



## LCP10 Chassis Pack for Fowler LMS 2P 4-4-0

Components recommended to construct a complete chassis:  
4 off Markits scale 6"9" wheels (WH214)  
2 axles  
4 crankpins and washers (RM1)  
2 sets 14mm bogie wheels (WH33)  
Canon CA1620 motor and gearbox GB8/15

The frame etch contains sideframes, 00 spacers, brake shoes and brake pull rods to produce a basic chassis of the correct scale dimensions and appearance which can be used as a substitute for a kit or RTR chassis. The coupling rods, in nickel silver, are provided on a separate etch. We recommend the Canon CA1620 motor with our gearbox GB8/15 for this model, and can supply these together with Markits driving wheels if required. EM spacers are available separately, code LS10, as are P4 spacers, code LS60.

As supplied the frames are suitable for the Hornby (ex-Dapol) model.

Please note that all bends should be made with the half-etch to the inside and reinforced with a fillet of solder.

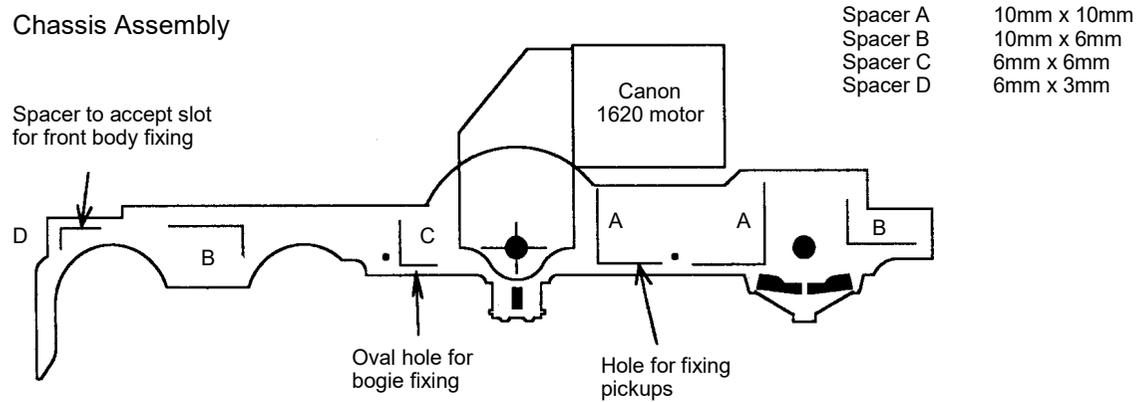
### Assembly Instructions

1. Although designed primarily as a rigid chassis, compensation systems such as Perseverance, MJT or Sharman Wheels can easily be used if the hornways are cut out at the half etched lines before starting assembly.
2. Carefully open out the axle bearing holes in the frames until the bearings are a close fit, ensuring the bearing flanges fit snugly against the frames. This is best done using a five sided broach. If you are using our chassis jigs (see below), DO NOT solder the bearings in place at this stage. Open out the holes for the brake cross-shafts to 0.75mm.
3. Select the appropriate frame spacers - the size and position of them will depend upon the siting of the body fixings and your preferred motor/gearbox and pick-up arrangements. Our own preferences are, where possible, for a tongue and slot fixing at the front buffer beam and a single bolt fixing under the cab, together with wiper pick-ups mounted below the chassis. A suitable layout of spacers is shown to suit this and our gearbox GB8/15 and Canon CA1620 motor.
4. The frame spacers fold to right angles on the half etched line. Solder your chosen ones to one of the frames, then assemble by clamping the other side frame to the first using the wheelsets to check alignment before soldering the second side frame. This crucial stage of the assembly can be achieved more easily and with greater accuracy by using our frame assembly jigs (code LS16 for 00, code LS17 for EM and code LS61 for P4). Full instructions are provided with them.
5. With the frames assembled, solder lengths of 0.7mm wire through the brake hanger holes, then thread on and solder the brake shoes in place. Alignment of them is made easier if something of suitable thickness is used to space out the brake shoe from the frame, with a wheelset fitted to ensure correct spacing relative to the wheel treads.
6. Lengths of 0.7mm wire are next threaded through the bottom brake hanger holes on one side of the chassis, through both sets of brake pull rods (ensuring that they are the correct way round) and then through the second set of brake hangers. Solder the wire to the brake hangers, then slide the pull rods outwards to line up with the inner edges of the frames and solder them to the wire.
7. Solder the coupling rod overlays to the plain inner rods. This operation is simplified if the crankpin holes are first drilled (1.2mm for Markits crankpins), and the backing rod tinned along its length. Both the backing rod and the overlay can now be threaded onto the drill which will keep one end in alignment whilst the other is squared up and the rods soldered together (see sketch). Finally, solder on fixing nuts for the bogie and pick-ups.
8. We suggest you assemble the bogie at this stage (see separate pack for instructions) at which point all parts can be washed to remove flux residues before proceeding further. Before painting, we suggest that you fit the wheels and check the fit of the body. You may find some slight filing is

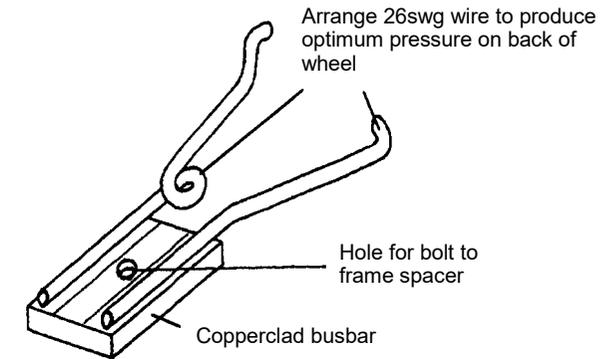
required to obtain a perfect fit. If using Markits wheels you will need to use a paper washer between the coupling rod and the crankpin washer to prevent the rods being soldered to the crankpins

Our preference is for wiper pick-ups made from 26swg phosphor bronze wire as per the sketch. The wire is soldered to PCB strip which is bolted to a frame spacer. We recommend that, if possible, you arrange the pick-up to be "bolt on" since this allows for easy removal and adjustment of the wire wipers. Pack LS23 provides all the parts.

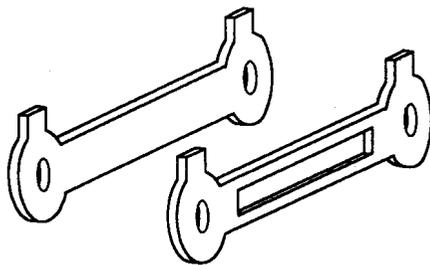
### Chassis Assembly



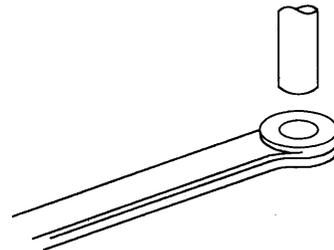
### Suggested pickup arrangement



### Coupling Rod Assembly



Solder overlay to back rod



Use the shank of the drill you have drilled the holes with to hold the rods in line while you solder them together.

We can supply a pickup set comprising wide track printed circuit strip, phosphor bronze wire, fixing nuts and bolts and insulated wire, code LS23.

For tender locos a second pickup set can be used in the tender and the current fed to the locomotive using our loco-tender connector pack, code LS24.