GRESLEY P1 ‘MIKADO’ INSTRUCTIONS.

PLEASE READ THROUGH THE INSTRUCTIONS BEFORE STARTING.

FIG. 1.

Cut out the running plate (1) and the valances (2). Do not remove the valance frames. The frame will hold the valance in shape while you are forming the running plate, and will hold everything firm while you are fitting the cab and boiler. File all the tabs off of the edges.

Fold the rear drag beam down. Fold the front end of the running plate down at 90°. Form the front curve (leaving the centre section flat) and the middle reverse curves using the valances as a template. Roughly form the rear reverse curves as well. When the valances fit into the front curve and reverse curves you can tack them into their recesses. Start from the front and go right back to the reverse curves. Using a piece of dowel simply push against the running plate and force it into the concave “second” curve in the valance. This should automatically form both the curves and you can tack solder them in place. Solder along the seams to form a rigid structure.

Solder the bufferbeam (3) into the recess at the front of the running plate.

Do not remove the valance frames just yet. Check that the rear dragbeam and the bufferbeam line up square. Make any adjustments by twisting the running plate gently.

Solder an 8BA screw into the hole at the front end and two 10BA screws into the holes at the back end.

Fit the smokebox saddle front (4), rear (5) and sides (6) into their slots (the front is marked 'F'). Solder the saddle surround (8a) around the saddle and then form the saddle top (7) to shape with the half etched lines facing up and solder it onto the saddle.

Check the fit of the front frame extensions (8) into the recesses in the top of the running plate. Cut them to suit the saddle surround. Solder them in place and file away the half etched strengthener. Take the centre cylinder cover (9) and solder between the frame extensions.

Now turn to the cab. Solder the cab sides (10 & 11) into their slots. Solder the cab front (12) into the slots and then solder along the joint between the front and the sides. File off any overlap. Solder the cab floor support (13) in place. Solder the cab floor (14) onto the support. Form the rear curves on the cab side overlays (15 & 16) to match the curve on the cab floor. Solder the overlays onto the cab sides.

Curve the cab roof (17) to match the cab front profile. Hold the roof in position and tack solder it in place at the front and then at the corners. Check it sits square and level. When satisfied with this solder around the seams.

Solder the riveted roof overlay (18) to the centre rear of the roof. Curve the roof shutter mount (19) and solder centrally onto the roof. Solder the double roof shutters (20) on top of the mount. Note which way round they go.

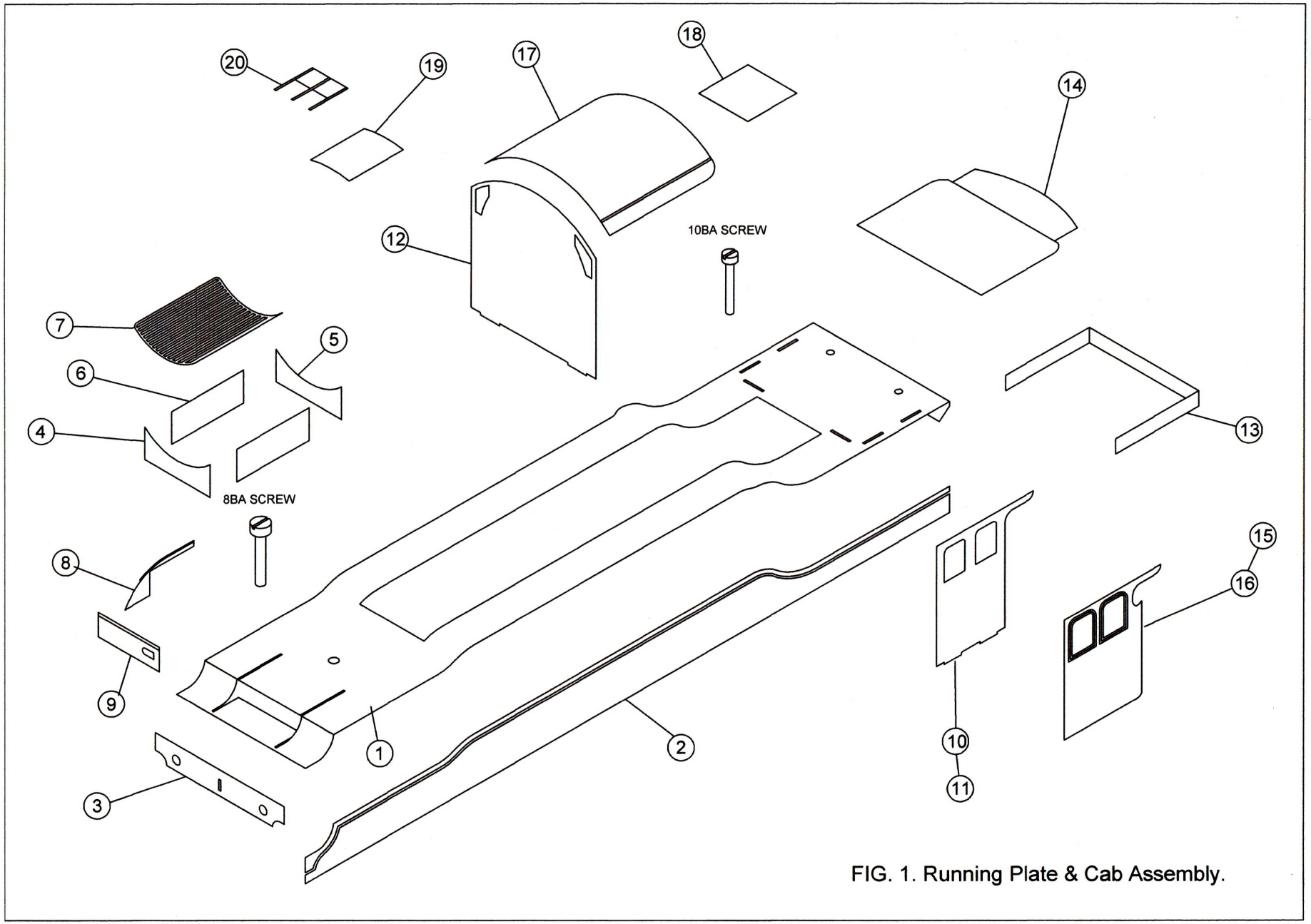


FIG. 1. Running Plate & Cab Assembly.

FIG. 2.

Glue the cab backhead (21) inside the cab. Glue the cab platforms (22 & 23) on the left and right of the cab floor. Glue the reversing screw (24) in place on the on the R/H platform. Glue the cab seats (25 & 26) either side of the cab.

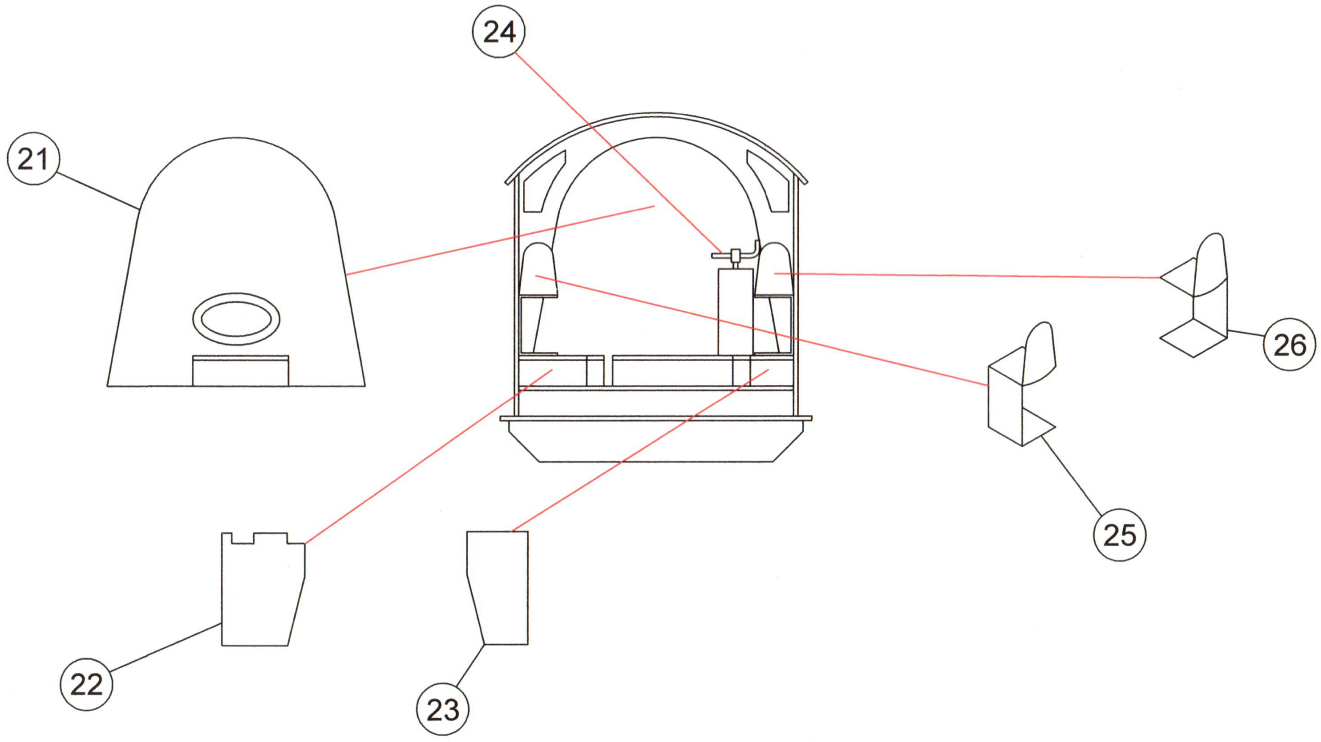


FIG. 3.

Clean up the Boiler (27) removing any mould lines that may be there. The boiler comes with the smokebox door moulded on, but a cast one is supplied if you prefer. Lightly rough the surface of the resin otherwise it will not be easy to paint (A fibre polishing pen is ideal for this). Remove the smokebox wrapper (28) from the fret and rough up the inside surface. Gently roll it around a piece of dowel or brass approx 15mm in diameter until it is slightly smaller than the boiler diameter, this will prevent it springing open. Hold the wrapper in position around the boiler. Make sure it is lined up correctly and is square. Run superglue along the edges so that it is tacked in place. Check again that everything is square and then glue firmly in place. Push the smokebox door (29) in place but **DO NOT** glue in. This prevents the edges from being damaged. An underboiler casting is supplied to fill the gap for the motor. It should be possible to fit the motor to the rear axle and pretty much hide it completely. Markits make a gearbox which should help with this, although it may be necessary to omit the rear frame spacer.

Now recheck the fit of the boiler onto the running plate. When you have the boiler sitting centrally tack it in place with superglue. Check it again and then secure it with epoxy resin. Leave it for a few hours, at least, to harden off. Alternatively, you can solder the smokebox to the saddle. Check that the smokebox door is level and glue in place. Refer to the diagram, mark the holes for the handrail knobs and ejector pipe and drill out with a 0.9mm bit.

When the glue is set the valance frames can be removed. Using a small pair of tin Snips cut up the valance frames at intervals of about 15mm. Bend the parts of the frames off of the valance and file off all the tabs.

FIG. 3. BOILER PREPARATION.

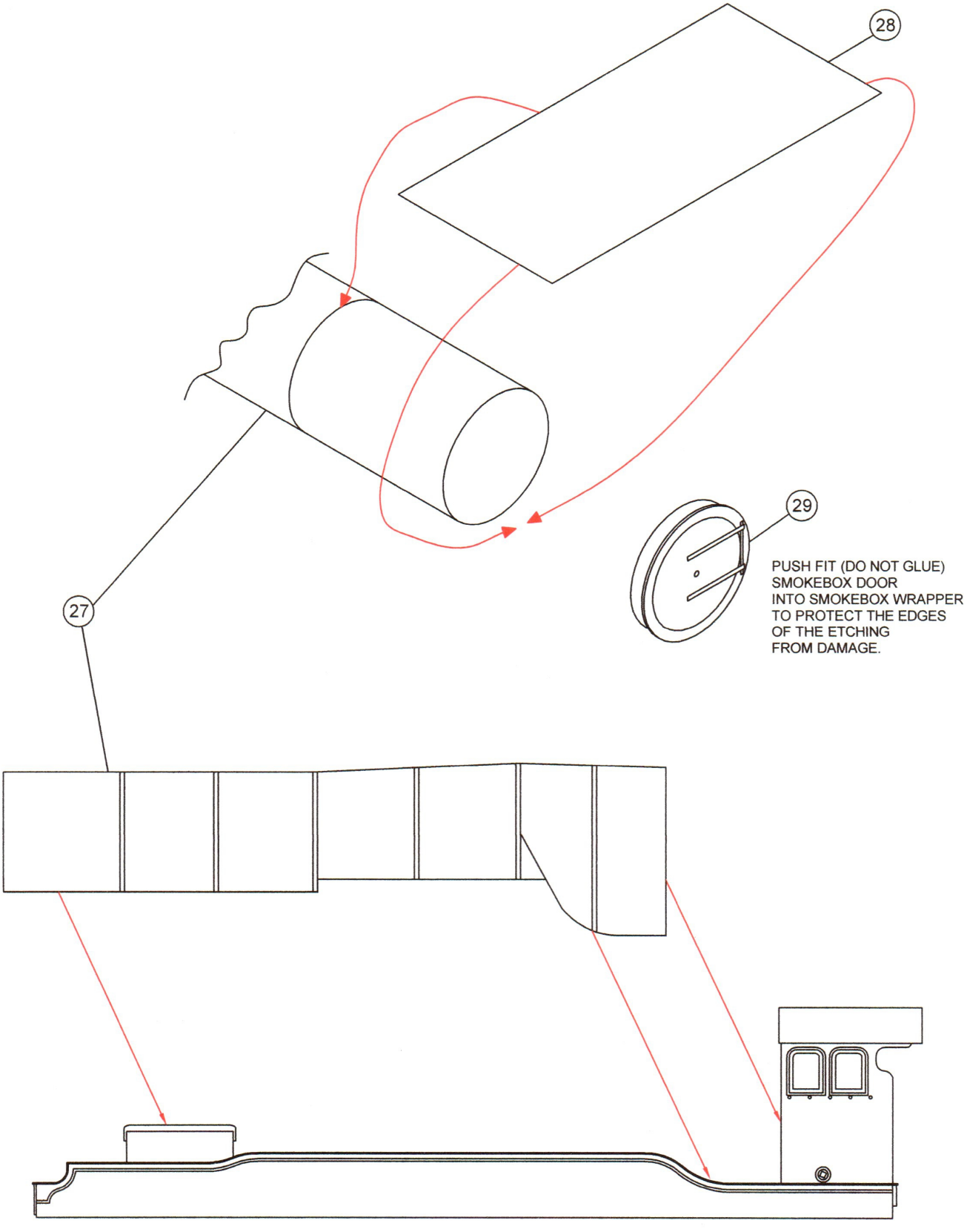
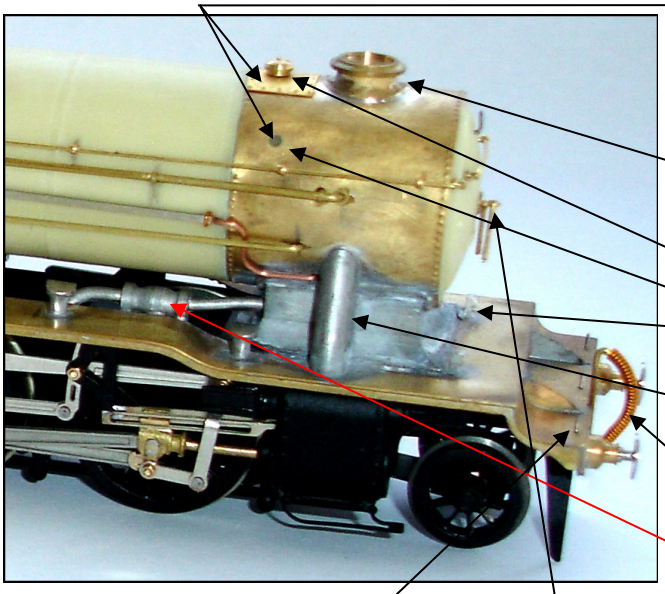


FIG. 4.

To position all these parts as accurately as possible you will need to find as many photographs of the loco you are modelling as you can find. The following books will be of assistance; RCTS - Locomotives of the LNER, part 6B; Yeadons Register of LNER Locomotives, Volume 9. The Isinglass drawings No. 318B is also an excellent reference.



Glue the anti-vacuum valve base (36 or 36a, two holes) and the superheater cover bases (37) in position, if required.

Glue or solder the chimney (33) in place.

The anti vacuum valve/s (38) and the superheater (39) covers can now be fitted.

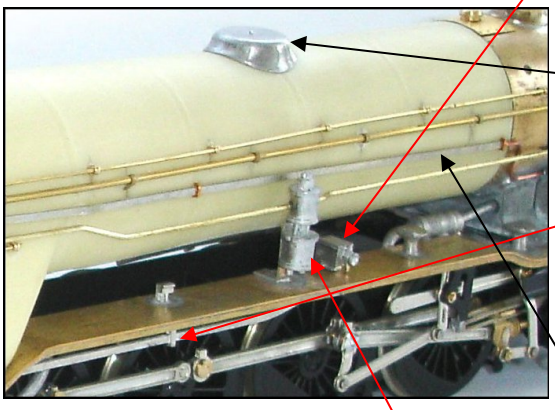
Glue or solder the oilboxes (47) and the steam pipes (41) in place.

The vac pipe (58) will be better soldered in place.

Solder the front R/H booster pipework (43) in place. Repeat for the L/H pipework (42).

Solder the lamp brackets (56) in place.

Drill out the hole for the smokebox door handle (54). Glue the spigot in the hole and fit the handle to the spigot.



Glue or solder the mechanical lubricator (48) in place.

Fit either the single dome (45) or the streamline dome (46) [2394 only, post Nov 1942].

Solder together the reversing bar, either the straight one for 2393 (30) or the cranked one (31) for 2394 and solder in place.

Take the piping conduits (59) and solder 3 pieces of .45mm wire into the dimples at the ends and in the middle. Drill 3 corresponding holes in the boiler [check photos for position] and then push the conduits onto the boiler.

Drill through the Westinghouse pump (57) and solder it in place just to the rear of the centre boiler band. Fit the pipework using the .7mm wire. The previous photo shows where the pipe enters the smokebox, but check other photos anyway.

Solder the R/H rear booster pipework (45) under the cab. Repeat for the L/H pipework (44).

Refer to fig. 4a & 4b and mark the positions of the oval washout plugs (50), cast washout plugs (51), handrail knobs (62) and the ejector pipe (.9mm wire) cleats. Drill the holes with a .9mm drill.

The ross pop safety valves (55) can be fitted after painting.

FIG. 4a.

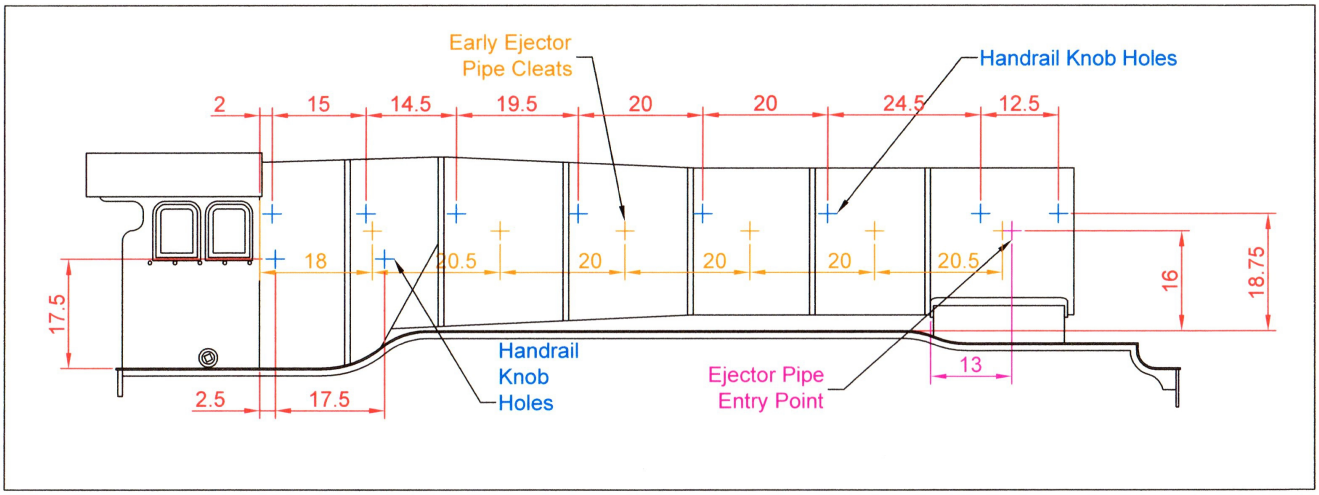


FIG. 4b.

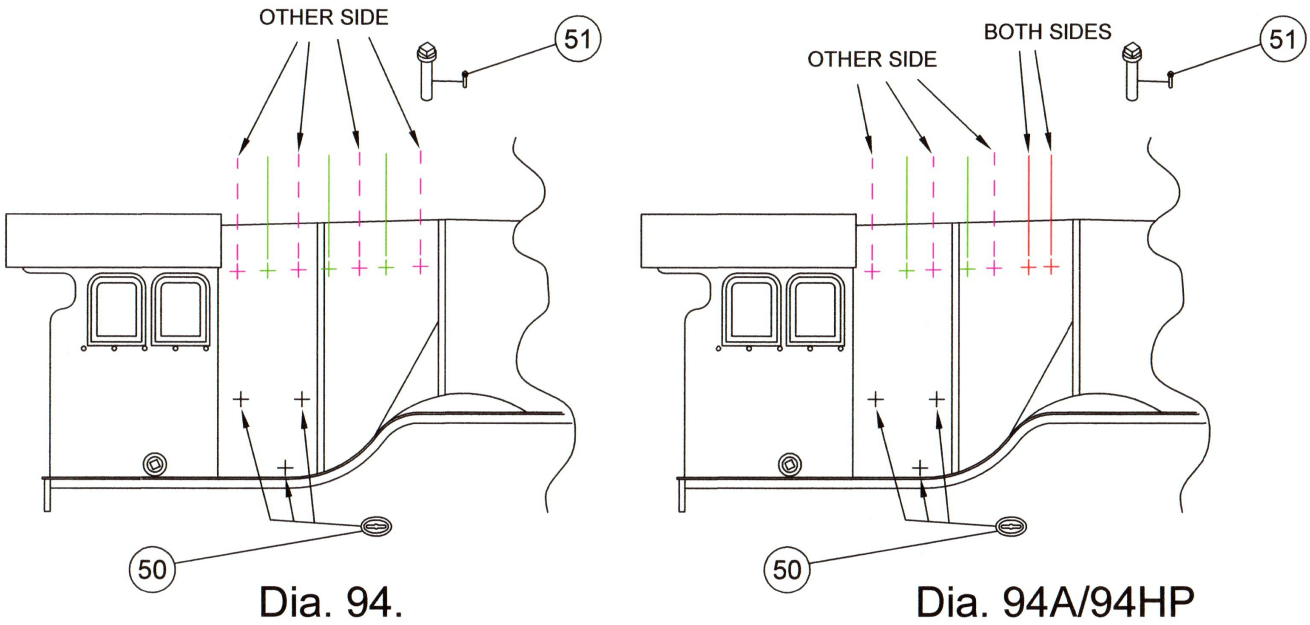
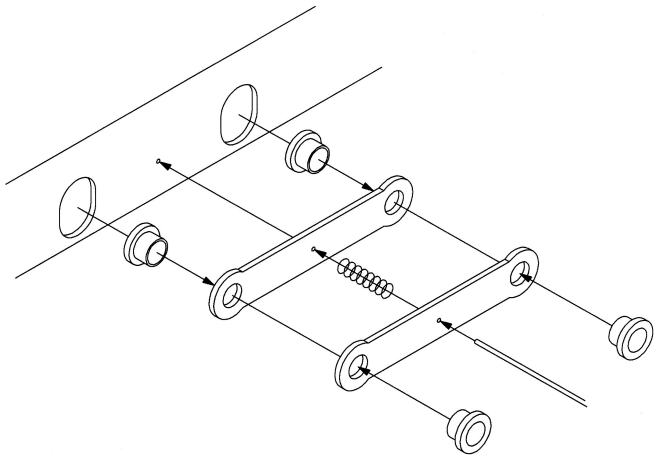


FIG. 5.

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 axle holes.



Cut out the mainframes (1). Also cut out the front pony truck mounting spacer (3), rear pony truck mounting spacer (5), rear & centre spacer (4) and rear frame stretcher (6). Fold the frames up and solder spacers 3, 4 and 5 in place. Bend out the rear frames to the width of the rear frame stretcher (6) and solder the stretcher in place. If fitting the booster fold the mounting tags underneath the rear stretcher and solder the ends to the stretcher [see photo]. Tack some solder across the back of the frame folds to give added strength.

Compensated Chassis – Remove the centre sections from the front and middle axle openings. Solder the axle bearings (7) into the compensating beams (2). Fit the compensating beams by passing brass wire through the frames, through one of the beams, then one of the springs, then the next beam and finally out the other side of the chassis. Hold the beams away from the chassis side while soldering the wire in place to prevent them being soldered to the frames. 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.

Rigid Chassis - Solder the chassis bearings (7) into the frames (you may need to file these down a bit to give wheel clearance).

Cut the main motion bracket (8) from the valve gear fret and fold as shown, likewise with the front motion bracket (8a). Locate and solder them in the slots in the top of the frames.

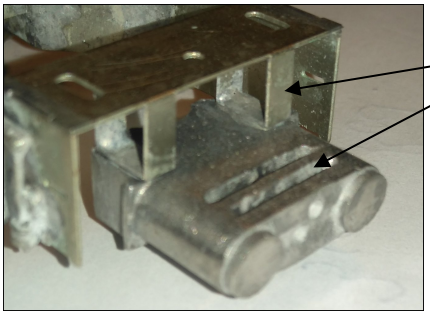
Solder a 10BA screw into the drawbar mount (26). The drawbar mount won't be needed if you are fitting the booster.

Solder a 10BA screw into the pony mounting spacer spacer (5) and an 8BA screw into the bogie mounting spacer (3). Solder the cab steps (9 & 10) into the slots at the back of the frames.

Use the brakes from the body/tender etch as the ones on the chassis etch are too wide. Assemble the brake hangers (11) and blocks (12) making three L/H and three R/H. Cut the brass wire (36) into suitable lengths (1½ ins approx) and solder into the holes in the bottom of the frames. The assembled brake shoes can be attached to the ends of the wire approx 2.5mm from the side of the frames. Once in place the brake rodding (13) can be attached by passing wire through the bottom of the brake hangers then the two rods and then through the hangers on the opposite side. The rodding should run just inside the line of the frames,

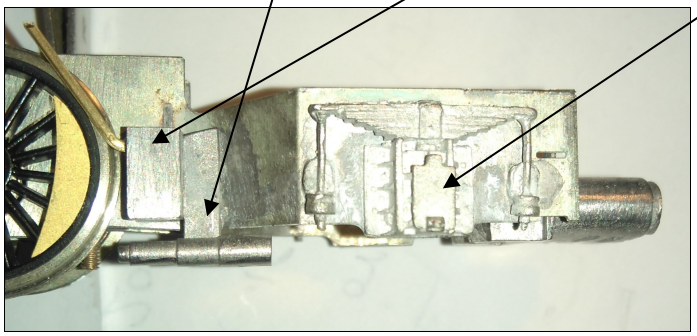
Fold the cylinders (14) and solder them into the frames. Shape the cylinder sides (15) and solder these to the cylinders. Fit the front cylinder covers (16). Using low melt solder fit the front valve guides (18), rear valve guides (19) and rear cylinder covers (17).

Assemble the front pony truck (20, 21 & 22) and rear pony truck (23). Fold them as shown and solder in the 2mm bearings (24).



If you are modelling a loco with a booster [see engine details below] fold the booster mounting tags as shown. Clean out the slots [these act as the tender coupling] and then solder the booster (40) in place.

Solder or glue the Cartazzi axleboxes (30 & 31) to the rear frames, along with the rear sandboxes (41 & 42) and the injector (43).



The frames can now be painted. Take care not to gum up the moving parts if you have built a compensated chassis.

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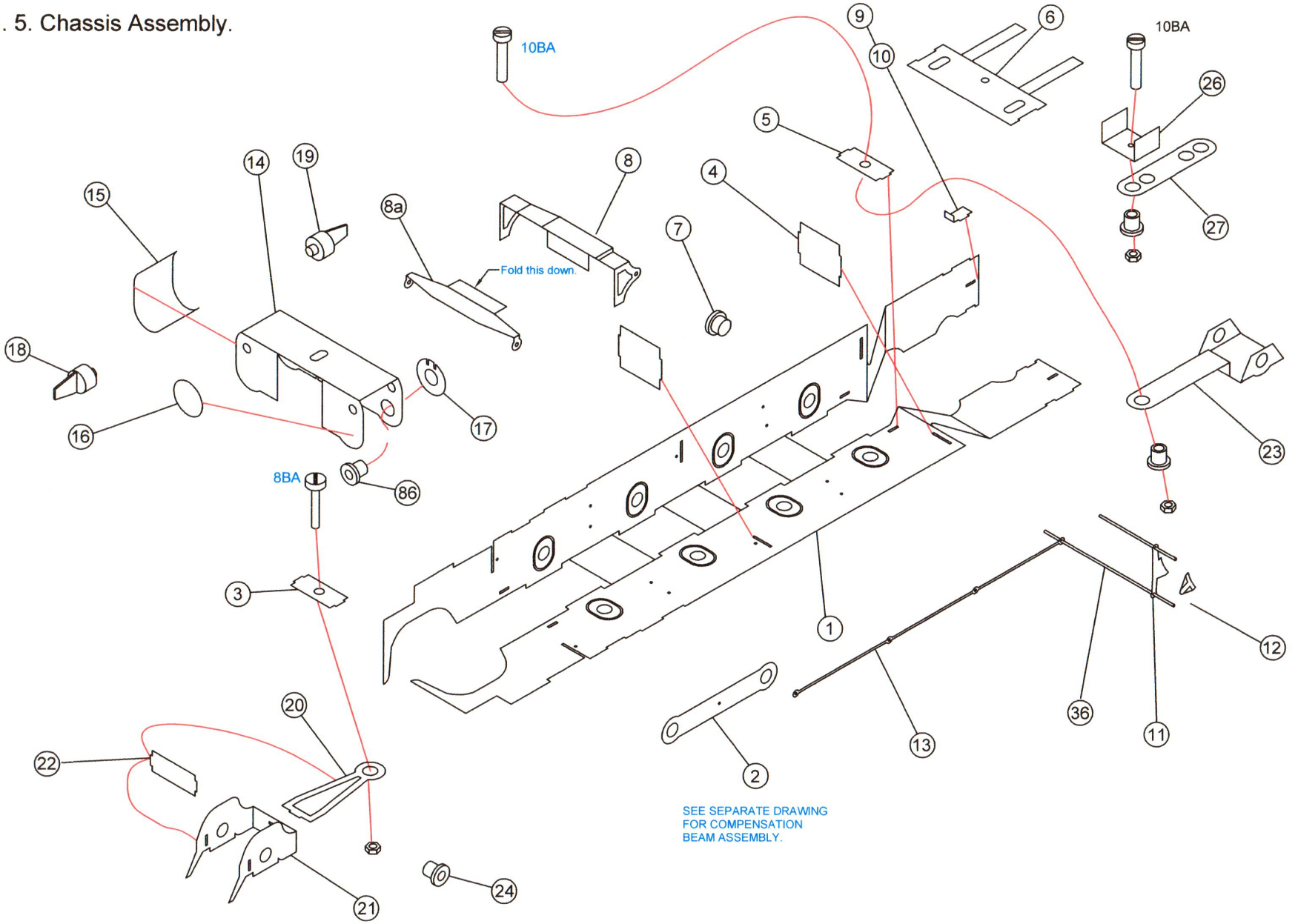
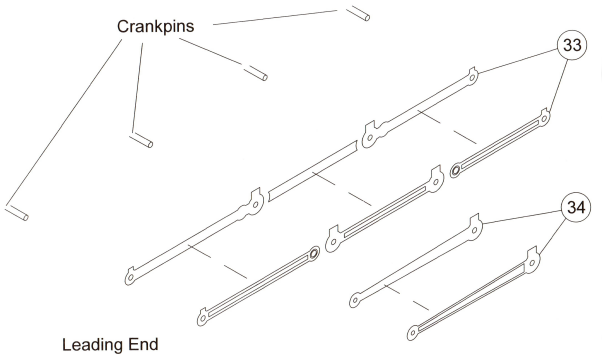
Fig. 5. Chassis Assembly.



Sweat together the coupling rods (32) and connecting rods (33). Fit the coupling rods to the wheels (not shown) making sure that the chassis runs freely. Screw the connecting rods to the crossheads (28) using the 16BA nuts and screws provided.



Refer to Fig. 6 and rivet together the valve gear parts (take care with this and you should have no problems). Attach the assembled valve gear to the motion bracket (8) using 16BA nuts and screws and fix the drop links to the crossheads in the same way.

Fit the pony truck wheels and attach these units to the chassis. Using some copper clad plate and brass wire fashion pick ups to your own design.

FIG. 6.

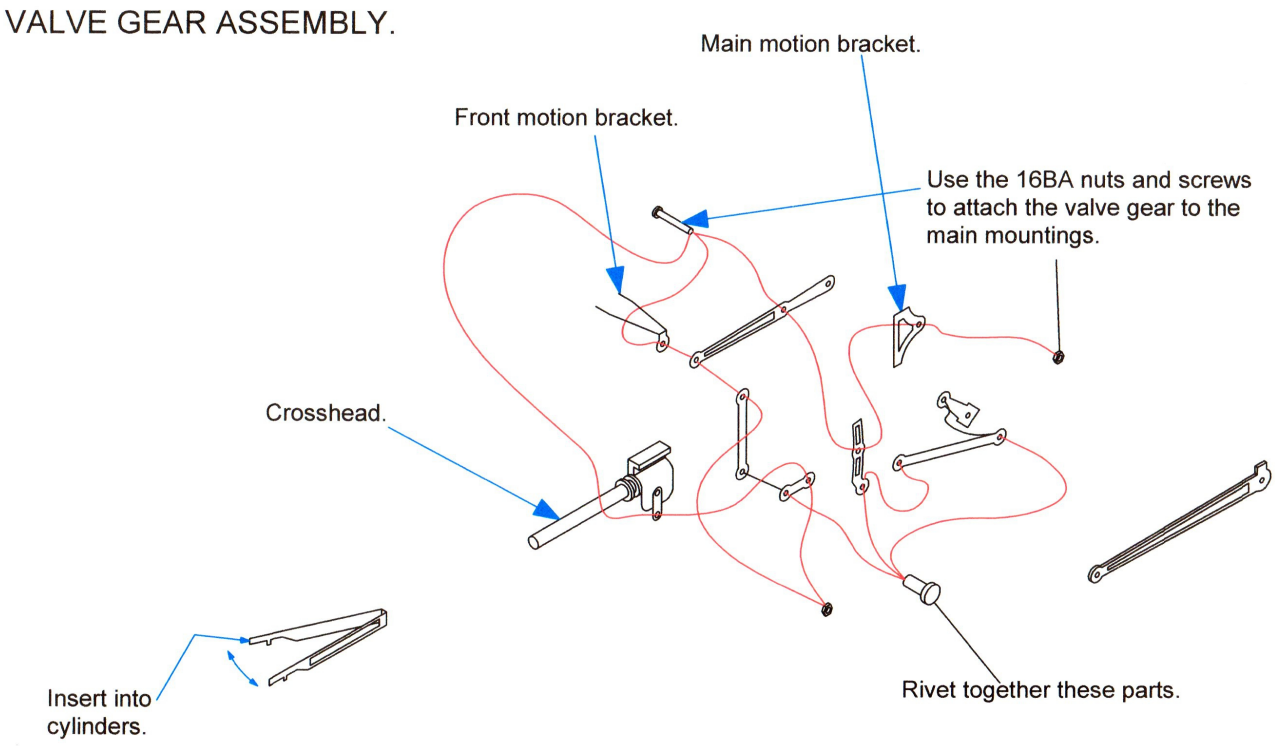


FIG. 7.

Solder the frames (2) into the baseplate (1). Fit the dragbeam (3) at the front and the bufferbeam (4) at the rear. Solder two 8BA screws (11) into the holes in the baseplate.

Cut out the main tender body sides (5) and the tender beading/coping plates (6). Place the beading/coping plate onto the main tender sides. Line them up and tack solder the beading in place. When satisfied the position is exactly right, solder along all seams. Clean away all solder from the tender sides ready for bending.

Line up a piece of 1/8th brass bar with the rear vertical handrail holes and bend the sides to shape carefully. There are half etched lines on the inside as a guide. Some adjustments may be necessary. Follow the same procedure for the front body curve.

Solder the tank top support (7) into the slot in the baseplate. Solder the body sides to the baseplate.

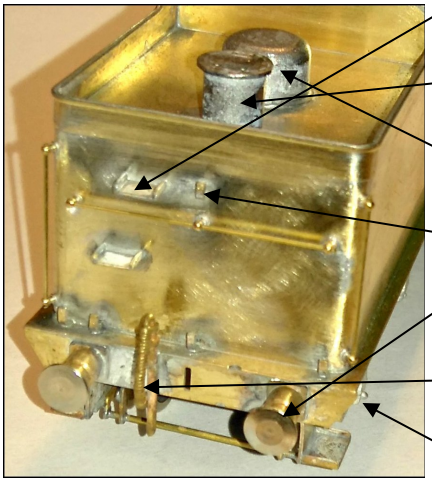
Fold the front bulkhead (8) as shown and fit the tank top (9) into the slots.
Fold the coal-space (10) and solder under the tank top. Fit this unit in between the body sides.

Fit the rear bulkhead (12) into the slots in the tank top and then solder the beading (13 & 14) into the recesses in the front and rear bulkheads.

Fold the footplate support (15) and solder in front of the bulkhead. Solder the footplate (16) on top of it.

Solder the coal chute (17) in place with the locker doors (18) either side of it.

Fold up the front steps (19) and solder them in place. Add the medium steps (20). The small steps (21) and large steps (22) fit at the back of the frames.



Fit the rear body steps (23),

water filler (24),

dome (25),

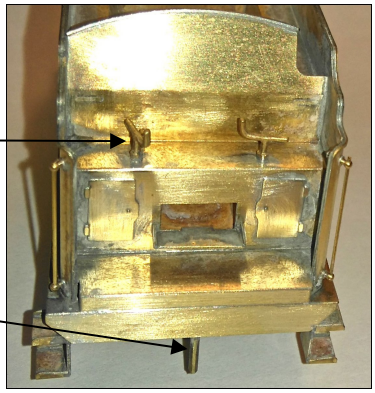
lamp brackets (26),

buffers (27),

vacuum pipe (28),

axleboxes (29).

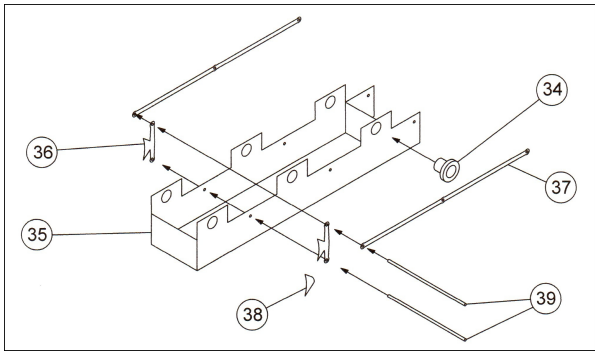
brake and water handles (30).

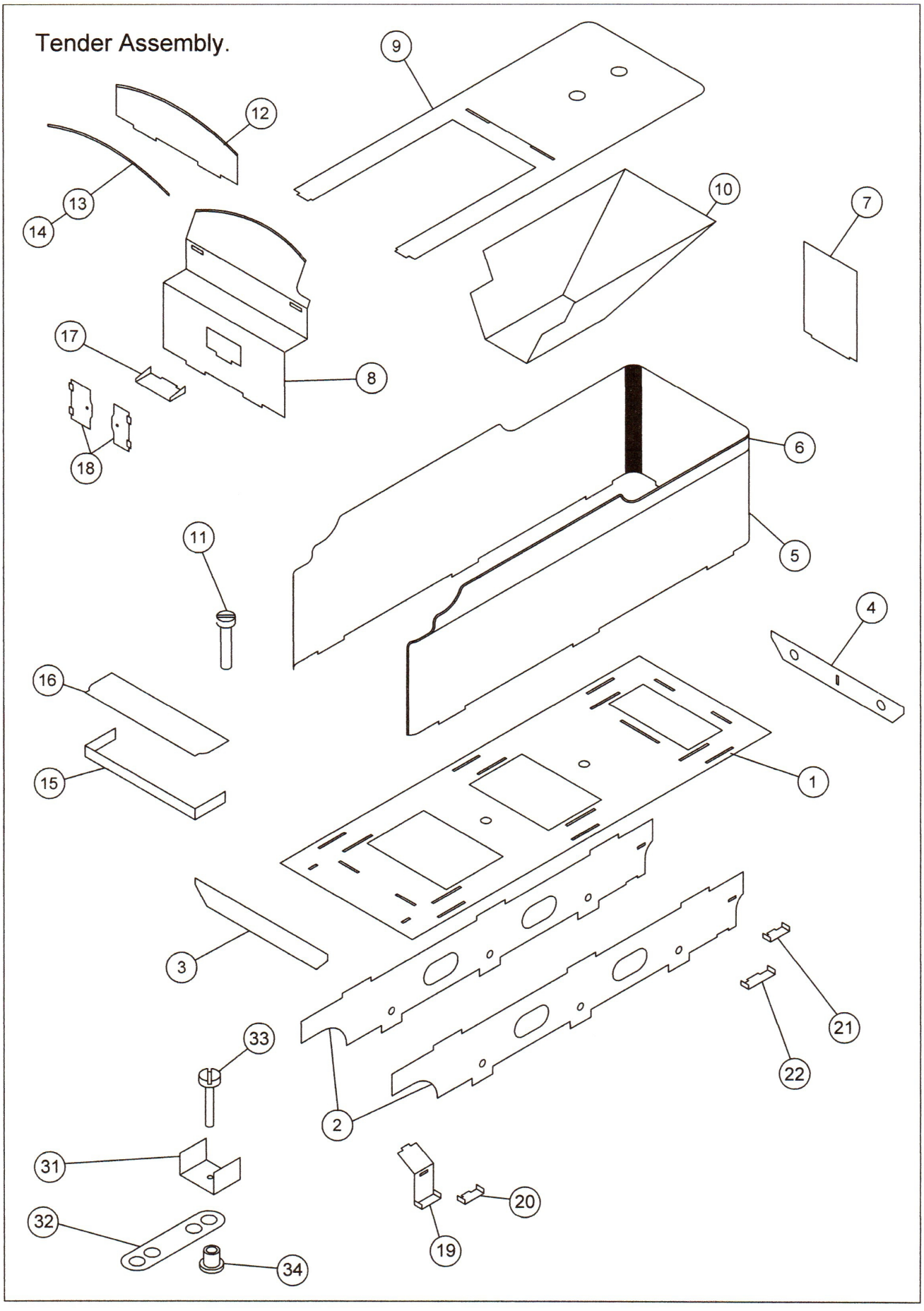


Use a piece of .9mm brass wire to make the tender coupling if you are using the booster.

If not, use the drawbar parts 31 – 34.

Solder the 2mm bearings (34) into the internal frames (35). Fold the frames as shown with the fold lines inside. Solder .7mm brass wire (39) through the frames. Fit the brake blocks (38) to the brake hangers (36) and then solder the brakes to the wire 2mm from the frame. Pass wire through the bottom of the brake blocks and solder the joints. Attach the pull rods (37) making sure that they line up just inside the outside frames. The tender chassis is ready to paint.




Tender Assembly.
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LOCO BODY PARTS LIST

1. Running plate.
2. Valances.
3. Bufferbeam.
4. Smokebox saddle front.
5. Smokebox saddle rear.
6. Smokebox saddle sides.
7. Smokebox saddle top.
8. Front frame extensions.

8a. Saddle surround.

9. Centre cylinder cover.
10. L/H Cab side.
11. R/H Cab side.
12. Cab front.
13. Cab floor support.
14. Cab floor (with Fallplate).
15. L/H Cab side overlay.
16. R/H Cab side overlay.
17. Cab roof.
18. Riveted roof overlay.
19. Roof shutter mount.
20. Cab roof shutters.
21. Cab backhead.
22. L/H Cab platform.
23. R/H Cab platform.
24. Reversing screw.
25. L/H Cab seat.
26. R/H Cab seat.
27. Resin boiler.
28. Smokebox wrapper.
29. Smokebox door.
30. 2393 reversing bar.
31. 2394 reversing bar.
32. Spencer double buffers.
33. Chimney.
34. Single dome.
35. Streamline dome.
36. Anti-vacuum valve base.

36a. Anti-vacuum valve base for 2394 only.

37. Superheater cover bases.
38. Anti-vacuum valves.
39. Superheater covers.
40. Saddle surround.
41. Steam pipes.
42. L/H front booster pipework.
43. R/H front booster pipework.
44. L/H rear booster pipework.
45. R/H rear booster pipework.
46. Sandbox fillers.
47. Oilboxes.
48. Mechanical lubricator.
49. Ejector pipe (.9mm wire).
50. Oval washout plugs.
51. Cast washout plugs.
52. Vacuum pipe.
53. Whistle.
54. Smokebox door handle.
55. Ross pop safety valves.
56. Lamp brackets.
57. Westinghouse pump.
58. Vacuum pipe.
59. Piping conduits.
60. 0.7mm Brass wire.
61. 0.45mm Handrail wire.
62. Handrail knobs.

CHASSIS PARTS LIST

1. Mainframes.
2. Compensating beams.
3. Front pony mounting spacer.
4. Rear spacer & Centre spacer.
5. Rear pony mounting spacer.
6. Rear frame stretcher.
7. Chassis bearings.
8. Main motion bracket.

8a. Front motion bracket.

9. L/H Cab steps.
10. R/H Cab steps.
11. Brake hangers.
12. Brake blocks.
13. Brake rodding.
14. Cylinders.
15. Cylinder sides.
16. Front cylinder covers.
17. Rear cylinder covers.
18. Front valve guides.
19. Rear valve guides.
20. Front pony truck stretcher.
21. Front pony truck.
22. Pony strengthener.
23. Rear pony truck.
24. 2mm Bearings.
25. Springs.
26. Drawbar mount.
27. Drawbar.
28. Crossheads.
29. Slidebars.
30. L/H Cartazzi axlebox.
31. R/H Cartazzi axlebox.
32. Coupling rods.
33. Connecting rods.
34. Valve gear.
35. Valve gear rivets.
36. 0.7mm Brass wire.
37. 8BA Screws and nuts.
38. 10BA Screws and nuts.
39. 16BA Screws and nuts.
40. Booster.
41. L/H Sandbox.
42. R/H Sandbox.
43. Injector.

TENDER PARTS LIST

1. Baseplate.
2. Frames.
3. Dragbeam.
4. Bufferbeam.
5. Body sides/rear.
6. Beading/coping plate.
7. Tank top support.
8. Front bulkhead.
9. Tank top.
10. Coal space.
11. 8BA screws.
12. Rear bulkhead.
13. Rear bulkhead beading.
14. Front bulkhead beading.
15. Footplate support.
16. Footplate.
17. Coal chute.
18. Locker doors.
19. Front steps.
20. Medium steps.
21. Rear steps (small).
22. Rear steps (large).
23. Rear body steps.
24. Water filler.
25. Dome.
26. Lamp brackets.
27. Buffers.
28. Vacuum pipe.
29. Axleboxes.
30. Brake and water scoop handles.
31. Drawbar mount.
32. Drawbar.
33. 10BA screw.
34. 2mm bearings.
35. Underframe.
36. Brake hangers.
37. Pull rods.
38. Brake blocks.
39. 0.7mm brass wire.

Engine details

LNER No.	Build Date	Booster removal	94A/94HP Boiler	Disposal Date
2393	6/1925	5/1938	1/1943	7/1945
2394	11/1925	4/1937	11/1942	7/1945