INTRODUCTION.

Started December 2010 finished August 2012.

This, in all probability, my last commission for some considerable time, is a chance to build a kit from a, for me, new manufacturer. It is to be compensated and use roller bearings with pick-up on all driving wheels.

So, what's in the sturdy box? Which, by the way, will not hold the finished model, of which I approve?

Two sheets of nickel etch one, the frames etc., of 0.8mm and the other 0.5mm for the motion. Several etched sheets of brass and the boiler, smoke box wrapper, roof and tender sides all come ready rolled. There are several bags of white metal casting and a number of lost wax brass or nickel castings too.

Additionally, there are some 18, unnumbered, pages (9 sheets printed on both sides) of instructions for the engine and 6 for the tender. The instructions appear at first scanning to be very comprehensive but, there is almost a

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complete absence of paragraphing, resulting in pages of dense text, which makes it tedious, to follow. There are also several repetitions of whole paragraphs.

Though there are useful illustrations there are no exploded diagrams save for one of the motion of which more later. There are three pages illustrating where various parts fit, line drawings - not to scale - of either side of the engine, the front and cab end.

However, for the engine all the parts can easily be identified by representations of the frets and a numbering system referring back to lists. But, the numbering is not sequential, resulting in, for instance, 2 parts No: 50, depending upon which etched sheet one is using. That could make things a little confusing.

However, it is clear that the designer has researched his subject well and he provides some useful prototype references.

The first thing I did was unpack the wheels, (obtained from DMR) clean them up and do my usual modifications of altering the crank pin bolts for 10BA steel, then I settled down to read all through the instructions, carefully making notes as I went because, I almost never follow exactly what the designer intended. The lack of exploded diagrams could probably have saved several pages of text.

**THE FRAMES & CHASSIS.**

It pays to number the parts and read through the instructions to see where each goes. They fit well, mostly, and one must file off the cusps to obtain good mating surfaces. So, having worked out what goes where the next job was to fit the various fixing nuts and bolts and open the rear axle bearing holes to force fit the roller bearings, which I later changed for a pair with flanges, much easier to ensure they are at 90° to the frames and the flange also acts as a useful spacer to help prevent side play.
and some rod through the bearings and the chassis can be tacked together prior to fitting the horn guides in the chassis jig. Here, the basic cylinder assembly is temporarily fitted too. There are eight frame spacers, which, together with the 0.8mm thick nickel frames makes for a very robust chassis. However, the rear spacers will need modifying to get any motor/gearbox to fit, as we shall see later.

There is provision for the springs to be removed and replaced using 16BA nuts and bolts (not supplied) if one is building a sprung set of frames. There are etched dimples to drill out appropriate holes in the frames and etched hangers to solder in place on the springs. For a sprung system using wheel sets with fixed axles that can then be dropped out by removing the springs, it is ideal. Since I am using Slater's wheels that do not need such provision, I left the springs alone.

The cylinder unit is neatly designed but care is needed to set it up correctly and square. I shall have to take it all apart again though as the top of the slipper projects above the slide bar and fouls the valve support plate. It still did after that so I filed a recess in the appropriate part of the support plate. It cannot be seen from normal viewing distances. The manufacturer says that this has now been corrected.

The rods are designed to be jointed using a steel rivet. It will be necessary to remove the oil bath from the left end of the lower right part in the picture, which is illustrated like this in the drawing of the motion parts.

I also drilled out the bearings to 2.4mm - for the Slater's bushes tapped 10BA for the crank pins - and made the mistake of drilling out this one too, which of course, needs to take a rivet and not a crank pin. Since Eileen's were out of stock of 'putting on' tools, I sliced a piece off some 2.4mm rod, soldered it in place, filed it flat on both sides and drilled it 1mm; here is the completed set of rods.

The connecting rods come as a three piece etch, the rear one is half etched leaving the bosses at full thickness.
They are arranged on the fret and shewn in the illustration to suggest the half etched side goes inside. Clearly wrong so the elements were swapped.

The motion for one side laid out prior to fitting many of the parts together. The instructions suggest 14BA brass nuts and bolts and a number are supplied in the kit. I think that brass nuts would spoil the look so most of it is fitted with soldered nickel pivots with some fixings in 14BA steel. However, the rear crank pins nuts will be modified cast nickel from CPL, not right for the engine but better by far than nuts.

The ABC motor/gearbox duly arrived and so work started on fitting it to the frames. There is no mention in the instructions about motors - which rather surprised me - and no guidance on where one might be fitted. However, the designer intended for a Slater's motor/gearbox to fit on the centre axle.

In fact, if one fits all the various spacers in the frames, there is nowhere a motor can be easily fitted other than the centre axle. I wanted the drive on the rear wheels so, after some careful measurement I removed the large base-rear spacer, part 12, and modified it to take the gearbox. It was necessary also to modify the rear spacer to allow for the gear wheels. When it goes back in, part 13, needs to be dispensed with or the motor will not fit. I could just as easily have simply cut off a chunk of part 12 without endangering the integrity of the frames but this was more satisfyingly elegant.

The crankpin nuts I use come from CPL and were originally designed by Malcolm Mitchell. There are two types available, one set for use with AGH wheels and the other with Slater's wheels. They come ready with cast in 12BA threads, which of course was of no use to me now as I had altered the crankpin bolts.
to 10BA. So they need to be drilled out 1.4mm and tapped 10BA, not easy with such a tiny nickel casting.

The large round brass tool you can see is a crankpin nut spinner. Each end has a hole drilled in it large enough to take one of the two sizes of nut and then a slot is cut across it for the cast gudgeon pin to fit into. This does well for fitting and tightening the nuts in practice but is also invaluable when it come to altering the thread.

By clamping the nut spinner in a vice it is possible, with care, both to drill out the hole using a Dremel drill and re-thread the nuts with a tap held in a pin vice.

Here then, is the chassis running (very, very, slowly), which it did with very little fettling. The only problem was an odd knocking that turned out to be the back of the rivet holding the rods together catching on the wheel bosses. Some gentle filing down and the addition of a thin 10BA washer behind the crankpin bush cured it.

The compensating beam was made from some strip brass and set high, using a hole intended for plunger pick-ups, so that it is invisible from the side view through the holes in the frames.

The ends bear on some brass tube slid onto the axles to reduce friction. There is a spacer to go at the top of the frames on the left; it will be left unsoldered and simply clipped into its locating slots so that the axle tube can be refitted during future maintenance.

**THE BOGIE.**

The bogie is relatively simple but requires careful work to edge-solder the mudguards so they are lined up.

Once put together I added a few ounces of lead strip either side of the pivot slot.
The slot was opened out to fit a bearing from the spares box that fit the securing bolt well.

The chassis is gradually getting to a stage where the motion can all be set up and tested before I strip it all apart, clean and chemically blacken it.

The brake gear goes together relatively easily. I added some brass rod with a couple of pieces of tube soldered in place to represent the centre pull rod and its tensioner because they are visible through the wheels. The support brackets for the motion are cleverly designed and line up easily using the rod through the frames. I had to cut a small chunk out of the pivot beam because it fouled the rod.

**THE BODY.**
The footplate is a tricky item and I had not been looking forward to it. There are two etched parts for the valances and one for the footplate. One has to use the valances as a jig along with several parts that edge solder to the cab end. It took me a good deal of time and much care but is doable.

Here is the partially completed job in need of a good clean-up. It looks a little hump-backed at present and it is quite fragile but, once more parts were fitted it firmed up.

When I tried it against the frames the rear fixing holes for each part did not come close to lining up while the projections on the motion bracket (which can be seen in the pictures above) need removing or the footplate will not seat.
In addition the rear frame spacer has no rectangular hole in it to match that in the drag beam so it looks like there are more modifications to be made.

Having now added the dummy front frames, buffer plank, buffer housings and drag beam it is time to check that the basic parts fit with the cab and frames. That may be the most difficult part over, now to continue with the upper works before returning to the motion.

The boiler did not prove too difficult, despite it came rolled slightly on the skew but the handrails may prove troublesome.

The footplate is now much nearer to completion. Exactly how the front cylinder covers are fitted will need to be worked out since there are no parts identified for that area in the instructions.

Another mock-up to see how it is coming along. In attempting to fit the boiler to the footplate I discovered that I had not assembled the cab to the footplate at a perfect right angle and so it had all to be removed, cleaned up and re-fitted. The smoke box saddle also needed to be modified by opening out the hole for the chassis fixing bolt and moving the whole thing back a couple of millimetres.

Once happy with it I Araldited it in place and then followed this by permanently fitting the boiler/smoke box. It is Araldited to the smoke box saddle and soldered to the footplate.
To ensure that there is a strong joint at the rear I added some 1x2mm brass square section, suitable bent to shape, inside the boiler abutting the cab and soldered it all solid. An edge solder here, in my opinion, would be liable to fracture over time. 

A good deal of fettling was required to achieve a close fit of the boiler in the footplate, though even now there are gaps that will have to be filled later. Here then is the build so far:

The dome casting had its feed on the base where it fits the boiler making for a difficult clean up, why not on the centre spindle? The chimney was poorly cast - which no doubt could easily be changed but we decided on a Laurie Griffin replacement. The other side of the boiler: the Westinghouse gear comes as a very nice lost wax casting, two of the pipes need cutting off at the joint, drilling 0.8mm and wire soldered in. One to go the full length of the boiler and here I drilled a hole in the cab to give me another point to anchor the whole unit. The other winds around the back of the unit and disappears between the frames.

The vacuum pipe provided is far too short to fit across the depth of buffer beam and then vanish under it and I had to cut it short at the bracket fixing to the beam, drill it out and fit a suitable length of wire; poor choice of castings. Having blackened the chassis and bogie the time has come to mock it up and get some idea of how the build is progressing.
The steps on the footplate beside the cab were a bit of a trial. One side fits well; the other side does not because the pairs do not appear to have been drawn as mirror images. There are still some parts to be fitted to the body.

The Laurie Griffin chimney looks good and has the added advantage of being hollow. However, there are some parts missing, the lamp iron for the smoke box door and the support for the reversing rod. The manufacturer says that these parts need to be made up from scrap etch but the instructions talk of them as being present.

I found in the spares box a casting that will serve for the reversing rod support but Laurie Griffin will hopefully provide lamp irons. It will not hurt to replace the etched ones anyway.

Because I elected not to use nuts and bolt, much modification has been necessary to fit the valve gear. So that it can easily be removed some parts need to be fixed using bolts however, the three holes I wanted to use are too large. I have either soldered on chunks of brass where they will be invisible and tapped them or soldered the hole solid with nickel wire and then drilled and tapped. The connecting rod is tapped 12BA and a steel bolt with its slot filed out (not quite I see in the picture) that will pass through the fitting on the piston.

The associated motion link is treated similarly but tapped 14BA. Here you see a set of motion ready for fitting; there are three bolting positions, necessary because, naturally, the pistons cannot be removed from the slide bars.

To get the rods to work without fouling the connecting rod I used the 10BA bush reversed. A shame as it is the only visible brass so far on the motion.

In order for the connecting rod to clear, it was also necessary originally
to fit 2mm of bushing between the connecting rod big end and the side rod. I
was not happy about that and altered the connecting rods slightly to get rid of it.

Finally the side and connecting rods and pistons are all set-up, proved and then
tested on the rolling road. The piston rods needed shortening to prevent them
trying to knock the cylinder covers off; I had forgotten to check this earlier.

The pick-ups needed fitting and the client did not want the 'American' method I
favour. The kit comes with some pieces of copper clad to manufacture pick-ups
to rub on the rims or backs of the wheels.

My preferred method for scratchers on top of the wheels would not fit and
fitting underneath would have produced a lot of extra stuff to spoil the view
between the spokes, and been prone to damage.

I decided to fit plungers instead, which I ought to have done from the beginning
so, off with the wheels and drill the side frames out for the plunger fittings,
(there are holes already in the frames for these but I had used some of them for
other things) the front and centre drivers at the top and the rear behind the brake
block. I also took the opportunity to fit the balance weights and blacken the
wheels.

The wires could now be nicely hidden away under the footplate. Setting them
up was easy but required washers to extend them out due to the frames being
somewhat narrow as suggested by Slater's in their instructions. A check on the
rolling road confirmed that there was no excessive drag causing higher than
normal current draw.
The back-head, reversing lever and handrails and sundry other pipes are about all that's left to do I think. Though, in my experience, the final picture often reveals something that has been missed!

Modifications to the cab floor were needed or it would never have got round tight curves without extending the draw bar. I cut down the footplate in the cab, fitted the fall plate and then extended the footplate for the tender so that the fall plate would reach it by using the piece I had removed from the cab thus:

That also gave me the chance to reduce the size and placing of the cut-outs for the brake and water scoop standards. Those on the original piece were too large and did not line up properly.

The handrail is 'interesting' as noted earlier; it needs a single length of wire effectively to get it right; I had ‘used’ the one provided but fortunately I had some long lengths of nickel silver in stock, which I prefer for handrails.

It is now virtually complete requiring only the valve gear's final fitting, which will be done after it gets back from the painter, along with the back-head. The latter will have to wait a while as Laurie Griffin cannot supply for a couple of months. However, since I never fix them permanently anyway, this is not a problem. The cab doors were made from scratch since the provided set seems rather small to me.

**THE TENDER.**

My original instructions for the tender were incomplete but an e-mail to DMR brought a new set very quickly. There are nine pages and, like the engine instructions, the text is rather dense. There are lists of parts but no picture of any of the etched sheets to match them against, which in some cases make it difficult to identify which part goes where.

The last two pages have pictures of actual components and their numbers so, for the major construction it is not too difficult.
The buffer and drag beams solder into etched depressions and to ensure they are strong enough not to pull out under heavy load, I strengthened them with some 2mm square rod as shewn here.

I departed from the recommended method because if one fitted the buffers later, they would not fit as the side frames need a section cut out to clear the back of the housing and buffer tail. The buffers shank also needed to be shortened. The side frames also help keep the buffer and drag beams at 90°. Assembly is relatively simple once all the cusps are cleaned up but the outside frames were not the same length and had to be carefully trimmed before fitting. The basic unit completed save for the guard irons.

By using a couple of large files as support, I found it unnecessary to file down the tabs on the footplate, when soldering in the side frames. The steps were easier to build as separate units and then fit to the footplate.

The brakes are simple, though the shoes are thin and could have been improved with an extra layer or two to thicken them up.

There is no provision for compensation and no space that I could find to fit it but, it ran well enough. Brake set-up is very simple but the pull rods when I first put them on
were very close to the wheels. I thought they would need careful packing to ensure they stay on course or; to use longer cross shafts linking the bottom of the hangers. A further look at the Isinglass drawing however shews that the pull rods go inside the wheels so, take it all off again (morale? dry run!) and correct it thus:

There is ample room here to fit pick-ups to rub on the back of the wheels if required.

The sides come ready formed for the flare and side plates. Unfortunately, the pre-formed flare did not match the curve necessary to fit the rear coal plate so it was necessary to anneal and reform.

Consequently, the sides became a little distorted and would not fit the base easily as shewn here:

Under normal circumstances this would be a simple edge solder. I got round this by soldering in some square brass tube, which required less heat, along each edge of the base.

Here you can see how I set up the temporary jig to ensure it all went in square. Now the sides and back are soldered in place square however, it was clear that the flare does not meet at the rear corners and needed filling. For small gaps Milliput will do fine but for the large gap I soldered in some wire first, in-filled with solder and then filed to shape.

The beading is provided as an etched
item to solder in place, not a particularly easy job but it fits well; a suggested alternative is to use wire.
The top of the tender is partially located by the rear coal plate, which is slotted through it and into the base. However, there is nothing to support the front making it difficult to fit and solder up. I soldered some 2mm brass bar behind the tender front just below where the shovel plate fits such that the front of the top sits on it at the right level. The tender footplate when offered up after fitting the brake and water scoop controls does not fit to accommodate their centres.

It needed the half round indents to be opened out sideways and deepened considerably so that the part would fit correctly.

The coal plates that locate on the top of the tender require some care fitting as the parts are all edge soldered.

There are four lamp irons to be fitted to the tender top but the holes for them are undersize and needed correcting.

The last job to do for the tender is fitting all the white metal castings. There are a good many that obviously come from good masters, unfortunately it seems the molds for some were badly worn and there was as a consequence a good deal of flash to clean off, some of it very difficult because it is not easily accessible or obliterates some detail.

There is a pair of nice castings for the sand boxes with brass rod pipes already fitted but they did not fit in the space intended for them. However, they cannot be seen in normal service so I simply soldered some appropriately bent 1mm rod in place for the pipes. The buffers were modified by shortening the shank to the minimum possible in order that the tail will fit in the slot I cut in the frames.

The tool box needed a piece of brass soldering in behind the tender front to act as a platform to hold it in place. The instructions refer to this specifically as the tool boxes were moved around a good deal.
The short pipes on the top exiting the filler covers, if used as supplied, lie at a slight angle instead of flat because of the elbow in the pipe. I cut slivers from some brass tube to put over the other end so that the pipe lay horizontally.

**COMPLETE.**

I later took it to the local club and see how it ran. As suspected the bogie proved a problem and required some material removing from the dummy frames.

It is a handsome engine and, once Dennis has worked his magic, should look splendid in full LNER livery. Not for the beginner but the manufacturer does not claim it is.

It must have received some very rough handling returning from Dennis's paint shop because the footplate was bent out of shape and step knocked off. I hate having to try repair things that are painted. Eventually I plucked up courage and straightened it with my fingers while padding the thing with several layers of tissue. It proved easier than I had imagined. Now all that is required is to glue on the wayward step, assemble the motion, fit
windows, buffers and couplings and then take it to the club to test run it.

**FINISHED.**

At last it is finished. The backhead has still to be built and fitted but otherwise it looks not bad.

An interesting prototype and a very handsome 4-6-0. It can be built into a good model but the kit is let down by the instructions and some poor design in places, however, Mike at DMR is always prepared provide help and advice.

**THE MANUFACTURER’S RESPONSE.**

Hello Raymond,

Thank you for the amended copy of your review of my B17 kit and requests for comments. My reply here is I am afraid a bit long and does not just cover your viewpoint but the general interest that of past comments that you’re already posted text has produced. I think anyone who would build one of these kits would want to invest in a proper carry case to transport the finished item in that said the engine and tender will fit the kit box side by side. As for the instructions yes there are a few issues here but in the main along with the illustrations they make sufficient sense to enable the modeller to build the kit. There have been one or two upgrades made to the kit since its last review which I fail to make reference to.
Instructions are a nightmare to write as they never satisfy everyone. Things as a builder that I take for granted which I expect a competent builder to know I do not always mention. I tend to find that most builders of my kits only read the areas of text that they feel they need to know and disregard the rest. You yourself have admitted to doing exactly this with the statement quote ‘I almost never follow exactly what the designer intended.’ I also state that my instructions are a guide as to how I built the prototype and many of you will have your own chosen methods.

The chassis is designed to be driven via the centre pair of drivers and would take the Slater’s GB01 motor gearbox units without any modifications. As this is quite a large unit most other manufactured drive units will also fit. If asked at point of sale I freely give this information and am able to show them a completed kit with this in. This is only a guide as many modellers have their own preference so sorry for not stating this in the instructions. Your chosen method of drive being the rear wheels in this case gave you a lot of extra work along with the fitting of beam suspension. The chassis although designed to take horn blocks was never designed with beam type suspension in mind in doing so you used the centre driving wheel plunger pick up points. The chassis has pilot plunger pick up hole pre-drilled for all drivers.

The brake gear I am at a bit of a loss here you state that you had to use brass rod and tube to represent the pull rods and tensioners. The illustrations clearly show that you have used the nickel silver pull rods and assembled the rigging as per the intended instructions. I have just noticed that I have failed to mention the top slipper on the piston. This has already been removed from all recent kits so this problem no longer exists; you will still need to check on the length and cut accordingly.

The bogie fixing bolt too short NO as I clearly showed you at Telford the bolt I use on the made up model is exactly the same as supplied in the kit along with the spring and bearing. I think you used this bolt elsewhere.

The folding of the footplate should pose no problem to the experienced builders. The secret here is to form the folds a little bit at a time on each side this will ensure that the length of the running plate will be the same down both sides. The alternative is to make a jig up as John Cockcroft did when he was commissioned to build his first batch of four. You also then have a readymade jig for any further builds you may make. John has used his jig on several more builds with his last being on show at Telford last week. John has certainly mastered this kit now and I like to think that he learned from his mistake of trying to be too clever when he made his one (Review BRM) a process he did not apply to his further three builds or subsequent builds since.
Raymond sorry for the diversion from your build, however I will elaborate on my last comment later at the end. The footplate at this stage is quite flimsy as stated and you did the right thing in offering it up against the chassis to check the hole alignment. However you found that your chassis and footplate holes did not line up they should have done. It is easy to get the folds slightly wrong, this will either increase or decrease the distances between the front and rear fixing points. This will show up later as more body parts are fitted. As you state that you had to remove the cab later and reposition when you came to fitting the boiler I suspect that was where the problem lay. The body all makes up to a very solid mass.

As to your handrail wire problem, it is important to keep back a length for the boiler section as it is best fitted in one section. All too often we are inclined to pick up the wire and cut off a bit here and there and before long have not saved a long length for the boiler. There is plenty of wire supplied in the kit so this should not have been a problem.

I note from your text that you prefer to use araldite to fix the saddle to the boiler and then solder this to the footplate, as you felt that a solder joint of the boiler to the saddle would not be strong enough and could crack later. If you are happy with that method fine however I would like to point out the following points here. If the parts are suitably fluxed and held together tightly then when heat is applied to the joint the flux when activated will draw the solder into the joints. As a plumber by trade this is the exact principle applied when soldering copper pipe joints. By using resin glues such as araldite if you require to solder further parts around the area you may encounter a problem with your fluxes not working properly and subsequent failed solder joint due to oil residues from the resin. Similarly if superglue is used not only will the joint not be successful but you risk damage to your health by the cyanide mustard type gas given off.

Raymond I have added this section as a warning and not as a reflection of your work. All too often I am asked to repair/restore items that have put together with these mediums and well concealed with paint. As to the white metal castings I use an experienced outside caster to make my moulds and do the casting. He casts the dome in the way he does to make sure that you end up with a round dome and not an oval dome as would probably be the case if it were cast on its side. The chimney I know may look untidy but I have always managed to use it. I am aware of Laurie Giffin's chimney and know a few others that have done the same. It is also very unusual for there to be any excess flash on the castings. The fact that you were able to use all the castings with the exception of the chimney I find reassuring.
As to the valve gear yes I supply nuts and bolts but I also supply Nickel Silver rivets as well I also prefer to use the rivets. As for the valve gear holes being too big I have never encountered that in fact I find that I have to ease the fixing holes.

Shortening the cab floor and adding the cut off piece to the tender to ease it better round curves, I found this strange especially as you left the cab floor support alone. You gained nothing here other than to give yourself additional work. The problem area is surely the swing of the bogie in relation to the brake gear, cylinders and cylinder drain cock pipes. By choosing to model the engine with the short lived original drain cock this allowed you to create more front end swing, which would not have been possible. I note that you later had to ease the front dummy inside frames also as a result of the extra movement.

The tender chassis as you rightly state does not have suspension points built in. However my later J17 kit does in the form of beam type I say this as the B17 tender could be adapted for this. As to the difference in the lengths of the frame sides I will look into this as this should not be. As to you having to reshape the tender flairs my mistake. I accept that the coal plates on top of the tender require careful fitting but again should not be a problem to a competent builder as with all edge soldering work patients and skill is all that is required.

The finished model looks good and I am glad your customer is pleased with the results of your work the kit is clearly buildable but is not for the beginner. That said I have never nor would I sell this kit or for that matter any of my kits to customers who I felt were not able to complete the task. This brings me back to John Cockcroft and the article review he did for BRM several years ago. This article still rears its head on the guild forum site and indeed has had links to your site. It has I feel lead to a lot of invalid criticism of this kit and other kits in my range.

As a result of the latest comments aired on these sites I have decided to withdraw all my 7mm kits from public sale after the Guildford 'O' Gauge at Reading in December. My product from that date will only be available as ready to run custom or commission builds. This hopefully will stop most of the criticism being labelled at my product. I will still provide a back up and advise service to all my customers past and present who have bought my products. I will continue to attend shows as a trader and continue to do my kit building and soldering demonstrations that I presently have bookings for.

Regards   Mike Russell