

## MT106H

### REPLACEMENT CHASSIS FOR THE HORNBY J52

This etched nickel-silver chassis kit is a direct replacement for Hornby's J52 mechanism. It can be built for 00, EM or P4, and can accommodate compensation or springing if required. Only minor modification is required to the Hornby body moulding to accept this chassis. The kit improves the appearance of the Hornby model by giving frames of the correct outline, with brake gear and other detail. It also allows the use of high-quality motors and transmission components to produce a superior performance to the Hornby original, with more power, better response (especially at low speed) and additional pick-ups.

As a direct replacement for the Hornby mechanism, this chassis incorporates the same deviations from the true prototype wheelbase as the Hornby original. To convert the Hornby J52 into an accurate scale model, we offer a scale chassis, MT106S.

Our suggested specification for mainstream applications uses Markits WH201C 18mm diameter driving wheels with a fold-up motor mount or gearbox on the leading or centre axle and a Mashima MHK1025 (for between frames mounting) or Canon CA1620 (above frame mounting) can motor. Gearboxes that have given good results include the basic MT162 single-stage unit with 50:1 Markits gears and the Comet GB8/15 50:1 two-stage unit. If compensation is required, our LS55 hornblocks can be used. Alan Gibson's G4855W wheel is a more accurate alternative for fine 00, EM and P4.

#### Tools and materials

To build this chassis kit we recommend the following:

**Aids:** A firm, flat surface to work on - a small piece of plastic-faced chipboard or MDF sheet is ideal. Blu-Tak or similar putty adhesive is useful for holding things in place while they are aligned or soldered together, while a pad of damp tissue or kitchen towel makes a good cooling agent if things get a little too warm. A length of 1/8" diameter steel rod is useful for aligning the frames during assembly (or use one of our Comet assembly jigs), and a cocktail stick for aligning captive nuts.

**General tools:** A pair of snipe-nosed or flat-jaw pliers; Swiss files (a square and

a half-round are the most generally useful); a heavy craft knife (Stanley No. 199 or similar); a steel rule; a small engineer's square; a scribe or darning-needle; a tapered reamer or broach covering 3-5mm diameters; and a pin vice with a selection of small drills (0.3, 0.7, 0.9, 1.0, 1.2 and 1.5mm cover most needs).

**Soldering:** A small instrument soldering iron such as the Model CS 18W or XS 25W by Antex; 145° or 188° wire solder; Fry's Powerflow paste flux or a liquid flux.

**Construction sequence** (refer to sketch overleaf for location of parts)

#### 1) Preparing the frames

Remove the frames from the fret, taking care to avoid distortion. This is best achieved by supporting the fret on a firm, flat surface and cutting through the attachment nibs with a Stanley knife. Any residual nib can be filed off, working along the part rather than across it. If you do have to file across the part, clamp it firmly in a vice to avoid distortion. Lastly, push out the bolt heads for the guard irons with a scribe or darning needle held in the pin-vice.

If you are intending to compensate or spring your chassis, you will need to cut out some or all of the centres from the hornblock openings in the chassis to suit. Refer to the instructions supplied with these components, cutting out the hornblock openings with a piercing saw and a fine blade.

Now select, cut out and clean up the B, C, D and E frame spacers from the 00 or EM/P4 spacer frets provided. The 00 spacers give an over frames width of 12mm; the width is 15mm for EM/P4. Check the fit of the tabs in the slots in the frames, slightly filing down the tabs if required.

#### 2) Fitting the bearings

Offer up the axle bearings to the frames. These should require the holes in the frames to be eased very slightly, ideally with a taper reamer or broach. If the correct tool is not available, you can use a small three-sided scraper or the tapered tang of a 6" flat file as a substitute. Do not try to file the holes to size as that will almost certainly affect the accuracy of the chassis/rod alignment. The bearings should ideally make a fine push fit into the frames. Those on the non-motored axles are best soldered in place, but (especially in 00) those on the driven axle will either need to be shortened to allow clearance for a gearbox or motor mount, or be left loose so that they can be entered through the frames and into the mount when this is installed.

#### 3) Assembling the frames

To ensure that the frames are assembled level and square, build them on a flat surface. Start by soldering the front (B) spacer in place on one frame and the rear (E) one on the other, taking care to seat the spacers fully home against the inside of the frames.

Soldering alternately in this way helps to avoid excessive heat build up in any one frame and hence potential distortion when the chassis is assembled.

Now locate the tabs on the spacers in the slots of the opposing frames. Do not bother with the other two spacers yet - it is easier to spring these in place later. Secure the frames to the flat surface with Blu-Tak - upside down is best. Now insert the length of 1/8" diameter steel rod through the centre axle bearings and use the square to check that it is at 90° to the frames. Also use the steel rule to check that the frames are straight. Adjust the frames if needed, holding them in place with Blu-Tak. Once you are happy that the chassis is true and square, tack solder the spacers to the frames at their unattached ends. Carry out a further alignment check, and if all is well finish the soldered joints.

The (C) and (D) spacers can now be added. The two M2 nuts from the LS23 pack should first be soldered above the pick-up block mounting holes on the (D) spacer. A cocktail stick 'screwed' through the nuts will help to locate them and prevent solder entering the threads. The spacers are located by gently springing the frames apart and entering the tabs into the relevant slots; they can then be soldered in place. Now add the brake hanger pivots from the 0.7mm wire provided; note the arrangement for these to clear the motor mounting position. You may prefer to fit all six pivots in this way. Finally, the guard-irons can be formed to shape.

Many modellers prefer to paint and weather the chassis at this stage. A thorough wash in hot water with scouring cream will remove dirt and flux, and the chassis can be primed and sprayed matt black using car aerosols. Leave the paint to harden for several days before continuing assembly.

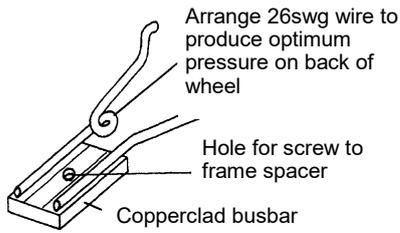
#### 4) Assembling the coupling rods

Even if the chassis is being built rigid, we suggest that you retain the two-section overlapping rods as provided; these give easier running and a much freer sideplay action on curves. Each rod section is made up of two layers of nickel silver soldered together as in the sketch; the rods are arranged in the correct sequence on the fret, with the overlay section of each rod being positioned immediately below the section it overlays. If you cut out and assemble the rods one section at a time, it will help avoid any confusion. Likewise, keeping the assembled rods for each side of the chassis separate will ensure they all finish up in the right place! When soldering the layers of each rod together, cocktail sticks forced through the crankpin holes will help maintain alignment and keep solder out of the holes. It is best to file off any attachment nibs etc. after the rods are assembled.

#### 5) Motor, gears and wheels; pick-ups.

The mounting sequence for these will obviously vary according to the intended specification. The assembly and mounting of gearboxes should be as detailed in their instructions. The LS23

pick-up pack should be assembled according to the sketch below (shown upside down), and screwed to the nuts previously attached to spacer (D).



### 6) Brake gear

Etched brake gear is provided. Each brake assembly consists of one hanger and one shoe overlay - the other shoe is a spare to cover "droppage". A short piece of 0.7mm wire through the holes in shoe and hanger will both align the parts and represent the pivot pin. Apply flux to the hanger and shoe, and with a small quantity of solder on the bit, touch the soldering iron to the edge of the shoe on the wheel side. The solder will run in by capillary action. Locate the hangers on the pivots and secure them with a drop of solder. Bend the pivots with fine snipe-nosed pliers to get accurate alignment and wheel clearance. Lastly, add the cross-shafts at the lower ends of the brake hangers from 0.7mm wire, not forgetting to locate the pull-rods inside the wheels - ensure they do not foul the pick-ups!. If you encounter a problem here, you may wish to omit the pull-rods.

### 7) Body mounting

Firstly, trim away the two vertical moulded ribs inside the rear of the Hornby bunker rear/bufferbeam until they finish level with the cab floor. Now fold up the etched body mount as shown in

the sketch - all the half-etched lines are to the inside of the folds. Solder the 8BA nut provided over the body mount securing hole in the base of the mount, using a cocktail stick for location and solder control as previously described.

Finally, push the mount up into the bunker of the Hornby body, locating it between the remainder of the moulded ribs and the cab rear, with the tongue at the front of the mount locating into the recess on the cab floor. The mount should be a tight fit, but a little contact adhesive such as UHU or Bostik 1 will ensure it stays in place. The body is mounted by locating the hooks on the top of the chassis front into the cut-outs in the Hornby smokebox front, and by the 8BA screw up into the etched mount at the rear.

A little weight (100 - 150 g) in the saddle tank of the Hornby body will greatly aid traction and power pick-up.

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