

## D15 Assembly Instructions

### Chassis Assembly

Take the frames (1) and solder in the axle bushes (2), making one frame L/H and one R/H. Choose either the 'OO' or 'EM' frame spacers (3) as required, bend as shown on the diagram, and solder the frames to the spacers making sure everything is assembled square and flat. Solder an **8BA** nut (4) over the hole in the main spacer halfway between the axles, and another over the hole in the smallest spacer to which the bogie link will be attached. If fitting a **D11** motor screw the motor to the mounting plate (5) using two washers (6) under the screw head. Put an axle and the Romford gear in the chassis to check the gear mesh, adjust if necessary, and then fix the mounting plate in place. The **D11** motor can be fixed in place permanently after painting and fitting the wheels. If fitting a Portescap **1219** motor this plate will not be necessary.

Solder pieces of the **22g** wire through the holes in the frames to form the brake gear supports (7). Now take the brake hangers (15) and solder the brake blocks (16) to them, making **L/H** and **R/H** pairs, then solder the assembled brakes to the support wires (7). Using a driving wheel and axle make sure they do not touch the wheels. Now fit the brake tie bars (17) and pull rods (18). Fit the ashpan sides (19) to the underside of the chassis.

Now is the best time to paint the chassis. Spraying with a cellulose primer and then with cellulose satin or matt black is recommended. Clean out the axle holes with a rat tail file.

Next fit the wheels, axles, gear and crankpins to the chassis, using the four axle washers (8) to take up any side play. Fit the pairs of coupling rod halves (9) together, place the rods on the crankpins and check that the wheels revolve freely, and then fit the four small washers (10) to retain the coupling rods. Put paper between the coupling rods and the washers when fixing to avoid soldering the rods to the crankpins, and then remove the paper afterwards. Screw the collector tag (11) to the main spacer using one of the **8BA** screws (12) and the two fibre washers (13). Check that the tag is not electrically live to the chassis, then form current pickups using some of the 26g handrail wire (14) soldered to the tag.

Turn now to the bogie (21) and fold down the sides at right angles to the centre stretcher, then solder the two strengthening plates (22) between the frames below each edge of the stretcher. These two pieces may require slight trimming to fit. Now fix the two large washers (23) on the underside of the bogie centre. Next fix the dummy equalizing beams (24) to the bogie frames, so that the axle holes line up. If working in 'OO' the beams should be spaced off the frames with one axle washer (25) per axle hole. If working in 'EM' two washers between the beams and the frames should be used. Next fit pieces of **22g** wire through the small holes at the front and back of the bogie to form the tie bars (26). Now take the bogie link and its washer (27), solder the washer over the smaller end of the link and tap the hole **8BA**. Screw the link to the bogie leaving a small amount of play and shorten the screw so that its end is flush with the top surface of the link. Paint the bogie and then fit the wheels to the bogie. The bogie can now be screwed to the chassis using an 8BA screw and the cast pivot (28).

The drawbar (29) and drawbar pivot (30) are fixed to the chassis with the same screw used to attach the rear end of the chassis to the superstructure.

## Superstructure Assembly

Take the footplate (1), lay it upside down on a flat surface (the hole for the vacuum pipe should be to the L/H side of the loco), and solder the drag beam (2) to it, slightly in from the front edge. Next solder the valances (3) to the footplate, **0.5mm** in from each edge, then solder the bufferbeam (4) in place, followed by the bufferbeam overlay (5). Solder the step plates (6) behind the valances with their centre lines **35mm** back from the front edge of the footplate. Bend up the ends of the steps (7) and fix into the slots in the step plates and valances. Solder two 8BA nuts (8) over the holes on the footplate centre line to screw the chassis to, and then fix the frame pieces (9) into the slots in the footplate, checking against the chassis that they come midway between the bogie wheels. Then fix the other frame pieces (10 & 11) to the underside of the footplate, in front of and behind pieces (9), checking the bogie wheel clearances before continuing.

Next take the cab/splashers sides (12) and the cab front/splashers tops (13) and carefully curve the splashers tops to match the splashers, and then fix the parts together. Note that the cab front/splashers tops fit between the sides, and not on the top edges of the sides. The cab and splashers assembly can be fitted to the footplate, checking that everything is flat and square before finally fixing, and filing the ends of the splashers tops as necessary to ensure a good fit to the footplate.

Next fit the cab window surrounds (14) to the cab windows, then fit the upper frame pieces (15) to the footplate, and make the grab handles (16) from the handrail wire. Bend the cab floor support (17) and fix to the footplate, only slightly in from the footplate edge, and with its ends against the inside faces of the cab sides, then fix the cab floor (18) to it. Bend the two cab splashers sides (19) along the etched fold lines and solder them to the cab floor with their rear faces almost level with the rear edges of the cab sides, then fix the tops (20) to them. Now take the regulator handle (21) and fix it to the backhead (22), then fix the backhead in place in the cab.

Curve the cab roof (23) to match the curves of the cab front, bend up the side edges along the fold lines, and then solder it to the cab. Then fix the rainstrips (24) into the half-etched lines in the roof. The top rainstrip on the etching sheet is slightly longer than the other two to allow for the curve of the rear edge of the cab roof. The cab side beadings (25) can now be fitted, bending them during fitting to match the shape of the cab side cut-outs. The beading should be continued along the underside of the cab roof and the ends trimmed flush with the rear edge of the roof. Now make the cab handrails (26) from the handrail wire, threading the wire through the holes in the ends of the beading and the holes in the footplate either side of the cab floor.

Turn now to the boiler, and roll the boiler/firebox unit (27), bend out the lower part of the firebox sides, and solder along the boiler seam. Next form the smokebox inner (28), straightening the saddle sides out so that they fit between the upper frame pieces, and fit it to the boiler unit.

Solder the smokebox front (29) in place, then form the smokebox outer (30) and fit to the smokebox so that it overlaps the edge of the front (29). Now solder the saddle front (31) and rear (32) to the saddle, checking at the same time the fit of the saddle between the upper frame pieces, and the alignment of the tag on saddle front with the slot in the footplate. Check at the same time the fit of the boiler unit to the footplate and cab, then fit the three boiler bands (33) in place. The assembled boiler can now be fitted to the footplate/cab checking before finally fixing that the boiler is straight and level, and that its top centre line lines up with the

centre of the cab. Once fitted the boiler handrail can be made from the **26g** wire (34) and handrail knobs (35). The chimney (36), dome (37), and clacks can now be fitted, and then the clack pipes (39) can be formed from the **22g** wire and fixed into the clacks at one end. **0.75mm** holes will need to be drilled in the splasher tops, behind the front splashers and close to the firebox sides for the other end of the pipes. Fit the two pipe covers (40) to the firebox sides, and then fit the whistle (41) in place. Form the two injector pipes (42) either side of the firebox, bending the upper ends to fit into the holes in the firebox top either side of the whistle. **0.75mm** holes will need to be drilled in the splasher tops between the splashers for the other end of these pipes, in line with the holes in the firebox top and **1.5mm** out from the sides. These and the holes for the clack pipes were not etched out, as any variation in the curving of the splasher tops would have put the holes in the wrong position. Now fit the three smaller pipes from the whistle and injector pipes to the cab using handrail wire (43).

Turn to the smokebox and fit the upper lamp brackets (44) and the front step (45) to the smokebox front. Fit the smokebox door handles (46) and the two lamp brackets (47) to the smokebox door (48) and fit the door to the smokebox. Fix the buffers (49) into the holes in the bufferbeam, and fit the cylinder cover (50) to the front of the smokebox saddle between the frame pieces. Fix the three lamp brackets (51) and the vacuum pipe (52) into the holes in the front edge of the footplate.

Now turn back to the cab, take the fallplate (53) and curve it slightly, make a hinge from the handrail wire and split pins (54) and fix it into the holes in the cab floor, making sure that it pivots freely. Lastly fit the two ejectors (55) below the footplate, behind the cab steps.

## **Tender Assembly**

Take the chassis (1) and bend down the sides at **90°** to the centre. Solder an axle washer (2) over each axle hole, and 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 chassis using axle washer to take up the sideplay, but leaving a small amount of sideplay in the centre axle. Take the brake hangers (4) and solder the brake blocks (5) to them, making three **L/H** and three **R/H**, then solder the hangers to the wire supports, making sure the brakes do not touch the wheels. Take the pull rods (6) and thread **22g** wire (7) through these and 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) and solder the bufferbeam (9) to it, **0.5mm** in from the back edge of the footplate. Next fit the valances (10) to the footplate, also **0.5mm** in from each edge, then fix the drag beam (11) in place. Bend up the ends of the four steps (12) and fit these into the slots in the valances. Take the frames (13) and fix into the slots in the footplate, and then fit the buffer bodies (14) to the bufferbeam. Solder an **8BA** nut (15) over each hole in the footplate, for screwing the chassis to the body. Now take the tender body (16) and bend the corners to **2mm** radius. This must be done accurately and squarely to ensure the correct fit of the body to the footplate, and to ensure the accurate fit of the other body parts. The top of the sides and back should be flared outwards at **60°** to the horizontal. The front corners of the sides must also be curved at **2mm** radius for a full **90°**. Once the tender body is correctly formed it can then be slotted into the footplate and soldered in place. Take the front plate (17) next, bend over the two top pieces at **90°**, and then fix the plate into the slot in the footplate. It should fit between and level with the front edges of the tender body. Bend the five lamp

brackets (18) and fit into the slots in the back of the body, then bend the floor support (19) and fit to the footplate only very slightly in from the front footplate edge, then slot the floor piece (20) into the front plate and fix it to the floor support.

Now take the long lower coping strip (21) and starting at one end of the front of the body, fix the strip all the way round the body with its top edge against the bend of the flared coping. Next take one of the two overlays for the flared coping (22) and curve this to fit the flared top of the body. Fix in place, and then repeat with the other overlay. The two pieces join at the back of the tender.

Bend the coal plate (23) next and fit into the body. The main section should be level with the etched fold line for the flared top, and the front edge should be level with the bottom edge of the coal hole in the front plate. Solder the coal rails (24) to the flared tender tops with an equal amount of body at either end. Fit the draught plates (25) into the slots in the footplate either side of the floor, then bend the sandbox bodies (26) and fix these into the slots in the floor. Bend the sandbox tops (27) at an angle to match the body sides, then fix in place. Fix the two short beading strips (28) to the top edges of the draught plates, then make the two handrails (29) from some of the **26g** wire, with the top of the wire through the holes in the beading ends, and the bottom end through the holes in the footplate. Put the drawbar pin (30) through the hole in the footplate and solder it to the back of the drag beam, then bend the guard irons (31) to shape and solder them to the frames. Form the vacuum piping (32) that runs along the valances on both sides of the tender, with the ends through the holes in the frames, and then fit the axleboxes (33) into the holes in the frames. The brake column (34) fits against the front plate on top of the **R/H** sandbox. Finally fit the upper toolboxes (35), tank filler (36), Vacuum pipes (37) and buffer heads (38). The completed body and chassis can be fitted together using the two **8BA** screws (39).

### Chassis Parts List

- |                                   |                            |
|-----------------------------------|----------------------------|
| 1. Frames.                        | 17. Brake Tie Bars.        |
| 2. Axle Bearings.                 | 18. Brake Pull Rods.       |
| 3. Frame Spacers.                 | 19. Ashpan Sides.          |
| 4. 8BA Nuts.                      | 20.                        |
| 5. D11 Motor Mounting Plate.      | 21. Bogie.                 |
| 6. Washers for D11 Motor Screws.  | 22. Centre Strengtheners.  |
| 7. Brake Gear Supports, 22g Wire. | 23. Centre Washers.        |
| 8. Driving Wheel Axle Washers.    | 24. Equalizing Beams.      |
| 9. Coupling Rods.                 | 25. Bogie Axle Washers.    |
| 10. Crankpin Washers.             | 26. Tie Bars, 22g Wire.    |
| 11. Collector Tag.                | 27. Bogie Link and Washer. |
| 12. 8BA Screws.                   | 28. Bogie Pivot.           |
| 13.                               | 29. Drawbar.               |
| 14. Pickup Wire.                  | 30. Drawbar Pivot.         |
| 15. Brake Hangers.                |                            |
| 16. Brake Blocks.                 |                            |

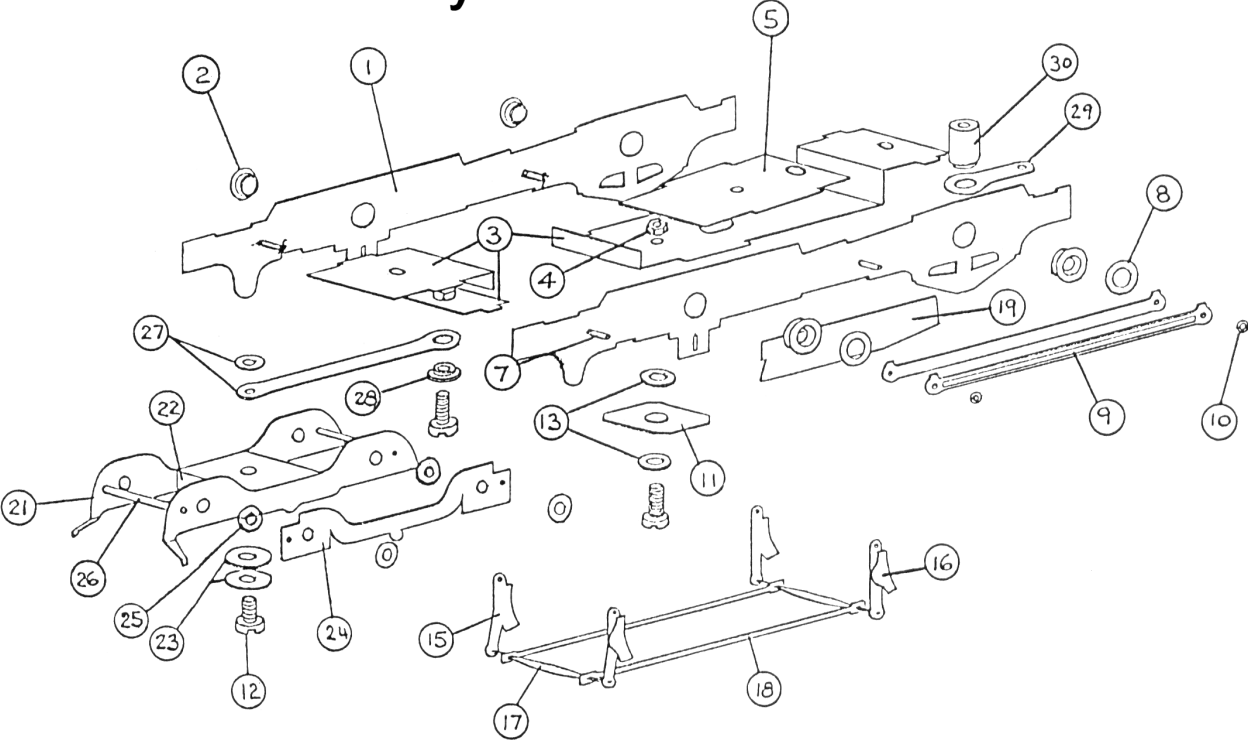
## **Superstructure Parts List**

1. Footplate.
2. Drag Beam.
3. Valances.
4. Bufferbeam.
5. Bufferbeam Overlay.
6. Step Plates.
7. Steps - 4 Long, 4 Medium.
8. 8BA Nuts.
9. Frame Pieces above Bogie.
10. Frame Pieces In Front Of Bogie.
11. Frame Pieces behind Bogie.
12. Cab/Splasher Sides.
13. Cab Front/Splasher Tops.
14. Cab Window Surrounds.
15. Upper Frame Pieces.
16. Grab Handles.
17. Cab Floor Support.
18. Cab Floor.
19. Cab Splasher Sides.
20. Cab Splasher Tops.
21. Regulator Handle.
22. Backhead.
23. Cab Roof.
24. Cab Roof Rainstrips.
25. Cab Side Beading, L/H & R/H.
26. Cab Handrails.
27. Boiler/Firebox/Smokebox.
28. Smokebox Inner.
29. Smokebox Front.
30. Smokebox Outer.
31. Saddle Front.
32. Saddle Rear.
33. Boiler Bands.
34. Handrail Wire, 26g.
35. Handrail Knobs.
36. Chimney.
37. Dome.
38. Clack Valves.
39. Clack Pipes, 22g Wire.
40. Pipe Covers.
41. Whistle.
42. Injector Pipes, 22g Wire.
43. 3 Pipes to Cab Front, 22g Wire.
44. Smokebox Lamp Bracket.
45. Smokebox Front Step.
46. Smokebox Door Handle.
47. Smokebox Door Lamp Brackets.
48. Smokebox Door.
49. Buffers.
50. Front Cylinder Cover.
51. Lamp Brackets.
52. Vacuum Pipe.
53. Cab Fallplate.
54. Wire and Split Pins for Fallplate Hinge.
55. Ejectors.

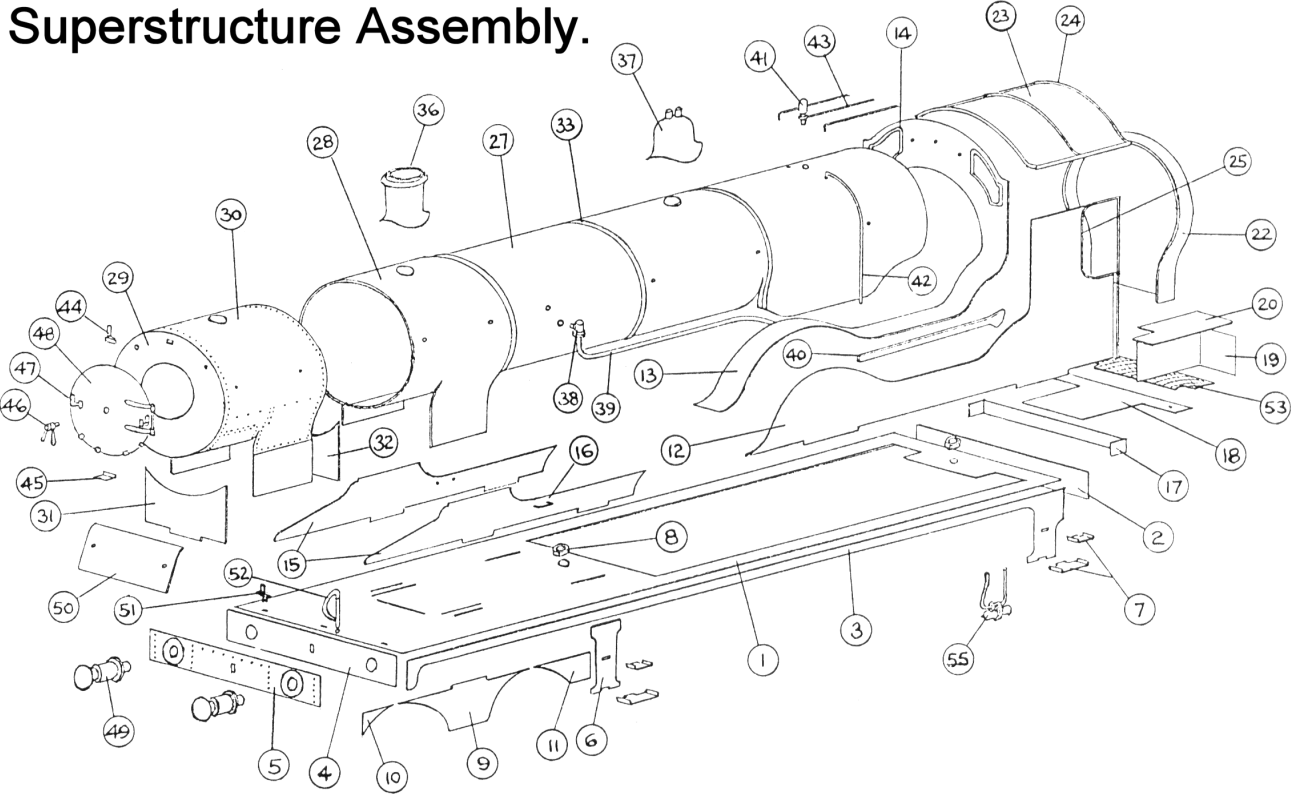
## **Tender Parts List**

1. Chassis.
2. Axle Washers.
3. Brake Gear Supports.
4. Brake Hangers.
5. Brake Blocks.
6. Brake Rods.
7. Tie Bars, 22g Wire.
8. Footplate.
9. Bufferbeam.
10. Valances.
11. Drag Beam.
12. Steps.
13. Frames.
14. Buffer Bodies.
15. 8BA Nuts.
16. Tender Body.
17. Front Plate.
18. Lamp Brackets.
19. Floor Support.
20. Floor.
21. Lower Coping Strip.
22. Upper Coping Strips.
23. Coal Plate.
24. Coal Rails.
25. Draught Plates.
26. Sandbox Bodies.
27. Sandbox Tops.
28. Beading, L/H & R/H.
29. Handrails, 26g Wire.
30. Drawbar Pin.
31. Guard Irons.
32. Vacuum Piping.
33. Axleboxes.
34. Brake Column.
35. Upper Toolboxes.
36. Tank Filler.
37. Vacuum Pipe.
38. Buffer Heads.
39. 8BA Screws.

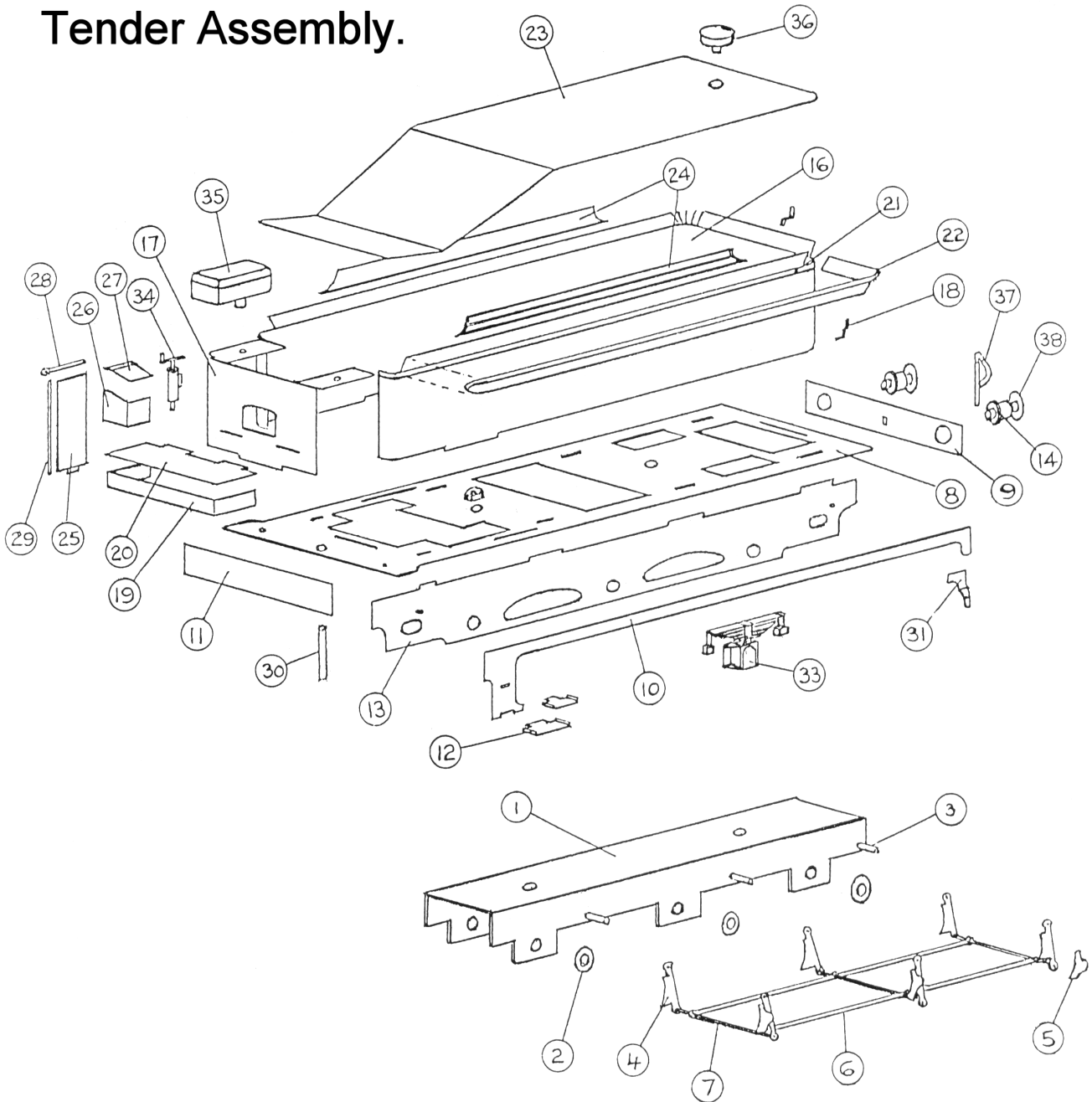
# Chassis Assembly.



# Superstructure Assembly.



# Tender Assembly.



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