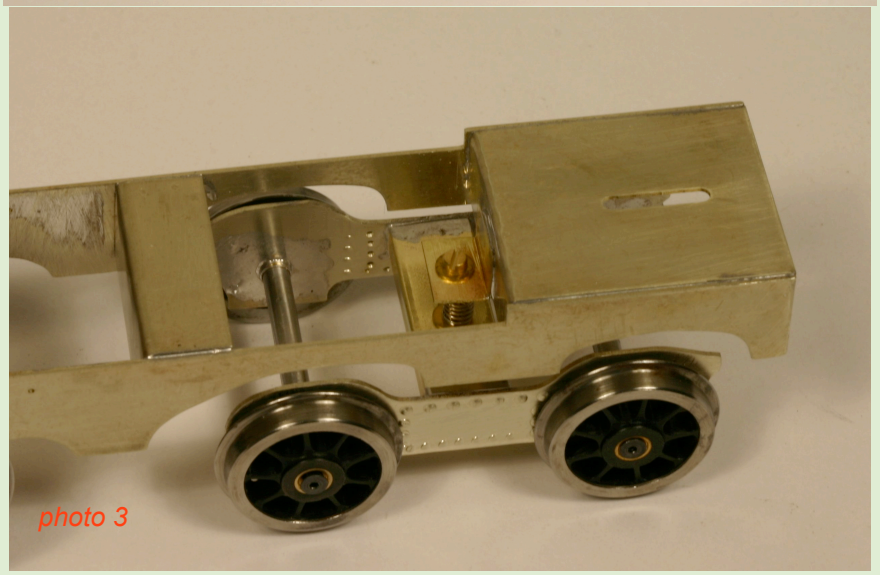


photo 3

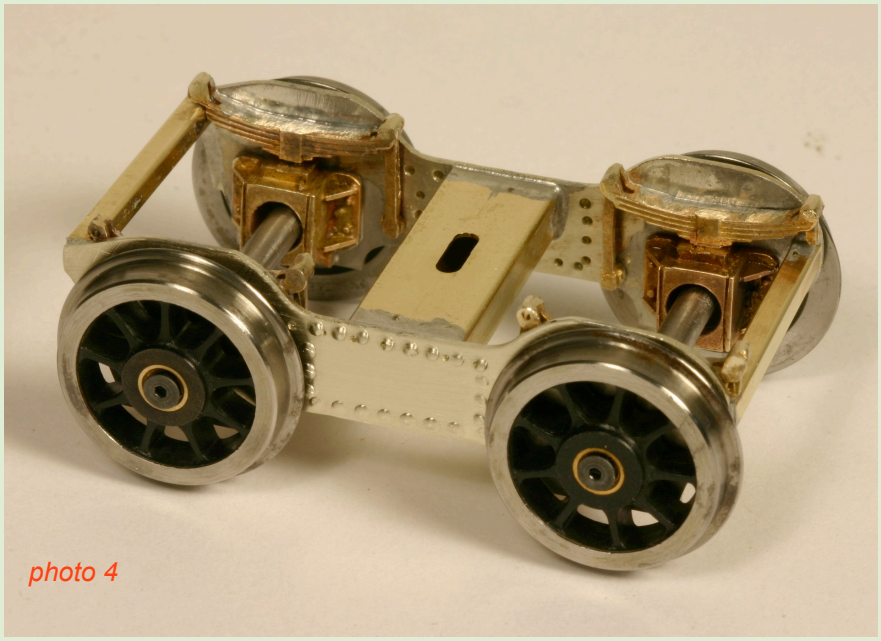


photo 4

The details applied to the chassis that I made from scratch consisted of three main components. The rear water tanks that sit under the rear coal bunker were made as two separate blanks from various brass sections (Photo 5). After being assembled these were encased in a sheet brass wrapper that had rivet detail applied to give some relief and then were soldered to the chassis (Photo 6). The sand boxes were a unique shape that I can't recall being repeated on any other locomotive in NSW and I really enjoyed making these from brass bar. I got some brass bar that was as close as possible to the dimension needed and started filing each end till they took on the shape of the prototype boxes. My plan was to make both boxes from the one piece of brass and then saw this in half after I'd got them to look like the sand boxes. I checked photos and the drawings as work progressed and after about 40 minutes I was happy I had a reasonable approximation of the shape I needed. I then drilled a 6mm hole in each end of the shaped blank and soldered in a short length of brass rod and filed this smooth and just proud of the surface of the sand box (Photo 7) to approximate the filler hatch. After sawing the bar in half and filing smooth I drilled and tapped some holes for 12 BA bolts into the rear of the boxes and bolted these into position on the chassis. The brake cylinder was turned up from some 15mm brass bar in my lathe. I decided to leave this blank and not attempt the application of the bolts that surround the top of this object on the real locomotive as I guessed my skills weren't up to the required level for such a job. In addition to this I didn't have the indexing plate I needed to carry out such an operation on my mill and, as these run to quite a bit of money, I felt I could live without the bolt detail. Once turned on the lathe I slightly flattened one surface with a hand file into which I drilled and tapped a hole to allow the cylinder to be bolted to the chassis (Photo 8).


photo 5

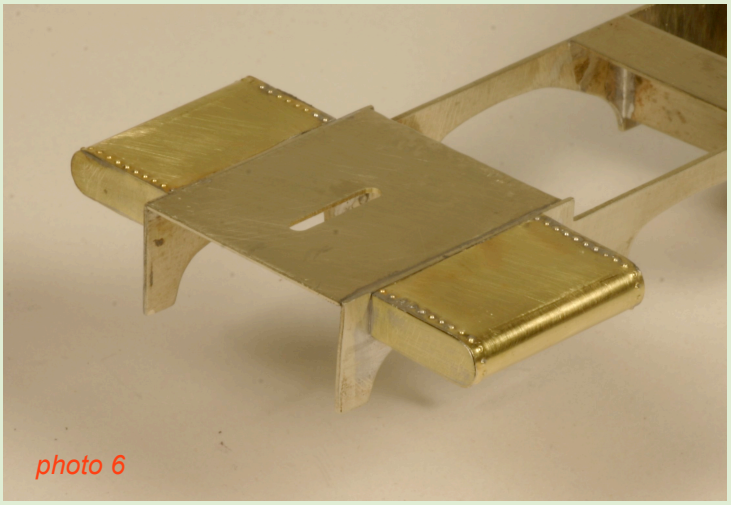
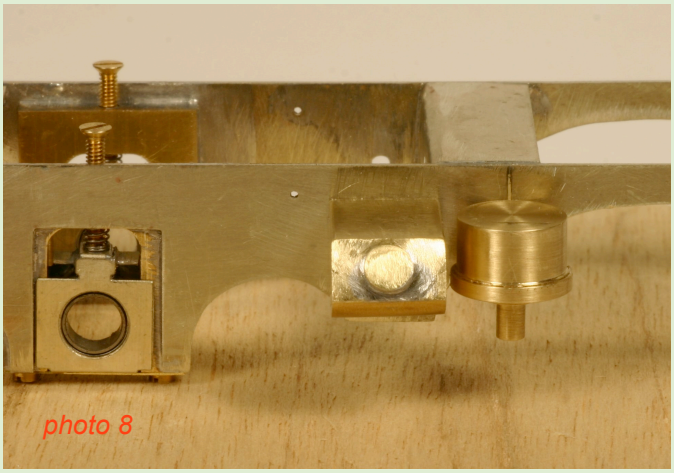


photo 6


photo 7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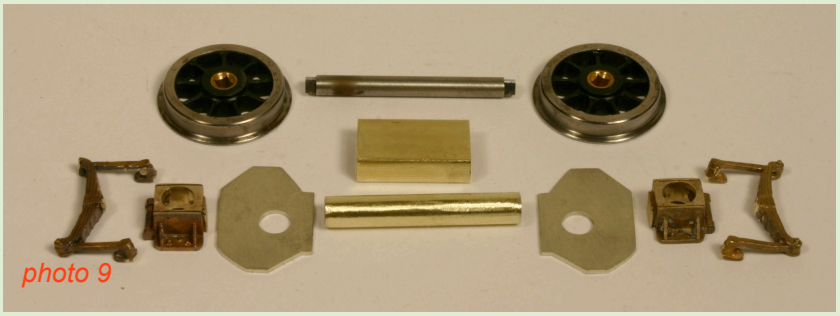


photo 9

Making the pony truck was a relatively simple procedure. I made up a series of parts from NS sheet stock and brass tube (Photo 9). I also pressed into service more of the Laurie Griffin castings to provide some much needed detail and weight. I assembled the main box by soldering together the NS blanks and then soldered a length of brass K&S tube into position between these which also acts as a bearing for the axle. Over the top of this assembly I soldered the detail parts and then installed the wheels to test their rotation. After I was happy with the way this looked I determined the length that the rear tail (Photo 10) needed to be and drilled this by offering the truck up to the chassis. I then drilled a small hole and trimmed off the over length tail and bolted the truck into the chassis.

In general I tend to describe myself as a bodger more than a precision machinist. I tinker and experiment and see what fits and if something doesn't work I make a part again or redrill a hole in another spot. I'm still developing my machining skills but these won't improve by reading books and dreaming about locomotives I'd like to construct. The best teacher is experience and the experience of building 2002 means I know I'd do some things differently next time.

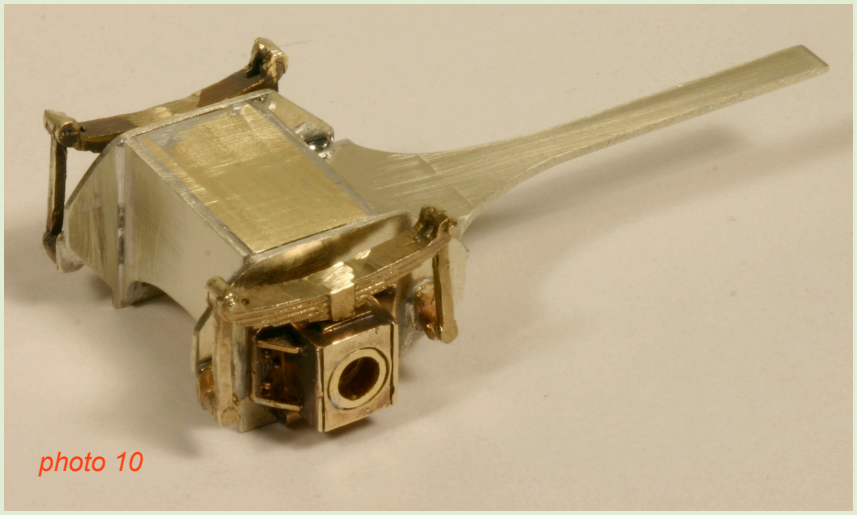


photo 10

A Budget Folding Aid

Paul Chisholm

Many of the rolling stock and loco kits produced over the last few years contain etched brass parts that require folding. This is particularly the case with Model O Kits/DJH products. This can be a little confronting for the inexperienced builder and along with soldering probably is the main reason some are reluctant to attempt these kits. But as with most kit building, having the right tools for the job can make things a lot easier and prevent disaster.

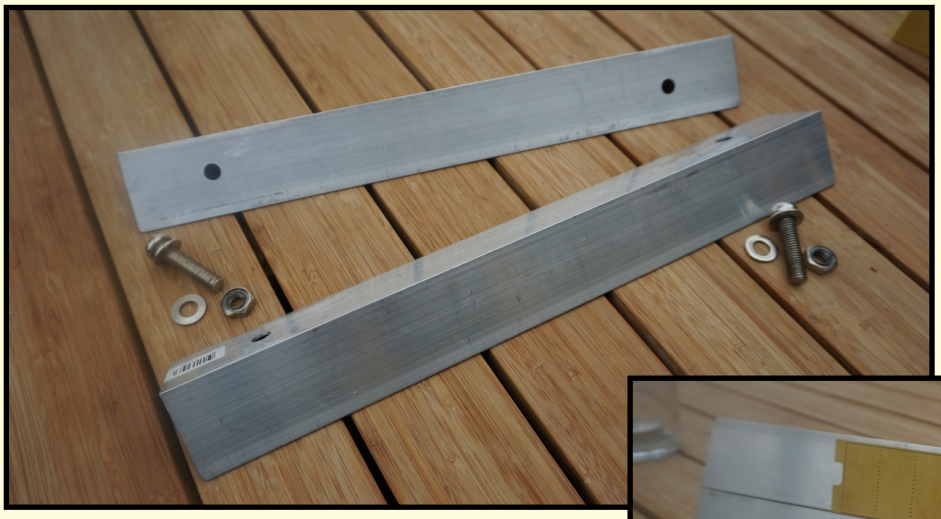
If the part is only small it simply requires securing in a vise and using a flat piece of wood to gently apply pressure to the folding surface. It also helps to relieve the etch fold line with some sort of scriber. This gives a sharper fold and prevents the rounding effect that can occur with thicker brass material.

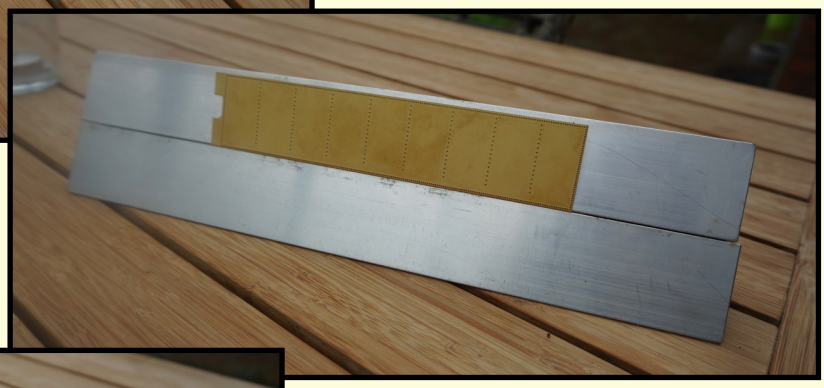
But sometimes the part is too large to fit within the vise and this is where some sort of specialist folding tool is invaluable. There are a few of these available from various hobby tool producers both here and overseas but they are quite expensive and given the infrequent use might be hard to justify.

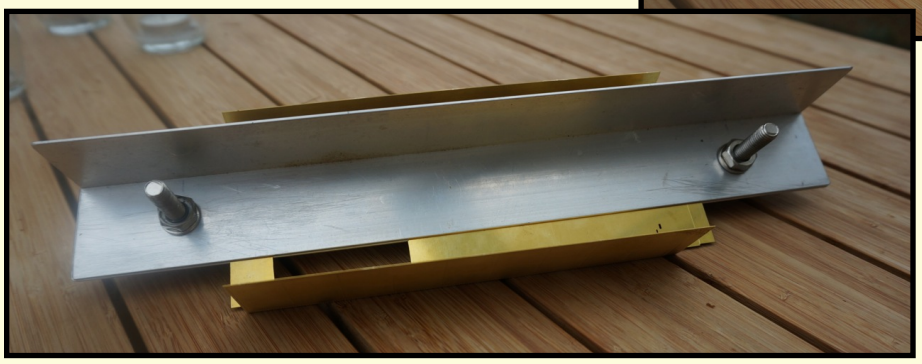
I was confronted by this some time back while constructing my Model O Garratt and more recently the 36. With a bit of thought I came up with this home made solution that works just fine and only cost a few dollars and an hours work.

The tool consists of two lengths of aluminium right angle extrusion about 30cm long held together by two nut/bolt/washer assemblies. To make it you simply need to cut the two aluminium pieces to the length required, file off the resulting sharp edges and corners, then clamp the pieces together, drill through at both ends, insert the nuts, bolts, washers and there you have it. The photos should make this pretty clear. One of them shows a 36 tender etch being folded up. The etched part can be inserted a number of different ways to give clearance for bending. Be sure to use a flat timber pusher to even out the pressure on the part and prevent distortion. Once again relieving the fold line will make things much easier.

If the thought of folding up all those parts has put you off this might be your answer.





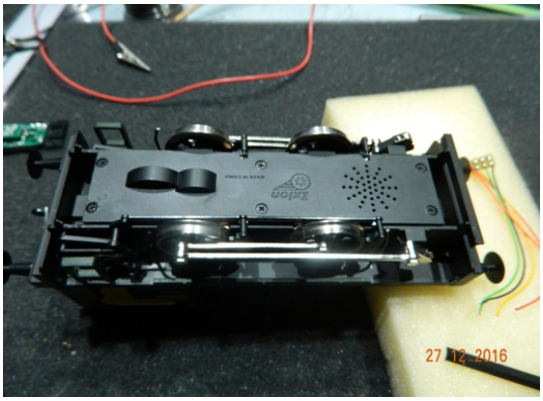


Fitting sound to the Ixion Fowler 0-4-0.

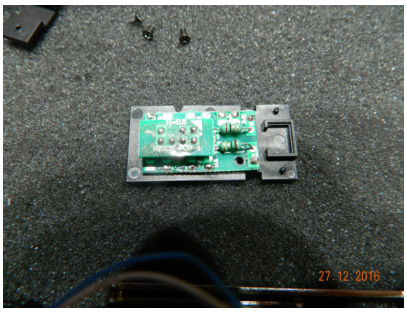
By Dave Pallas.

1. Items required for this are Phillips head screw driver, soldering iron, wire cutters, Blutac and of course a sound decoder. For this project I purchased the Zimo MX645 decoder from NGTtrains,

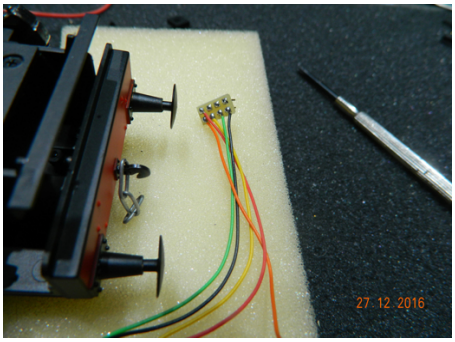
2. There are four different sound versions available. Two with donkey engine start up with either klaxon or air horn and two with electric start up with either klaxon or air horn. They are identified as Z10 to Z13. The decoder is not supplied with a speaker and a 1 watt 8 ohm is recommended. For my install I used a sugar cube speaker with small enclosure. To get get started you will need to remove the chassis from the body as per the enclosed instructions. The two separate very easily and this is a credit to the designers.

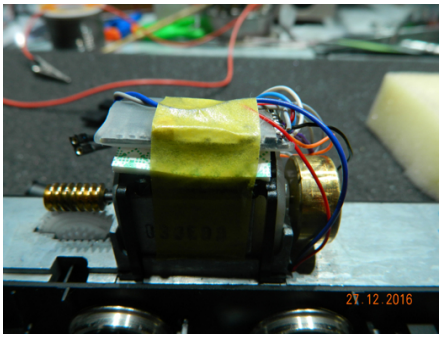


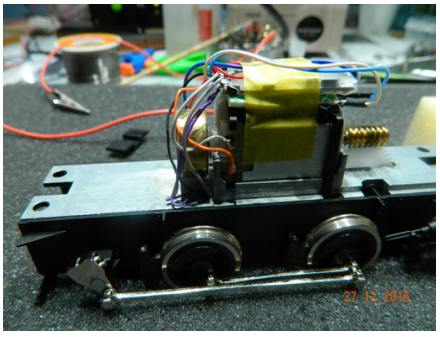
3. You will see the loco is DCC ready with an 8 pin socket. As space is limited I chose to remove the supplied conversion board. Of course the only photo I forgot to take was the conversion board still fitted in place.



4. You will need to desolder all wires from the board and remove. The right hand end of the board is where the head light is fitted. The good news is that the PC board for the headlight is fitted with a 1K resistor, so no need to add a resistor. I will cover refitting of the headlight later. The decoder comes fitted with an 8 pin plug. As the plug is not required I removed it. From the plug I unsoldered the blue, white, orange and grey wires. All other wires on the plug I unsoldered from the decoder. The plug should look like the photo below. Take note of which solder tab the red and black track wires come from. Also remove the wires from the motor.

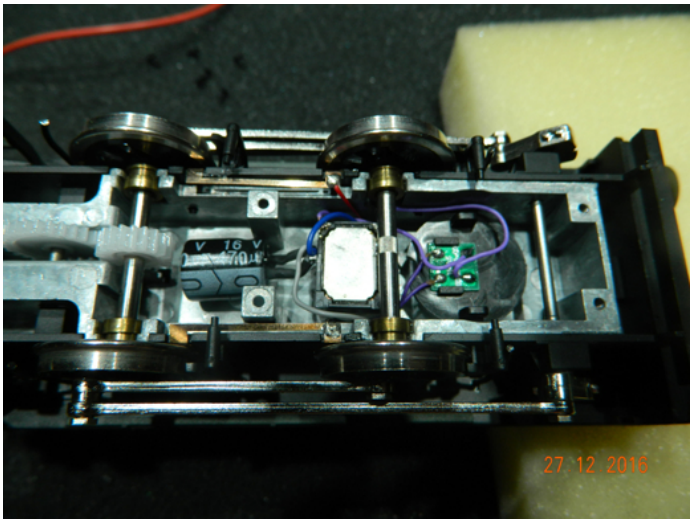






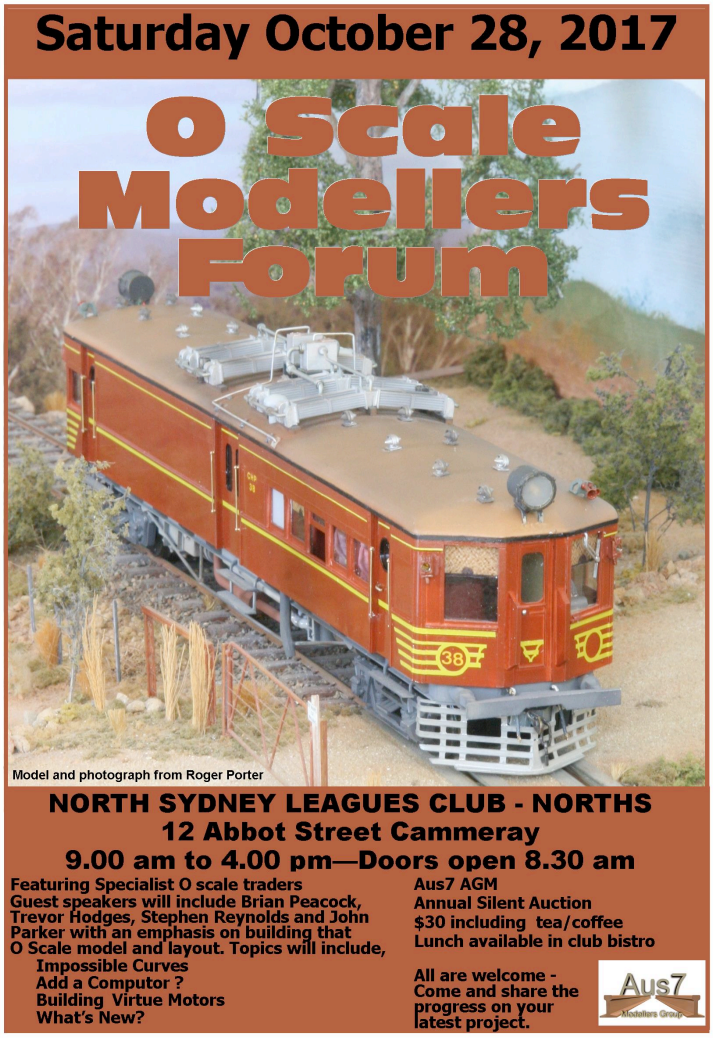
5. Now hard wire the decoder in. This is straight forward. Attach the red wire from the power pickup to where the red wire was on the decoder, repeat for the black wire. Now attach the grey wire to the top motor contact and the orange to the lower contact. There are also a blue and grey wire for the supplied capacitor. Feed one wire down through each of the holes where the track wires come through. Also feed the speaker wires down through these holes. Almost done, now the head light. For this I fitted a micro 2 pin plug and socket to allow the headlight to be detached from the decoder for servicing.

6. Sorry the photo is not all that clear. This gets a little bit tricky. The blue wire is soldered to the positive side and the white to the negative side of the PC board. I found I needed to glue the PC board into its holder. I used a very small amount of 5min Araldite. The plastic holder locates over the light pipe that leads up to the head light. Test fit, then glue in place with a little bit of 5min Araldite on the outer ends of the plastic holder. Set aside to dry. As shown in the above photos I used two small pieces of double sided tape to create a flatter surface to mount the decoder to. I used Tamiya masking tape to hold the decoder in place. This completes the top side of the install. Now for the speaker and capacitor install.



7. If you have not already done so remove the bottom plate by unscrewing the six screws. Space is a bit tight , but as you can see it all fitted. The speaker I used is 8 x 15 x 11mm fitted to a 4mm deep speaker enclosure, giving a total depth of 12mm. The first step is to solder the wires to the capacitor. Blue the positive side grey negative side. Seal the solder joints with small diameter heat shrink. A little bit of Blutac holds it in place. Now if you wish to mount a larger speaker you may need to remove the round speaker holder and PC board and mill out the metal stand underneath. As I do not own a milling machine I went with the sugar cube speaker. Lift the axle up out of the way to give better access. I was lazy and used the supplied PC to attach the speaker to the decoder. Again a small piece of Blutac holds the speaker in place. All you need to do now is reassemble the loco. The plug for the headlight will tuck up neatly in the space above the decoder. On YouTube I have a video of the loco running on my test track for your listening pleasure. Search for Alcodl531 or under the files section of the Aus7 Yahoo group.

Happy modelling. Dave Pallas.



Commercial News Trevor Hodges

ModelOKits

ModelOKits, PO Box 379, Sydney, NSW, 1700, (02) 97073390, 0404935663, http://www.modelokits.com & sales@modelokits.com have passed on the news that the D59 pilot has arrived. DJH have been informed of the corrections required and John Parker has reviewed the electrical set-up. Tooling is being modified and production of the kits will have commenced by the time you read this. Kit instructions have to be prepared with the kits expected to be dispatched sometime in October. RTR's should commence arriving in batches in November.

Injection moulded S Wagon kits are now available. These can be purchased in a 10 pack (one set of instructions, bulk lengths of brass rod, bulk wheels, etc) for $800. K, KF and U wagons are back in stock. LV and CW wagons are expected to be back in stock by the time of the October Aus7 Modellers Forum. Prices of these are expected to be revised downwards. Laser cut Post Office and Church are now available and a limited number of 1967 F100 Ambulances are still in stock - $145.00 each.

LFX, BX, LHG and 442 still in the pipeline for production later in 2017.

Showroom to be opened once a month on Fridays or Saturdays except during Exhibition or Forum months. Watch our website for dates.

Internally Sprung Buffers

John Birch

Conventionally, most model buffers, if sprung, have the 'tail' of the buffer protruding from the rear of the buffer housing. The buffer head is retained by a small nut or a cleat which is compressed on to the buffer shaft to retain it in the housing.

Sometimes this leaves a visible, and very unrealistic, element behind the buffer beam, potentially visible from the side of the locomotive. One such example is the Century Models 50 Class where there is very little by way of a valence below the footplate to hide the rear of the buffer. It also happens to interfere with the bracket casting which represents the bracket connecting the frames to the rear of the buffer beam.

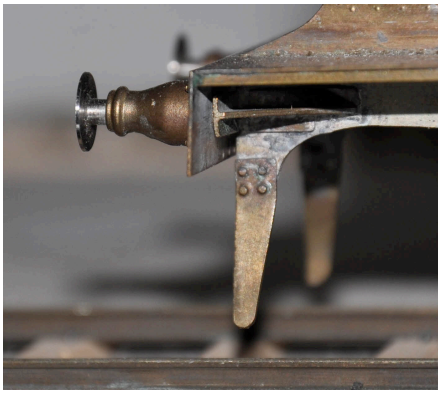
Nick Baines of the Gauge 0 Guild wrote up a method in the Guild Gazette (May 2011). His method involved milling a slot in the shaft of the buffer head, a method which will not suit the many modellers who do not have a milling machine. In addition, the shaft of the buffer head in a Turton buffer is quite small in diameter compared to the British buffers which Nick was working on. This method can be done with simple tools, though a small pillar drill will probably make it easier.

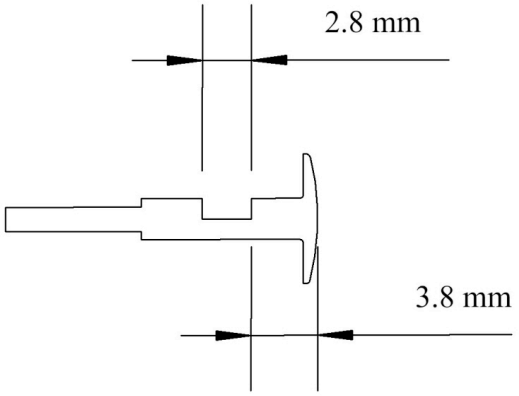
First file a flat across the shaft of the buffer head approximately half way through at the dimensions shown in the diagram. The measurements seem very precise but with the help of Vernier calipers you should be able to get very close. Next drill a small hole 0.8mm in diameter in the side of the buffer housing at the dimension shown. Only drill until you meet the centre hole in the housing, not all the way through. Make this hole on what will be the underside of the housing, so any slight marking on the housing after tidying up at the end will be less visible.

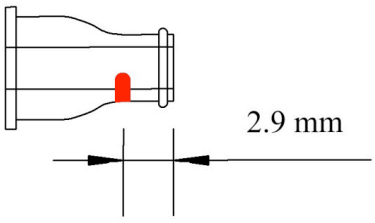
Next assemble the buffer, with the spring, as normal and while holding the buffer head in place, put a piece of 0.8mm wire into the hole. Rotate the buffer head if necessary until the wire goes into the rebate you filed in the shaft of the buffer head. It's important that the appearance of buffer when uncompressed should look correct and it's particularly important that the pair should look the same uncompressed. You may find you need to file one of the rebates slightly at the end of the rebate away from the buffer head until they match. It is best to get to this stage on both buffers before soldering up.

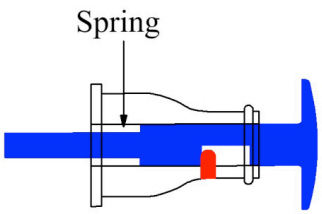
To complete the job, ease the wire outwards very slightly so it doesn't actually touch the buffer shaft as this will interfere with the smooth action of the buffer. Then solder this wire in place and trim as close as possible to the buffer housing, cleaning up what then remains with a small file.

You will note that the buffer heads on my buffers are steel. I replaced the brass castings for these with turned steel ones from Markits (www.markits.com)









Better Than Scratch Milk Platform

By Stephen Reynolds

photos 4, 5 and 6 by David Howard

Two Years ago I was asked to assemble three BTS (Better Then Scratch) kits of Dobson Farm's Milk Platform. At the time I had not a lot of experience with laser cut timber kits but I was looking forward to the project and the ease of assembly. The kit is fairly simple (a box on a deck), although the instructions say `that this kit is not intended for use by novice modellers', it would be ideal for a first time laser kit assembly. You have to start somewhere and the methods and materials used here are also readily applicable to most similar laser cut building kits such as those from Model O Kits.

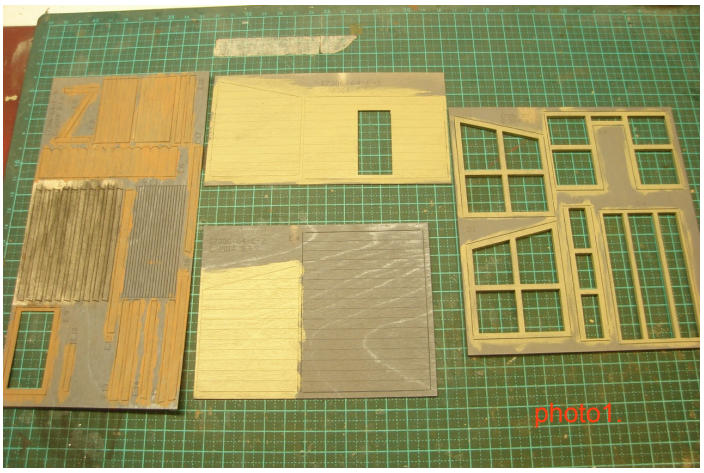


photo1.

Opening the box that the kit came in, the instructions were straight forward along with diagrams and all parts seemed to be there as well as three whitemetal milk cans. I used the same methods and products that I always use on timber or cardboard models. All parts were left attached to the carrier sheet because this makes painting the parts much easier.I hand painted all timber parts a good coat of Shellac on both sides.

Once this was dry I then sprayed these parts with a can of Export Spray Paint grey undercoat purchased, from Auto Cheap and let dry. Some warping did occur but I placed these parts under weights to keep them flat and they soon corrected themselves.

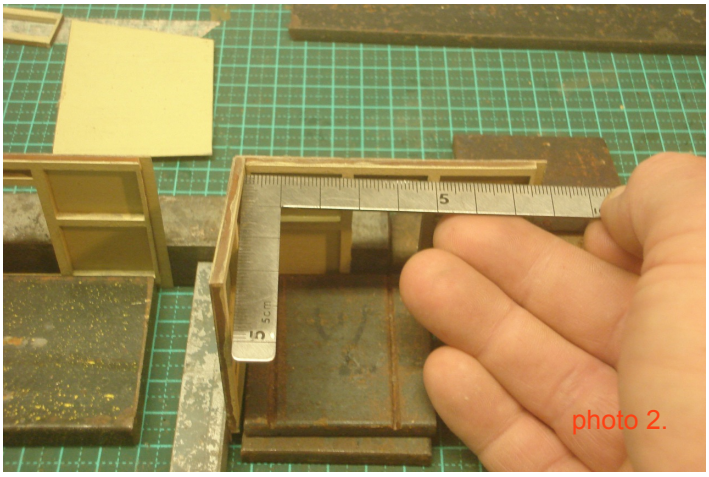


photo 2.

The only parts I didn't spray with the primer was the platform deck and its side joists as I wanted these to have a more natural finish.

Now is a good time to give the assembly a light sand with fine sand paper if any wood fuzz is sticking up.

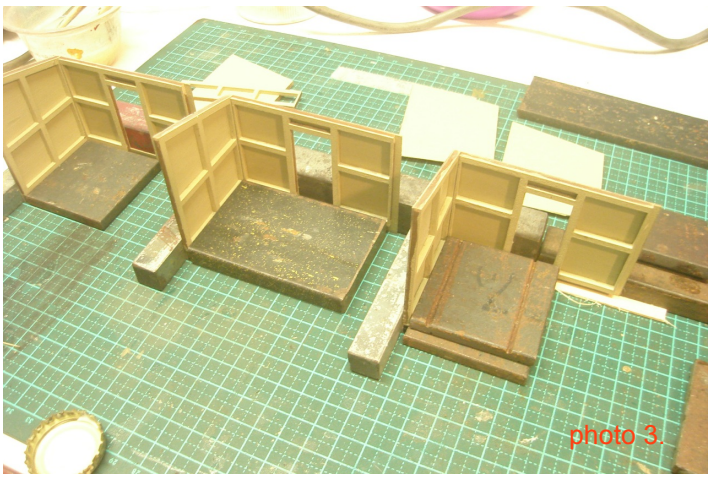


photo 3.

I painted the walls and trim with acrylic interior wall paint, any brand, purchased in 500 ml test pots from Bunnings, the same stuff you use to paint the inside walls of your home. Ceiling White also works well and can be tinted to the colour I want with students artist acrylic tube paint. photo 1.

In photo one you can see the grey undercoat as well as the finished first top coat. If you want a weathered appearance then this first coat will be enough. If you want more of well maintained appearances then apply more coats to your liking.

All the trim was now painted using the same type of paint in a different colour so as to give a sharp and

neat finish. Much easier now then trying to cut in once assembled.

PVA glue was used to assemble the kit. It may take a little longer to dry compared with other glues, but it is cheap, readily available and does not seem to break down over time. I have wooden structures where I used PVA that are over 30 years old and as good as the day I constructed them.

I followed the instructions with the walls and framing as care must be taken to get this right. The left hand side wall sheathing and trim is longer than the right side. With the walls and framing attached I glued back and side walls together using a set square to make sure they were at 90 degrees to each other. photo 2. I also used steel weights to keep all in alignment while the glue dried. photo 3. The other side wall, front wall and the framing for the roof was next, again making sure all was square. photo 4.

Roof and front top trim as well as the back door followed: again using the weights to keep all in place till the glue dried. There was not a lot of information in the instructions on what the roof surface is supposed to represent, perhaps tar paper or timber with the battens covering the joints. If you wanted a tar paper look I would use old tea bags to achieve this.

The platform was constructed following the instructions. As suggested the deck was glued to the sub floor using heavy weights to keep it all flat until dry. The legs and leg braces were applied next as well as extra braces to the front and back of the deck as these areas look a bit light on.These cross leg braces scream out for nut and bolt detail and this would be easily done while the bracing is flat on the workbench. Unfortunately I never took this extra step. photo 5.

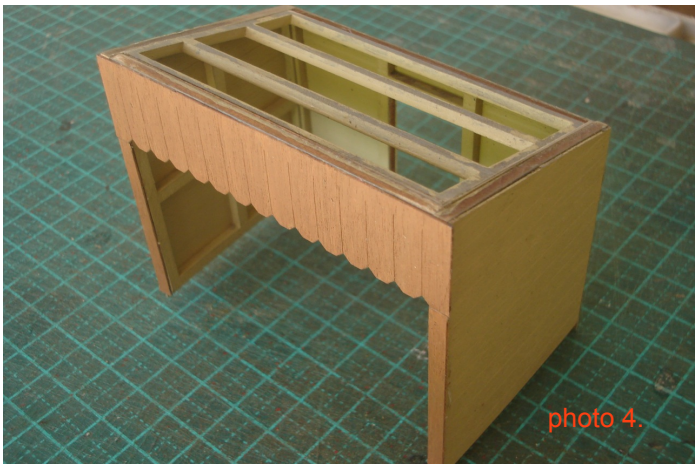


photo 4.


photo 5.

The deck was given washes of alcohol and India ink and highlighted with weathering powders and water soluble colouring pencils. That's about it. This a very enjoyable kit but there are one or two little traps so always follow the instructions.

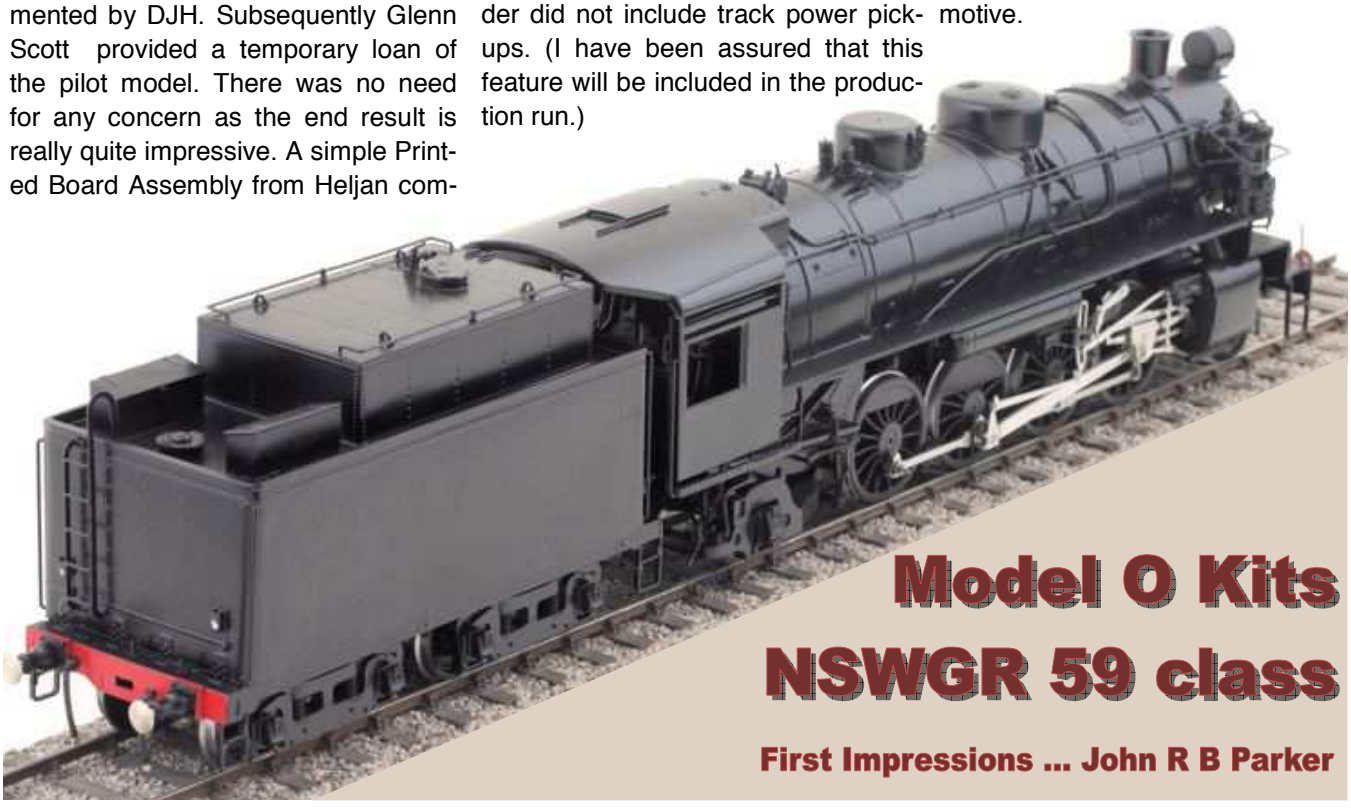

photo 6.

The Model O Kits NSWGR 59 class

In response to a request, a number of suggestions were forwarded to the manufacturer on how best to supply DCC ready versions of the new Ready-To-Run 59 class. Unfortunately, perhaps because of the timing, none of the suggestions were implemented by DJH. Subsequently Glenn Scott provided a temporary loan of the pilot model. There was no need for any concern as the end result is really quite impressive. A simple Printed Board Assembly from Heljan complete with an 8-pin socket has been included in the locomotive boiler. The model is shipped with a dummy plug in place so that it is ready to operate on DC powered track without the need for any modification. The only disappointment, the pilot model tender did not include track power pick-ups. (I have been assured that this feature will be included in the production run.)

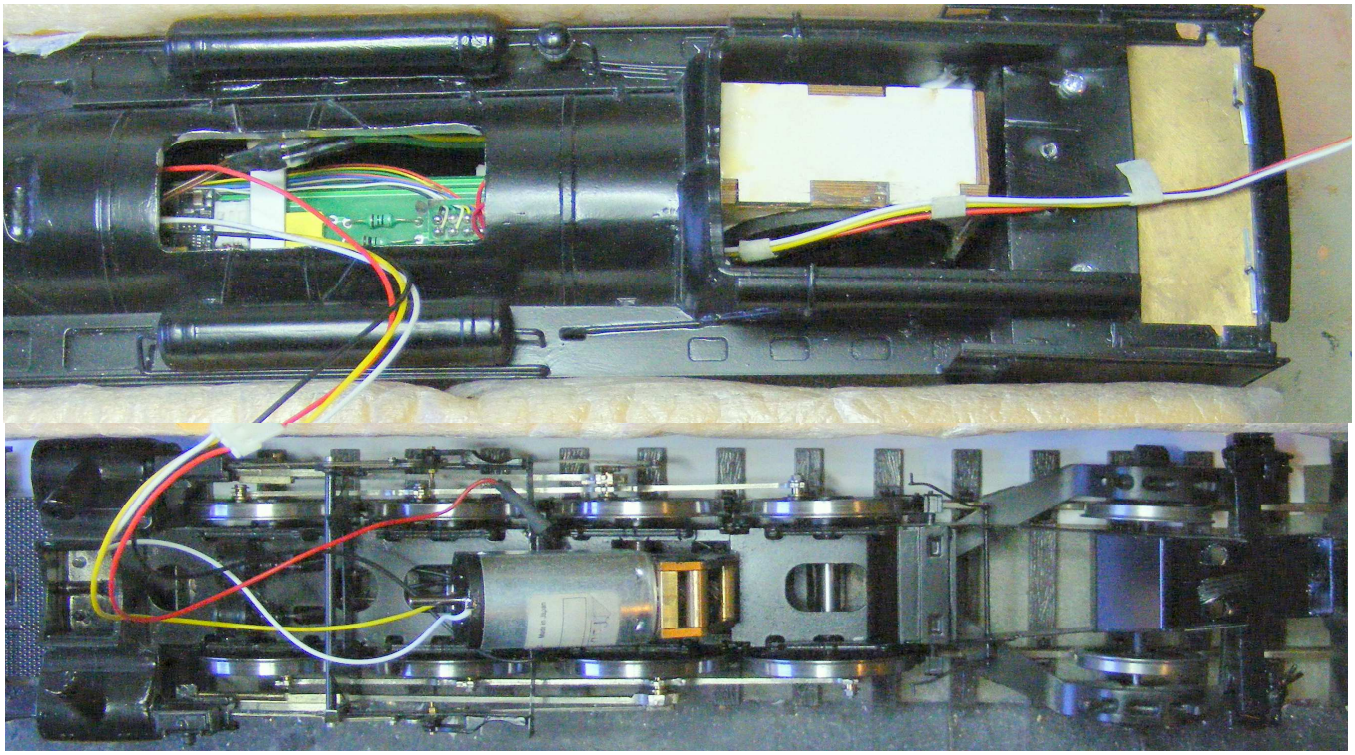
DC operation. Right out of the box the RTR model runs beautifully over a range of speeds.

The headlight and the white marker lights on the front of the loco are automatically illuminated, together with the tender's red marker lights when the model is moving in a forward direction. When moving in reverse the white marker lights on the tender are illuminated together with the red marker lights on the front of the locomotive.



Model O Kits NSWGR 59 class

First Impressions ... John R B Parker



There will of course be some modellers, including kit builders, who will want will want a fully featured sound version. Totalling independent control of all the lighting together with cab illumination and a simulated firebox for the coal burning versions can easily be achieved if this requirement is known before commencing construction. Completely new PBA's will be required in both the locomotive and the tender. (Possibly a future 7th Heaven article?)

A fully featured DCC sound conversion of the Ready To Run models might require the replacement of the existing headlight LED and the front marker lights, however I suspect this would not normally be required as the DCC sound conversion previously described should satisfy most modellers.

NSWGR 59 Class

Distinctly different in appearance from most other NSW locomotives the Baldwin manufactured class of 20 locomotives with their "steamboat" whistles were imported from the U.S. in the early 1950's to help satisfy a need for more locomotives. They were an essentially standard American design but were supplied with a tender shorter that the normal production to facilitate turning on NSW 75 foot turntables.

Way back in 1897 the first locomotives with the 59's 2-8-2 wheel arrangement were built by Baldwin for Japan and were given the name 'Mikado'. This name was often shorten particularly in the U.S. to 'Mike'.

5901, the class leader had its first trial in September 1952 and by April 1953 all of the class were in operation.

This is a really interesting model for a number of reasons and Model O Kits should be congratulated on the production of yet another iconic locomotive of the NSWGR. Kit construction should be fairly straightforward and probably quicker than usual as the model includes more complete white metal components, including the boiler and tender, than is usually the case. I remain very impressed with the pilot model.

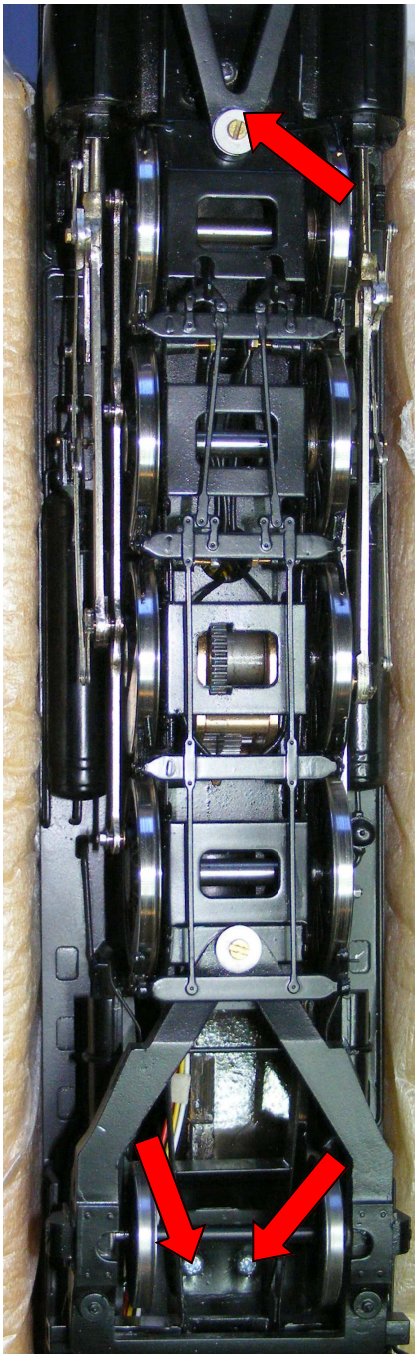
At the time of writing discussions are still ongoing between Model O Kits and the manufacturer so there may of course be slight variations in the production run to those outlined in this article.

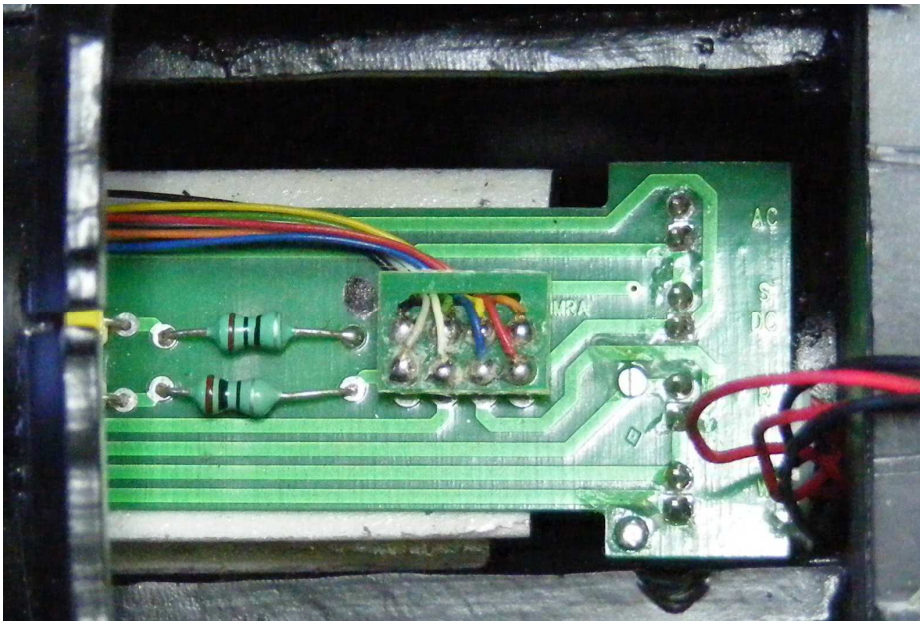
If you have already placed an order I don't think you will be disappointed when the kit or your requested RTR version arrives. If you haven't yet registered your interest, contact Model O Kits, it may not be too late to place an order.

Unfortunately the white LEDs fitted to the pilot model were 'very white' with that familiar blueish hue rather than the available 'yellow tinted' prototype white LEDs. This is expected to be corrected in the production run.

DCC operation.

Plugging in an appropriate DCC decoder will achieve DCC operation, essentially Plug'N'Play. It is however necessary to remove three self tapping screws, (as shown in the photograph below), to separate the body from the chassis.





Clear access is now available to the 8-pin socket used for the decoder. The only physical connection between the body and the chassis is a 4 pin JST plug/socket. connection.

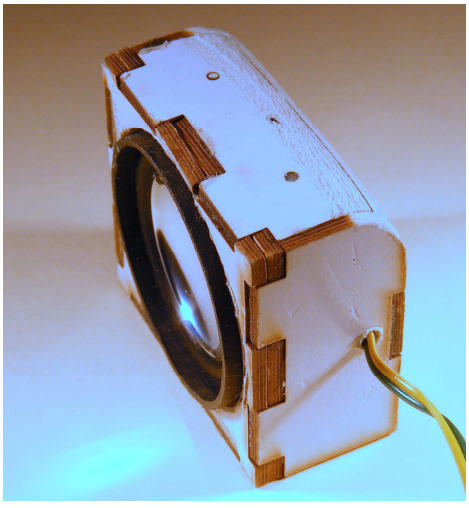
There is ample cable length so there is no need to separate the two units by unplugging the connectors. The dummy 8-pin plug should be removed and replaced with a simple plug-in 8 pin non-sound decoder, i.e. a ESU Lokpilot.

The above photo shows the correct orientation of the plug. My preferred method of securing the decoder in place is with the use of fine fishing line. You may prefer to use double sided adhesive foam tape although I have found in the past some adhesive failures which resulted in loose decoders. The locomotive will now operate in a similar way to that previously described under conventional DC except that there will now be independent control of all the lighting. The headlight and marker lights can now be switched on or off as desired when operating. It should be noted however that as the front mounted white marker lights and the headlight are not independent, (they are connected together with a common current limiting resistor), it will not be possible to operate the model with all the marker lights illuminated but with the headlight remaining off.

DCC Sound Conversion

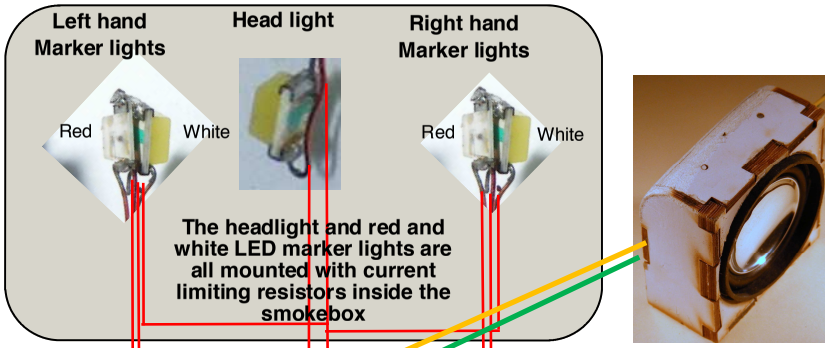
A simple DCC sound conversion can be achieved using a suitable 8-pin equipped sound decoder. The ESU Loksound V4.0 version equipped with an 8-pin plug is ideal. It will of course be necessary to add a speaker in a suitable enclosure. The obvious location is within the firebox so after plugging in the decoder and securing it in place as described previously it will then be necessary to relocate the PBA together with the decoder further forward in the boiler.

This will then provide sufficient space however it will be necessary to modify the speaker box to match the curved shape of the boiler. It will still not be possible to independently control the lighting but the full range of sounds will be available. The following photograph illustrates the Jaycar AS3028 speaker mounted in the modified Model O Kits speaker box.

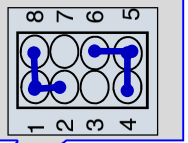


Model O Kits O scale NSWGR 59 class (Pilot Model) wiring diagram including a Loksound V4.0 sound decoder.

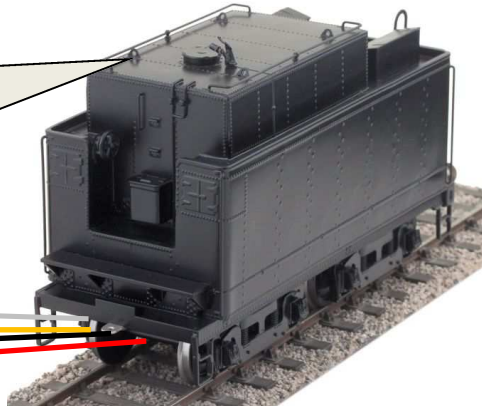
The final production models may have different wiring.



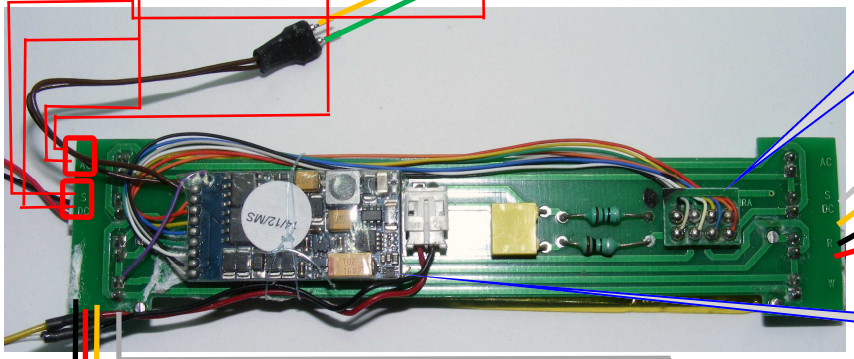
8 pin plug wiring for DC operation



Red and white LED marker lights together with a 1Kohm current limiting resistor per pair of LEDs fitted in the tender.



4 way plug and socket between locomotive and tender

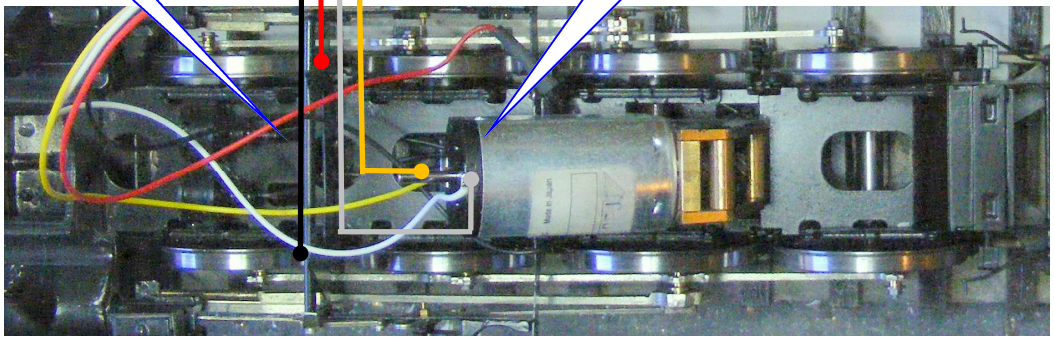


Loksound V4.0 Sound decoder

4 way plug and socket between body and chassis

Connection to plunger pick-ups

Motor Connections



DCC Functions

59 Loksound V4.0 (#74474-LSV4.0)

- F0 Headlamp and Marker Lights (directional) + generator sound
- F1 Blowdown (sound)
- F2 Whistle (sound)
- F3 Coupler (sound)
- F4 Operable Brake
- F5 Injector (sound)
- F6 Dim Lamps
- F7-

Direct Current plus LEDs and Diodes

Even a casual reader of this journal will probably associate me with DCC, Digital Command Control. I have long been an advocate of this method of model railway control as it allows the operator to individually control each locomotive without any regard to other locomotives on the same piece of track. And then there is the advantage of sound as well as individual lighting control….. O.K. that is enough, that is not what this article is about.

Simple Direct Current, DC, control is still a viable option for those who normally only operate a single locomotive on a small layout and really would like to keep costs down to an absolute minimum. You can still have models which operate beautifully and certainly look the part with lighting which is automatically controlled by the direction of travel.

How is that achieved? Is it possible to add lighting to a model whose 'electronics' as supplied are restricted to track pickups and the motor?

The starting point is the Light Emitting Diode, or LED.

Vastly superior for our purposes than the incandescent lamps of the past, they run cool, they are long lasting and they only operate when the current flows in a particular direction. This feature is very useful when connected to DC.

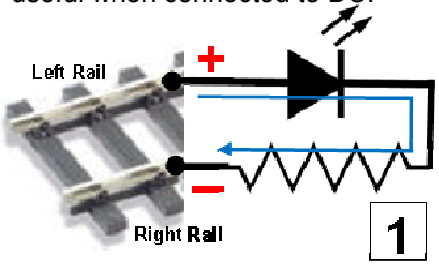
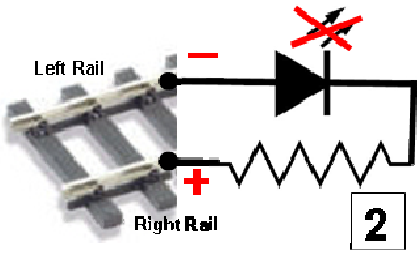


Diagram 1 shows the simplest possible connection. The LED is wired in series with a current limiting resistor and connected directly to the track.

The resistor value should be selected between 650 and 3,300 ohms, 1000 ohms (1K) is a good choice for most applications. (The higher values will result in less illumination, ideal for marker lights).

Provided the track polarity is as shown the LED will be illuminated as the voltage is increased by adjusting the DC controller.



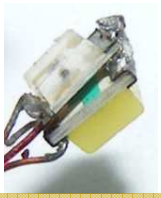
When the controller is turned in the opposite direction the track polarity is reversed as shown in diagram 2. The LED will no longer illuminate. This feature of the LED can be used to provide simple directional lighting, the most obvious being directional headlamps. The headlamp will be illuminated when moving forwards but extinguished when moving in the opposite direction. The same technique could be used to control individual red and white marker lamps at both ends of the loco.

That's fine, but what if you wanted the LED to stay remain illuminated irrespective of the direction as is the case with cab lighting?

Diagram 3 indicates how this can be achieved by the addition of 4 diodes. (1N4007 or similar).

Irrespective of the track polarity the LED will now remain "on" when the locomotive is running in either direction.

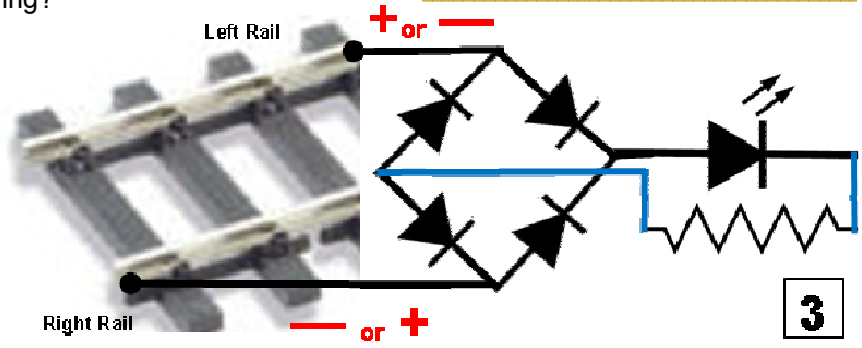
For obvious reasons one of the most useful LEDs for model railways is the dual package, red/white LED. This is available a number of formats including the tiny back to back surface mount chips which will fit into a 1.5 mm cavity. The most well known are the Nanolights available with leads from DCC Concepts. Another useful version are the 2mm tower red/white LEDs also available from DCC Concepts. These are particularly suitable for tender marker lights.



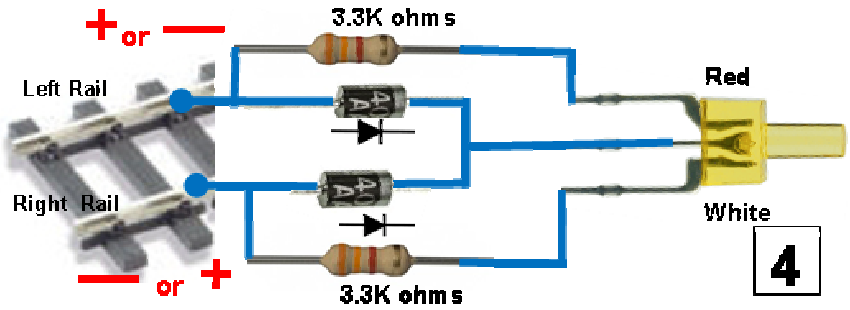
Not to scale

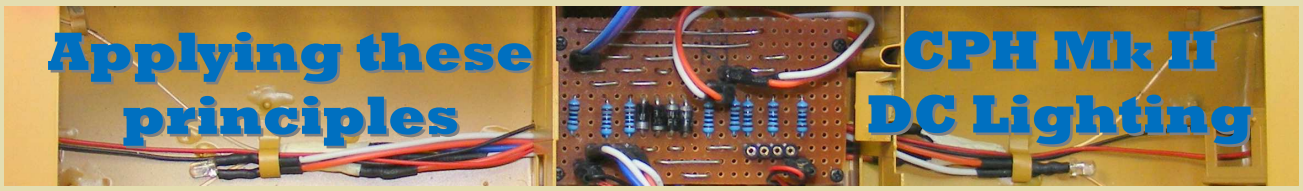
Issue 47 of 7th Heaven included a comprehensive article on the steps necessary to add DCC sound and lights to Model O Kits latest version of the NSWGR CPH railmotor. Obviously that would be my preference but what if you wanted to see directional lights working under DC control, is that possible? Well yes. This article, based on the fact that LEDs only pass current in one direction, will show you how you can add directional lighting to any model.

John R B Parker

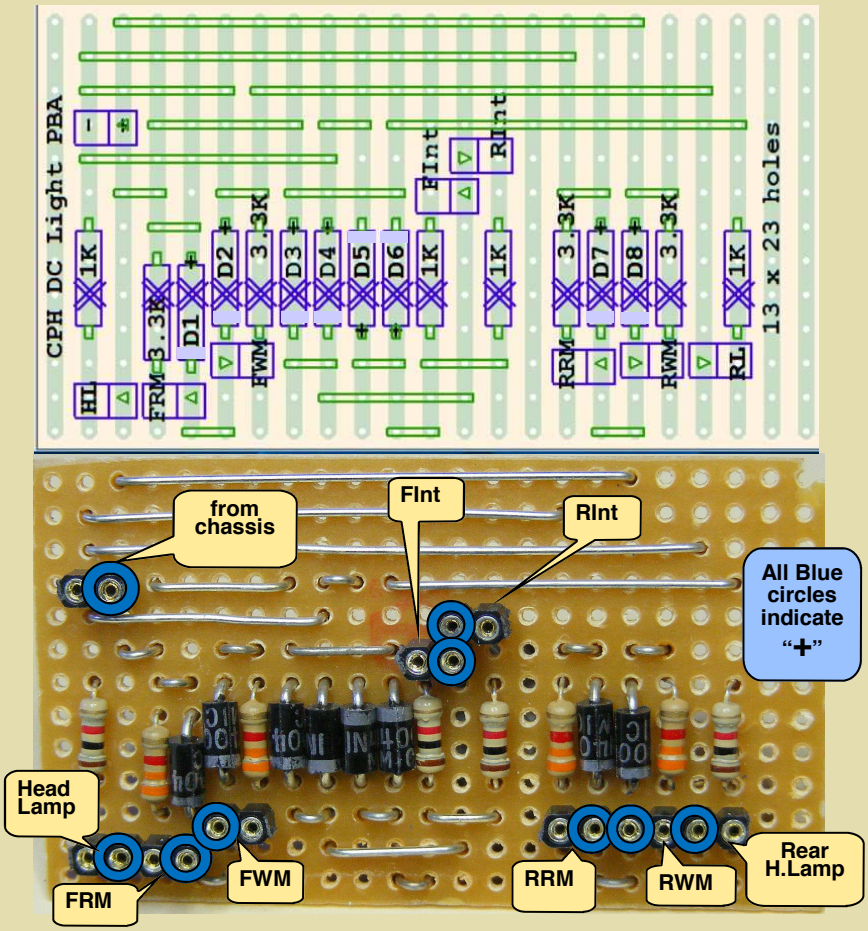


All of the dual colour LEDs have a common anode connection and so only have three leads.
They are ideal for DCC applications but the common anode connection creates a problem if you wish to use the change in polarity feature of DC as described earlier. In marker light applications where a red or white indication is required I have previously written that the only solution I could suggest was replacement of the dual LED with two individual LEDs.
Further research, (Google), together with trial and error has shown that my earlier comments were incorrect as the problem can be solved with the addition of two diodes wired as indicated in diagram 4. In this example when the right rail is positive the white LED will be illuminated and the red will remain off. When the direction of travel is reversed the left rail will become positive and hence the red LED will illuminate.





Using a DC controller the model should run perfectly straight out of the box; however you will notice that none of the lights operate. That is because there is no connection between the Printed Board Assembly to which the various LEDs are connected and the track. As the PBA supplied with this model cannot easily be converted the first step is to build its replacement. All the parts required can be seen on the accompanying diagram and photograph. As an aid to construction both are larger than actual size. Vero style matrix board is used together with 8x1K ohm ¼ watt resistors and 4x1N4007 diodes. Note particularly that diodes are polarised, unlike the resistors they can only be connected in one direction.



The 12 'Double X's the tracks which need to be cut on the copper-side of the board. The sockets are all cut from the familiar Jaycar PI6470 IC socket strip and the wire links are tinned copper wire. Turn the DC controller past the halfway point for the LEDs to illuminate. When operated in a forward direction the following sockets are "on": **HL** (Head Lamp), **FWM** (Forward White Marker), **RRM** (Rear Red Marker) and both **FInt** and **RIint** (Forward and Rear Interior Lights). When operated in the reverse direction the following sockets are "on": **RL** (Rear Head Lamp), **RWM** (Rear White Marker), **FRM** (Forward Red Marker) together with both **FInt** and **RIint** (Forward and Rear Interior Lights).
The railmotor should now be inverted on a suitable protective pad. Remove the eight screws securing the chassis to the body; there are 4 at each end. These screws are easily identified as they are slightly larger than the other screws. Remove the existing PBA and unplug all the leads. Add 4 mounting holes to your replacement PBA and secure it in place. A 2 pin lead should be fabricated to connect the new PBA to the chassis wiring. All the leads from the various LEDs can now be plugged into their sockets. If the rear headlight incorrectly illuminates when the model is traveling forward simply reverse the two pin plug which provides power to the PBA.

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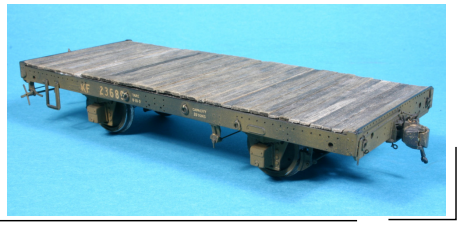

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Photos of pilot model

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