Brassmasters Scale Models

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Detailing Kit for Hornby A3 Locomotive and Tender

Instructions

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1 Introduction

1.1 The detailing kit was designed as part of the Brassmasters Easichas frames for the Hornby A3 locomotive. The Easichas concept, which was devised by John Brighton, is to allow easy conversion of ready to run locos to EM or P4 gauge, which results in a fully sprung locomotive and tender. Furthermore, the basic Easichas conversion can be completed without the need to solder any of the main components together, although a way has not been found to attach the valve gear return crank without soldering. It was realised that the detailing etch within these kits is just a suitable for those modellers wishing to enhance the model without converting to EM or P4.

1.2 There are a number of options in the detailing kit. These are, working from the front:

- buffer spring castings
- replacement front footsteps
- overlays for the main frames in front of the cylinders with bogie wheel splashers, etc.
- German type smoke deflectors
- return crank bearing cover
- replacement reach rod and brackets
- brake hanger brackets
- footplate support brackets
- replacement damper operating linkage
- replacement tender guard irons

2 General Notes

2.1 Numbers shown in square brackets [ ] in the instructions refer to the etch (D for the Detail etch) and part numbers, e.g., [D2] is part 2 on the Detail etch. The part number appears on the separate etch diagrams. Certain parts, e.g. bolts, wire, springs, are not numbered.

2.2 Some of the parts are small and easily damaged, so do please take care. Parts should be removed from the sheets as and when needed by use of a small scalpel etc., and the tabs and etch cusp removed with a small fine-cut file.

2.3 All folds and bends are made with the half-etched line on the inside unless otherwise stated.

2.4 On some parts it is necessary to emboss rivet / bolt heads from the reverse sides by use of a punch.

2.5 There are half etched test rivet holes on the back of the etch edging strip. Use these to get used to forming uniform rivets.

3 Dismantling the locomotive

3.1 The valve spindle guides fitted to the front and rear of the Hornby cylinders are very delicate and susceptible to being damaged. It is advised that the cylinders are removed and put in a safe place whilst work is being carried out. Take care when handling and working on the body.

3.2 Bag and label all small parts and source of screws **as soon as removed** (they are all different) - trust us on this one!

3.3 The chassis has a ‘tongue’ at the rear end and a screw at the front. To remove the body from the chassis undo the large screw above the bogie. Push the chassis forward in the body to disengage the tongue and then withdraw the chassis leading end first. Put the body to one side. Keep the screw for future use.

4 Front chassis overlays

4.1 Emboss the rivets in the two front chassis overlays [D1 and D2].

4.2 Curve two of the bogie wheel splashers [D3] to match the radius of curve above the bogie wheel. NOTE: the two should be of opposite hands. The angled corner should be to the outside and towards the front of the loco. IMPORTANT, the method of chassis removal for the Hornby chassis requires it to slide forward releasing the rear tongue. If the wheel splashers remain full length they restrict this forward motion (the cylinders hit the splashers), so it is it is necessary to file back the rear of the splashers level with the bracket that has the bolt pushed through on the front frames. In addition reduce the length of the locating 'tongue' on the Hornby chassis (above the Cartazzi truck) to 1mm with a file. Solder the splashers into position. This is not shown on the photo below. The alternative would be to introduce a new method of rear chassis fixing but this has not been investigated.

4.3 If required for your period, push through the rivet detail in the frame guard irons [D4 and D5] (they were removed in late BR days). Test fit to the front chassis overlays to the Hornby chassis and body and test fit the frame guard irons [D4 and D5] with the 'notch' over the rear of the slightly thick Hornby bufferbeam. Mark the position, remove and solder in place. Bend to shape (there is a good head on photo in Yeadon Vol1) See Photo of the completed right hand frame overlay with vertical frame guard irons fitted – see 7.2.7 below

4.4 Make sure the etch cusps are removed from each side of the thin arms of the buffer spring housings [D6 and D7].

4.5 Cut two pieces of 3/32" tube to a length of 3.7mm and chamfer both ends so that they locate in the recesses in the buffer spring housings [D6 and D7].

4.6 Score a line along the base of the triangle piece to aid bending later (see 7.2.8)

4.7 Fold up the two buffer spring housings [D6 and D7] by first bending the ends (with half etches to locate the tube). Solder the tube in place using a cocktail stick to aid holding and centring, then bend the small piece at the end over at 90 degrees. Fold the two side arms at 90 degrees and solder ends.

4.8 Cut two short lengths of 1.0 mm diameter wire. Insert the wire through the buffer washer [D8] and the smaller hole in the end of the buffer spring housings ensuring that the wire does not protrude into the tube. Trim the wire to length. Solder together (see photo of the finished assemblies).

Ensure that the larger hole in the end of the buffer spring housing and tube pass over the inner end of the Hornby buffer – open up if necessary with an appropriate size drill. Do not attach to the chassis overlays at this stage.

4.9 Bend the triangular extended edge through 45 degrees then curve the end to follow the curve in the buffer beam (see second photo above)

4.10 Place the frame overlays into position each side of the plastic front frames. With the frame overlays now in place carefully align the buffer spring housings with the back of the Hornby buffer shank and check that the buffers are free to move. Do not fix them in place at this stage. See photo.

5 Replacement front footsteps

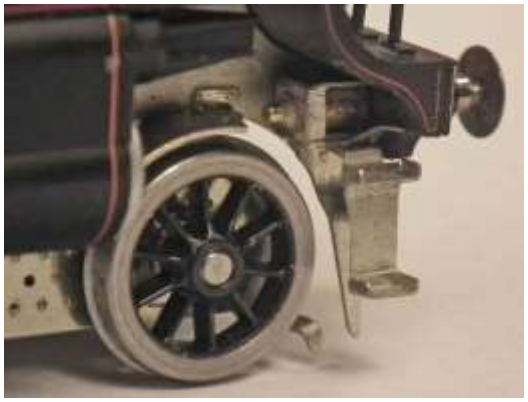
5.1 The Hornby model has the front footsteps glued below the front footplate. These are very delicate and are liable to be broken off and lost. They are also not how the footsteps were fitted on the prototype as they were attached to the frames just below the buffer spring housings.

5.2 To fit the steps, the buffer spring housings must have been fabricated as above.

5.3 Emboss the two rivets on each footstep [D9 and D10]. Solder the upper steps [D11] into the slot in the buffer and with a good pair of pliers bend up the edges along the edge to form the upturns. Repeat for the lower steps [D12]. Once assembled the edge of the steps may be thinned on the outside edge if required.

5.4 Bend the top over along the half etched line to 90 degrees.

5.5 Bend the step supports as shown in photo left, making the bends at the end of the half etched section and at the small hole in the half etched section. Solder to the base of the footsteps. See photo right.



5.6 Solder the footsteps to the underside of the buffer spring housings and fix the complete assembly in place on the front frames with epoxy glue. If front steps are fitted additional handrails 0.33 hard wire may need to be fitted to the front footplate of the Hornby body from as not all models have these.

6 Footplate support brackets

6.1 There are two footplate support brackets each side of the loco, one behind the driving wheels and one on the Cartazzi truck frame.

6.2 Fold up the larger bracket [D13 and D14] by first folding the small outer section back on itself with the fold line towards the outside of the bend, and then bending at 90 degrees at the second bend line with the bend line to the inside of the bend. See Photo left.

6.3 Attach the brackets in the slot at the rear of the mainframe sides so that the half-etch is to the front and the right angled piece is also towards the front. See photo right.

6.4 Fold the smaller bracket [D15 and D16] to 90 degrees along the slots with the bolt detail on the inside of the bend and fit to the Cartazzi truck frame immediately in front of the moulded spring hanger in-line with the rivets and with the riveted flange towards the front of the loco (see photo above). Fix using cyanoacrylate or preferably epoxy resin (the plastic is difficult to fix to and fixing is helped by scoring the plastic).

7 Brake hanger brackets

7.1 If there is sufficient clearance, attach the brake hanger brackets [D17] to the top of the brake hangers on the leading and middle wheels only. The 'point' faces downwards.

8 Replacement reach rod

8.1 Remove the original reach rod from the Hornby body.

8.2 Select the appropriate reach rod for the locomotive you are modelling ([D18] for Doncaster built locos, [D19] for Darlington built locos)

8.3 Attach the reach rod joint [D20] to the front of the reach rod [D18] or [D19] taking into account whether the loco is left hand or right hand drive. The joint plate is arranged with the end with two prongs towards the rear and the other end just covering the half etched spot on the reach rod. Note that early locos had no joint plate. Trial fit and then attach the reach rod to the underside of the footplate using cyanoacrylate into the slots provided in the Hornby body, (minor filing may be required).

8.4 Fold up the reach rod safety loop [D21] using a piece of scrap etch to push the loop into the guide [D22]. Bend over the two legs and trim to length and attach mid way between the centre and rear driving wheels (there is a depression in the Hornby body indicating the position). The photo shows an early reach rod with no joint plate fitted to the Hornby body.

9 Speedo drive

9.1 Late in their career some locos were fitted with BR speedo equipment. See photo. A casting for the speedo drive is available separately from Brassmasters if required for the period modelled. The support bracket is provided as part of the detailing kit.

9.2 Bend up the speedo bracket [D23]. Attach to the loco body behind the reach rod using cyanoacrylate or epoxy resin referring to prototype photos

9.3 Attach the speedo casting (available separately) to the speedo bracket and, if necessary, bend the outer end of the speedo so that it is directly over the centre of the rear driving wheel.

10 Replacement damper linkage

10.1 Remove the Hornby damper linkage from below the cab

10.2 For a simple replacement attach the replacement damper linkage, [D24] for right hand drive locos or [D25] for left hand drive locos, using cyanoacrylate or epoxy resin

10.3 For a more detailed replacement, solder together the two parts of the damper bracket [D26].

10.4 Depending on whether the loco is right hand drive or left hand drive, attach the damper bracket to the appropriate damper linkage using a piece of 0.45mm wire through the hole in the two parts, with the longer leg of the bracket towards the front of the loco. Attach the assembly to the Hornby body using cyanoacrylate or epoxy resin.

10.5 Parts are supplied to form the opposite side damper brackets. However, as no representation of the firebox is provided by Hornby on which to mount the brackets, the modeller will need to make suitable sides from plastikard etc.

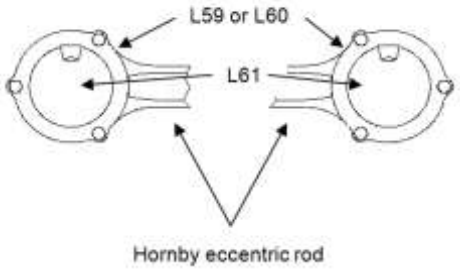
10.6 Solder together the two parts of the opposite side damper bracket ([D26] and [D27] for right hand drive locos, [D26] and [D28] for left hand drive locos) with a piece of 0.45mm wire through the hole. Trim to length.

10.7 Attach the bracket to the opposite firebox side in the same position as the damper linkage bracket, again with the longer leg of the bracket towards the front of the loco, using cyanoacrylate or epoxy resin. Note that extreme care will be required from now onwards when replacing the chassis as the rear footplate support brackets foul the damper linkage and so have to be 'fed' through during assembly.

11 Return crank bearing cover

11.1 There are two types of return crank bearing back depending on whether it is covering the Hornby rivet or a replacement valve gear rivet. For Hornby use the one with the larger hole [D29] and for the replacement valve gear rivet use the one with the smaller hole [D30].

11.2 Emboss the bolt heads on the return crank bearing backs. Solder the return crank bearing fronts [D31] onto the appropriate return crank bearing backs. They are assembled with the raised section on the bearing front towards the top and the rivet pattern, on the first bearing back, with a single bolt on the left hand side and, on the second, with a single bolt being on the right hand side (see Diagram 4).



11.3 Reduce the thickness of the rivets connecting the eccentric rods to the return cranks.

11.4 Attach the bearings to the front of the eccentric rod over the top of the rivet connecting it to the return crank. Ensure that the rivet is still free to rotate.

Diagram 4 – Return crank bearings

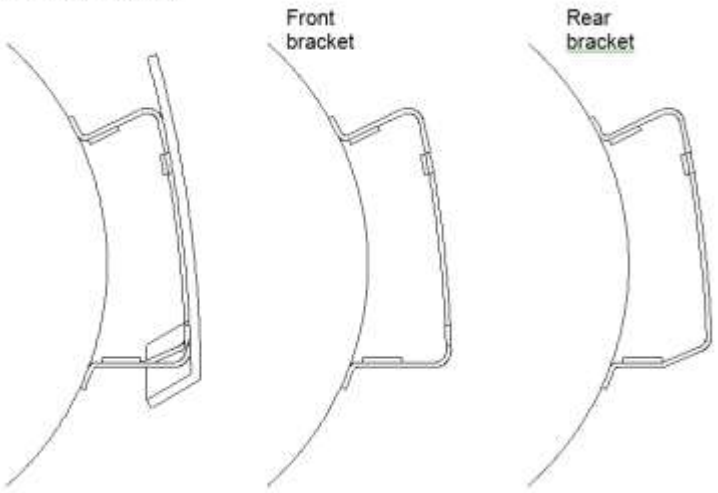
12 German type smoke deflectors

12.1 Form 2 rivets in each of the smoke deflector frames [D32 and D33] where the frames cross.

12.2 Open up the 4 holes in each of the smoke deflector frames [D32 and D33], and the smoke deflectors [D35 and D36] to clear 0.3 mm wire

12.3 Fold up the smoke deflector frames as shown in diagram 5. The top bend should be about 1mm above the horizontal bar of the bracket.

Diagram 5 – smoke deflectors



12.4 The bend line on the smoke deflectors is indicated by a nib on the front and rear edge of the deflector. Hold the deflector in a vice or bending bars, using the smoke deflector bending spacer [D34] to space out the deflector on the half etched side, with the nibs level with the top of the vice/bending bars. Bend over to the required angle. When satisfied, file off the nibs.

12.5 Curve the rest of the deflector to shape.

12.6 Solder the left hand smoke deflector frame [D32] to the left hand smoke deflector [D35] using the 0.3 mm holes for alignment. Repeat for the right hand frame [D33] and the right hand smoke deflector [D36].

12.7 Bend up four pieces 0.3 mm wire to form the hand rails and fit to the smoke deflectors.

12.8 Attach the smoke deflectors to the Hornby smoke box as shown in Diagram 5 and the photograph using cyanoacrylate or epoxy resin, so that the handrails on the deflector are in line with those on the locomotive.

13 AWS protection plate

13.1 Locos fitted with BR AWS equipment had a plate mounted under the front buffer beam to protect the AWS receiver mounted on the front bogie frame.

13.2 If required, push through the rivets on AWS protection plate [D37]

13.3 Fold over the top section at 90 degrees and run solder in the bend lines. Then curve in the opposite direction as shown in Diagram 6. The actual angle of the plate varied according to how much damage it had taken!

Diagram 6 - AWS protection plate

13.4 Fit centrally to the extreme bottom of the front buffer beam using cyanoacrylate referring to photos.

14 **Tender guard irons**

14.1 Emboss the rivets on the tender guard irons [D38 and D39]

14.2 Attach guard irons to the inside face of the Hornby side frames using cyanoacrylate or epoxy resin. These are almost impossible to see but photo shows the shape of the prototype (covered in grease & fluff!)

Etched Component List

D1	Front chassis overlay left	D20	Reach rod joint
D2	Front chassis overlay right	D21	Reach rod safety loop
D3	Bogie wheel splasher (2)	D22	Reach rod safety loop jig
D4	Frame guard iron left	D23	Speedo bracket
D5	Frame guard iron right	D24	Damper linkage (right hand drive)
D6	Buffer spring housing left	D25	Damper bracket (left hand drive)
D7	Buffer spring housing right	D26	Damper bracket (3)
D8	Buffer washer (2)	D27	Damper bracket (right hand drive) (1)
D9	Footstep left	D28	Damper bracket (left hand drive) (1)
D10	Footstep right	D29	Return crank bearing back large hole (2)
D11	Upper steps (2)	D30	Return crank bearing back small hole (2)
D12	Lower steps (2)	D31	Return crank bearing front (2)
D13	Large footplate support bracket left	D32	Smoke deflector frame left
D14	Large footplate support bracket right	D33	Smoke deflector frame right
D15	Small footplate support bracket left	D34	Smoke deflector folding spacer
D16	Small footplate support bracket right	D35	Smoke deflector left
D17	Brake hanger bracket (4)	D36	Smoke deflector right
D18	Reach rod (Doncaster type)	D37	AWS protection plate
D19	Reach rod (Darlington type)	D38	Tender guard iron left
		D39	Tender guard iron right

Other Components List

0.30 mm brass wire	1.0 mm brass wire
0.45 mm brass wire	3/32” brass tube

Loco Detail Etch