

# Wealden Railway Group Newsletter

March 2021

<http://wealden.weebly.com/>  
[Wealdenrailway.awk@gmail.com](mailto:Wealdenrailway.awk@gmail.com)

Password this month:~ R359



## Cover Pictures

*Top left:* A not quite successful experiment, inside you can see how it SHOULD be done!

*Left:* A more flattering, if unusual shot of Bedford Falls MaP depot, how to use LED tape in this issue  
Pictures Andrew Knights

*Top Right ;* Bill Knight's latest narrow gauge modelling project. More details inside Picture Bill Knight



## Editorial

...and a change in direction. At least a change in direction for Yours truly; layout wise. This time last year, I had mostly completed Mertonford 1983 HO, and had had a test run with the stock. This proved that there would need to be much work on the rolling stock front. Couplers and stock for the freight trains and I particularly wanted to do a range of BR Mk1 coaches. Then of course everything stopped, exhibitions and almost life in general.

Later in the year I started doing some work on making coach sides and communed with Mr Monk about the cutter drawings and Mk1 windows in particular. I had sourced a book with plans of one side of most coaches and the same for first generation DMUs. Planning well away. Having no shows to act as a deadline, other interesting projects reared up, other activities too and time passed. I cut some car sides and all went well. I hacked down a spare LIMA coach body, which went far less successfully. The chopped body was good enough for a continuation of the test and that is where the flaw in the plan popped its little head up. I had embarked on an evolutionary dead end. Time to think it out again, as the song said. I did and as I can see it Alan's scratch build idea seems the best way to go, in my case probably using LIMA parts; bogies, rooves etc. Thinking it out again means that there is a LOT of scratch building needed for Mertonford HO, especially before it sees the light of day at a show, should that ever happen.

Looking in the Double O Gauge Association magazine, I saw that there is some possibility of an exhibition in Patcham (Brighton MRC), for which Mertonford was originally scheduled. I have a complete layout with little working stock. I have the full stock, plus some, for a layout that does not yet exist but is planned in outline. With a possible lead time of seven months, which is easier and the more likely to succeed? As a result of this thinking and some full sized plan doodling, last Sunday was spent in the garden workshop (shed) constructing a set of baseboards for the new show/Sitting Room layout:-Wandleford Junction. A through station to replace Crossness.

I had some reservations over the plan and drawing the whole onto a long roll of paper proved that these were all too real. Standing up, I wondered what would happen if the majority of the plan were to be flipped end for end? Much rubbing out and redoodling and I discovered that all the scenic problems had gone. Operation was much enhanced, this new version even has the platform ends showing. Admittedly that part of the suburban station inhabited by assorted rubbish and trainspot-ers! I had lost the exit tunnel, three tracks too many for one and too close for two mouths. No, we have bridges at both ends, two at one end. Trains can be, and will have reason to be held on the scene and pass another. There will be a reason for them to slow and accelerate around the station area.

At the end of last month the MaP had a Running Session for One. This was on the date of the last time the operating crew ran the MaP. In about six hours solo operation, not quite solo, as in the middle of the afternoon PicoPECO came and settled himself in the middle of Pine Tree for his siesta, I managed to deliver all but seven freight cars to their designated destination. Several branch passenger trains (Doodlebug) were run. No mainline Passenger trains were run though. But I still think the day was a success. Some new cars and several new traffics employed and a good test of the changes inflicted on Borchester over the first part of the month.

The anniversary of our last show was celebrated in "Exhibition For One" style (Film clue there.). I put up The Fiddle Yard and used it to set up the entry/exit tracks for the latest "coffin" (Wandleford Junction), and then erected Summer Springs on the New Cut. I then had a couple of days playing with the New Britannia and K1 locomotives in steam mode. After which it was time to try out those Christmas BR Mk1 blue grey cars in blue diesel mode. At least here the time was put to good use fixing or refixing various Bachmann windows that had settled for life inside the models.

I will, one day, sort out the stock for Mertonford HO, just there is no reason to do it against a deadline that may never happen. I plan to adapt the scheme and plans outlined by Alan in this issue.

I will let you know of the progress on the new layout. One email I received on mentioning this project did ask if I had a thing about sewage farms, given the choice of names for the two BR(SR) layouts? For the first two weeks progress has been rather precipitate.

More recently I spent a couple of days playing with Pontois Mill. The date coinciding with last year's East Grinstead exhibition, the last show worked at and the last time that Pontois Mill was run. Some extra scenic work was finished, the addition of a grounded car body. Formerly the only car in the stock box with roof walks. This car donated its chassis to one, more suitable, that had faulty coupler gear. At least the model enhances the scene, and waiting for the glue to dry meant the layout stayed up overnight.

The changes to Borchester have not yet been fully written up, as I have other articles awaiting these pages which I have not had a chance to put into these pages, due to the articles from other members. For which I thank them. Do not let that put you off from sending something in, just because I can fill an issue with MaP and SparkZ articles, do let us know what YOU have been doing, thinking about, Doodling.

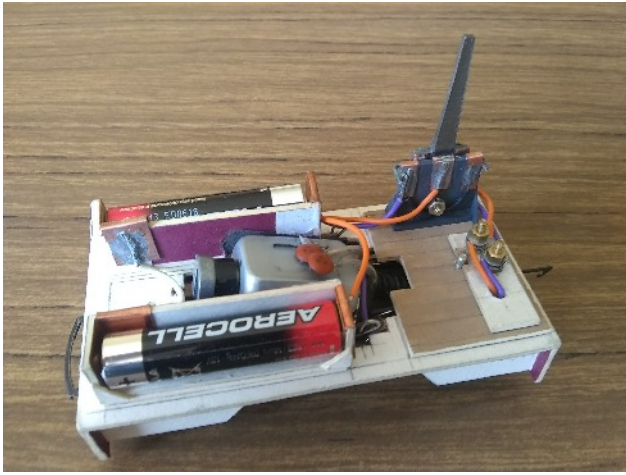
Unlike last month's epic Editorial, that is about all from me for now, so I will let others have a page or so!

## ***Another new start***

### **Bill Knight**

Having built 1:16 scale locomotives and rolling stock to run on o gauge track (a scale 20" gauge) I wondered whether it would be possible to model to the same scale using oo track (a scale 10.25" gauge). I first built a couple of wagons, a twin hopper wagon and a wheelbarrow wagon, to 'test the water'. Photos of these appeared in the August 2018 edition of the WRG Newsletter.

Encouraged by this I proceeded to build an internal combustion locomotive using a Lima o-4-o chassis. However I was disappointed by its performance, using first a 6 volt battery controller and then a mains controller.



Being use to the smooth running of the battery operated locomotives (2 AAA batteries, one for each direction) I had built to run on o gauge track, I wondered if I could achieve the same for the smaller oo gauge.

The enclosed photos show the results. Using 2 AAA batteries wired in series (3 volts) to power a standard 12 volt Hornby o-4-o chassis the locomotive is able to haul 140z (400g) on the level, or propel 40z (115g) up a 1 in 20 gradient.

Designing and making the

DPDT control switch from cardboard, with phosphor bronze contacts, proved 'interesting'.

Like all my models, the body is made almost entirely of cardboard. The driver is a 'modified' spaceman bought from a Charity Shop.

Since the chassis was given to me free of charge, the model has only cost me the price of the 2 batteries, plus 10p for the 'spaceman'.



## ***Silhouette-cut Ho scale BR Mk1 and Mk2 Coach sides***

### **Alan Monk**

This all came about due to both of us wanting to improve Lima Ho Mk1 coaches. While the basic shape and dimensions were ok, the windows and doors were decidedly underscale and the range was limited to a BSK, CK and RB. Between us, we have drafted some 17 Mk1 types

#### **First off... what's a Silhouette cutter?**

It's basically a plotter which has a fine blade in place of a pen. 2 stepper motors accurately move the blade head across the cutting surface to either score or cut the material, following a plan drafted up in the appropriate software and sent to the cutter.

While we both use Silhouette machines, there are other makes available (Cricut, etc), though these may have limitations or features we are unaware of.

While they are generally intended for and use by the crafting and scrapbooking communities, they do have their uses for railway modellers, such as making accurate repeatable shapes such as platform canopy valancing, building sides and , as here, rolling stock sides and components.

The Silhouette cutters come in 3 types, Portrait, Cameo and Curio. The Portrait is the basic model, with a cutting area of 8"/20cm wide and a theoretical length of 10' (3m). It will happily cut through card, vinyl and plasticard – cutting right through 10 thou and scoring thicker (up to 40 thou) for snapping.

The Cameo is a larger version, with a 12"/30cm width. (The latest Cameo 4 is available in 3 sizes up to a 20"/51cm cut width and will cut material up to 3mm thick)

Earlier versions of both Portrait and Cameo had a manually adjustable blade where the user would have to change the blade depth manually between score and cut portions of the job, as required. Later versions incorporated an auto blade which self-adjusted according to the settings from the software. The latest Cameo 4 has a dual tool set up as well as increased cutting downforce and faster cutting speeds.

The Curio is intended for thicker material (up to 5mm) using a heavier duty blade and can also 'etch' and emboss certain materials. The Curio has a dual cartridge, so 2 tools can be used, saving time over the Portrait or Cameo. The down side is a more limited cutting area of 8" x 12" absolute maximum.



Cost-wise, new Portraits are c£200, Cameos and Curios £350 upwards. They can often be found pre-owned on ebay for half or less of the new price, though you may well need to replace blades and mats before use.

All come with a sticky cutting mat, onto which the material is placed – this helps keep everything securely in alignment while the cutter does it's thing. Replacement blades and mats are available from Silhouette and others. In our experience the Silhouette-branded blades are worth the cost, while the some of the cheaper mats are perfectly usable.

### **Software**

The Silhouette cutter family use the Silhouette Studio software. The basic version is available as a free download (so you can 'try before you buy' to see how to design items), with upgrades available to buy to increase functionality (such as importing different file types, etc). It's essentially a basic, 2D CAD type package that allows the user to draw, adjust, modify assorted shapes, and then simply format the lines with colour such that the cutter will follow the plan and either cut or score exactly as required. The usual cut/copy/paste features make constructing a coach side from a basic set of components (windows, doors) much easier than drawing out each item on a sheet of plasticard and then wielding the scalpel and rule.

The basic software is very usable and quite intuitive, there are plenty of 'how to' videos on the 'net to guide you. The drawing grid resolution can be set to 0.25mm, which is the upper limit of accuracy for the machine. Window bars, frames and the like are best cut at a minimum of 0.5mm thick for reliable results. While there is the facility to import a drawing, it's difficult to get accurate results unless the scanned drawing is perfect. Even then, things like line width can skew conversion to a usable cut plan and it's often as easy to draft from scratch using the drawing for dimensions.

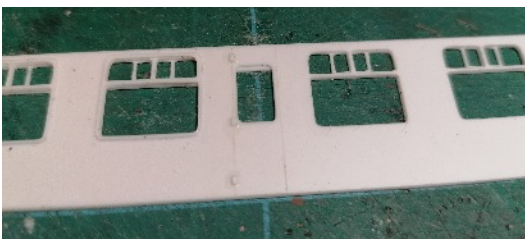
<https://www.silhouetteamerica.com/software>

### **So, a coach side.**

The starting point is a basic set of components, drafted in the 'DESIGN' screen, from available drawings or prototype dimensions. The software has a number of shapes pre-set and adjustable for size, radii, etc.

A basic rectangle for the side, with guide lines for upper and lower window placement (in a different colour, so they can be turned 'off' at the cut stage). This can be grouped to preserve the relationship between the side and the window alignment lines.

A set of doors and windows using the rectangle for door and rounded rectangle for windows. Using the 'edit points' function, it's possible to refine the corner radius quite finely and square off particular corners if required.

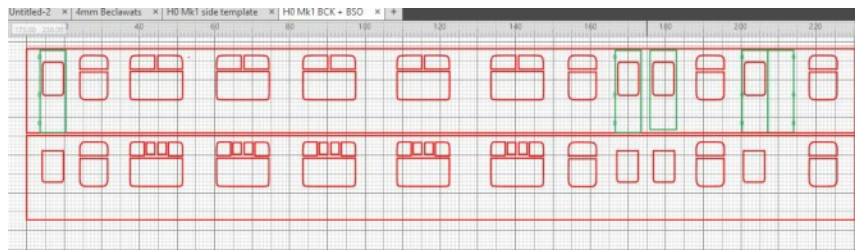


Treat each pane as a separate component, these can be dragged into position, duplicated, flipped, mirrored and re-sized, so a Mk1 4' main window, for instance, comprises 3 drawings – the main lower pane, the upper end pane and the sliding toplight. The latter 2 being duplicated and flipped to complete the window. Once all 5 components are in place, 'group' them together, which fixes both their size and relation-

ship with each other. It's also then possible to create sub-sets of grouped components (e.g. 1<sup>st</sup> class spaced windows, or passenger+ guards door) where these are common to multiple types. A text facility allows labelling of the various components and sub-groups for easy identification later.

It is a sensible idea to create all the basic components in a 'seed' file and then copy the required components across into a new separate file for each coach type. This ensures consistency and saves time. The various grouped components can then be duplicated within each new file and placed as required on the side template. Once a side is complete, that can be grouped too. For stock with identical or near-identical sides, it's also possible to duplicate and mirror an existing side, then

ungroup and edit as required (deleting toilet windows, for example), rather than having to redo each side from scratch. The 'offset' function can be used to create window frames from the basic window, so providing a nicely parallel outer frame.



Once you have drafted a set of components, it may well be worth doing a test cut to ensure they do cut or score accurately and correctly and adjusting as required. Andrew and I went through some 3 or 4 iterations of some components to get reliable results. If you start cutting sides in quantity, you will likely end up with portions of unused sheet – these can be used for tests. 10 thou sheet bought in even modest quantity can work out at less than 50p a sheet, so it's a worthwhile investment to make sure your plans will cut ok.

Andrew and I have adopted a 2-layer approach to our Mk1 sides. An inner layer with simple window openings, including the 4 top-lights and an outer layer which has simplified window openings, the door seams and hinges scored in and the door windows reduced in height to provide the drop-light top bar. By using the grid, the windows in each layer can be aligned exactly. A completed and grouped layer can then be dragged over its counterpart to check that alignment quite simply.

These would be cut in 10 thou (0.25mm) plasticard sheet, each pair of layers then laminated together to form a 0.5mm thick side overlay to suit our Lima Mk1 donors.

Another useful tip is to space each side or layer a set distance apart on the sheet (e.g. 1mm). This will provide microstrip as a by-product of the cutting process.

### Cutting

With a sheet of plasticard affixed to the sticky mat and fed into the cutter, the 'SEND' button will open up the cutter instructions. For the examples shown, the red lines are to be cut through, the green lines are to be scored only. This is set by altering the blade depth, downforce and number of passes. The software allows for selected colours to be ignored (such as the text or blue alignment marks)

and the order in which they are acted upon can be switched around. Our recommended settings (based on 10 thou plasticard and our Portrait 1s) are to score first (green) and then cut (red) with the following:

Scoring - Blade 3, Downforce 5, Passes 1, Speed 5

Cut - Blade 10, Downforce 33, Passes 3, Speed 5

A pause will be needed between score and cut (via the 'add pause' function) to allow the blade to be manually adjusted. Later versions of machines with autoblade will not need this step.

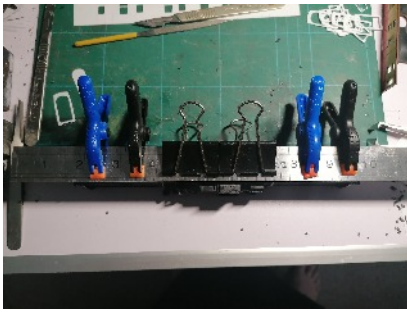
Thicker materials may require a higher blade setting, more passes or more downforce.

Upon completion, the plasticard sides can be peeled carefully away from the tacky sheet. Hopefully, the window blanks will remain behind on the sheet, leaving just a perfectly cut coach side. It's possible that some window blanks will remain on the sides, these can be carefully eased out.

### Using the sides

To prepare the Lima coach, dismantle to leave just the basic shell. Then salvage the toilet window grille block for re-use, before snipping out all of the window bars. Next, file and sand all the side surface detail right back. Keep sanding until the door seams have virtually disappeared. Place the outer layer on the Lima side and mark where the window openings are, then open these out in the





Lima shell approx. 1mm larger all round than the new windows ready to allow separate glazing to fit and give a flusher finish.

Laminate the layers together by holding each pair together, upright on either the top or bottom edge, making sure they are correctly aligned. Then carefully run a small brush, loaded with limonene or mek along the top edge, allowing capillary action to draw the layers together. Flip and repeat for the other long edge, then the 2 ends. Place the side down on a flat surface and place a 12" steel rule on top – this will help it stay flat while

the solvent goes off.

To attach the side to the smoothed Lima coach, align the new side along the top edge of the Lima shell and hold it in place while the solvent-loaded brush is carefully run along the length of the join. Double-check the alignment and then clamp the side in place – a steel rule on the outside and multiple clamps, bulldog clips, pegs, etc., to apply even pressure. Leave (ideally overnight) to set.

Then repeat for the lower edge so the new side follows the curve of the Lima shell, clamp as before along the lower edge and allow to set.

Simple hinges can be cut from the microstrip and fixed in place (our door drawings include a scored hinge location mark on the necessary door seams) and the optional outer window frames, for late Mk1 batches, can also be fitted, along with door furniture as desired.

The extra 1mm width should just be accommodated by the roof gutter line, assuming the Lima shell has been sanded back sufficiently. If not, more microstrip can be used to widen the gutters.

Prime, paint, decal, glaze and weather, job done!

Well... almost. Having done the sides, it seemed logical to also do gangway rubbing plates of Mk1 shape to overlay on the Lima Mk2-style generic ones they fitted to their Ho Mk1s. Remove the gangway moulding and sand off the rivers on the outer face, leaving a smooth surface for the plasticard replacement to be fixed to with your favourite solvent. Fortuitously, the inner blank from these can be used as the sliding gangway door, hiding the spurious porthole in the Lima end. Another short length of micro strip placed vertically on the left-hand side, about half-way up forms the handle.

And, having done Mk1s, it seemed logical to see if anything could be done to improve the Lima Ho Mk2s, in particular the later air-con Mk2Ds, Es and Fs! Lima produced Mk2b TSO, FK and BFK types only.

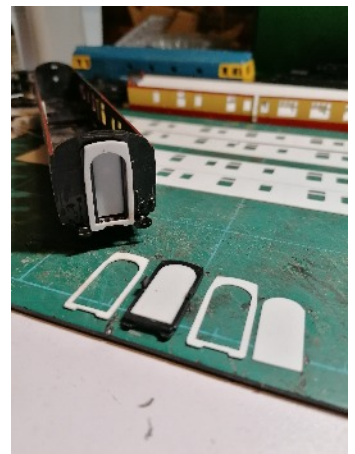


A slightly different approach, rather than a full depth side, just the window section can be replaced, between the inner door seams. Again, a 2-layer approach, this time with simple window openings, those on the inner layer 0.75mm larger all round to give a recess

for glazing. This also meant that the separate outer frames could be placed in the inner layer and cut at the same time, saving sheet space

The earlier Mk2s will be looked at in due course, both to correct the very recessed glazing effect and to widen the range. The Mk2 and 2a will need the wrap-round end doors modifying and the centre doors carefully scribed into the lower body side, but it should be a workable solution. Although this concentrates on Ho scale sides, the basic concepts are adaptable to other scales... now where's that Lima O gauge Mk1 coach I had...

And finally a big thank-you to Chris Ellis and Model Trains International for carrying the excellent Arthur North series of drawings within it's pages, including many in Ho scale, saving us a lot of time and eyestrain in measuring from iffy BR weight diagrams!





# SparkZ

Almost not railway this time. Almost and very... LED lighting. I should add a subtitle here, as applied to the Mertonford and Pine Tree (MaP). I first used this system for lighting my shower and below kitchen cupboards (I did say almost none railway!). Used what? I know I have written before about the use of LED Christmas lights. Here I am talking of LED lighting tape. A plastic tape, about 1cm wide and usually sold in 5m lengths. One side is covered with a paper tape, this obscures the self adhesive applied to fix the LED tape in place. Application is simple. Work out how much tape you need. Pull this off the reel and, removing the backing as you go, fix it to whatever you are going to. Along the tape are copper pads. It is at these and in the middle of these pads that you can cut the tape. This is shown in the picture adjacent. The tapes I have used, supplied by a well known jungle distribution firm, have all been 12VDC.

For a first trial, I would suggest having a look at the web site, finding a cool or warm (I prefer the latter) white tape and power supply bundle. This gives you all you need first off in a single box.



It was one of just these kits that I used to illuminate the general scene at Lorn-ton and Bedford Falls.

The wall wart power supply sits in a socket, this tape set had a dimmer included, you can see it fixed to the end support for Bedford Falls. I have used it to just tame any glare that there may have been from the installation. I cut off the plug connectors from the output side of the dimmer.

Ordinary two core lighting flex was soldered on and the cable run

to the start of the shelf above Lorn-ton Depot. Here it was soldered, taking care to ensure that the polarity was correct, to the copper tabs at the end of this strip. At the far end of the shelf a couple of ordinary layout wires connect to the tape on the next shelf up. Across the yard side of the depot I fixed a couple of strips into an "L" section plastic extrusion. Again layout wire connects these to the rest of the set up.

Bedford Falls. Sitting under "Wet Bit" the yard was in shadow, more so when the operator stood between the tube lights and the model! I ran a length of tape along the edge of the baseboard support above the depot. Enough light illuminates the yard to make switching comfortable here from a single strip. I cut single sections of tape, cutting through each set of pads. These I fitted into the platform canopy. It would have been better if I had put them on the right side, but adding them to the correct side too makes for a well illuminated depot! Talking of which, I put another small section of tape inside the station building, quite bright enough to illuminate the inside of the diner and ticket office. These lights are all connected to the Lorn-ton yard lighting and thus come directly from that mains supply. All in all that is the ten metre maximum for that supply. The photographs also show the effect of extra lighting at Pine Tree. Here the problem was that during evening running in particular, all the room lighting is behind the operator. I took the opportunity of a short section of "L" section timber coming to light (no pun intended) to put some illumination in front of the operator, hopefully not to dazzle. The pictures show the two sets of tape run inside the timber. The new fitting was added to the end of the Bedford Falls board lighting strip, and run up through the mountain. So far it seems effective...

Kytes Lites supply model lighting solutions, as their name suggests. They also supply several odds and ends. One of these is an adjustable regulator board. A credit card sized circuit board with a digital display a button and a



micro adjustable potentiometer (many turns end to end). The button enables you to read off either the supply voltage, or the output voltage, the numbers in the photograph are the out put settings.



When I updated the MaP power supply, I had several 12VAC outputs. I fixed a bridge rectifier to each of these and fed them to the input of the relevant circuit board. These supply Borchester and Mertonford. These are the lower voltage settings shown, as the LEDs employed are sets of battery powered LED Christmas lights. Battery boxes removed and connected to the board outputs.

The higher voltage shown runs the new lighting at Pine Tree depot. This is more 12VDC lighting tape. A length of it is fixed under the main platform canopy. To allow removal of the same the supply wires are fixed to the tops of a couple of canopy supports. Bare wires on the canopy rest onto these and connect the power. A section of lead was glued to the bottom of the canopy to prevent it from vibrating atop the contacts and flashing the depot lights in accordance to the train wheels. A short length of tape is run across the top of the engine shed, a single section inside the coaling plant and the ceiling of the work shop. The coaling plant is connected via a spring clip choccy strip. This allows simple removal and reconnection of supply when moving the building for access. Back to the regulator circuit board, you will see that these



lights are being run at 9VDC. Plenty bright enough for depot illumination. The tape used this time was purchased as two 5m rolls with no power supplies. A mention. There is another variant available and that is water proof (back to the shower and kitchen). This is largely the same as that used on the layout, but has a transparent bead of plastic atop the LEDs and other gubbins. It may be used in the same way as the plain tape, just that to connect to it you have to move the plastic from above those pads. A tape I have not used, yet, is the various types of colour changing tapes. Maybe some time. If and when I do I'll tell you all about it. Maybe you already have. Why not tell us all your experiences and what you used it for?

Lastly, another set of LEDs you may have seen, if you have come across my "coffins" over the last year or so. Instead of using the old lighting bar, with its six batten holders, I took the plunge and swapped over to LED lighting for these layouts too. Two thin sheets of ply wood were covered in aluminium foil. The sheets were the same size as those used for baseboard tops, just ones that had been water damaged during storage. A little wavy! Onto the foil I fixed five strips of LED tape. That is one reel per sheet. Ever wondered what happened to 8mm film spools? The main power sockets were left attached and are used to connect the switch mode supply used to power them. The supplies are standard 12VDC 4-6A supplies from the usual jungle distribution agency. Only the one supply is used for the whole layout, one of those spring clip choccy connectors is used to feed power from one board to the next. In use it is just a case of lift the lid, drop on the lighting panels, connect these up and lower the lid onto the top of the sheet. They and the power supply run cooler, much more so than even the previous low energy lamps. The boards and supply are easier to transport, and store. They are wrapped, back to back in a large towel, to protect the foil and LED tapes.

