GRESLEY B17 4-6-0 INSTRUCTIONS (with Great Eastern Tender)

CHASSIS ASSEMBLY

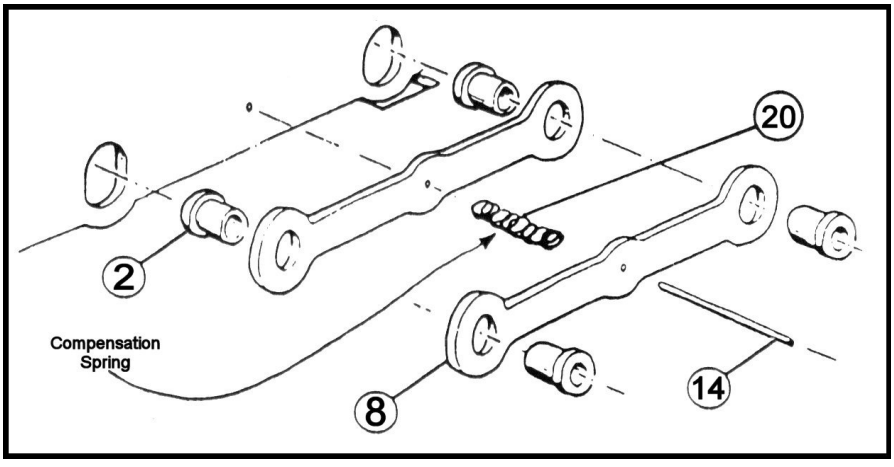
The chassis can be built rigid or compensated so decide now which one you are going to make. If building a compensated chassis remove the sections from the front and centre axle holes. Solder the axle bearings (2) into the holes in the chassis (1) (and into the compensating beams [8]). Fold the chassis frames up and solder the centre frame spacer (4) in place making sure everything is square, and then solder the rear frame spacer (3) and the front frame spacer (5) in place. Solder the 10BA screw into the hole in the front frame spacer.

Fold down the main part of the main motion bracket and then the end of the bracket. Put a fillet of solder on the joints to add strength. Take the cylinders (7) and curve the bottom of the cylinder sides to match the shape of the cylinder front/rear. Fold down the front and rear and the sides and solder around the seams. Fit the cylinders into the recess at the front of the frames.

Fold down the ends of the motion bracket (6) and add a fillet of solder to the folds. Fold the centre section of the bracket down and locate the bracket in the slots in the frames. Fold the centre motion bracket (9) so that the two halves meet. Solder the bracket into the larger slots in the frames.

Solder three lengths of the brass wire (14) into the holes (the lower hole between the front and centre wheels) in the chassis to form the brake mountings. Take the brake hangers (11) and solder the brake blocks (12) to them, making three L/H and three R/H. Solder the assembled brakes to the wire 2mm from the frames. Pass more brass wire through the bottom of the brakes and then through the pull rods (13). Solder all the joints.

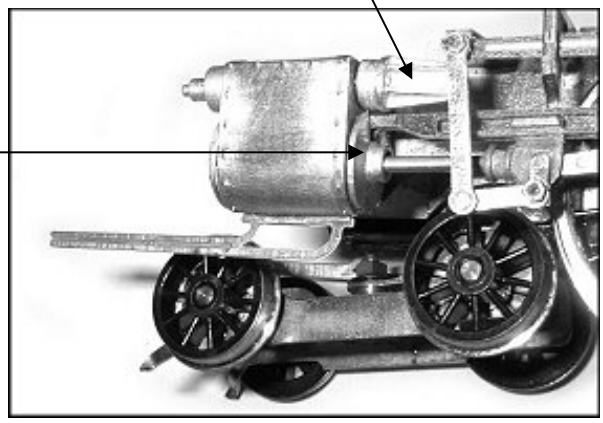
COMPENSATING – Solder the 1/8th axle bearings (2) into the compensating beams (8). The compensating spindle should be cut from the brass wire (14). The beams are held apart by the compensation spring (20). It is very important that no parts of this mechanism are soldered in a fixed position other than the spindle to the mainframe (take care also when fitting the brake rodding). Both beams must move independently of each other. The assembly of the beams is otherwise very simple. Make sure that the beams have the cut out section at the bottom. Fit the wheels so you can test the compensating mechanism and when satisfied that it works O.K. remove the wheels and put them to one side.

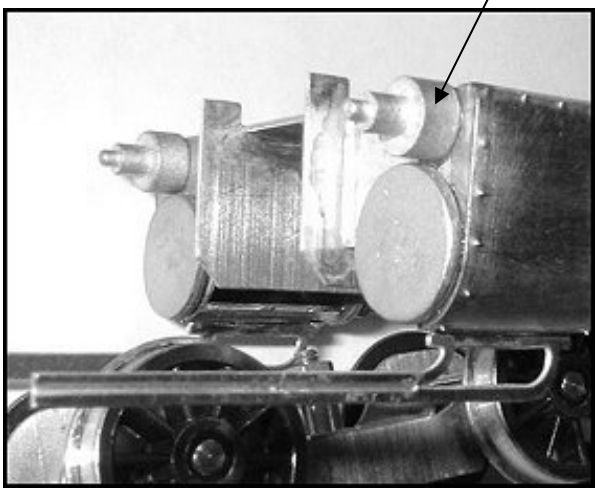


Glue the valve guides (15) in place.

Glue the piston guides/ cylinder rear covers (16) in place.

Glue the valve covers (17) in place.





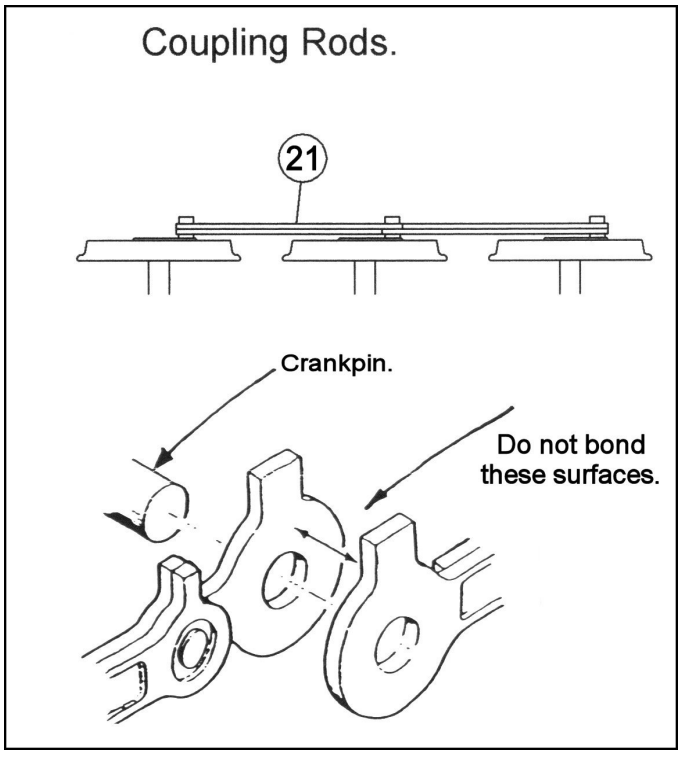
Glue the cylinder end covers (18) in place

Solder the drain cocks (19) under the cylinders.

The chassis is now ready for painting. With the chassis painted the wheels and motor of your choice can be fitted.

COUPLING RODS

With the chassis painted the wheels can be fitted permanently. Fit the crank pins and assemble the coupling rods (108) as shown. Take care in this as the rods need to move freely, both for sideplay and compensation.



VALVE GEAR

Refer to the diagram and assemble the valve gear. Rivet together the parts and attach them to the motion brackets with the 16BA screws and nuts.

Solder four 2mm bearings into the bogie (23). Fold the sides down at 90 degrees and put a fillet of solder along the folds. Solder a 10BA screw into the hole in centre of the cross member. When complete attach it to the chassis with the 10BA nuts and two 2mm bearings as pivots.

SUPERSTRUCTURE ASSEMBLY

Before commencing assembly the footplate (1) must be curved to match the valances (2). It is most important that this is done accurately, as inaccuracy at this stage will adversely affect the fit of other parts of the kit. The half etched holes at the front end must be on the underside, and once the footplate curves have been satisfactorily formed these can be pressed out with a scriber or other suitable pointed implement to form rivets. Bend the splasher sides upwards, then the footplate and valances can be soldered together, with the valances set in the recesses slightly in from the edge of the footplate. The buffer beam (3) and drag beam (4) can then be soldered in place. Press out the rivets in the two frame pieces (5), slot them into the footplate, and solder in place.

Bend the sides of the smokebox saddle base (6) at right angles to the front, and then solder the base to the footplate. Make a right-angled bend in the cylinder front (7) over a piece of 1/8th diameter bar, then solder in place between the frame pieces, then fix the valve spindle cover (8) into the hole in the cylinder cover. Make the two small handrails in the footplate front from some of the 26g handrail wire. Solder the two front step plates (9) and the two rear step plates (10) in place behind the valances, then bend up the ends of the steps (11) and fix them into the slots in the step plates. Bend the two front guard irons (12) to shape, then solder these to the frame pieces, if required (Note that the guard irons were removed during the **1950's**). Solder 8BA nuts (13) over the holes in the footplate to screw the chassis to (If you prefer solder 8BA screws into the holes).

Fix the two steam pipe bases (14) to the footplate either side of the smokebox saddle, then bend the two small footplate steps (15) and fix them to the curved part of the footplate. Take the four full splasher tops (16), curve the tops to match the sides, and solder them to the front and middle splashers. Fix the sandbox filler caps (17) into the holes in the footplate just ahead of the middle splashers. Drill a 1/16" diameter hole in the right hand side of the footplate just ahead of the leading splasher for the mechanical lubricator (18), and fix the lubricator in place.

Take the cab sides (19) and cab front (20) and solder them together with the front between the sides, then slot the assembly to the footplate and solder in place. Take the remaining two small splasher tops (16) and fit them in front of the cab. Bend the cab floor (21) along the etched fold lines to form the cab splashers. Solder the two floor supports (22) into the slots on the underside of the floor, and then solder the cab floor into the cab. Carefully remove the cab window surrounds (23) from the fret, and fix these into the half-etched recesses round the cab windows. Make the two cab side handrails from some of the wire and handrail knobs. Take the two brackets (24), bend the ends at right angles, and fix them to the underside of the footplate underneath the cab.

Turn now to the boiler and firebox (25), roll to shape, bend out the firebox sides so that they are 17mm apart at their base, and fit into the slots in the footplate, then solder up the seam of the boiler. Solder the smokebox front (26) in place, then roll the srnokebox outer (27) and fix it around the smokebox. This also forms the leading boiler band. Take the boiler band strips (28), and make the other four boiler bands, then curve the smokebox saddle top (29) to match the boiler and fit this to the underside of the smokebox. The assembled boiler/firebox unit can now be fitted to the footplate/cab assembly. It is very important that everything is checked for squareness at this stage, and that everything is properly aligned. The boiler handrail can now be formed from the 26g wire (30), and fitted with the handrail knobs (31). Make the ejector pipe (32) from the 20g wire, and fit it to the right hand side of the boiler. To form the washout plugs (33)

solder short pieces of 22g wire through the holes in the firebox, fitting the round bases at the same time, if required. Those modelling a loco in final condition with a 100A boiler will need to drill an extra 0.7mm diameter hole on each side, 3mm forward of the front washout plug, for the extra plugs on these boilers. Now fit the steam pipes (34) to the bases either side of the smokebox. Next fit the Westinghouse pump, if required, to the right-hand side of the smokebox, and use the 22g wire to make the pipe from the pump to the cab. Take the smokebox door (36) and fit the door handles (37), and the upper lamp bracket (38) to it. Then fix the door to the front of the smokebox.

Turn back to the cab, take the backhead (39) and fit the regulator handle (40) to it. Then fix the backhead into the cab. Curve the cab roof (41) to match the cab front, and fix it to the cab. Curve the riveted cab roof plate (42), and the roof vent (43), to match the roof, and then fix these and the two rain strips (44) in place. Fit the cab side beading strips (45), bending to shape whilst fitting, and fitting the two rear cab handrails at the same time, then trimming the upper ends of the beading to the required length. Bend and fit the four small steps (46) to the footplate either side of the cab. Now fix the boiler fittings (47 - 51) in place. Next take the reversing lever (52) and the cast bracket (53), and fit these to the left hand side of the loco. Fit the three front lamp brackets (54) to the front of the footplate, followed by the buffers (55) and the vacuum pipe (56).

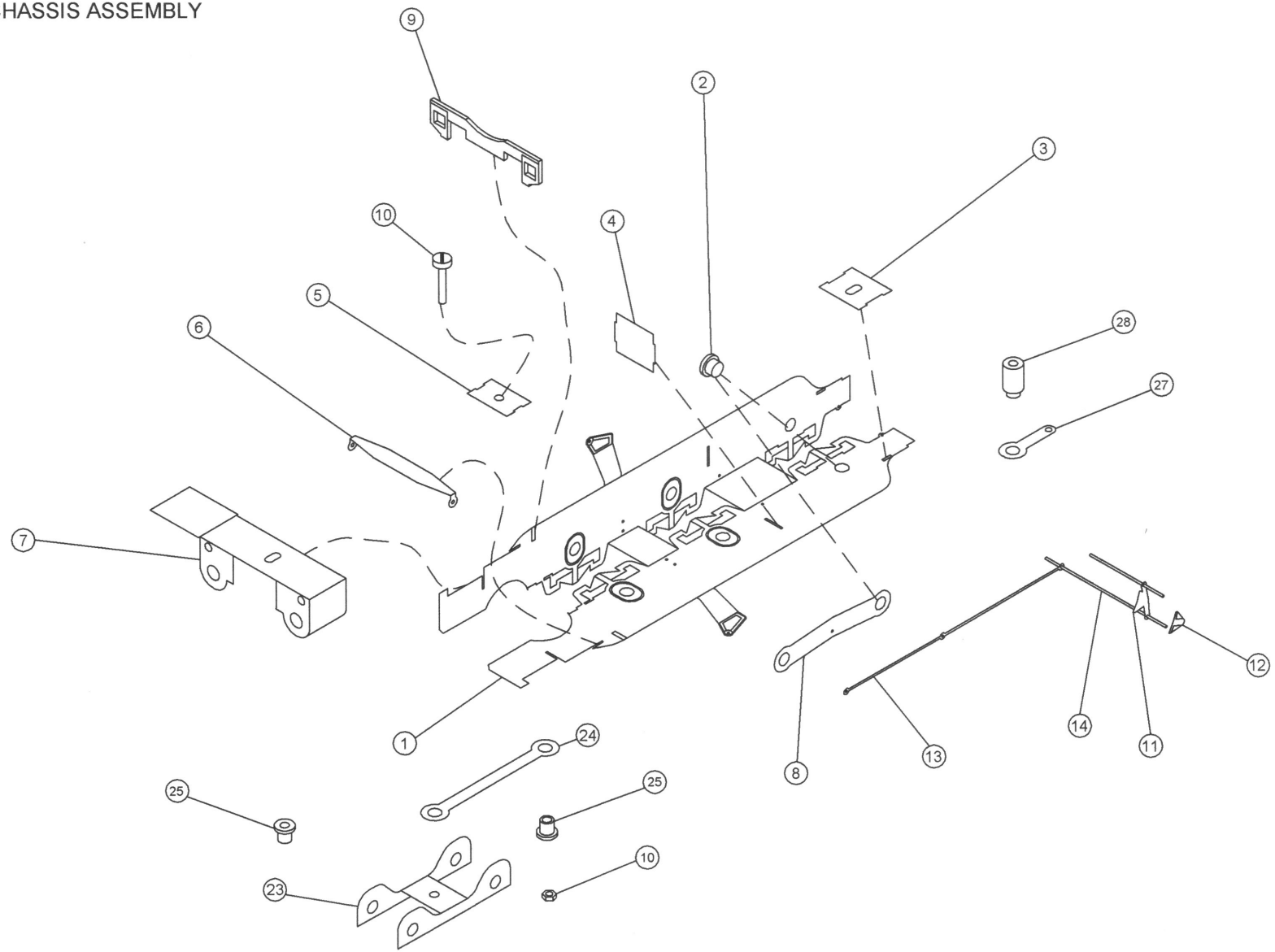
CHASSIS PARTS LIST

1. Main frames.
2. 1/8th chassis bearings.
3. Rear frame spacer.
4. Centre frame spacer.
5. Front frame spacer.
6. Front motion bracket.
7. Cylinders.
8. Compensating beams.
9. Centre motion bracket.
10. 10BA nuts and screws.
11. Brake hangers.
12. Brake blocks.
13. Brake pull rods.
14. Brass wire.
15. Valve guides.
16. Piston guides/cylinder rear covers.
17. Valve covers.
18. Cylinder end covers.
19. Drain cocks.
20. Compensation spring.
21. Coupling rods.
22. Connecting rods.
23. Bogie.
24. Bogie radius arm.
25. 2mm bearings. (double as bogie pivots).
26. Valve gear.
27. Drawbar.
28. Drawbar pivot.

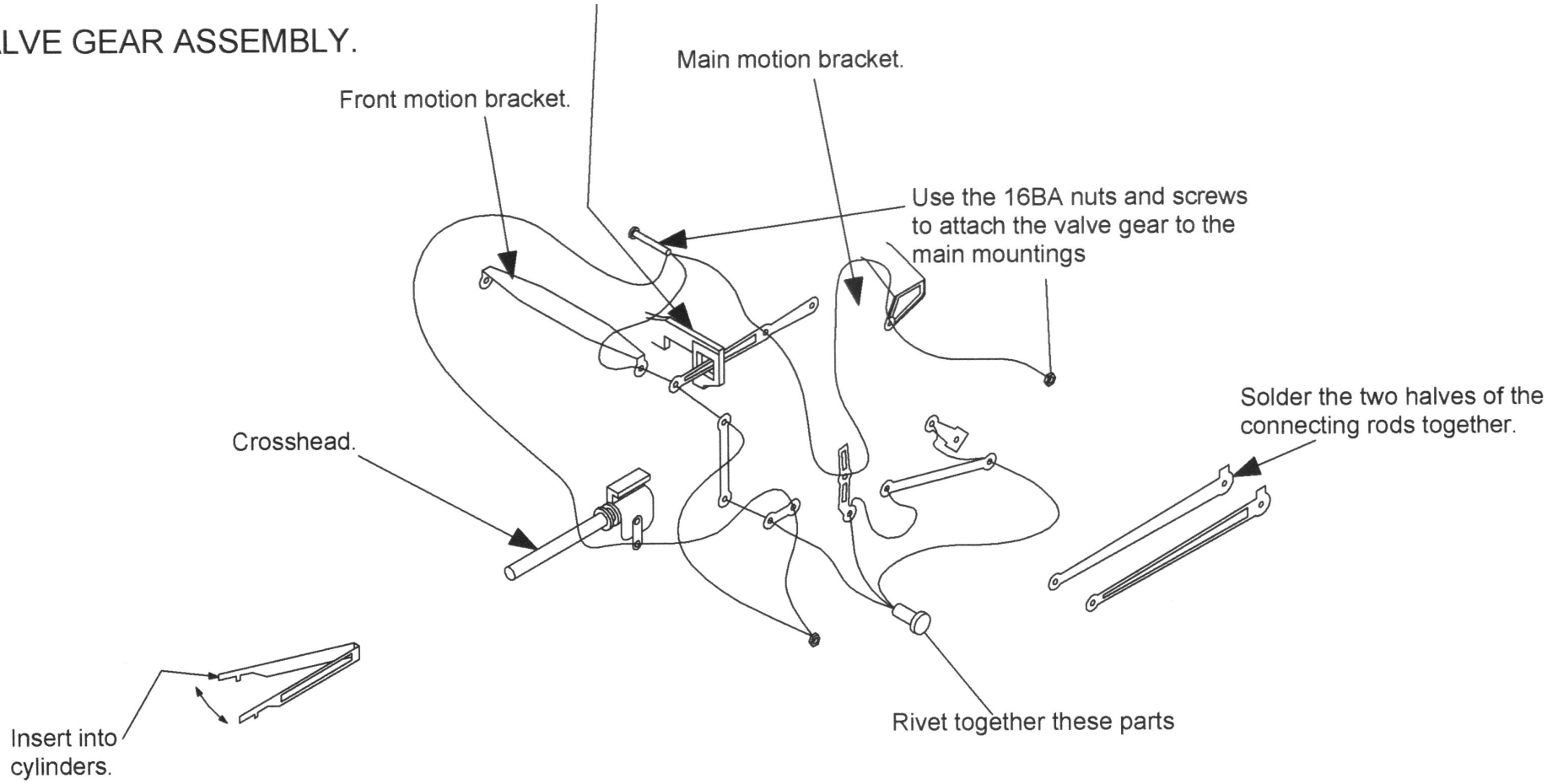
SUPERSTRUCTURE PARTS LIST

1. Footplate.
2. Valences.
3. Bufferbeam.
4. Drag beam.
5. Front frame sections.
6. Smokebox saddle base.
7. Cylinder cover.
8. Valve spindle cover.
9. Front step plates.
10. Rear step plates.
11. Steps, 2 short, 4 medium, 2 long.
12. Front guard irons.
13. 8BA nuts.
14. Steam pipe bases.
15. Small footplate steps.
16. Splasher tops.
17. Sandbox filler caps.
18. Mechanical lubricator.
19. Cab sides.
20. Cab front.
21. Cab floor.
22. Cab floor supports.
23. Cab window surrounds.
24. Brackets under footplate.
25. Boiler/firebox.
26. Smokebox front.
27. Smokebox outer overlay.
28. Boiler bands.
29. Smokebox saddle top.
30. Handrail wire.
31. Handrail knobs.
32. Ejector (thicker brass wire).
33. Washout plugs.
34. Steam pipes.
35. Westinghouse pump and pipe.
36. Smokebox door.
37. Smokebox door handles.
38. Upper lamp bracket.
39. Backhead.
40. Regulator handle.
41. Cab roof.
42. Roof plate.
43. Roof vent.
44. Rain strips.
45. Cab side beading.
46. Small cabside steps.
47. Whistle.
48. Ross pops.
49. Dome.
50. Chimney.
51. Anti-vacuum valve.
52. Reversing lever.
53. Reversing lever bracket.
54. Front lamp brackets.
55. Buffers.
56. Vacuum pipe.

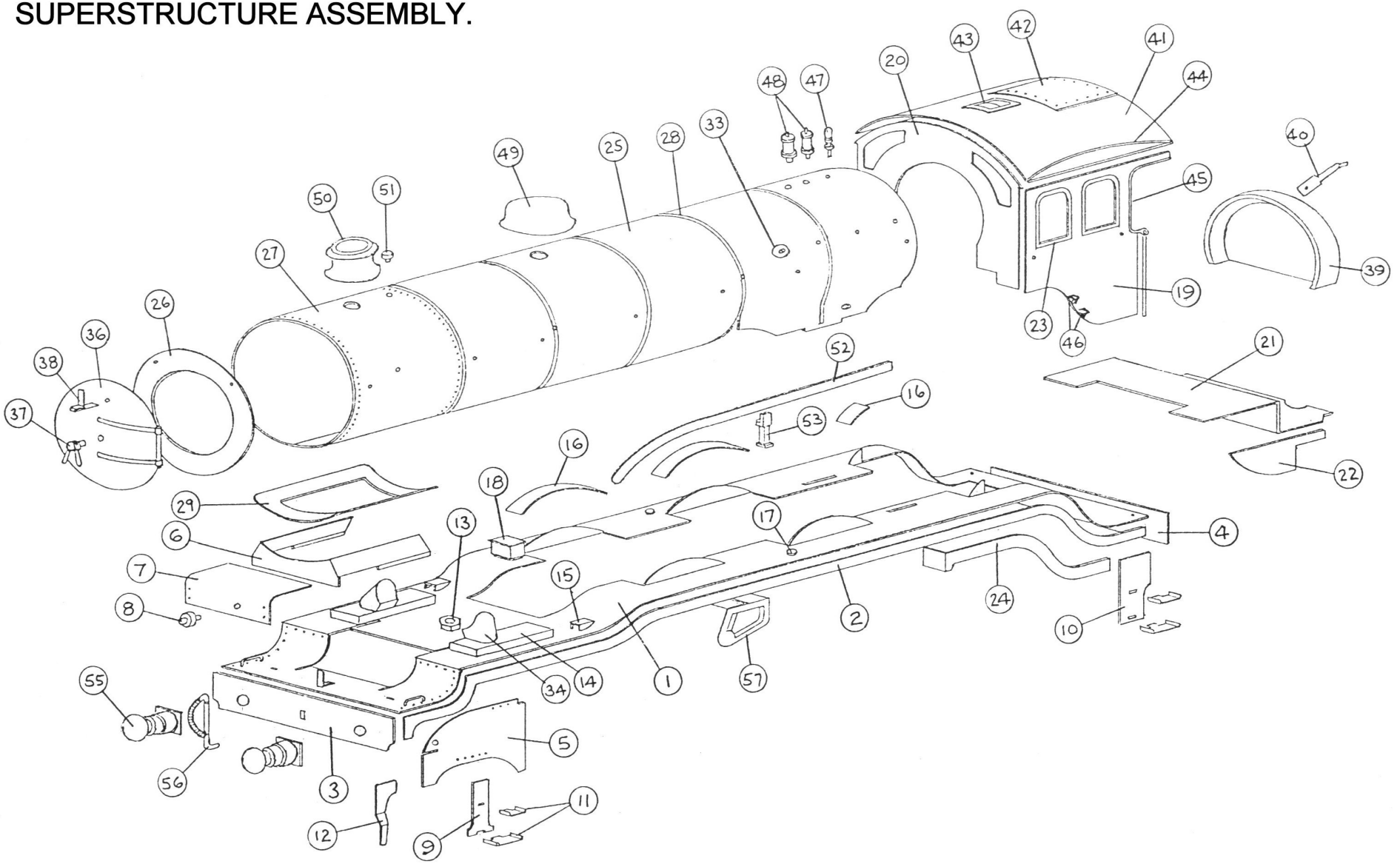
CHASSIS ASSEMBLY



VALVE GEAR ASSEMBLY.



SUPERSTRUCTURE ASSEMBLY.



GE Tender Instructions.

Take the chassis (1) and bend down the sides at 90 degrees to the centre. Solder an axle washer (2) over each axle hole then clean out the holes with a 2mm drill. Solder 22g wire through the three holes in each frame to form the brake gear supports (3). Fit the wheels to the chassis using axle washers to take up the sideplay, but leaving some sideplay in the centre axle. Take the brake hangers (4) and solder the brake blocks (5) to them, making three LH and three RH, then solder the hangers to the wire supports making sure that the brakes do not touch the wheels. Take the pull rods (6) and thread 22g wire through these and through the holes in the lower ends of the hangers. Solder in place when assembled, and trim the ends of the wire after assembly.

Turn now to the body. Take the footplate (8), slot the frames (9) into it and fix in place. Then solder the buffer beam (10) and drag beam (11) in place. Take the sides (12), flare out the top edges over a piece of 3/16” dia. bar and bend up the coal guards along the etched lines. Then take the back (13) and flare out the top of this in the same way. Slot the back into the footplate and fix it and the sides to the footplate, so that the sides are level with the footplate edges. Now bend three of the four lamp brackets (14) and fix into the slots in the back. Make the handrails (15) for the sides and the back. Take the coal plate (16) and bend along the fold lines as shown in the diagram, with the etched fold lines underneath, so that the slots for the fire-iron rack (32) are on the left side of the tender, then fit the bulkhead (17) into its slots. Fit the rectangular coal space sides (18) in place, then fit the assembly into the floor support (19) at right angles and fix in place. Now bend up the floor/front plate (20) along the etched line so that the brake column hole is on the left side and fit it to the floor support and coal space. Solder the two rectangular pieces (21) in the remaining gaps either side of the front plate. Now take the side beading (22) and back beading (23), curve these to match the flare of the tender sides and back and solder them in place. Solder the coal guard beading (24) to the coal guards, and then solder the step plates (25) to the underside of the footplate. Bend up the ends of the narrow steps (26) and fit these to the step plates, then bend up the ends of the wide steps (27) and fit them into the slots in the rear end of the frames. Bend the guard irons (28) to shape and solder them to the buffer beam, and fit the buffers (29). Fit the axleboxes (30) to the frames, and then solder the 1/16” dia. drawbar pin (31) to the footplate and drag beam. Slot the fire iron rack (32) into the top of the coal plate, and then form the two toolboxes (33). Curve the lids to fit and solder the toolboxes into their respective slots, the narrower toolbox going on the left hand side next to the fire iron rack. Fit the two cupboard doors (35) to the front of the coal space then fit the two side plates (36) into the slots in the coal space front, either side of the floor. Fit the two small beading pieces (37) to the tops of these, then thread the handrail wire through the ends of these and through the holes on the footplate to form the front handrail. Fit the brake column (38) into the hole in the floor, the tank fillers (39) into the holes in the rear of the coal plate, and fit the last lamp bracket to the centre of the top at the back.

Lastly, fit the vacuum pipe (40) to the buffer beam if modelling a vacuum fitted loco.

Parts List.

Tender

1. Chassis
2.
3. Brake gear supports - 22g wire
4. Brake hangers - 6
5. Brake blocks - 6
6. Brake pull rods - 2
7. Tiebars - 22g wire
8. Footplate
9. Frames-2
10. Buffer beam
11. Dragbeam
12. Sides - LH and RH
13. Back
14. Lamp brackets - 4
15. Handrails
16. Coal plate
17. Bulkhead
18. Coal space sides - 2
19. Floor support
20. Floor/front plate
21. Side plates - 2
22. Side beading, LH and RH
23. Back beading
24. Coal guard beading - 2
25. Step plates - 2
26. Narrow steps - 4
27. Wide steps, 2 long, 2 medium
28. Guard Irons LH and RH
29. Buffers - 2
30. Axleboxes - 6
31. Drawbar pin
32. Fire iron rack
33. Toolboxes - LH and RH
34. Toolbox lids - LH and RH
35. Cupboard doors - LH and RH
36. Front plates - 2
37. Front plate beading - LH & RH
38. Brake column
39. Tank fillers-2
40. Vacuum pipe

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Tender Assembly Diagram