

Guaranteed to dramatically improve the power and overall performance of all of your locomotives

# PowerBase

The PowerBase name, PowerBase Component design concepts and their related shapes are protected by appropriate design registration / patents

## Sometimes, a simple idea is all it takes to make everything better!

**PowerBase will quickly transform operations on your layout...** It will significantly improve the pulling power of your locomotives and allow them to pull realistic train lengths on gradients, it will firm up track-holding and as a real bonus, it will simultaneously enhance the reliability and quality of power pickup, especially for your smaller locomotives.

**Simplicity rules with PowerBase...** No special skills or tools are needed and once the cleverly designed PowerBase plates (which work equally well with set track, flex or scale track) have been installed on the layout, installation of the final small and invisible addition to your locomotives can be done by an average modeller without need for disassembly ...in a few minutes!

**Everything you need is supplied in the pack...** Its important to us that when someone buys our products they have what they need to hand, so we even supply the only special tool needed, a fine drill. We also supply most of the other items needed, including lots of the tiny mounting screws and spare mounting pockets. The very simple "loco mounted" Installation needed can be done by the average modeller with just some glue the drill, a pair of sharp scissors & a fine "+ type" screwdriver.

**PowerBase is very economical, effective and long lasting...** The PowerBase Layout plates are made from a highly magnetic grade of Stainless Steel for long life and the pre-blackened super NEO magnets are hard plated and treated to give long life (they are also incredibly strong, being custom made for us with a super-high F45 power rating). The pockets the magnets are packed in are also the magnet mounting... Hardware's included too so it's all there and ready to go in one pack!

## What is PowerBase?

Magnets aren't new, but the whole PowerBase concept certainly is!  
Here is the Powerbase story... why we created it and what it does!

Many years ago, model railway track was made of steel. Wheels were a "sintered Iron", locomotive bodies were cast metal and locomotive chassis were quite heavy so the grip of the wheels to the rail was good, allowing loco's to pull heavy trains.

Over time, locomotive bodies became plastic and then first brass then nickel silver were adopted for rails because steel rusted far too easily. Wheels too became Nickel silver because it was easier to make them nicer and more scale-like that way.

The problem is, nickel silver is a very, very slippery alloy, and with lead removed from chassis and finely detailed but light plastic locomotive bodies, most current model railway locomotives became nicer to look at ...but much less able to pull a realistic load.

With track laid "on the flat" that is sometimes not much of a problem, but most model railway rooms are just not big enough and so the gradients needed to take one track over another therefore need to be quite steep... But - add any gradient that is steep enough to do the job and suddenly your locos can barely manage a small train!

As if that was not enough, even Nickel-Silver tarnishes quite quickly and that "tarnish" is in fact more than 90% copper oxide - the very same material that resistors are made of! Add that resistive tarnish on the rail to the lesser weight of small locomotives and the modellers second-worst problem quickly emerges - poor power pickup ability!

**PowerBase remedies ALL of these problems at once!**

Lay the PowerBase plates under your track and add one, two or even three of the PowerBase magnets under your loco's and almost by magic, two things happen.

Locomotives will become very sure-footed... and while they slipped before with even a medium load, now they can pull realistic length trains up model railway gradients.

Power pickup will improve significantly... Because adding PowerBase magnets to your locomotives is just like doubling their weight, greatly improving wheel-to-track contact, making sure that even with some tarnish on the rails, pickups work properly!

(Initially available for OO, HO and similar, N scale PowerBase is coming very soon!)

**PowerBase is the easy way to make things better - We Guarantee it!**



### PowerBase Manual - Index

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## Powerbase is economical to use and extremely easy to install!

PowerBase is created to suit N, HOe, HOm, TT, OO, HO, On30 and other related scales. There are two different sizes of PowerBase plates, magnets and mounting pockets. It is equally easy to install PowerBase in all scales. There are two different PowerBase plate and wide variety of magnet sizes plus starter packs in each size so you can try before you make a fuller commitment... As well as supplying additional spare pockets and screws in each pack, we also offer "add-on" packs so that additional parts can be bought without waste for either larger layouts or big loco rosters.

### (1) PowerBase Start Set, OO/HO, On30

**Part # DCX-PBkit:** Contains 25x PowerBase Plates, 6 PowerBase magnets, 12+ magnet pockets, 30+ screws & 0.8mm drill.... (enough parts to create 2.5 metres of PowerBase enabled track and add PowerBase to 3 average locomotives)

### (2) PowerBase Value Pack, OO/HO, On30

**Part # DCX-PBVP:** Contains 50x PowerBase Plates, 12 PowerBase magnets, lots of magnet pockets, 30+ screws & 0.8mm drill.... (enough create 5 metres of PowerBase enabled track and to add PowerBase to 3 average loco's)

### (3) PowerBase Add-on Base pack, OO/HO, On30

**Part # DCX-PBB:** Contains 50x PowerBase Plates (enough added PowerBase to create 5 metres of PowerBase enabled track). As with all PowerBase packs, the vacuum formed packaging includes more than a dozen spare magnet housings for use in future installs... so save it to use later)

### (4) PowerBase Standard Magnet Pack, OO/HO, On30

**Part # DCX-PBM:** Contains 12 PowerBase magnets, lots of magnet pockets, 30+ screws & an 0.8mm drill.... (enough to equip 6 more average Loco's)

### PowerBase - OO/HO



**PowerBase - OO/HO**

Super Value Pack

DCB-PBVP



**PowerBase - OO/HO**

Standard Magnet Pack

DCX-PB-kit

### PowerBase - OO/HO add-on packs



DCB-PBB



DCB-PBT

### (5) PowerBase "Mounting Etches" pack (from Nov 2013)

**Part # DCX-PBET** Larger wheeled locomotives and those with lots of bumps on the base-plate of the locomotive will benefit from mounting PowerBase magnets close to the track. To make it easy without loss of underframe detail we've created this set of etched mounting brackets. Used behind the wheels, secured with the screws in your PowerBase kit and painted black they will stay almost invisible in use but simplify PowerBase installs.

### (6 & 7) PowerBase "Extreme magnet" packs (from Nov 2013)

**Part # DCX-XMP1 and DCX-XMP2:** Not all locomotive will reach their best performance... And some installations may simply become much easier if flat or thin magnets are used... In our trials, we found for example that many could simply have the magnets glued directly into position, then painted, making installation literally a 5 minute job.

Odd shape Neo magnets can be hard to find, and very expensive, so we have created two versatile magnet packs that represent exceptional value.

DCX-XMP1 contains 20 larger flat and thin magnets, perfect for low-slung locos and diesels... In most cases these can just be glued on and painted!

DCX-XMP1 contains 25 smaller round magnets, perfect for your smaller locomotives or for adding PowerBase to low slung diesels. Can also be used to add a bit more power to the installation for extreme performance

**\*\*\* Powerbase for N Scale & Narrow Gauge will be available from November 2013 \*\*\***

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Intentionally left blank, ready to show the PowerBase N Scale range...!

\*\*\* Powerbase for N Scale and Narrow Gauge will be available from November 2013 \*\*\*

**PowerBase works wonderfully well for N Scale.....  
This is a Dapol Hall comfortably handling 12 Mark1  
Coaches... on a 1 in 30 gradient (slightly steeper than 3%)**



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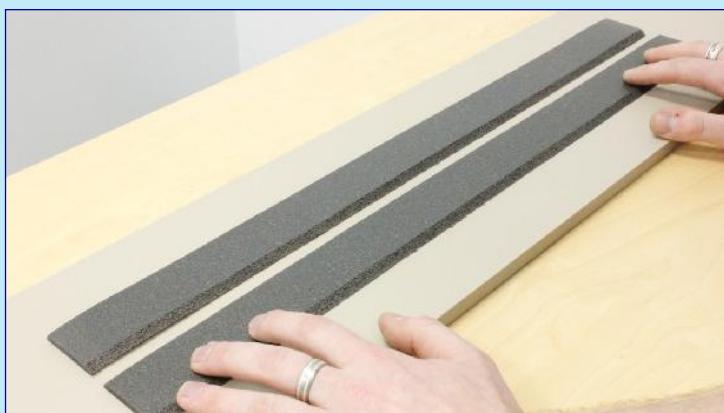
## Installing the Powerbase plates is part of the track-laying process!

The best time to commence use of PowerBase will of course always be at the start of the creation of a new layout, however if you already have a layout with gradients, adding PowerBase so that your trains can once again be long enough to make operating fun is well & truly worth considering!

### Step #1, prepare a few things:

You will need PVA glue, a brush some weights and some wood off-cuts to put them on. We like to use standard small brick pavers or house bricks and off-cuts of waste ply, MDF or similar cut to about 250 x 75mm to put under them. You will need 4 off-cuts and 4 bricks per metre (or equivalent).

These bricks and weights will of course come in handy three times - first helping to lay the track-bed, then the PowerBase and finally for helping you to glue and lay perfectly flat track.

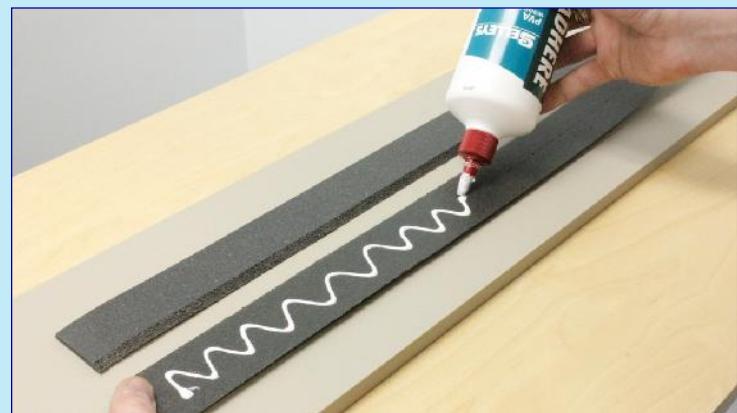


### Step #2, plan the track position:

This is no different to planning any model railway layout.

First, plan the layout and prepare the track-bed. We like to use closed cell foam, but you may prefer cork or other material... Or even perhaps none at all. That's fine as long as you make the baseboard flat and mark or lay it out accurately... So you know where your track and PowerBase is to be laid.

Do not forget - ONLY a perfect base gives perfect tracklaying



### Step #4, press down firmly and add weights

The trick to getting the perfect track-bed is to weight it evenly. Don't just use books or whatever is lying round, cut at least half a dozen same-sized weight bases about 400 x 75~100mm and gather the same number of heavy pavers or double the number of bricks (use 1 paver or 2 bricks per base). Make sure the bases touch when used so track-bed is evenly weighted.

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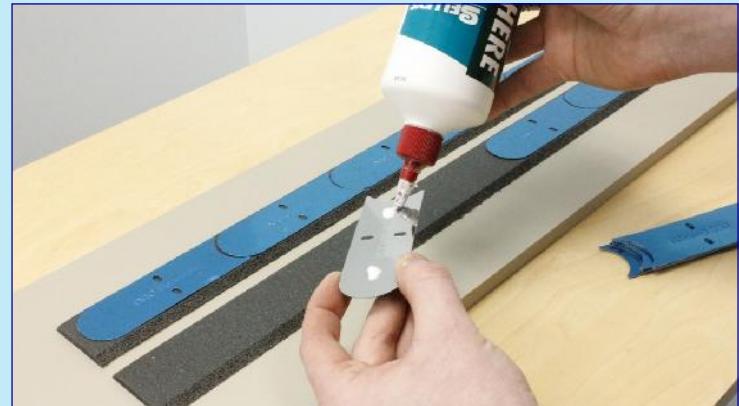
## Step #5 - Now we can lay the PowerBase plates

This is simplicity itself! Once you have reassured yourself that the track-bed is even and flat, or the guide marks are good, its time to lay your PowerBase.

Check the PowerBase plates. If you've twisted any, place it with the curl upwards onto a modelling mat, a few sheets of newspaper or mouse mat and roll it gently with a bottle or rolling pin - it will flatten very easily.

Work a few plates at a time. Brush glue onto each or spread an even coat of PVA about 30mm wide along the middle of your track-bed - Not too thin, not too thick.

The thin blue protective layer goes on top. Leave it there until glue has set so they are all laid "right way up".



## Step #6, Weight it evenly and wait an hour or two!

When plates are laid the weights should be placed evenly so each base should touch its neighbour. You can add 2 bricks to each if you like - added weight is good but keep it EVEN!

We find that after about 2 hours, you can remove the weights and move on. If you are impatient to get it done, then make more weight bases and find more bricks, but do not try to short-circuit time by rushing the job at this stage. Doing it as well as possible now makes life easy later on!

Place them close on running lines... but leave about 1~2mm between them - this stops ends over-riding and allows a wee bit of "adjustment space" if you need it.

Press each plate down gently into the glue and make sure no glue comes through the two holes in each plate. If it does please put some cling film onto the plate before you add the wood off-cuts followed by the bricks/weights.

If you need to cut a plate, use our shears or some sharp scissors. make sure the part to be kept is supported on the top of the scissor blade as then it will not curl.



## Step #7, Remove protective film ready for the track!

After waiting patiently for the glue to dry, you can remove the weights and give it a quick check. If any plates are not stuck down properly add more glue and re-weight.

Once its all good, you can remove the blue protective layer.

PowerBase plates are made of a very high quality magnetic Stainless steel, so all the plates will now be bright and shiny...

If you like, you can spray them dark brown or black, but we usually don't bother, as it will all be covered by track and ballast at the end of the process anyway!

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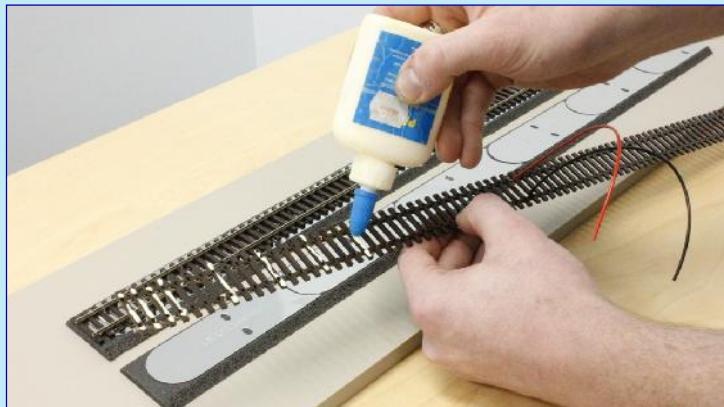
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## Step #8, Prepare the track & add wiring droppers

Cut the track ready to lay and mark the rail with a black permanent marker where droppers should go. Choose a spot either by one of the holes provided or even between the plates - its up to you.

Mark that spot on the plates too so you do not forget it!

Once droppers/wires have been soldered to the under-side of the rail (that keeps it tidy) pre-drill for them so you can feed the wires through the baseboard at the same time as laying track.

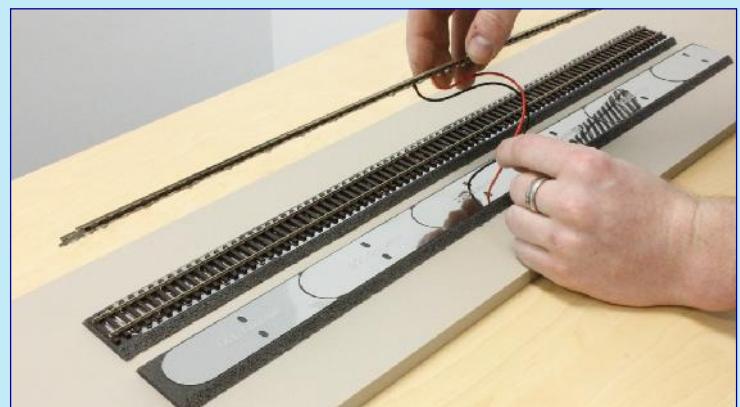


## Step #9, Add glue ready to lay the track

We never use track pins... Gluing the track down does less damage, keeps it easy to move later and also ensures a more even hold and less likelihood of creating dips and hollows where track pins have been hammered in. It looks far better and is quieter when glued too!

Use a good quality glue in a bottle with a small nozzle.

Spread a bead of glue on the first 4 sleepers and then every 3rd or 4th one. Add some beside the wires too!



## Step #10, Feed the droppers and lay the track.

With the track cut to size, droppers pre-soldered and glue applied, its time to lay it.

Feed the droppers into their pre-drilled holes as you lower the track into position. Be sure to get the track nice and straight and make sure joints and curves are well aligned.

Using a small steel rule alongside a rail and rubbing back and forth on a rail with a finger tip will straighten any kinks easily and quickly.



## Step #11, Weight it down evenly and be patient

As before, weights should be placed evenly so each base must touch its neighbour. Also as before you can add 2 bricks to each - added weight is good but keep it EVEN!

So.... That's it really. Easy wasn't it. Your PowerBase is now all laid and you can drop on a wee bit of track and test it now if you like.

Do you find ballasting hard or frustrating? Don't worry - we've taken the time to show you our problem free, easily done and "Guaranteed success" method in the next few pages!

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## What about point-work?

This is no problem. Mark where the tie bar will be on a plate and either drill the PowerBase (place on a bit of wood and clamp so it does not spin on the drill and cut you) or just cut it with sharp scissors or shears such as the DCCconcepts DCT-SSS (MP141) Modelling Shears. It is not necessary to totally cover the turnout base area, as long as you have continuous metal through the length - Just cut and add other trimmed PowerBase pieces in the way you prefer.



If you use our technique with a fine nozzle on the glue bottle, spread glue on the first/last few sleepers of each point then on every third or fourth sleeper in between.

Even being careful, it takes only moments to do.

Use the same wood bases and weights to hold the points down as you glue and lay them - again keep the weight even and make sure each weight touches the one before it.

The images will give you a guide... We hope that you find it all as easy and as much fun to do as we did!



## Next Steps...

Plates around points are laid just the same as plain track really. Once the glue has dried properly remove the weights, remove the blue protective film and check.

If any plate is not evenly stuck down please re-glue and weight it before carrying on.

We really do prefer to glue track down where possible and this applies to point-work too... Just be careful around the tie-bar.



**Need help to get the ballasting done? - We explain our guaranteed method for great looking "easy to do" ballast next!**

## Powerbase in action: A Bachmann City class pulling 8 coaches up a 1 in 30 Gradient!



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## Ballasting and Finishing off... The easy way:

### Page 1... The easy way to a tidy result.

This really is much easier than it looks... If you take your time. In fact, if you follow our instruction and do not rush it, we guarantee a great result. Read on, and we will show you how we did the ballasting for our DCCconcepts "Test Layout".

**(1) Choose your ballast carefully:** Most of the ballast sold to modellers is far too coarse. If you model OO or HO, select the colour & buy in the ratio of 1 part OO/HO to 2 parts N scale. Mix it all together.

(2) There's lots of advice everywhere about glue choice. We find that any good quality PVA type glue will be just fine (we do not use too much anyway). Also buy a 1 bottle of methylated spirits and find a squeeze bottle with a fine nozzle or something similar.



### 2 - Pour on a generous coat of Ballast...

Just enough to guarantee that the shoulders will be well and truly covered that is.... But please don't skimp at this step,... The objective is to totally cover the glue with loads of Ballast.

We will recover almost all of it so none will go to waste.



### 4 - Wait for several hours - Then vacuum.

We spent a very small amount to buy a rechargeable one just for use around the layout... But if you do not have one, put some fine nylon (an old stocking?) over the end of the household vacuum cleaner to capture the ballast. This step picks up all but the layer of ballast stuck to the glue, leaving a nice neat edge and perfect coverage if you did it right. See how neat the ballast edge on track furthest from the vacuum cleaner looks!

### 1 - Do the Ballast shoulders first...

This is part 1 of making it neat, keeping it tidy and reducing the ballast use by as much as 50%, so its worth doing well!

Paint undiluted / neat PVA glue onto the ballast shoulder. Take it up to the edge of the sleepers and finish in a straight line on the baseboard very close to the edge of the trackbed.



### 3 - Carefully but firmly pat it into the glue...

Pat, don't rub or use a sideways motion. All we are doing with this step is making sure that the lowest ballast grains are well and truly in contact with the undiluted PVA that we painted on.



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## Ballasting and Finishing off... The easy way:

We already have it beaten really... Nice tidy shoulders and with the ballast all the way to the end of the sleepers, any ballast we now add will stay where we put it. We are going to need surprisingly little additional ballast so no more tipping it out... From now on we use a teaspoon... Literally.

Take your time from now on, add a little and spread neatly, doing only as much as you feel like. One of the really nice things with this method is that you can do this "fiddly bit" a bit at a time, and the joins between sessions will not show.

## 5 - Kick off by filling the central sleeper area. >>>

I actually think we were too generous with ballast in these pictures but I'm sure you get the idea... Add a little, spread gently with a finger until its all where it should be, pick any last bits off the sleepers with a damp paintbrush and then do a bit more...

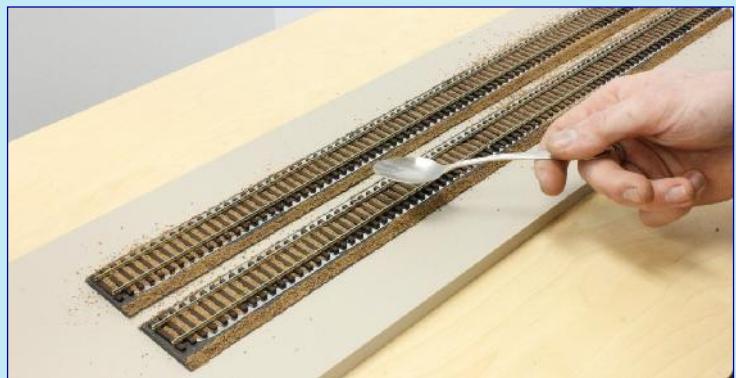
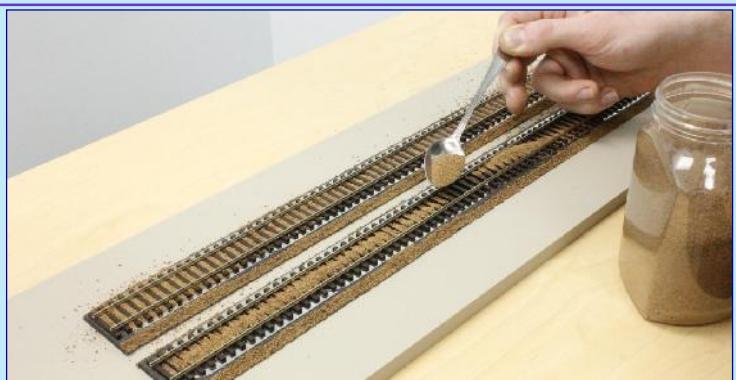
Work neatly and don't over-do the ballast quantity at any point!



## 6 - The spoon is now a vital tool as well! >>>

One of the giveaways of a rush-job is that the ballast heaps up under the rail and is too shallow in the middle. Take the spoon and just let it fall under its own weight, tapping along the rail... The tapping bounces ballast off the rail web and from under the rail, helping it to move to the middle of the sleeper gap.

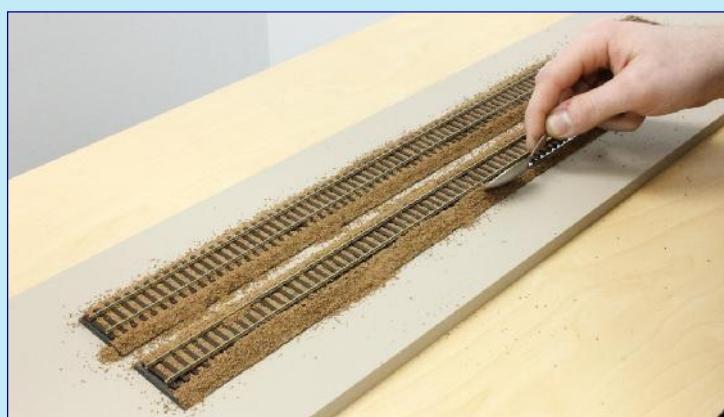
Stop often and take the time to once again remove all the loose ballast specs off the sleeper tops. It really is worth doing!



## 7 - When the Centre's done... Do the sides

It's easy to add more but removing too much is a harder.... and will always be a problem. When ballasting "less is more" - Just take your time and work neatly, steadily and slowly. Add only a bit at a time as you do the sides / sleeper ends.

I actually think we were too generous with ballast in these pictures but I am sure you get the idea... Add a little, spread with a finger until its where it should be, pick any last bits off sleepers with a damp fine brush and then do a bit more...



Work neatly and don't over-do the ballast quantity at any point! If you have added too much as we did here, brush away any loose added ballast that has landed on the already glued shoulders before you once again use the spoon to gently tap along the rail and encourage the ballast to even out ready for a final tidy up.

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## Sticking it all down the easy way:

Time for the step that often leads to frustration... but not this time. Work exactly as we recommend and we guarantee it will work for you, giving you a great result every time. You will need the following.

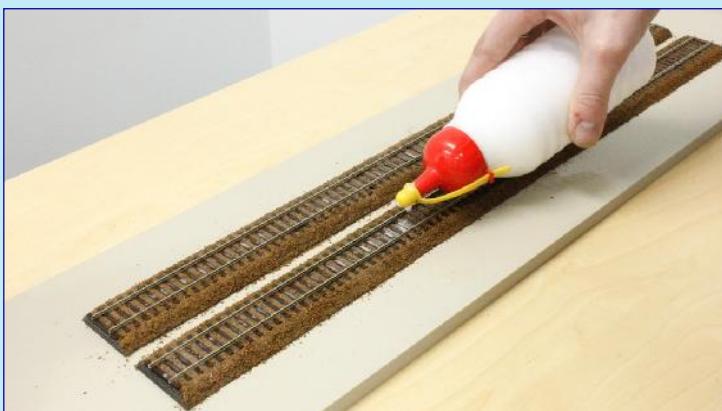
- (a) Methylated spirits, good quality PVA glue, warm water.
- (b) A pump action bottle with a very fine mist ability. Raid the kitchen cupboard if needed (window cleaner bottles are good)
- (c) A glue or similar "squeeze" type bottle with a fine nozzle (Don't use a syringe - they never work well) & a mixing bowl.

## 8 - Mist area to be glued with methylated spirits. >>>

Put half of the methylated spirits into the squeeze bottle. Test to be sure it blows a nice fine mist.... Then mist the area to be glued from well above, so the ballast is not disturbed. Use lots and lots of methylated spirits and make it really quite obviously damp..

Now, mix one part good quality PVA with 3-4 parts of warm water. When well mixed, add 3 parts methylated spirits and shake really well. Put this mix into the squeeze bottle and check how it flows.

(When using in the next step, keep shaking between applications.)

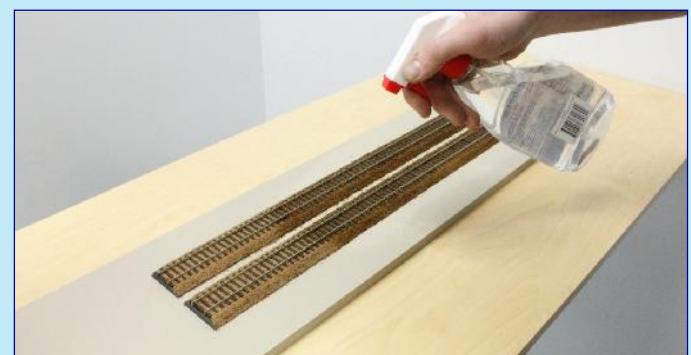


## 10 - The Misting bottle is your best friend! >>>

Don't let the ballast dry out—keep it wet with meths at all times... Also - occasionally despite your best efforts the glue bottle might "burp" or dribble a little too much. Do NOT worry and do not try to pick it up or absorb it. Just take that misting bottle again and give it a few squirts of meths from a distance as we did before... it'll soon start to absorb and disappear....



## Part 3... Adding the glue to bond the ballast perfectly



## <<< 9 - Apply the glue mix evenly as possible

Holding the bottle close to the track, gently add the glue... it should just drip out as it is quite thin.

One small drip each end of a sleeper and one in the middle will do it. No need to add too much. Take your time and do it neatly.

Do NOT be tempted to touch the ballast or try to pick up any excess if too much comes out.... Just leave it alone!



## <<< 11 - The final result will bring a smile!

Once all the glue is dripped on, give the area another good misting with methylated spirits. That's it-finished! leave it alone overnight so it can dry properly before you go near it again.

You will be delighted at how nice, neat and tidy it looks.

Gently rub a finger along the inside of each rail and give the rail heads a good clean... and its time for you to run a train.

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## Adding PowerBase to your locomotives (applies to OO, HO and others):

You will be surprised just how easy this can be! In fact once you have read this guide, you will probably complete your first installation in less time than it took to read our instructions.

The best news: There is no need to take the top off the loco. In most cases, there will be no need to modify anything and at most, in all the many test examples we have done, the greatest change we had to make was to very slightly adapt brake rodding to improve access for the fitting of PowerBase magnets. In every case, installation was easy, and we have not yet found a locomotive that cannot have PowerBase installed... and our tests have covered everything from a tiny pug to an elegant Pacific, Steam or diesel, locomotive and EMU / DMU's!

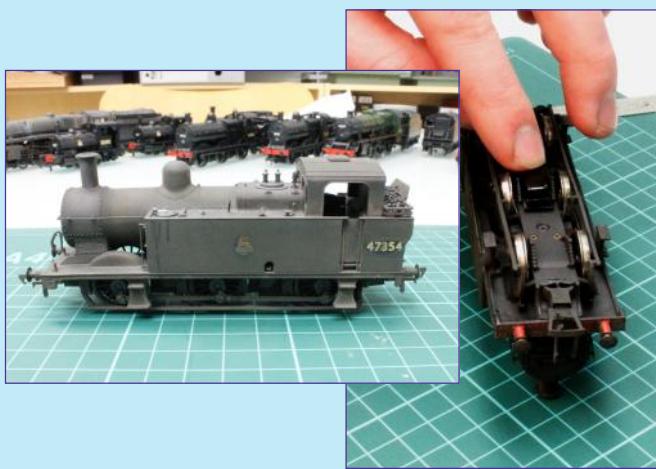
## N and Narrow gauge modellers:

This OO/HO guide will give you some ideas... you'll benefit even more from PowerBase performance improvements but adding powerbase to N needs different magnet sizes and different techniques, so when we release our N and Narrow gauge PowerBase, we will provide you with your own special magnet range as well as a very specific installation guide.

## 1 - Gather a few tools ready for the job

We provide you with pockets for the standard PowerBase magnets as part of the packaging. In the pack you will also find tiny 1mm + head screws and a 0.8mm drill.

You'll also need a fine + head screwdriver, a pin vice to hold the drills (or a Dremel), a larger drill (1.5~2mm) superglue and black paint plus a pair of our MP141 shears or sharp scissors. If you use our brass mount brackets (part # DCX-PBET) then a small file, soldering Iron and no-clean flux will be helpful.



## 2 - Choose your first loco and lets get going.

If you make your first loco the Bachmann "Jinty" or a similar loco you can just follow this example. Any 0-6-0 loco will do of course.

Turn the loco over and you will see a flat base plate with a small bump for the main axle drive gear. This is where we will install the PowerBase magnets. To keep this one we will add two of them, one each between the front and rear driving wheels.

The first step is to prepare the magnets. It is important they all face the same way, so put two together... they will naturally both have the same pole on top. Mark



## 3 - Prepare the magnet pockets for use!

Its best to paint the magnet pockets before cutting them from the plastic packaging that came in your pack of PowerBase. These images show the packing we will use before and after spraying on the inside with an aerosol of flat black paint. (you can brush paint it if you prefer).

Cut closely alongside the long sides of each pocket. Using a 4mm wise spacer, cut along the short sides leaving a 4mm tab each end. It's a good idea to angle the corners of this tab to keep it neat.

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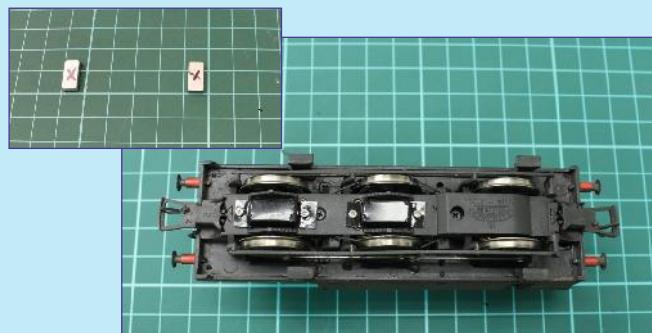
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## 4 - Locate the best position and drill some holes

Take your time here. We will only use the 0.8mm drill unless we will re-use one of the original base-plate screws to hold the pocket (then we'll use 2mm).

Hold it in position between the driving wheels and mark the tabs with a sharp pointed object where screws will go. Remove it and drill - then, if you will use an original screw to hold it, use the larger drill to open out the hole a little more. Now - Place the drilled pocket in position and EITHER fix it temporarily with the base-plate screw or drill the first hole in the loco base-plate. Be gentle as we only need them to be 3mm deep.... Now, fit the pocket with the first screw before drilling the second hole. This guarantees nice accurate positioning. When hole #2 is done, remove the pocket.



## 5 - Completing the first installation!

Repeat the process with the second pocket. Now we are ready to do the installation. Make sure you have both magnets clearly marked so you can place them in the pockets with the same side downwards. (Tip - keep them well apart as they fly together easily)

Put a tiny drop of superglue in a pocket and insert a magnet with the marked side up. Leave to dry. Repeat with the 2nd magnet.

Place the pockets between the locomotive wheels and, using either the original base-plate screw or the supplied screws as appropriate, fix them in place... It's that simple - Your first install is done!

## 6 - Brass Brackets for large wheel Loco's!

We want to keep magnets just above the height of the rail-head, and that means a different approach for loco's with bigger wheels. To make it as easy as using the plastic pockets, we have made an etch containing a selection of easily-fold mount brackets with depths from 4mm to 8mm. Check the height from loco base-plate with a steel rule and choose the ones you need so that the bracket just clears the rails when installed. Bend using the etched lines and if you like, reinforce joints with solder. Glue magnets in place with the same polarity downwards. Screw in place just like you did with the plastic pockets! We'll let the photographs tell you the rest!



As you can see... PowerBase is totally invisible installed when it is installed between driving wheels!



Guaranteed to dramatically improve the power and overall performance  
of all of your locomotives

# PowerBase

The PowerBase name, PowerBase Component design concepts and their related shapes are protected by appropriate design registration / patents

Intentionally left blank, ready for Tips for N and Narrow gauge installs.....

\*\*\* Powerbase for N Scale and Narrow Gauge will be available from November 2013 \*\*\*

**PowerBase works wonderfully well for N Scale.....**

This is a Dapol Hall comfortably handling 12 Mark1

Coaches... on a 1 in 30 gradient (slightly steeper than 3%)



Guaranteed to dramatically improve the power and overall performance  
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## Tip #1...

Think it through first. Its a simple process and a bit of good planning will make it so easy!

## Tip #2...

Keep the magnets close to the rail heads. If possible, pad the area with some thick cardboard or plasticard to gain a mm or two—it will really improve the result. Its helpful to look side on while holding a steel rule onto the tyre of the locomotive.

## Tip #3...

Pre-paint the magnet assemblies before installation.... We also found that a black permanent marker pen was really good for touch-ups like screw heads etc after we had finished.

## Tip #4...

Mark all the magnets so you are sure which way up they go. Stack them all, mark the top one, take it off, mark the next etc.. Its easy and it does NOT matter if North or South Poles are chosen!

## Tip #5....

Some locomotives have brass or Phosphor bronze rivets on them. If installing magnets or brass brackets on these areas, superglue a thin shim of plastic or even paper to the magnet side closest to the base-plate... This will prevent short circuits at the pickups.

## Tip #6...

You can use LOTS of magnets if you wish... But they will always be invisible if mounted between wheels or at the same height as any longitudinal brake rods etc... Assess each loco individually and work 1 at a time.

## Tip #7...

Some locos can simply have magnets glued directly to the base plate... We did this on the 8F!

We will soon also release a "Thin magnet" pack that will make many Diesel installations very easy indeed! (thin magnets can be glued directly to Diesel base-plates)

## Tip #8...

You can often use an original screw point for the base-plate as one anchor point for the brass PowerBase brackets or plastic pockets—if you want to do this drill/open out holes to 2mm first.

## Tip #9...

Gluing the magnets on is fine, as they can generally be popped off if needed with the tip of a small screwdriver—but DO avoid gluing them over baseplate screws if you can!

## Tip #10...

Think laterally. Add magnets where you can, but there is NO need to over-do it... If you keep them close to the rail-head, its rare to need more than 2 or 3. You could also try adding magnets to tenders to improve pick-up pressure slightly, to brake vans to help them keep long trains under control, to pony trucks to help them track better through point-work... The possibilities are endless!

**Most importantly, enjoy the process & if you have questions... We are happy to help!**