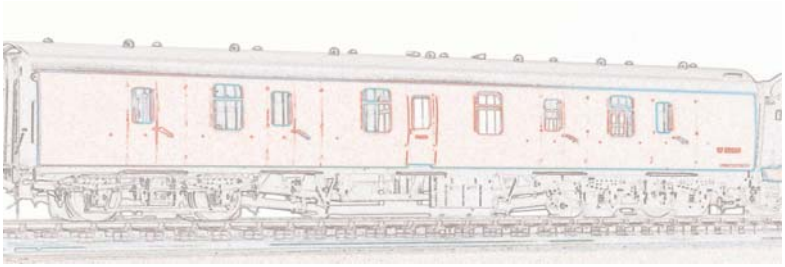
version1 Aug 2019

"EASY-BUILD" BR Mk1 CARFLAT ASSEMBLY INSTRUCTIONS.



THIS KIT CONTAINS SMALL PARTS THAT MAKE IT UNSUITABLE FOR UNSUPERVISED CHILDREN. SAFETY FIRST! IN ORDER TO CONSTRUCT THIS MODEL YOU WILL BE USING VOLATILE SOLVENTS, ALWAYS FOLLOW THE MANUFACTURERS INSTRUCTIONS AND ENSURE ADEQUATE VENTILATION. YOU WILL ALSO REQUIRE SHARP TOOLS AND THE EDGES OF THE ETCHED PARTS CAN BE VERY SHARP SO TAKE CARE WHEN HANDLING. PLEASE READ THESE INSTRUCTIONS FULLY BEFORE PROCEEDING WITH ASSEMBLY AS MORE THAN ONE ORDER OF CONSTRUCTION MAY BE USED.

KIT PACKING CHECKLIST

1) Floor Molding x1
2) Etched Brass Sub-Floor x1
3) Molded Bufferbeams x2
4) Bogie kit x1
5) Castings And Details Pack
6) Underframe Truss Mouldings
7) ABS Angle Extrusions
8) Styrene 1mm x 1.5mm section x1
9) Wire (0.7mm)
10) Etched Fret Of Detail Components
11) Laser-cut Styrene Decking x2

INTRODUCTION

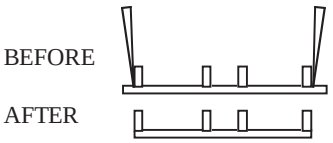
In order to get the most from your kit we recommend you read these instructions in full prior to commencing construction making notes as to any assembly options, or changes to the suggested order you think would suit your method of building better. However, we suggest you do adhere to the order of construction as we know it works! We only recommend solvents suitable for ABS plastics such as Carrs Plastic Weld, or EMA Plastic Weld, Two-part epoxy resins and impact adhesives are suitable for fixing the larger metal parts. To assist you in producing an accurate model, essential dimensions and measurements can be found at the end of the instructions.

1) Let's get started by inspecting the components supplied, there's no point getting involved in construction only to find a damaged part. Start with the large moulded parts (floor and bogie stretchers) checking for severe warping and/or twisting. The floor section will have a degree of bow along its length

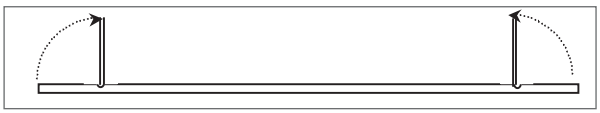
due to the production process, but you should be able to flatten out the bow without any real effort. Whilst we take great care to weed out sub-standard parts prior to packing, some still slip through occasionally, so remember that any severely misshaped parts will be promptly replaced upon return to Easy-Build. Once you're satisfied with the contents, wash all the plastic components with a household detergent to remove oils and contaminants left from the manufacturing process. Now…

THE FLOOR

2) The first thing to do is remove the outer edges of the floor molding, this is best achieved by laying the molding top down onto a cutting mat and running a knife down the face of the upright solebar as shown right. Sand the cut edges smooth.



Note: you may have to return to this shortly…



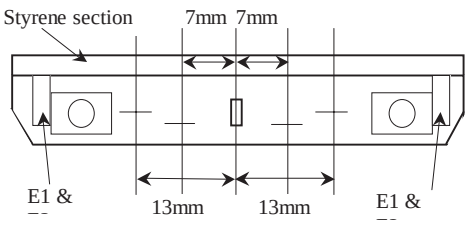
3) Take the etched brass sub-floor and trim off any sharp edges of the tabs used during the etching process and make smooth. Fold up the edges to form the solebars along the half-etched line on the underside of the etch. If you haven't got long folding bars simply clamp the sheet between two pieces of wood and use a third piece to fold the edges to 90^{o} to form a long low channel section.

4) Take you previously modified molded floor and test-fit inside the brass channel you've just made. Ideally it should be snug fit, not tight as that will cause the folded edges of the brass to splay out and the top to curve up at the outer edges - we know because it happened to us! However, try not to make it a sloppy fit either.

5) Check the length of the molded floor against the length of the folded edges of the brass sub-floor, they should be the same length, if the molded floor is a little too long, trim back until is does not protrude beyond the etched sides of the sub-floor

6) Secure the molded floor to the underside of the sub-floor ensuring the molded floor is aligned accurately with the ends of the upright sides of the etched sub-floor. We recommend two-part epoxy resin for this applied to the brass and then press the molded floor into place. Covering the whole area with adhesive is not necessary, but ensure even coverage along the whole floor. Clamp down gently to a flat surface until the adhesive has cured.

7) Clean up the bufferbeam moldings including opening up the coupling slot and drill four 1mm dia. holes as shown right, the outer holes centred on the coupling hook slot and the inner pair aligned with the bottom of the slot, these are for the air, vac and steam heating fittings, but don't fit them yet.



8) Cut two lengths of 1mm x 1.5mm styrene to the length of the top of the bufferbeam and affix to the top of the bufferbeam ensuring the widest dimension of the section is laid onto the molding and the front faces are flush. Sand flat both front and back as required. See above.

9) Remove the four Angle Brackets (E3) and Fillets (E15) from the etched details fret and smooth the edges. Fold the angle bracket (E3) to 90^{o} (bending towards the half etch) and affix the fillet into the central groove. Soldering is recommended, but superglue could also be used. Clean up any

excess solder/glue and attach to the bufferbeam butted up to the outside of the buffer stock mounting (the rectangle) and level with the top of the bufferbeam as shown above. NOTE: NOT level with the added styrene section.

10) Affix the bufferbeams to the ends of the molded floor ensuring the bufferbeam is located centrally, is stood upright and is sat firmly on the brass sub-floor. Solvent can be used for this. The bufferbeam is wider than the brass sub-floor.

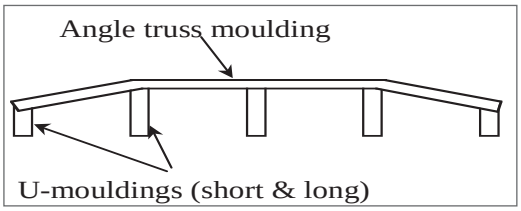
11) Take the two laser-cut styrene decking panels and look at the pattern of the planks. You will notice that at one end the plank is wider than all of the others, this wider plank goes to the outer end. Mark the centre of the brass sub-floor to show where the two panels will meet. Now glue the panels back to back to the sub-floor ensuring the panels are kept parallel. We recommend two-part epoxy resin for this. Clamp the floor down to a flat surface until the adhesive has set.

12) Trim the edges of the decking panels flush with the edges and ends of the brass sub-floor and sand smooth. Also, sand the top of the decking to remove the ridges left after the cutting of the plank detail. Finally sanding across the width of the floor will give the decking planks a grain effect.

13) Remove the U-shaped (2x short and 3x long) and 'T' section mouldings (4x short and 6x long) from the sprue, cleaning off any flash as necessary. The 'U' shaped moulding are in fact slightly too tall and should be shortened by approx. 2.0mm at this stage.

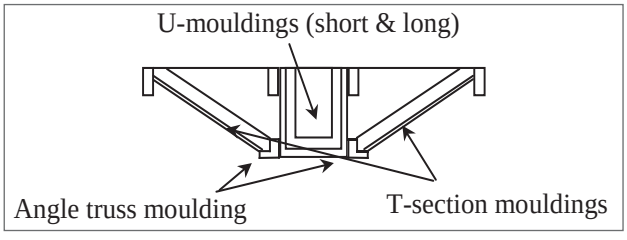
14) Lay the floor assembly upside down and, using the locating 'dots' on the floor surface, affix 5 of the 'U' moldings to the floor between the raised centre ribs in the order of 1 short, 3 tall, 1 short ensuring they are stood vertically and at right angles to the molded ribs. Allow joints to fully harden before continuing.

15) Cut 2 lengths of angle truss moulding 209mm and make a notch in one side of the angle 53mm from each end - a simple cut with a junior hacksaw will create a sufficiently wide notch for our needs. Check all measurements against your underframe before cutting.



16) Gently bend the ends of the trusses (closing the notches) to pre-form to shape. Attach the formed trusses to the outside edges of the centre 'U' shaped moldings with the notches aligned with the centres of the outer tall 'U' mouldings and the ends aligned with the edges of the short 'U' moldings. Allow the solvent to grab the centre 'U' mouldings before attaching the ends to the short 'U' mouldings as these may need bending a little more to achieve good alignment of the parts. The top of the angle should be level with the tops of the 'U' shaped mouldings.

17) With the angle trussing firmly in place affix the T-section mouldings as shown in the diagram (right) between the truss angle and inner face of the solebar. There are long and short T-section mouldings supplied, the short ones are fitted against the short U-shaped mouldings (closest to the bogies), the longer ones being fitted to the centre U-shaped mouldings. Some cutting/filing will be required to obtain a good fit.



18) To add additional rigidity to the floor we have included an etched rib that you could put in place now. Remove part E27 and smooth off the burrs and fold it along the half-etched line until it will

slide between the U-shaped mouldings glued to the floor. Fix in position with epoxy resin centrally down the length of the floor. See right.

19) Locate the two aluminium bogie mounting turnings and prepare them by scoring their upper surface (the upper surface has a spigot that locates in the hole in the floor). Treat the mounting areas likewise. Using a strong adhesive affix the two bogie mountings in their respective holes.

***TIP - Bogies present quite a load to their mountings mainly due to the ease by which they get knocked and twisted when the model is off the tracks, it is therefore necessary to select an adhesive capable of withstanding such shocks. Two part epoxy resins are more suitable than superglues, which can be quite brittle.*

20) Trim the ends of the bufferbeams level with the outside faces of the brass sub-floor and sand smooth.

FLOOR DETAILS

21) Clean up all the metal under-floor castings as required - vac brake cylinders (C3), DA valves (C1), Air Brake Manifold (C5), Air Tank (C4) and Air Brake Chambers (C2). Drill 0.7mm holes in vac cylinder centres for pull-rods and the air brake chambers for push-rods. Also any holes you need to fit any pipe-work you might want to install, extra wire for pipework is not supplied.

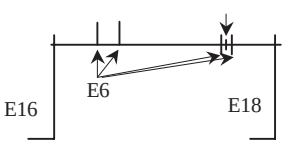
22) Before removing the following parts from the etch open up the holes as required as it's much easier to do whilst they're still on the fret. So 1.5mm for the brake pivot shaft holes in the brake hangers (E16, E18, E20), pivot levers (E6), brake handbrake levers (E17 &E21) and spacers (E1), 0.7mm in the centre of the brake adjusters (E4) and 0.5mm for all the small linkage holes.

23) Insert a short piece of 0.7mm brass rod into the centres of the vac brake cylinders (about 20mm protruding out of the cylinder is sufficient). To ensure the brake cylinder sits level once in position file back the mounting lug on one side only - the central ribs of the floor are taller than the outer (solebar) ribs. Check against the floor until the cylinder will sit squarely.

***TIP - Two part epoxy resins are more suitable than superglues since they are less brittle. Good results have been obtained using impact adhesives such as Evostick (the new Evostick Serious Glue has recently been recommended although we have not tried it ourselves). Whatever type of adhesive you choose remember to roughen-up the surfaces first to improve adhesive grip.*

24) Remove the brake V hangers (2x E16, E18, E20) from the fret, clean off the burrs and bend the bottom edge of each along the half etched line to form a right angle mounting foot.

25) Cut a brake lever pivot bar 40mm long from 1.6mm brass rod and affix to the outer brake hanger E18 so that the rod passes over the folded 'foot' - see right. The shaft should protrude about 0.5mm from the face of the brake hanger. Keep the rod square to the brake hanger in both directions.



TIP: Use the other brake hanger to support the opposite end during the fixing operation. BluTak is also very useful to hold things in place.

26) Thread four levers (E6) and one (E1) spacer onto the shaft in the order of: lever, spacer, lever, lever, lever, see above right. Now stand the assembly onto the floor with the fixed brake hanger

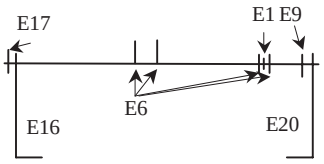
against the solebar with the brake shaft straddling the trusses and thread the other brake hanger (E16) onto the other end (foot facing the other solebar - see above). Ensure everything is square and attach brake hanger to brake shaft.

27) Remove the long handbrake lever (E9) from the etch fret and remove the burrs. Form to shape using the etched lines as guides to produce a joggle approximately 3mm wide - see right (not to scale). the bends are not sharp, but should look rounded.

28) Remove the handbrake lever outer bracket (E19) and smooth off the burrs. Press out the rivet detail with a small punch and then for into a joggle, but this time with sharp 90^{o} folds - see right.

29) Affix the formed E19 into the half etched pad in the bracket attached to the brake hanger E20 so that the holes align.

30) Now cut a brake lever pivot bar 66mm long from 1.6mm brass rod and affix to the outer brake hanger E20 so that, as before, the rod passes over the folded 'foot'. The shaft should protrude about 0.5mm from the face of the brake hanger. Keep the rod square to the brake hanger in both directions.



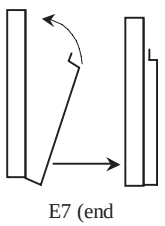
31) Now thread the long handbrake lever (E9) onto the shaft so that the joggle is towards the outside of the brake hanger then, as before, thread four levers (E6) and one spacer (E1) onto the shaft in the order of: lever, spacer, lever, lever, lever, see above right. Now stand the assembly onto the floor with the fixed brake hanger against the solebar with the brake shaft straddling the trusses and thread the other brake hanger (E16) onto the other end with the foot facing away from the solebar. In this case the brake hanger (E16) should be up against the solebar. So to be clear, both brake hangers are up against the inside faces of the solebars. The brake shaft will protrude quite a way beyong the brake hanger on this side. Ensure everything is square and attach brake hanger to brake shaft. See right and also image Handbrake linkage 2.jpg.

32) Attach the brake hanger assemblies to the floor with E18 to the outside - see underframe diagram for positions. Now thread the brake vac cylinder into place so that the outer mounting is inside the V of the hanger and to the left of the brake shaft, i.e. on the opposite side of the shaft to the bogie, secure in place. See image Brake Hanger.jpg

33) Attach the brake levers to either side of the brake cylinder pull-rod with a spacer sandwiched between the two levers keeping the levers approximately horizontal. Also secure the next brake lever on the shaft stood upright on the floor centre line. Keep the joggled long handbrake lever loose at this stage - protect from excess solder with paper slipped over the shaft. Leave the last lever loose for now too.

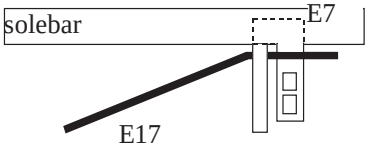
HANDBRAKE GEAR...

34) Remove the brake arm brackets (E7) from the fret and smooth the burrs. You will see the parts have half etched fold lines on both the front and back, so start by folding the longest line on the back to 90^{o}, now fold up the long leg to form a loop as shown right. Make all folds towards the half etch to get the correct shapes. Repeat for the second bracket. See images E7.jpg, E7 2.jpg & E7 3.jpg

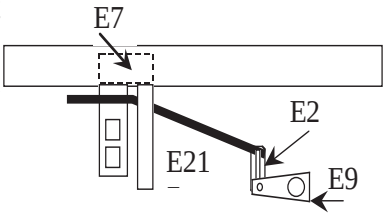


35) Remove handbrake lever arm E17 from the fret and smooth the burrs, now

slip it onto the brake shaft on the opposite side to the vac cylinder. Now slide the brake arm into the loop you've just created in the bracket and attach the bracket to the inside face of the solebar. The handbrake arm faces towards the bogie on this side. Test fit first to get the idea with positional dimensions on the underframe diagram. Make sure the bracket stands upright and affix to inside face of the solebar.



36) The handbrake lever arm on the other side is slightly different, but the idea is basically the same. You will need handbrake lever arm E21 and two brake linkages E2 removing from the fret and smoothing off. Ideally you need to keep the linkages able to move (at least at this stage), so that you can position the handbrake arm later more easily. Soldering the joints with tissue paper between the parts will prevent the joints becoming solid, but you must still work quickly! So, push a pin through the top hole in the brake linkage E2; next comes the handbrake lever arm, now press a couple of layers of tissue paper over the pin followed by the second brake linkage. Apply flux and dab on a small amount of solder. Remove the tissue paper, clip the pin off and clean up the excess solder and you should have a linkage that can still be moved - it doesn't matter if it's a bit tight, or loose for that matter.



37) Cut a short length of brake shaft material and make sure it will slide into the handbrake pivot hole. Insert the brake arm E21 into the pivot hanger so that the longest part of the arm is facing to the right and insert the short pivot just made.

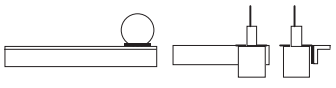
38) Insert the joggled brake lever between the two brake linkages and insert a pin from the rear into the bottom hole and through the lever, not forgetting the tissue paper between the lever and the front linkage. Secure with a dab of solder as before. See image E19 and E20.jpg

39) Slide the other brake arm bracket loop over the end of the handbrake lever and fix in place. Now you can secure the loose joints so that the handbrake lever arm is held at the top of the loop, i.e. in the brakes off position. See Handbrake linkage.jpg for position.

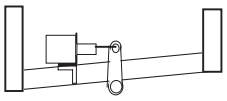
40) Cut two short lengths of the angle trussing molding to fit between the trusses already fitted, this should be a good fit.

41) Find the air brake chambers (C2) and drill a 0.7mm dia. hole into the end where the actuator arm sticks out (the thin end) and secure small pieces of wire into the holes to protrude about 5 to 6mm.

42) Affix the air chamber to the right hand side of the angle pieces such that the front of the body of the chamber is level with the edge of the angle and the outside edge of the angle is just clear of the outside edge of the chamber. See right.

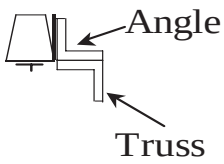


43) Affix the angle moldings between the angles on the floor such that the brake chambers are to the left of the centreline (when looking towards the adjacent bogie). So that means the brake chambers are situated above the brake shaft when the vehicle is the right way up. See right.



44) Affix the remaining brake lever to the air brake chamber shaft ensuring it is upright and then attach to the brake shaft.

45) Next you need to make two small brackets that we forgot to etch - sorry, but they're very easy to make. Take a small strip of scrap brass from the etch and make two L shaped brackets about 3mm x 3mm x 3mm. Attach the angle to the top of the trussing in the appropriate position (see the diagram the end of the instructions) then attach the DA valves so that the top is level with the top of the truss and stood vertical - remember the truss is sloping upwards at this point.



46) Assemble the end buffing plates (C9 3x parts each) by fitting the mountings to the two spigots ensuring they are kept parallel to the front face of the buffing plate.

47) Attach the assembled buffing plate centrally on the bufferbeam and level with the top of the bufferbeam molding NOT the styrene spacer. The top of the buffing plate should be level with the tops of the brass angle plates fitted earlier.

48) Fit the remaining castings in place using the diagram found towards the end of these instructions as reference.

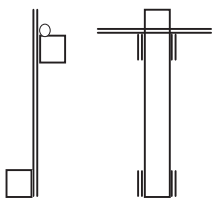
DETAILING THE DECK AREA...

49) Remove 8x End Door Supports (E8), 2x Lamp Irons (E12), 2x End Doors (E24) and 2x End Door Top Beading (E28) from the fret and smooth off the burrs. Attach the beading strips to the tops of the doors using the half etch for location ensuring the strip is aligned with the edges of the doors and the thickest part overhangs the outside face, i.e. the surface with the half etched details on. You will notice the half etched rebate causes the strip to overhang on the back face also, this is quite deliberate as an aide to assembly. Once the strips are in place file off the back of the strip flush with the back face of the door. See right.

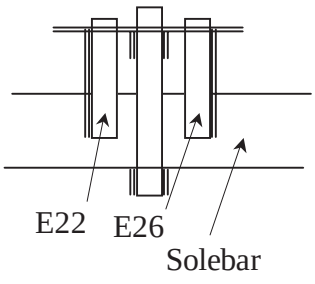
50) Next, fold the four small mountings (the hinge details) at the base of the doors to 90^{o} towards the back.

51) Form the End Door Supports into the form shown right (left). There are small half etched dimples where the parts need bending (3 on one side 1 on the other). Next fold the Lamp Irons in the same manner as shown right (right)

52) Affix the End door supports into the four half etched pads with the top of the support located into the pad, the bottom of the support should be about 0.5mm above the bottom of the door. Also affix the lamp iron into its pad on the left hand side of the door.

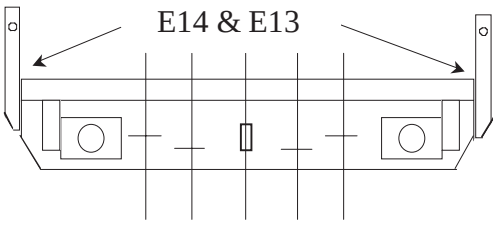


Since it is essential to get the handrails straight, we have created an etched jig to assist (E10 - two actually). To use this fold the tabs 90^{o} towards the etched fold lines and affix a short length the handrail wire (about 40mm) across the top. To use, simply press the jig against the solebar with the bottom tabs hard up against the underside. Now each handrail can be pressed gently against the underside of the wire to obtain the correct height.



53) Remove 2x End Door Quarter Pillar L/H (E13) and 2x End Door Quarter Pillar R/H (E14) from the fret, smooth off the burrs and form each part to an angle iron shape along the half etched line. Attach the angles to the solebars flush with the end of the bufferbeam with the angled edge to the bottom one on

each corner of the floor. The front face of the angle (the face with the small hole in) should face outwards, i.e. will be flush with the outside of the end door. Use the handrail jig to accurately position for height by inserting the wire into the holes in the quarter pillars. See right:



54) Test fit the end doors between the quarter pillers, and the attach the doors to the floor keeping everything flush and upright - there may well be a small gap between the doors and pillars, just equalise this each side.

55) Remove 4x End Door Catch (E23), smooth off the burrs and attach between the top of the door and the quarter pillars directly under the door beading. Make this a good solid joint as it plays an important role in the security of the end doors.

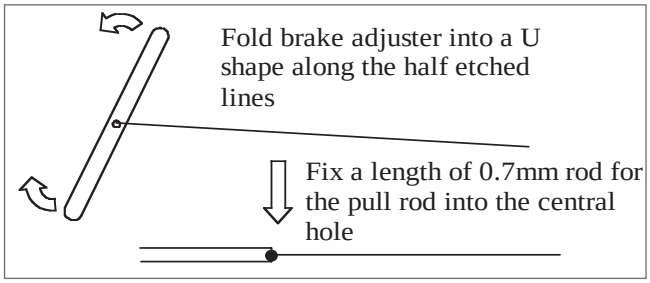
56) Remove and clean up 12 each Handrail Bracket L/H (E22) and Handrail Bracket R/H (E26) and form into angle irons using the half etched line as a guide. These are fitted to the solebar using the etched location marks as reference. Each side has six angles facing the same way as the end quarter pillars, which means the centre pair face each other in opposite directions. Again the angled edge is at the bottom. NOTE: the spacing for the handrail brackets is worked out from each end separately, so the six from the left space out from the left and the six from the right space out from the right. You might think that a bit odd, but for some reason it made perfect sense when I designed the etches! Using the jig helps to keep things aligned more easily.

57) With all the brackets in place, tread a length of 0.7mm wire through the holes in the end quarter pillars and affix to the top of the handrail bracket - trim off any excess and clean up solder/glue as required.

58) **Optional.** If you are creating a Motorail vehicle that requires a name board remove from the fret and smooth any burrs the Name Panel (E25) and fold back the mounting pins. Drill out the mounting holes in the centre of the solebar to accept the pins and test fit. We do not recommend fitting this until the painting has been done as it makes painting and masking easier without it there. Many of these vechicles were used in general service so dis not have the name panel, or it was removed at some point in time.

59) Remove and smooth off the Data Panel (E11), it wasn't clear from the few [clear] photographs available whether there is a data panel to the left end of both sides, or just on one side. We think it's most likely to be found on both sides so we've included two, if you know better tell us! Attach the panels centrally between the first two handrail brackets on the left end of the solebar with the bottom about half way up.

60) Remove from the fret 2x Brake Adjuster and smooth off the burrs. Insert a length of 0.7mm wire (about 50mm is enough) into the central hole and secure (solder is best for this) - see right. Now attach the the adjuster to the upright brake lever in the centre of the brake shaft keeping the pull-rod approximately horizontal with the rod pointing towards the adjacent bogie.



BUILDING THE BOGIES

61) Remove the bogie frame stretcher plate from the sprue and clean up the edges and square off as necessary.

62) Using a pin, add a tiny drop of oil, NOT WD 40, into each bearing. Push brass bearings into axle holes making sure they are an easy sliding fit, if necessary clean hole with a 2.5mm drill. Do not fix in position as adjustment is made later.

63) Place two axles in the bearings of one side frame and ensuring correct orientation of bogie frame stretcher plate i.e. reinforcing cross members down, assemble the side frame to the frame stretcher.

64) Once the first frame is reasonably firm assemble second side frame onto frame stretcher in the same manner. When the side frames are secure enough to hold themselves in place, make certain all is square and in line, minor adjustments can still be made at this stage by applying more solvent to soften the joints and adjusting as required. Note: wheels should be a loose fit in the bearings at this stage. Leave the bogie to set for at least 1 hour, 2 is better.

65.1) With the joints set hard we can now set the axle bearings:

65.2) Centralise the wheelset and insert a thin piece of card between each wheel and the side frame to prevent lateral movement.

***TIP - Do not over-pack the wheelsets as this might cause the sides to spring when you remove the card later resulting in stiff wheel movement.*

65.3) Push in the bearings from the outside until the bearings connect with the axle ends.

65.4) When satisfied that the bearings are (just) against the pinpoint ends fill the bearing hole with the 2.5mm sprue supplied, or microrod (not supplied) and fix with liquid solvent from the outside and leave to harden.

65.5) When set, remove spacing card and trim any excess rod flush with axle box face and fit the axlebox covers in place. Make sure the axlebox covers are fitted centrally and squarely over the axle.

66) Remove the bogie pivot mounting from the casting sprue and remove any flash. Test the bogie pivot bolt is an easy sliding fit in the mounting hole. If tight, open the slightly with a 3.5mm drill (No. 24) to ensure a smooth swivel movement.

67) Drop the bogie pivot mounting into its locating holes in the top of the bogie stretcher plate and using only sufficient glue to attach the plates, fit keeper plates over pivot spindles. Ensure pivot remains free to move until the liquid solvent has evaporated.

***TIP- Some people prefer to use a larger piece of sheet styrene (not supplied) rather than the moulded keeper plates supplied.*

68) If desired, fit the brake shoes on the inside of the sideframe. They should be positioned just off the wheels with the circle detail on the shoe just visible below the bottom of the side frame. Mounting pairs of brakeshoes on short lengths of wire makes the fitting much easier, use superglue to affix the wire to the underside of the bogie frame.

69) Fit the bogies in place with the short bolts provided. After painting, adding a smear of glue on the thread of the bolt prior to fitting will be sufficient to prevent the bolt from unscrewing during

use - don't apply too much or you may not be able to get the bogies off again - not good!

70) Remove from the fret and smooth the Coupling Hooks (E5). Laminate together in pairs and then create a wire single loop coupling from 0.7mm wire and threaed through the hole, other couping options are often used. We have also provided a dummy knuckle coupling that can be attached to the coupling hook close to the bufferbeam, but it does get a bit tight with it in place.

71) Fit the cast metal vac and air pipes to the bufferbeam followed by the bogies and see how it all looks before getting on with the painting.

AND THAT'S ABOUT IT!

We hope you have enjoyed building this kit and welcome your comments. We have attempted to address, or clarify areas of weakness in our suggested procedures and improve the strength and durability of the overall construction methods. We are indebted to everyone who has shared their experiences with us in an effort to improve the experience of building "Easy-Build" products for others - Thank you.

SHAWN KAY AUGUST 2019

HMMMM - WHAT A DIFFERENCE!

Our guarantee to you is, by purchasing this kit you should be able to build a high quality model from the components supplied. To ensure this, if you damage a component return it to Easy-Build for a free replacement. If you cannot complete the model we can arrange to complete it for you - we want you to have a completed model to enjoy not a box of half completed bits in a cupboard! If you are unsatisfied with this kit, or the service you have received from Easy-Build in any way, please contact us at our Camelford address without hesitation.

"EASY-BUILD"

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DIMENSIONAL DATA

Buffer centre height from rail head	3ft 51/2in	24.20mm
Body height (bottom) from rail head:	4ft 1in	28.58mm

NOTES:

DRAWINGS, ETC.

Poly Bag Contents:

C1	DA Valve	x2
C2	Air Brake Chamber	x2
C3	Vac Cylinders	x2
C4	Air Tank	x1
C5	Air Manifold	x1
C6	Bufferbeam Air Pipes	x4
C7	Bufferbeam Vac Pipes	x2
C8	Bufferbeam Steam Heating Pipes	x2
C9a	Buffing Plate	x2
C9b	Buffing Plate Mountings	x4
C10	Buffer Heads	x4
C11	Dummy Knuckle Couplings	x2

ETCHED DETAILS IDENTIFICATION

E1 Brake Shaft Spacers

E2 Brake Linkage

E3 Angle Bracket

E4 Brake Adjuster

E5 Coupling Hook

E6 Brake lever

E7 Handbrake Arm Bracket

E8 End Door Support

E9 Long Handbrake lever

E10 Handrail Jig

E11 Data Panel

E12 Lamp Irons

E13 End Door Quarter Pillar Left Hand

E14 End Door Quarter Pillar Right hand

E15 Fillet

E16 Brake Hanger Symmetrical

E17 Handbrake Lever Arm

E18 Brake Hanger Asymmetrical

E19 Handbrake lever Outer Bracket

E20 Brake Hanger Asymmetrical With Bracket

E21 Handbrake Lever Arm - Vac Cylinder Side

E22 Handrail Brackets L/H

E23 End Door Catch

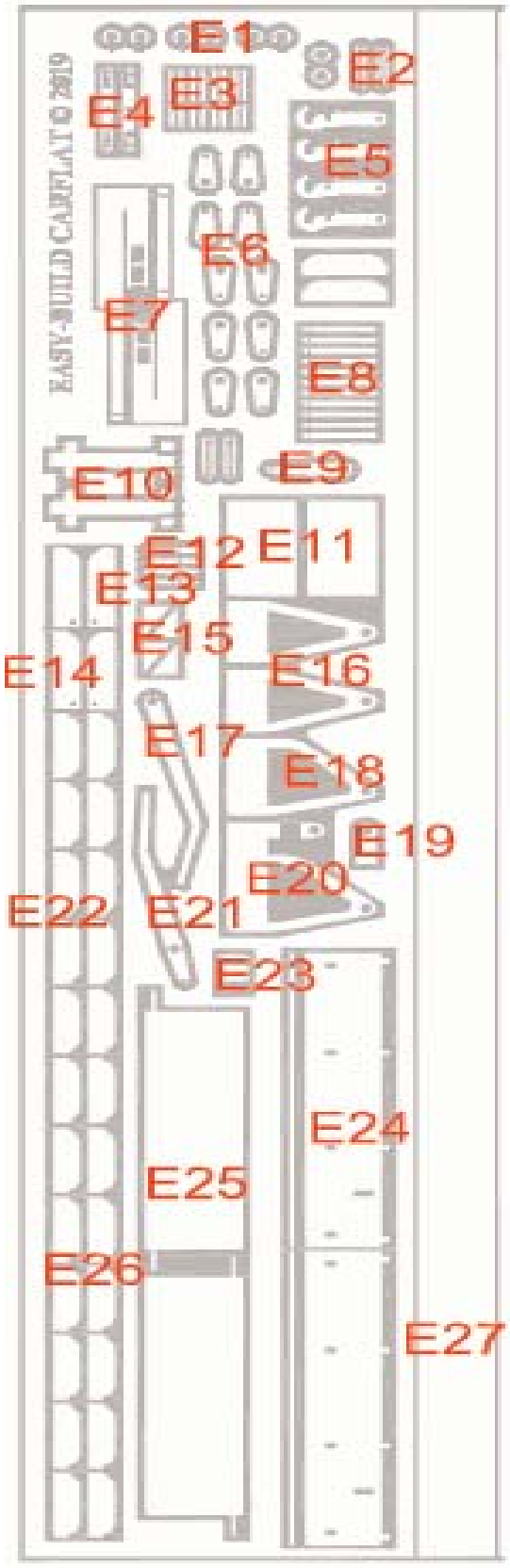
E24 End Door

E25 Name Panel

E26 Handrail Brackets R/H

E27 Centre Rib

E28 End Door Top Beading



ARRANGEMENT OF COMPONENTS OF THE UNDERFRAME AS YOU WOULD BUILD IT (NOT TO SCALE)
All measurements in mm taken from one end.

KEY TO COMPONENTS

C1: DA Valve
C2: Airbrake Chamber
C3: Vac Cylinder
C4: Air Tank
C5: Air Manifold
E7: Handbrake Arm Bracket