N Gauge Society Kit 53
GWR / BR GANE.A / BORAIL.F

DW40076 at Exeter Riverside 26/07/1982 © Paul Bartlett

Complete kit contains laser cut wooden plates, one-piece plastic bogies, etched brass details, wheels, couplings and transfers

To complete this kit you will need: adhesive, paint, varnish and transfers

No Soldering Required

Getting Started

First, read the instructions thoroughly all the way through and be sure you are confident that you have identified all the parts. It is recommended that you adhere to the suggested order of assembly, though with experience, you may choose to deviate.

General Notes On Construction

Naturally, the N Gauge Society wants you to achieve the best results you can. These simple guidelines should help:

- Read the instructions through fully before you begin
- Use a sharp knife to separate the parts from the plates
- Use wet 'n' dry sandpaper to clean off any stubs on the wooden parts where they were joined to the plates
- Some or all of the wagon may be best painted before assembly
- Check fit before gluing
- Use PVA glue or balsa cement for wooden parts, and cyano (superglue) for etches
- Photographs of the prototypes will help you

But above all .... TAKE YOUR TIME!!

The N Gauge Society is indebted to **Paul Bartlett** for permission to use his photograph – check out his web site **http://paulbartlett.zenfolio.com/** *'Paul Bartlett wagon photographs'* for more GANE.A images!

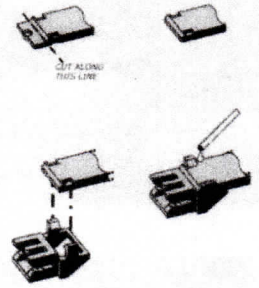
Great Western Wagons Appendix by Jim Russell is another good source for photos.

The Prototype

The GWR built a number of these 62ft over headstocks bogie bolster wagons as part of the large family of similar vehicles given the telegraphic code 'Macaw'. The trussing design had much in common with the later rebuild of the Macaw C (Borail C). These particular wagons were coded Macaw J, though as they were built around the Second World War, they more generally received the later code of Borail F. They were a versatile wagon for carrying medium sized long loads such as pipes and timbers.

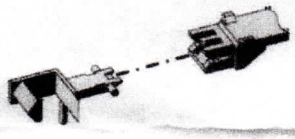
Although designed for revenue earning traffic, the design is perhaps best known as the GANE A rail carrier, and it is for this reason that it was 62ft in length, as the standard length of a piece of rail at the time was 60ft. The main detail differences are around the brakes – the short handled Dean Churchward (DC) brake or the long lever brake. Although a GWR design, British Railways continued to build GANE.A wagons for carrying rail and many lasted into the 1980s.

Assembling The Bogies



This kit is supplied with the Society's own one-piece injection moulded bogies. To assemble, cut off the end of the bogie coupler bar as shown in the upper diagram. Clip on the NEM socket and reinforce the joint with a very small amount of glue (middle diagram). Then clip in the coupler of choice (lower diagram). Rapido couplers are supplied, but others such as Dapol couplings will fit. Now add the wheels to the bogies, and test run. If they bind try squeezing the bogie side frames and rotating the wheels; alternatively if the wheel sets feel a little loose then remove, squeeze the frames gently, and replace. If you wish to fit Microtrains couplers it is recommended they are mounted on the body, shimming if necessary to ensure the height is consistent with other rolling stock.

Construction



Only a few basic tools are required – a sharp craft knife, wet 'n' dry sandpaper, tweezers (preferably fine point), pliers, wire cutters and a small drill (with a selection of drill bits). Most glues can be used to join the parts such as balsa cement, PVA, superglue and two part epoxy.

1. Fit the solebar sides (part 2) to the deck (part 1) – the tabs on the deck are a push fit into the slots on the sides, but if they are a bit tight then carefully tap them on with a small jeweller's hammer (see **Diagram A**). Note that the solebar sides are handed; make sure that they fit flush with the both ends of the deck, and that the slots are at the top and the thin etched line is at the bottom. Brush some PVA glue along the upper and lower joints to secure the parts (top tip – dip the brush in water first, as this very slightly dilutes the PVA which will make it flow better). Make sure that the sides are a right angles to the deck and do not bow in or out.

2. The bottom 'lip' of the solebar is an etched line. As solebars were made from U-section steel, one enhancement is to glue a strip of .010" x .020" (0.3mm x 0.5mm) plastic strip (not included) to the bottom of the solebar to represent this.

3. Test fit the chassis (part 3) under the deck (see **Diagram B**) – it should fit between the solebar sides without causing them to bow out. If it is a tight fit, gently sand both sides of the chassis equally until it fits.

4. Assemble the supports for the bogies onto the chassis. The locations under the chassis are denoted by a circle at each end. Place the chassis on a flat surface with the circles up. The supports are a lamination of parts 4, 5 and 6 (see **Diagram B**). Each of these parts and the chassis have a 1mm hole in them – use a piece of 1mm wire or the shank of a 1mm drill bit to hold all the parts in line on the chassis while you apply some glue, then gently remove the 1mm guide without disturbing the parts. When the glue is dry, test the chassis on the bogies to make sure that it runs well.

5. If the chassis has a slight bend to it, tape the ends to a flat surface to hold it flat while the tabs of the inner trusses (part 7) are glued into the slots down the centre of the chassis, and leave overnight for the glue to fully set (see **Diagram B**).

6. Glue the chassis under the deck between the solebar sides (see **Diagram B**), making sure that the ends of the chassis are flush with the ends of the deck. A couple of clothes pegs at the ends are useful to clamp the two subassemblies while the glue sets (if you need to clamp the middle, be careful not to damage the trusses or the

solebar sides).

7. Glue a curb rail (part 9) to each side so that it is flush with the top of the solebar sides (see **Diagram C**).

8. Open out the guide holes in the ends (part 10) to 0.75mm to take the spigot on the brass buffers and glue the ends to the end of the model (see **Diagram C**).

9. The brass buffers can be fitted by either using the holes in the ends to carefully drill into the chassis to accommodate the spigot on the buffers, or by using a pair of cutters to trim the spigot back so that the base of the buffer shank fits flush onto the end.

10. Fit the pin pockets (part 12) to the outside of the curb rail (see **Diagram C**) with the etched lines orientated vertically. The eight positions per side are etched on the curb rail, and as these are very tiny parts (there are plenty of spares on the plate!), they could be omitted without detracting from the finished model. An alternative would be to use 1.5mm wide half round plastic strip, since these pockets were actually a half round shape.

11. Before removing the bolsters (part 13) from the plate, draw a pencil line down the side in line with the stubs that hold the bolsters to the plate. After removing the bolsters from the plate, continue the pencil line over the top and use this as a guide for where to drill 0.5mm holes for the bolster pins. Make sure that you drill the holes as straight as possible – there is one spare bolster just in case! As you see the bolsters on the plate, you are looking at them side on, so make sure that when the are fitted to the model, they are the right way up – they should protrude slightly above the curb rail.

12. Glue six bolsters (part 13) to the deck, they should align with the pin pockets on the curb rail (see **Diagram C**). There are actually ten pin pockets on the wagon – on the prototype, the bolsters and pins were moveable to assist with correctly supporting and spreading the load, so decide where you want to attach the bolsters (Diagram C shows a typical arrangement, though it appears from photographs that a bolster was always positioned above the centreline of the bogie pivot).

13. When the glue has dried for the bolsters, use the 0.5mm holes in them as a guide to drill through the deck and chassis, then feed a track pin up through the chassis, deck and bolster, securing it underneath with glue. The track pins are a notional 0.5mm but may be fractionally wider – do not force them, if necessary, widen the hole with a 0.55mm drill. Alternatively, to avoid drilling through the deck and chassis, cut the heads off the track pins and glue them into the tops of the bolsters.

14. When the glue for the pins has dried, use a wire cutter to trim the height of the pins to be 5mm above the top of the bolster. Note that this can leave the tops of the pins to be a little sharp, so clean them with a file if necessary.

15. An alternative method for fitting the pins is as follows, to model the wagon with the pins on the outside of the bolsters for wider loads. Before fitting the bolsters, use a file or a slitting disk in a mini-drill to cut a groove in the ends of the bolsters that will take the track pins. When the bolsters have been glued in place, cut the heads off the track pins and carefully glue them between the end of the bolster and the inside of the curb rail. Then use a wire cutter to trim the height of the pins to be 5mm above the top of the bolster.

16. Glue the outer trusses (part 8) into the slots down the outside of the chassis (see **Diagram D**).

17. Decide whether you are fitting the long lever brake (**Diagram F**) or the DC brake (**Diagram G**) to your model. Use a sharp knife on a hard surface to carefully cut the required parts from the brass etch.

18. The long lever brake requires two of the long V-hangers (part 18) while the DC brake requires four of the short V-hangers (part 15). Note the half etch between the 'V' and the rectangle on both types - hold the 'V' part in a pair of pliers so that the half etch is exposed and gently bend the rectangle towards the half etch until it is at ninety degrees to the etch (see **Diagram E**).

19. Turn the model upside down and glue the V-hangers to the underside of the trusses so that the 'V' is flush with the solebar. The positions are indicated in **Diagram F** (long lever brake) or **Diagram G**.

20. The long lever brake also requires two inner V-hangers (part 17) which are placed on the inner face of the centre trusses opposite the outer V-hanger (see **Diagram F**).

21. For the DC brake, carefully cut four brake handles (part 16) from the brass etch (there are several spares). Trim the half etch tails off the top and bottom, then fold the top of the handle towards the half etch at the top of the circle so that it goes flat on top of the circle (see **Diagram H**). Glue the brake handles to the V-hangers at 45 degrees – the circular part of the handle always points towards the centre in each case.

22. For the long lever brake, carefully cut two brake handles (part 19) from the brass etch (there is one spare). Note the half etch line on the rear at the top – this allows the top to be folded back at 90 degrees to make a pin that can be inserted into a 0.33mm hole drilled into the solebar. The long end of the brake lever should touch the bottom of the V-hanger, use this to determine where to drill the hole.

23. After painting, transfers and varnish, place the bogies on to the bogie supports under the chassis and secure them in place by gluing on the retainers (part 14) which also have a 1mm hole in them – use a piece of 1mm wire or the shank of a 1mm drill bit to centre the retainers on the bogie support while you apply some glue, then gently remove the 1mm guide without disturbing the retainers.

24. As the model is made from wood, it may be a little light, however, there is room underneath the chassis to add a little ballast if necessary but be careful that it does not sit proud of the bottom of the solebar or it will show when the model is viewed from eye level.

Painting And Transfers

Many a beautifully built model has been ruined by a bad day in the paint shop! The secret to a good finish is in preparation and planning ahead.

25. The Macaw J / Borail F was a revenue wagon, therefore the GWR painted them their 'freight grey' colour all over (including the bogies). The GANE.A was an engineering wagon, therefore the GWR painted them black all over. BR continued to paint GANE.A wagons black all over although in later life, other colours may have been used such as olive green and gulf red (check photographs to be sure). The deck and bolsters may have been left as plain timber, or at least creosoted ('sleeper grime' colours are a good representation of this). Suitable paints are available from all the major model railway paint manufacturers.

26. The bogies are best painted separately before the wheels are added. Even black bogies for a GANE.A will benefit from a coat of black paint to remove the 'plastic' finish.

27. The main body of the wagon is best primed with a light grey colour aerosol primer such as the ones sold for car body repairs – this will seal the wooden parts and prime the metal parts. Always remember with aerosols that several light coats are much better than one thick coat. Wear a mask and use them in a well ventilated area.

28. Where the transfers go on the curb rail, it is advisable to prepare the painted surface with a gloss finish as this will accept transfers more easily and the carrier will not show as much. Use a gloss varnish or 'Klear floor polish'.

29. Cut round the transfers using a sharp knife and a steel ruler – always cut with the ruler over the transfer to avoid damaging it.

30. Using tweezers, dip the transfer into tap water for about three seconds then lay on a flat surface. After about a minute use the tip of a cocktail stick to check that the transfers will move free of the backing paper - if not, return to the water and repeat this step.

31. Once the transfer moves, place it on the model and use the tip of the cocktail stick to hold one end to the model while pulling the backing sheet away with tweezers. There should be time to make a few adjustments as necessary.

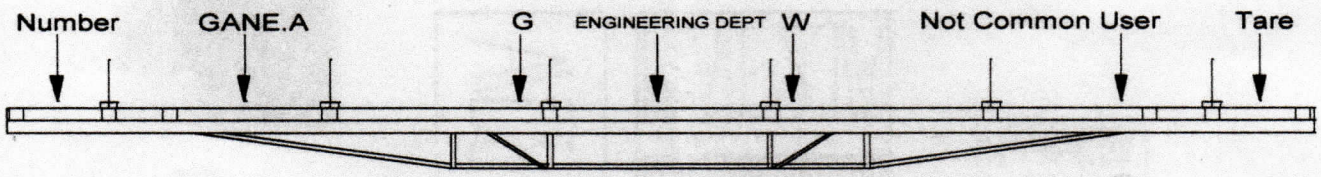
32. Mop up any excess water with a cocktail stick. If the surface is uneven you can press the decal down by rolling the end of a cotton bud over it.

33. Leave overnight before applying a coat of matt varnish to seal the transfers to the model.

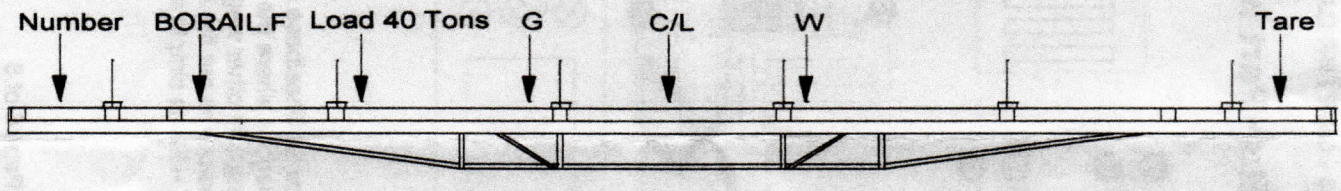
*Visit **www.ngaugesociety.com** for more information on applying decals and also BR wagon liveries.*

34. For the GWR version of the GANE.A, apply the red stripe first of all, all round the middle of the curb rail (both the sides and ends).

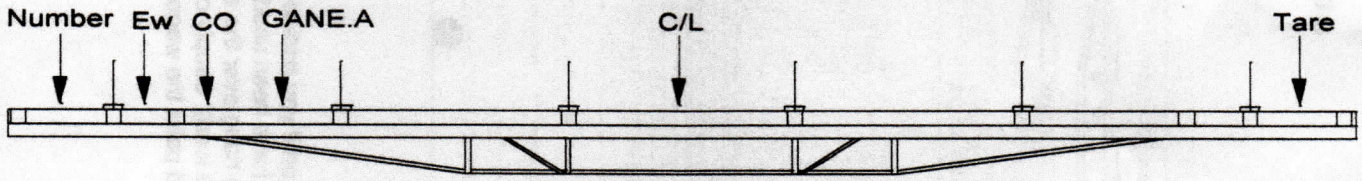
35. The following is the typical placing of the transfers for the GWR GANE.A. The 'Not Common User' transfer consists of '*Return To*' curved above '*GWR*' with '*Not Common User*' curved below it.



36. The following is the typical placement for the GWR BORAIL.F. 'C/L' is the 'centre line' transfer that consists of a C with a vertical line through it. There are white and red versions of this but the GWR used the red version.

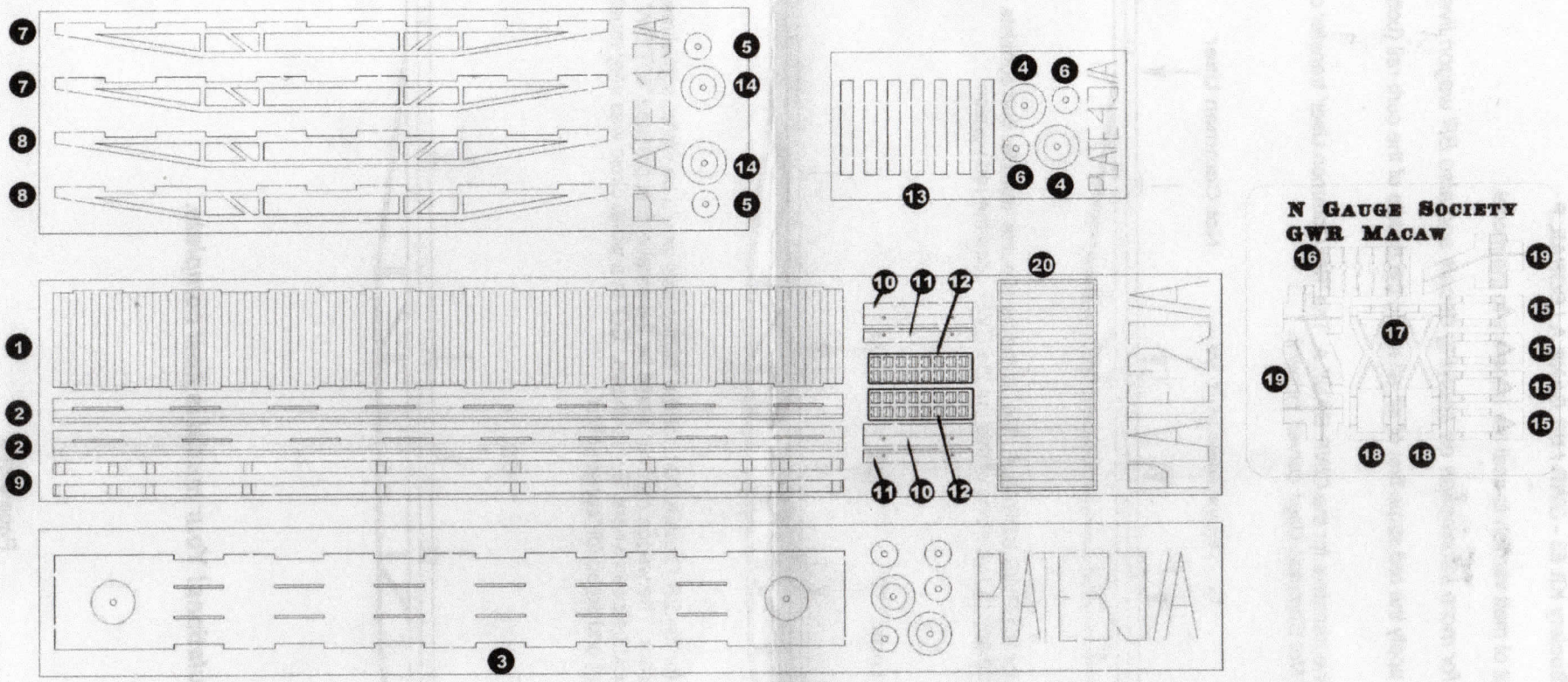


37. The following is the typical placement for the BR Gane.A. 'C/L for the 'centre line' would be white, sometimes on a black panel if the livery was not itself black. The wagon number would be the smaller font prefixed '40T DW'. From the late 1970s, the TOPS code of YLO would be seen where 'Ew' is shown. 'CO' in a white circle was very much a GWR sign (still in use despite nationalisation!) and stood for 'construction'.



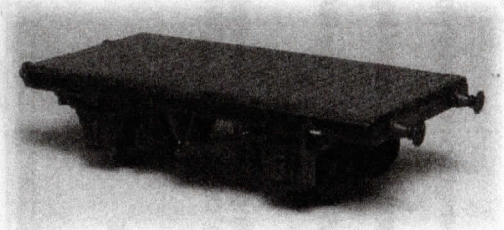
Congratulations! Your model is now complete.

Plate and Etch Part Numbers



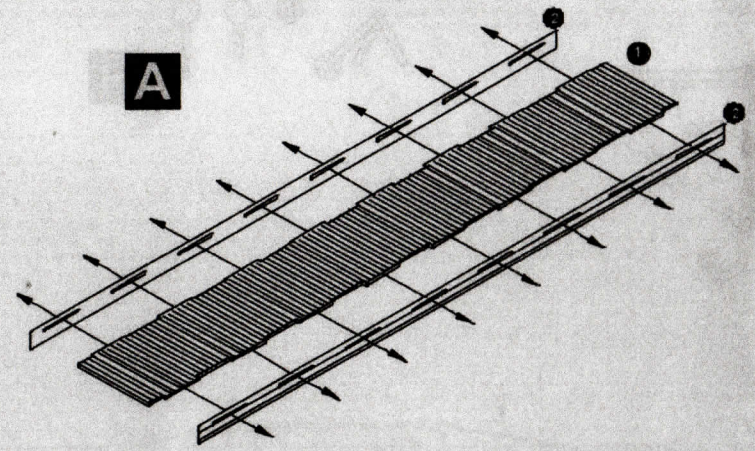
Bonus Wagon

Part 20 allows you to make another wagon if you additionally purchase a Peco 9ft wheelbase steel type chassis kit. This is a match wagon, which would have been used with bogie bolster wagons where the load was too long even for the bolster wagon, allowing it to hang over the ends without interfering with other wagons (usually one match wagon at each end to balance the load). Simply construct the Peco chassis as per the instructions, then glue part 20 to the top of the chassis and paint the wagon GWR 'freight grey' – it's as simple as that!

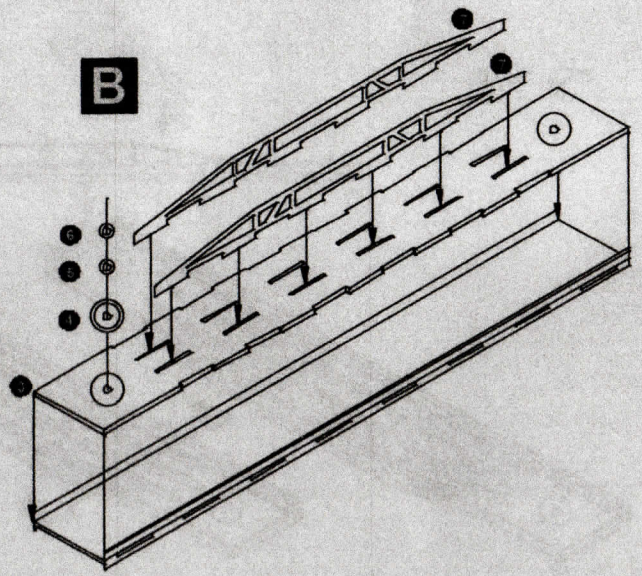


Diagrams - Construction

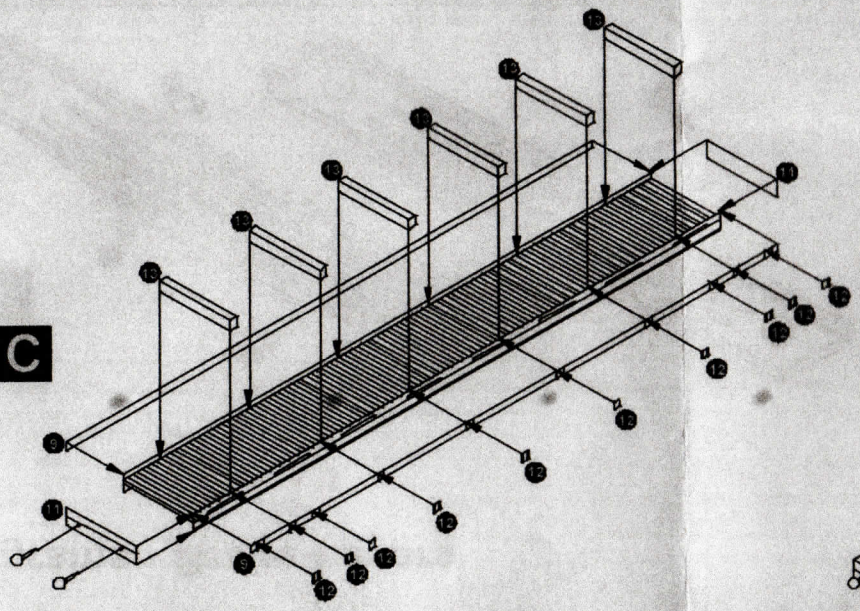
A



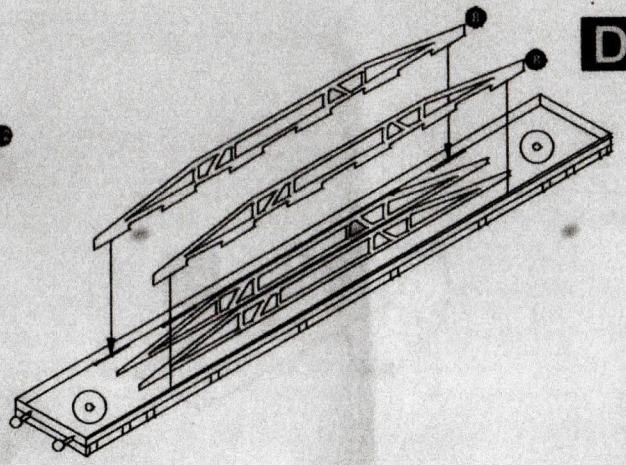
B



C

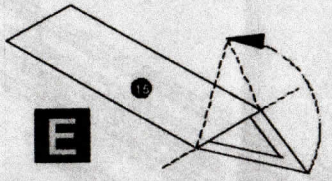


D

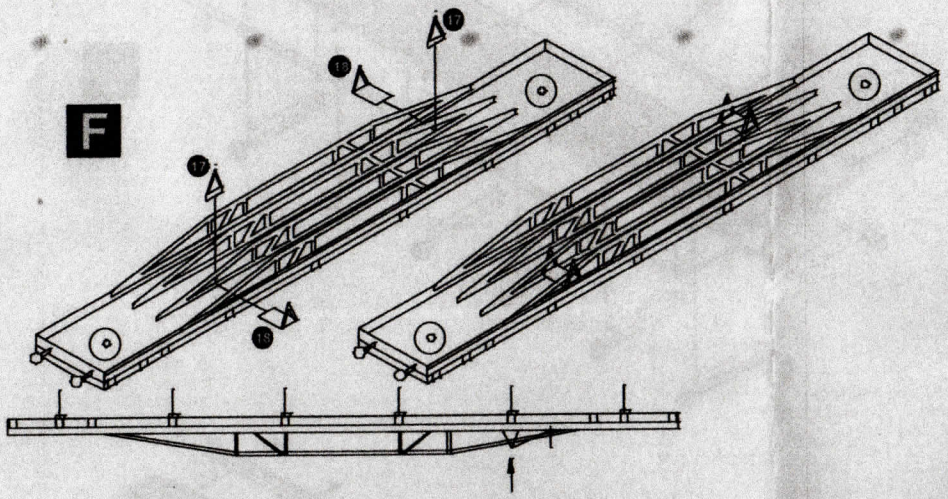


Diagrams - Brake Levers

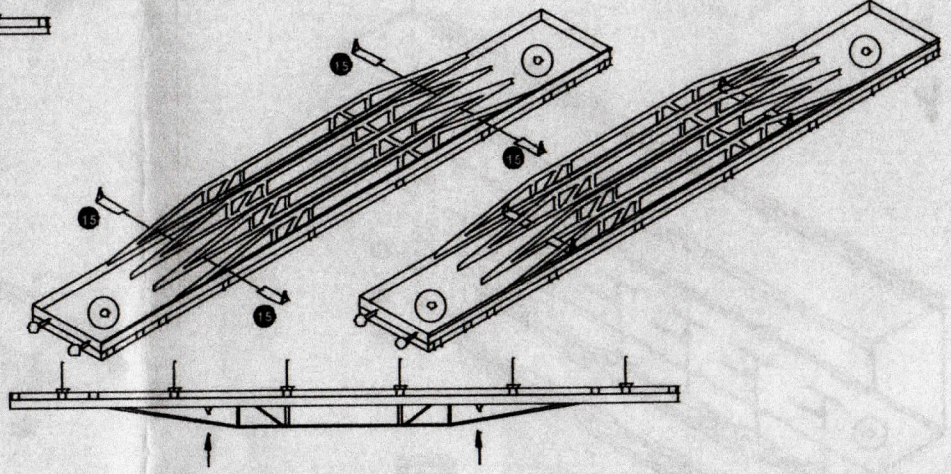
E



F



G



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