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MASTER CHASSIS

Thank you for purchasing the Master Chassis. We hope you build many smooth running locos with it. These instructions were last updated 26/08/2009

Please Read at least this Part

This is a precision jig that requires care and attention to get the best from it.

- Do Not Over Tighten Screws
- Do Not Use Hammers or metallic objects to move stiff parts
- Keep Lightly Lubricated

See below for Details.

Unpacking and Assembly

The Box should Contain:-

1. The Master Chassis Jig
2. 1 x 3mm Allen Key.
3. 1 x 2.5mm Allen Key.
4. 3 or 5 Rolling Road Assemblies (Depending on Model)
5. 1 length of each Black & Red Wire to connect to Power Supply.
6. 1 Black Crocodile Clip
7. 3 or 5 Red Crocodile Clips (Depending on Model)
   (Item 4 to 7 would be omitted if you requested no rolling roads)

To assemble the connecting wires, remove the rubber boots from the crocodile clips, solder a short length of the relevant colour of wire through the hole provided and replace the rubber boot.

Starting to Use the Master Chassis

Before use every time coat the 3/5 mock axles and slide rods with either a thin coat of light oil (3 in 1 or similar) or Vaseline. This will prevent any solder used in the assembly of your locomotive chassis sticking to the jig and stop any flux from attacking the precision steel rods. As the mock axles and slide rods are made of ground steel, it is also a good idea to repeat when finished to prevent rust from forming due to either flux or damp. These rods and holes are very precise and sometimes may be a little tight, rubbing with 600 wet & dry is acceptable to make them slide in a little easier, but an accurate fit is important.

Locomotive Chassis Construction

There are 3 main factors that must be correct for a chassis to work.

- Wheel and coupling rod centres must be exactly the same
- Axles parallel in the vertical plane
- Axles parallel in the horizontal plane

- It is very difficult to change any of these after construction, but it is also difficult to change the centres of the holes in the coupling rods. You can make the holes bigger but this introduces slop into the system.

Slide the Mock Axles into the support blocks with the spigot outermost so that they protrude by the spigot only and lightly clamp using the Hex Allen key in the screws on the top.
Overtightening any of the screws will damage the jig.

Start with the coupling rods. Starting from the fixed centre mock axle, adjust the horizontal position of the mock axles so the coupling rods fit onto the spigots on the end. (These are machined to 2.40mm for 7mm scale, 1.50mm for 4mm). Open out the holes in the coupling rods to fit the spigot if necessary with either a drill or a tapered Reamer/Broach. Once you have a coupling rod that fits neatly, use the Allen key to lightly tighten the screws front and back to lock the position of the sliders. Label one end of the jig 'FRONT' and always work with that end as the front of your loco. Note - The first coupling rod should be assembled face out (Fluted side if Fluted) and oil boxes uppermost. The second coupling rod should be assembled face in with oil boxes lowermost on the same settings.

Undo the screws clamping the mock axles and slide them out to about (1 ¼" or 32mm for 7mm) (For 4mm turn the pin around so that the 1/8th diameter section protrudes by 7/8ths or 22mm) and re-clamp. Slide 1 set of bearings supplied with your kit over the mock axles then 1 side of the chassis. Note – The wheelbase between the 1st and 2nd axles may not be the same a between the 2nd and 3rd Etc. So it is important to get the chassis the right way round to suit the way the jig was set using the coupling rods. Note – The mock axles are a precision ground bar the same diameter as Slater's and most other companies axles

- '7mm' Scale – 3/16"
- '4mm' Scale – 1/8"

If your bearings don't fit over the mock axles, they won't fit over the real axles.

File or drill the axle holes on one side of the chassis until they slip over the bearings on the jig without any force required. Whilst still in place, repeat with the other side of the chassis (chassis first, bearings second), again opening out the holes so that they slip over the bearings without force. Using the frame spacers provided with your kit, screw or solder to the chassis. If screwed, fix to one side first and check the hole at the other side is in alignment before fixing.

I would suggest you now solder the bearings to the built up chassis, taking care not to solder to the mock axles of the jig (hence the oil or Vaseline). You may need a large soldering iron as the mock axles will soak up a lot of the heat.

If using Hornblocks, make the slots 0.5mm larger than required to allow the jig to position them correctly.

Remove the chassis from the jig by sliding it off the mock axles, this may be difficult but move it a bit at a time on each axles, or release the mock axles from the jig. Do not use a hammer or metal jaw pliers as you may cause small burrs and hence create bigger problems.

Drill or open out the holes in the coupling rods a little for clearance (I used a 2.50mm drill for 7mm and 1.6mm for 4mm). Follow your kits instructions to fit axles, wheels and motor/gearbox to the chassis, attach coupling rods.

<u>Testing the Chassis</u>

Undo and remove the front screws clamping the sliders. Release the screws holding the mock axles and slide them back until only ½" or 12mm is showing. Loosely re-tighten the screws. Slide over them, one of the rolling road units, and using the front clamping screws to fix in place.

Test your chassis with no pickups at this stage, as pickups can give problems. Fix the wires directly to the motor and test the unit without the gearwheel of the gearbox being fixed to the axle. If motor runs smoothly fix gearwheel to axle and test the motor at a very slow speed. (Motors have less power at slow speed and if it comes across a tight spot it should repeatably stop at the same point). If you have any tight spots, remove coupling rods and open out the holes a little more.

Now fit the pickups to the loco chassis

Using the red crocodile clips, clamp to one of the screws on the outer edge of each rolling road unit, and the current will pass through the bearings to the wheels as it would if placed on the track. Only one black connection is required on the jig side of the rolling road units, as the current will pass through the jig to the other wheels.

If testing a complete loco the jig may over-balance, this can be avoided by placing packing under the rolling road units, clamping to your bench, or simply placing a heavy weight on the back of the jig. The base is deliberately left short to allow access from the underside of the chassis.

You can also use the jig to make tender chassis.

If the hole in your coupling rods need to be a different size to the ones catered for with the mock axles (2.40mm) or (1,50mm). We will be pleased to alter them to the size you require. Either state size or enclose relevant part for us to measure.

Spare Parts Available
1/8" Mock Axles
3/16" Mock Axles
2mm Mock Axles
5/32" Mock Axles
¼" Mock Axles
'00' Gauge Rolling Road units
'EM' Gauge Rolling Road units
'P4' Gauge Rolling Road units
'0' Gauge Rolling Road units
'S7' Gauge Rolling Road units
M4 Grub screws to replace locking screws on front face if they cause an obstruction to your chassis

All other parts can be supplied but we may need to have the jig back at the workshop to replace.

Specials also undertaken.

If you have any questions please do not hesitate to contact us.

We have set up a Yahoo Discussion Group which is **free to join**
http://uk.groups.yahoo.com/group/masterchassis/

We also run regular **workshops on Chassis Construction**, if you feel as if you need personal tuition in using The Master Chassis or Chassis Construction. Check our website for regular **Railway Modelling Workshops with 'Famous Names'**. In the past these have been very sociable events, with good food and company. Ring for details.

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