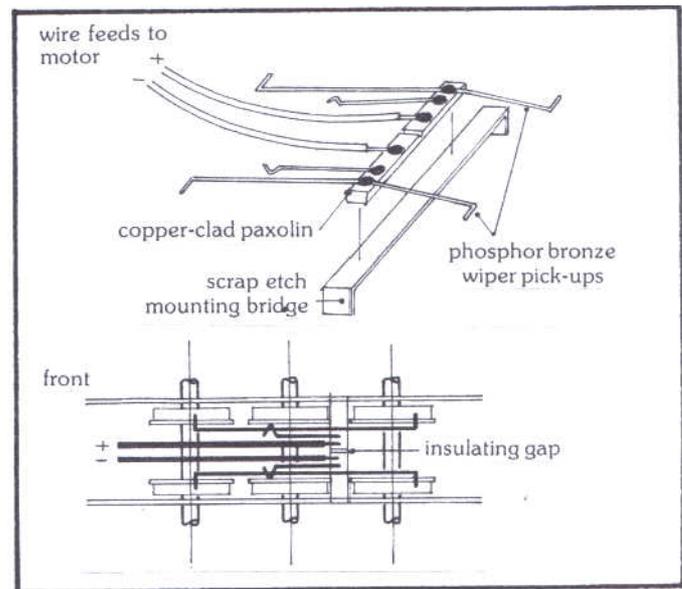


5 ELECTRICAL PICK-UP

ONCE you are satisfied the chassis runs freely, it's time to consider the electrical pick-up arrangements. My preferred method involves the fabrication of wiper pick-ups from the phosphor bronze wire supplied and mounting these on small pads of copper-clad paxolin from which wire feeds to the motor can be soldered.

Pick-ups are an area of personal preference, and are best left to individuals to sort out. However, for what it's worth, I'll describe my method which by no means is the definitive method, rather it can be aptly described as the 'it works for me' method of pick-up fabrication. I think a diagram probably explains my method better than anything.



1. The scrap etch mounting bridge fits neatly between the second and third leaf springs on the chassis.
2. A copper-clad strip - don't forget to cut the essential insulating gap in the copper surface - is cut to length to span the bridge and the phosphor bronze wipers bent up to fit before being soldered to the copper-clad surface. TIP: Solder the outermost pick-ups first using 240° electrical solder. This will prevent them coming adrift when the shorter wipers for the centre driving wheels are soldered adjacent to them using 145° detailing solder. If, like me, you don't possess a temperature controlled soldering iron, simply unplug the iron for a while allowing it to cool down enough to still melt 145° solder but leave 240° untouched.
3. Similarly, add the motor feed wires with 70° low melt solder using exactly the same technique.
4. Fabrication of the phosphor bronze wipers to the copper-clad paxolin strip is best achieved off the model, repeatedly offering up the assembly to check for fit.
5. Once the pick-up strip is ready, the assembly can be thoroughly washed to remove flux residue before being superglued to the mounting bridge.
6. The motor can then be refitted to the gearbox, ensuring the worm/ gear mesh is correctly adjusted, and the feed wires soldered to the motor tags - careful and patient adjustment of the wiper pressure on the wheels will pay dividends and result in a smoothly operating mechanism. Clipping the running plate assembly to the chassis will allow you to temporarily stick some lead weight over the driving wheels which will improve traction and pick-up performance during running of the unit under test. It goes without saying that wheels and track should be scrupulously cleaned prior to any test running of your chassis.
7. Incidentally, I recommend electrical links twixt front and rear chassis units once the model is fully constructed. This allows each motor the benefit of electrical pick-up from all twelve driving wheels. 'Impressive performance' should be an understatement!
8. When you have adjusted your chassis for optimum performance, unclip the running plate and add the vacuum pipe (33), lubricator (34) and lubricator sand shield (35) to their respective positions.
9. The running plate assembly can then be mated permanently to the mainframes and the drain cock operating rods bent up from a single length of 0.45mm brass wire and clipped in place between the lugs on the running plate valances and the locating holes on the drain cocks.

10. The coupler mounting plate can now be bent up to 90°. This should be used to fit the couplings of your choice, but depending upon personal preferences, you may opt to omit the mount and devise one of your own. The coupler pocket may be further re-worked and adapted according to the individual whim of the builder.
11. Fold up the leading (36) and trailing bogie frames (37), reinforcing the folds with neat solder fillets.
12. Clip the wheelsets in place. Using the bearings supplied, add these to the outside of the bogie frames, directly over the axle centres.
13. Cap the bearings with etched lids (38) which represent the roller bearing axlebox covers nicely. Note that whilst few compromises have been necessary during the design of these NGG16 Garratt kits, I have found it obligatory to dispense with the front bogie leaf springs and to remount the rear bogie 1mm further back in to order to impart the adequate sideplay necessary for anything resembling reliable operation. You do prefer your models to go round corners, I presume?
14. Both bogies mount to their respective pivots via 12BA screws.
15. This completes the front power unit chassis which is identical to the rear unit apart from the addition of the hinged fall plate (39) which locates as per the diagram.
16. A piece of 045mm brass wire cut to the same width as the fall plate should be fixed to the top of the running plate, flush with its rear edge, and the half etched hinge flaps of the fall plate can be easily wrapped round this and tucked snug against the plate's bottom face. The fall plate eventually spans the gap between the front power unit and the loco's main running plate when the units are pivotted together.