

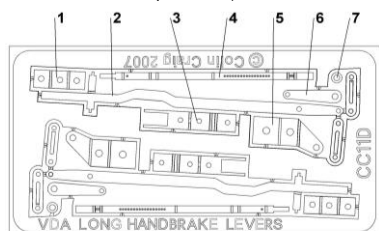
## Etched VDA Long Handbrake Levers CC11D

### Safety warning.

**This kit is suitable for adults only. There are small and/or sharp components. The tools and materials recommended also require the care in handling; protection for the eyes and face (dust mask) must be applied when cutting, soldering, or using a mini-drill.**

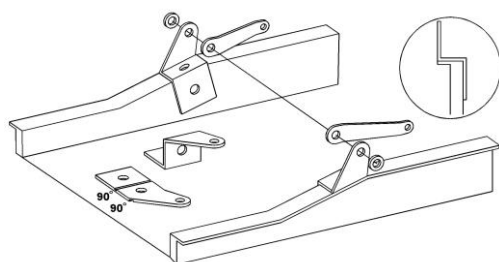
The etched sheets are in 0.25mm brass to achieve a fine level of whilst maintaining an acceptable level of robustness. These levers are also suitable for conversions of the VDA under-frames to other variants such as OTA, RRA, and ZCA. The 0.7mm wire (not supplied) is used for the main X shaft, the long pins for the main lever pivots, and the short pins for the drop links. The levers are only suitable for a scale representation of the under-frame – eg. A.M.E. or scratchbuilt. For the Bachmann VDA, an additional 0.25-0.35mm packing (plastic shim - not supplied) is required behind the main pivot spacer.

### Etched Sheet Components (Two halves mirrored)



1. Main pivot spacer
2. lever and drop links
3. Main pivot bracket
4. Peg bar
5. X shaft bracket
6. X shaft lever
7. X shaft bearing

**All folds to be made are either 90° with the etched fold line on the INSIDE, or 180° with the etched fold lines on the OUTSIDE.**



### Assembly.

Remove the 2 X shaft brackets (Item 5) from the etched sheet and fold as shown. The two brackets are mirror image. Secure to the rear and lower faces of the solebars as shown, with the under-frame inverted. The outer faces should be made to line up with the outer edge of the solebar, and if necessary place pieces of thin packing behind the solebar to achieve this. It is not a problem if the bracket is slightly inboard from the edge. Epoxy is the preferred adhesive, as a good fillet can be applied. Refer to the drawing on the pack which shows the position; the edge of the brackets towards the centre of the vehicle aligns with end of the ramp to maximum depth of the solebar centres. Leave to cure, and commence preparation of the main levers:-

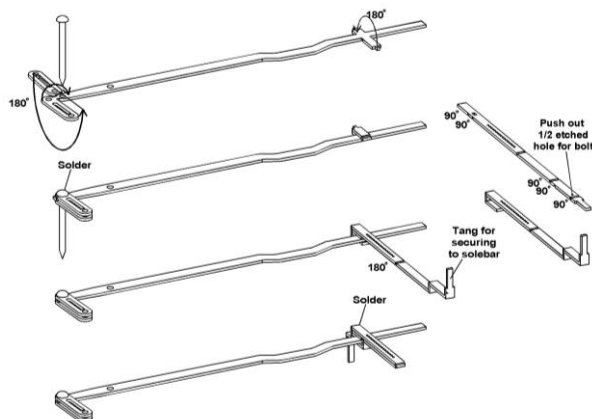
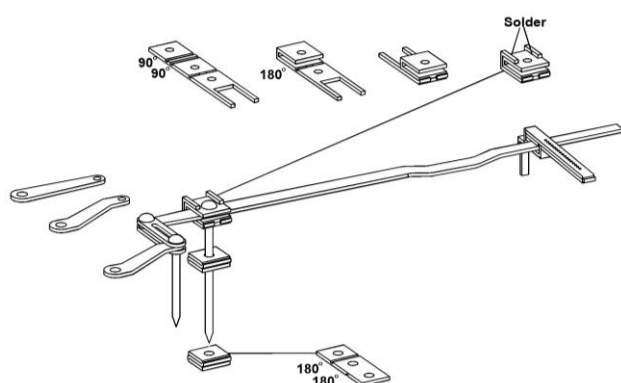
Carefully remove the two levers, complete with drop links (item 2). Fold (180°) the drop links into position as shown, and fold back the location tab (180°) for the peg bar (4) on the **outer** face of the lever. Align the drop links, insert a small brass pin from the **outer** face, and solder sparingly in position from the back. You may wish to first reduce the size of the pin heads in a mini drill using a fine needle file. Cut off the surplus pin at the rear of the drop links, and carefully file off the fold tabs on the drop links.

Remove the peg bars (Item 4) from the etched sheet. Press out the bolt head on each bar representing the top fixing points. Fold the top of the bar to form a channel and fold the other end of the bar as shown in the diagram. Locate on the main lever (this may be a tight fit on the peg) and complete by folding the rear laminate behind the main lever. Laminate solder while holding firmly and square to the main levers. Carefully remove the protruding peg residue on the top face of the bar. The rear facing tang will provide the fixing point for the peg bar/ lever end.

Remove the X shaft levers (Item 6) from the etched sheet. Joggle these by an approx. 1mm offset as shown. Position between the drop links and insert a small brass pin. Hold in position on the solebar and insert the length of 0.7mm wire for the main X shaft, through the brackets with the X shaft lever on the inside. Carefully align and mark the positions of the main lever pivot, and the tang to secure the top of the peg bar on the solebar. Remove the lever assembly / X shaft, and drill two 0.6mm holes through the solebar in these positions. Repeat for the lever on the other side of the wagon. The drawing on the front of the pack shows the format for the two sides.

Remove the Main pivot brackets and spacers (Items 3 and 1) from the etched sheet. Fold up as shown. The final folds on the lever brackets are the reinforcement ribs, which should be soldered sparingly to complete the task. Fit the brackets over the levers from the upper edge and insert a large brass pin to hold in position. Slide the spacer on to the pin and position the lever assembly (minus the X shaft lever) on the solebar, securing with epoxy. Repeat for the other side of the wagon. When set, cut off the surplus main pivot pins, on the inside of the solebars.

Fit the Main X shaft with the two Levers inside the brackets. Line up the levers with the drop links and insert the small brass pins. Solder sparingly from the rear to secure. Snip off the surplus lengths of pin behind the drop links. Fit the X shaft bearings outside the brackets and secure with epoxy. When set, complete the assembly by cutting off the excess length of X shaft and filing the ends flush with the outside face of the bearings. One final touch you can add is to joggle the outer 3-4mm end of the handles by an approx. 1mm offset to help avoid your shunter barking his knuckles.



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