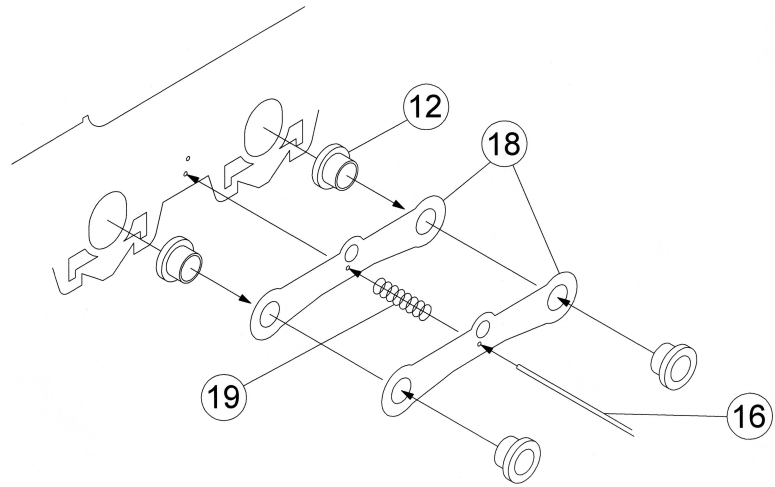


Urie H16 4-6-2t Instructions

Fig. 1.

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.

Fold the main chassis frames (1) up and then fold the rear section in to match the rear frame spacer (2) which is narrower. Solder the frame spacers (2, 3 & 4) in place making sure everything is square. Solder an 8BA screw (36) into the hole in the front spacer (4).



Compensated Chassis - Solder the axle bearings (12) into the compensating beams (18). Also solder bearings into the rear axle holes in the frames. Fit the compensating beams by passing .70mm brass wire (16) through the frames, through one of the beams, then the spring (19), 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. Trim the excess wire flush with the chassis side. Repeat the process for the second set of beams. 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 axle bearings (12) into the axle holes in the frames (1).

Both Types – Solder two 2mm bearings (6) into the rear holes of the cylinders (5). Fold the cylinders into shape with the fold lines inside and solder into position. Shape the cylinder sides (7) to match the cylinders and solder them in place. Fold the slidebars (17) as shown and solder them together. Remove the strengthening pieces and then solder them into the back of the cylinders. Solder the rear valve covers (22), front valve covers (23) and piston end covers (24) in to the holes in the cylinders. Solder the rear guard irons (25) to the bottom rear corner of the chassis. Solder the sandboxes (37) just in front of the front driving wheels.

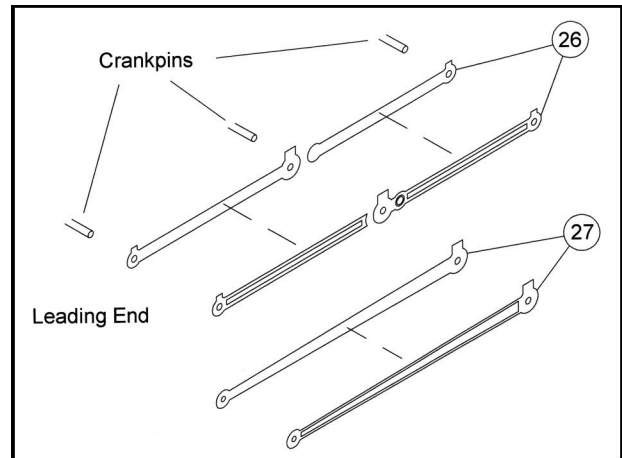
Fold the front motion bracket (8) and solder in place. Fold the outside sections of the main motion bracket (9) down. Fold down the front sections and then solder the bracket in place.

Solder three lengths of the .70mm brass wire (16) into the holes in the chassis to form the brake mountings (If you are building a compensated chassis, the wire must go through the holes in the compensating beams). Take the brake hangers (13) and the brake blocks (14) and solder the blocks to the hangers, 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 (15).

Fit 2mm bearings (6) into the bogie (21) and fold it up. The chassis can now be painted prior to fitting the wheels.

Fig. 2.

The driving wheels can now be fitted permanently. (We recommend Markits specific H16 wheels which include crank pins). Assemble the coupling rods (26) as shown in the diagram. Take care in this operation as they must move freely for the compensation to work. The connecting rods (27) can also be assembled.



Remove the crossheads (20) from their sprues. Drill out the lower link on the crossheads with 0.9mm drill. Check that the crossheads run freely in the slidebars and adjust as necessary.

Fit the coupling rods to the wheels. Attach the connecting rods to the crossheads with the 14BA screws and nuts (28). Rivet together parts 29, 30, 31, 32 and 33. Note that there is a specific order to work to. When this is done all the valve gear can be fitted to the relevant brackets using the 16BA screws and nuts (35).

Valve Gear Assembly.

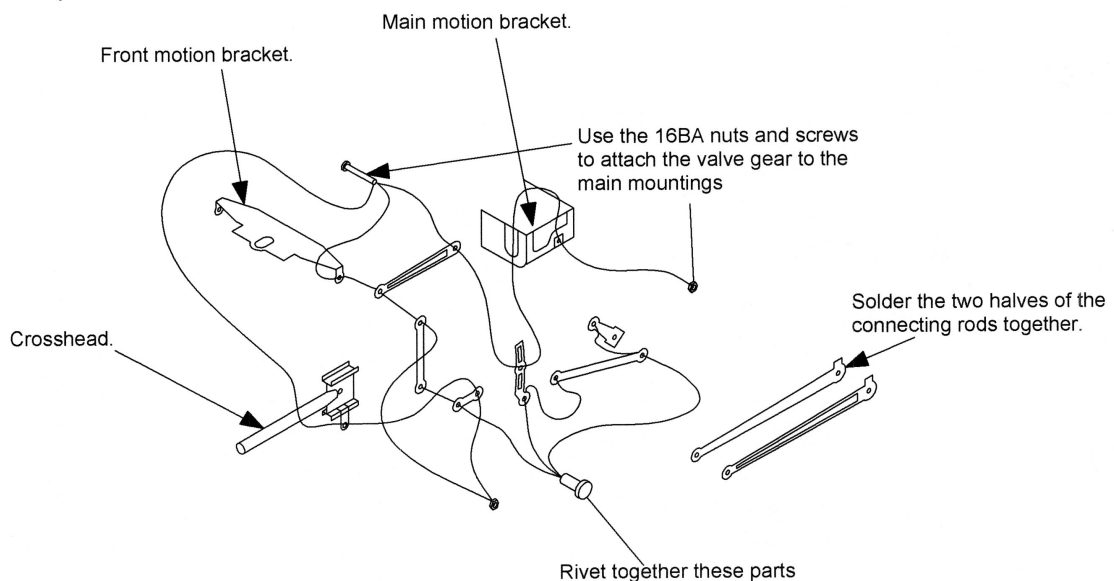


Fig. 3.

Cut out parts 1 to 9 from the fret. Remove all tabs. Take the running plate (1) and, using the valances and their support frame (2 & 3) as a template, form the running plate curves and then fold the front section 90°. Line the valances up with the running plate and mark the position of the kink in the valances. When a reasonable fit is obtained solder the valance in place starting at the fold down points. Solder around the curves gradually holding firmly in place as you go. This way the curves will be formed exactly with the minimum of messing around. **DO NOT** remove the valance support frame yet!

Solder the rear buffer beam (4) into its recess, making sure that it is at 90° to the running

plate. Solder two 8BA screws into the holes in the running plate (Alternatively you can solder 8BA nuts over the holes, if you prefer).

Solder the cab rear (5) into its slots (Fit the rear doors (35) now, or open the recess to have the doors appear open). Take the cab/bunker sides (6 & 7) and the cab floor (8). Tack the cab floor into the slots in the cab sides. Fit this unit into the slots for the cab sides. Make sure it sits square and then solder in place and around all the seams. The cab front (9) can now be soldered into the slots in the floor. Take the bunker rear (11) and, with the half etched lines facing inwards, shape the top to match the bunker sides. Solder it in place.

Take the boiler (12) and solder the seam together. A piece of scrap brass soldered over the seam on the inside will give added strength. Solder the smokebox front (13) onto the tabs at the front of the boiler. Fit the inner smokebox wrapper [**THICKER ONE**] (14) around the boiler and against the smokebox front. Do the same with the outer wrapper [**THINNER ONE**] (15). Refer to the boilerband (79) dimension drawing and solder them in place now. Use a small piece of tube/bar, roughly 15mm in diameter to curve the bands.

Check the fit of the boiler unit into the slots in the cab front and onto the tabs at the front of the running plate. Check all sits square and when happy with the fit, tack it in place. Check the alignment again and then solder in place permanently.

Take the front running plate (16) and form the curves. Use the front running plate valances (18 & 19) as a guide. Solder the front buffer beam (17) into its recess, checking that it sits square. Carefully form the kink in the valances, this needs to be done a bit at a time and checked for fit as you go along. Solder them in place when you have a good fit. Offer up the front running plate unit to the main running plate. The flat area between the curves locates onto the tabs at the bottom of the smokebox front and the curves locate onto the front of the main valances. Some fettling will be needed where the front and main valances join together. When you have a good fit tack in place and check that it sits square, solder around the seams when happy with the fit. Solder the front frames (20) in place against the smokebox front and the running plate curves. Fit the bogie wheel arch sections (21) under the running plate and in line with the front frames.

Fig. 4.

Take the tank sides (22 & 23) and fold the tank front in at 90°. The fold lines should be on the inside. Form the rear of the tank sides to match the the tank tops (24 & 25). Solder the tank tops into the recesses in the tank sides. Check the fit of the assembled tanks into their slots and into the half etched recess on the cab sides. When happy with the fit solder them in place. Make a solder joint between the tanks and the boiler for added strength.

Form the bottom edge of the riveted smokebox overlay (26) to match the smokebox front. Solder it in place when you have a good fit. Solder the riveted smokebox front overlay (27) in place, followed by the smokebox step (28). Solder the front and rear bufferbeam overlays (29 & 30) in place.

Fit the cab backhead (78) into the cab using low melt solder. You can glue it if you prefer, but solder is better.

Form the cab roof (31) to match the cab front and rear. Solder it in position so that there is even overhang at the sides and the front and rear. Solder a piece of .7mm wire along the side edges and then form the strengthening ribs (32 & 33). If using the later roof shutter don't fit the rear of the two middle ribs (refer to fig. 5). if not, solder them all in place. Solder the running plate curve steps (34) in place.

Fig. 5, 6, 7, 8 & 9.

Take the early roof shutter base (39) and the shutter top (40). Solder the base centrally to the front roof section. Chamfer the edges of the shutter top and solder onto the base.

If using the later roof shutter, solder the base (41) in position. Now fit the remaining rib, cutting it to go either side of the shutter base. Solder the shutter top (42) onto the base. You can make it an open shutter if you want, by cutting out inside the shutter base.

Using .45mm wire, make up the cab handrails. Solder the wire into the holes in the running plate and then to the brackets on the tank and bunker sides.

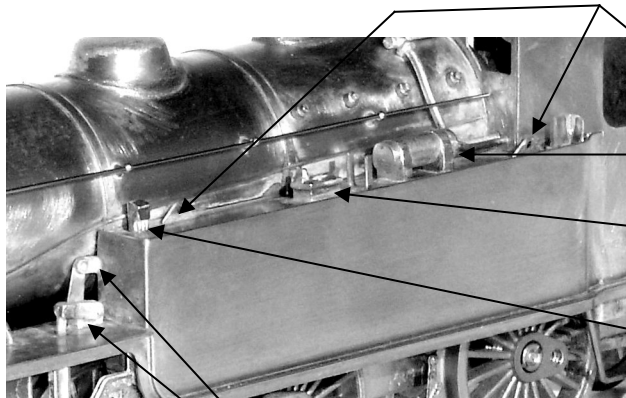
Solder or glue the following parts: washout plugs (43), Firebox valves (44), Safety valve cover (45). Cut the bottom of the safety valves (81) off before fitting them.

Fold the lamp brackets (46) and solder them into the slots on the bunker rear.

Fold up the rear steps (47). There are no slots provided as these were fitted later on and may not be needed. Solder them in place using the following measurements. Lower steps 6mm up from running plate, upper step 12mm up from running plate. Lower steps centres 9mm in from bunker edge and upper step on the centre line of the bunker rear.

Solder the buffers (48) into the bufferbeam. You may need to open out the holes depending on which buffers are supplied. Repeat for the front.

Solder a vacuum and steam pipe(49) onto the bufferbeam.



Fit the tank lifting eyes (50) into their slots.

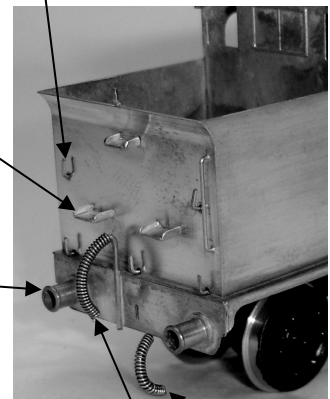
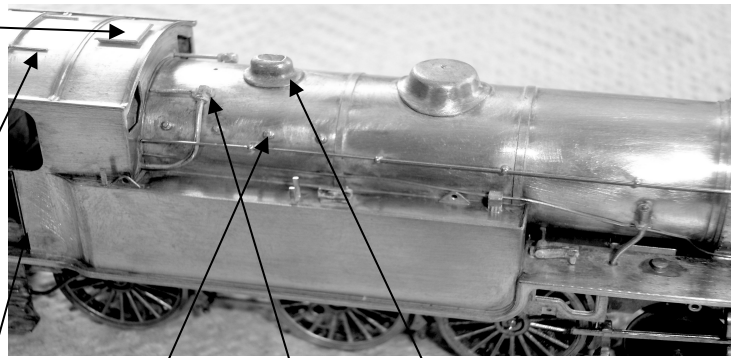
Solder the AWS tank (51) in place on the tank top.

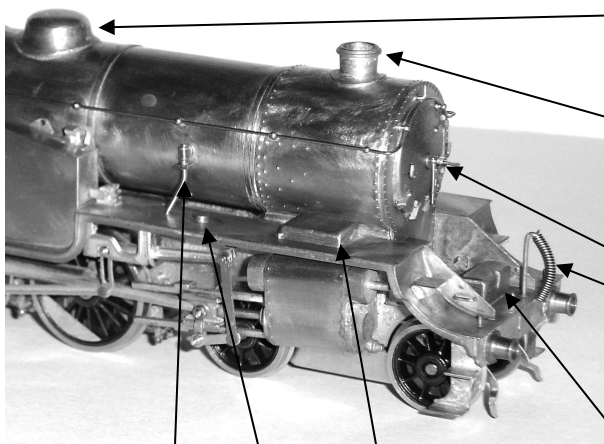
Solder or glue the tank fillers (52) in their holes.

Cut the oilboxes (53) off the sprue and solder them at the front of the tanks.

Two reversing bars are supplied, so that you can select forward or reverse gear. Solder together the reversing bar (54 or 55) and the reversing bar overlay (56).

Check that the spigot on the L/H reverser (57) passes through the bottom of the reversing bar. Solder the reversing bar between the tank and the boiler, you can get at it from inside the tank, and the reverser to the running plate and the reversing bar. You may prefer to glue the reverser in place. Fit the R/H reverser (58) in the same way.





Solder the dome (59) over the hole in the boiler.

Solder the Chimney (60) over the hole in the smokebox.

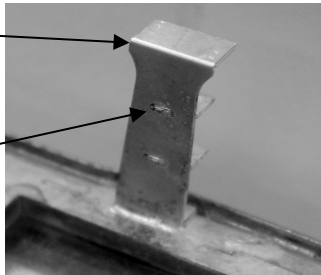
Fit the smokebox door (61) and the door handle (62). The handle is in three pieces.

Solder a vacuum pipe (49) into the hole above the bufferbeam and a steampipe under the bufferbeam.

Solder or glue the toolbox (63) between the front frames.

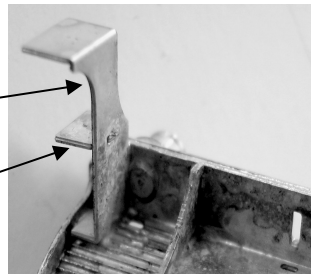
Fix the clack valves (64) into the holes in the boiler and in the running plate, and then the sandbox fillers (65) into their holes. Solder the outside steam pipes (66) to the running plate. Fold the front lamp brackets and fit them in place.

Fold the cab steps (67) as shown and solder under centrally under the cab door opening. Solder the lower (68) and top rungs (69) into the cab step. They are marked underneath with a T & L as they are different widths.



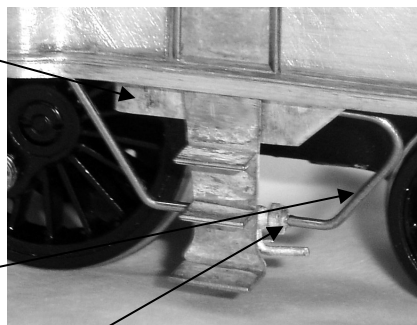
Fold the front running plate steps (70) and solder them behind the bufferbeam.

Solder the middle rungs (71) into the slots in the steps.



Fold the tank balance pipe etchings (38) behind the cab steps

Cut the injectors (72) from the sprues and drill through them with a 1mm drill. Make up the pipework with the .9mm wire.



Solder the injectors in place behind the steps.

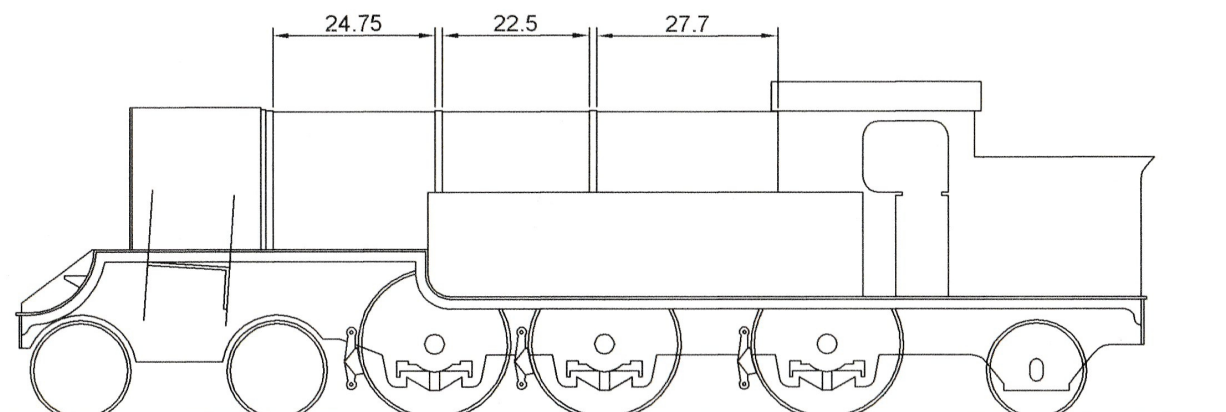
H16 Details

Number	15in Numerals	Unlined Black	Later Cab Ventilators	Plain Stovepipes	BR Number	BR Livery	Snifting Valves Removed	Withdrawn
516	05/1935	09/1943	04/1938	05/1935	09/1949	09/1949	09/1949	11/1962
517	04/1935	04/1941	07/1938	04/1935	07/1948	07/1948	07/1948	12/1962
518	06/1935	12/1941	01/1938	06/1935	11/1950	11/1950	11/1950	11/1962
519	02/1935	07/1940	12/1937	02/1935	04/1949	04/1949	04/1949	11/1962
520	10/1935	09/1941	10/1938	10/1935	11/1948	11/1948	11/1948	11/1962

30520 was mistakenly painted lined black in November 1948, it was altered to plain black in October 1951.

Chassis Parts List

- | | | |
|---------------------------------|-------------------------|-------------------------|
| 1. Mainframes. | 14. Brake Blocks. | 27. Connecting Rods. |
| 2. Rear Spacer. | 15. Pull Rods. | 28. 14BA Nuts & Screws. |
| 3. Middle Spacer. | 16. .7mm Wire. | 29. |
| 4. Front Spacer. | 17. Slidebars. | 30. |
| 5. Cylinders. | 18. Compensating Beams. | 31. |
| 6. 2mm Bearings. | 19. Springs. | 32. |
| 7. Cylinder Sides. | 20. Crossheads. | 33. |
| 8. Front Motion Bracket. | 21. Bogie. | 34. |
| 9. Main Motion Bracket. | 22. Rear Valve Covers. | 35. 16BA Nuts & Screws. |
| 10. R/H Motion Bracket Overlay. | 23. Front Valve Covers. | 36. 8BA Nuts & Screws. |
| 11. L/H Motion Bracket Overlay. | 24. Piston End Covers. | 37. Sandboxes. |
| 12. 1/8 th Bearings. | 25. Rear Guard Irons. | |
| 13. Brake Hangers. | 26. Coupling Rods. | |



Boilerband Dimensions.

Body Parts List

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| 1. Main Running Plate. | 28. Smokebox Step. | 55. Reversing bar (Reverse). |
| 2. L/H Valance. | 29. Front Bufferbeam Overlay. | 56. Reversing Bar Overlay. |
| 3. R/H Valance. | 30. Rear Bufferbeam Overlay. | 57. L/H Reverser. |
| 4. Rear Buffer Beam. | 31. Cab Roof. | 58. R/H Reverser. |
| 5. Cab Rear. | 32. Middle Cab Ribs. | 59. Dome. |
| 6. R/H Cab Side. | 33. Outside Cab Ribs. | 60. Chimney. |
| 7. L/H Cab Side. | 34. Running Plate Curve Steps. | 61. Smokebox Door. |
| 8. Cab Floor. | 35. Cab Rear Doors. | 62. Smokebox Door Handle. |
| 9. Cab Front. | 36. . | 63. Toolbox. |
| 10. Cab Door Opening | 37. . | 64. Clack Valves. |
| Backplate. | 38. Balance Pipes. | 65. Sandbox Fillers. |
| 11. Bunker Rear. | 39. Early Roof Shutter Base. | 66. Outside Steam Pipes. |
| 12. Boiler. | 40. Early Shutter Top. | 67. Cab Steps. |
| 13. Smokebox Front. | 41. Later Roof Shutter Base. | 68. Lower Cab Step Rungs. |
| 14. Inner Smokebox Wrapper. | 42. Later Shutter Top. | 69. Top Cab Step Rungs. |
| 15. Outer Smokebox Wrapper. | 43. Washout Plugs. | 70. Front Running Plate Steps. |
| 16. Front Running Plate. | 44. Firebox Valves. | 71. Middle Front Step Rungs. |
| 17. Front Buffer Beam. | 45. Safety Valve Cover. | 72. Injectors. |
| 18. R/H Front Valance. | 46. Lamp Brackets. | 73. Medium Handrail Knobs. |
| 19. L/H Front Valance. | 47. Bunker Rear Steps. | 74. Short Handrail Knobs. |
| 20. Front Frames. | 48. Buffers. | 75. Handrail Wire (.45mm). |
| 21. Bogie Wheel Arch Sections. | 49. Vacuum Pipes. | 76. .9mm Wire. |
| 22. R/H Tank Side. | 50. Tank Lifting Eyes. | 77. 8BA Screws & Nuts. |
| 23. L/H Tank Tank Side. | 51. AWS Tank. | 78. Cab Backhead. |
| 24. R/H Tank Top. | 52. Tank Fillers. | 79. Boilerbands. |
| 25. L/H Tank Top. | 53. Oilboxes. | 80. |
| 26. Riveted Smokebox Overlay. | 54. Reversing Bar (Forward). | 81. Safety Valves. |
| 27. Riveted Smokebox Front. | | |

PKD MODELS.

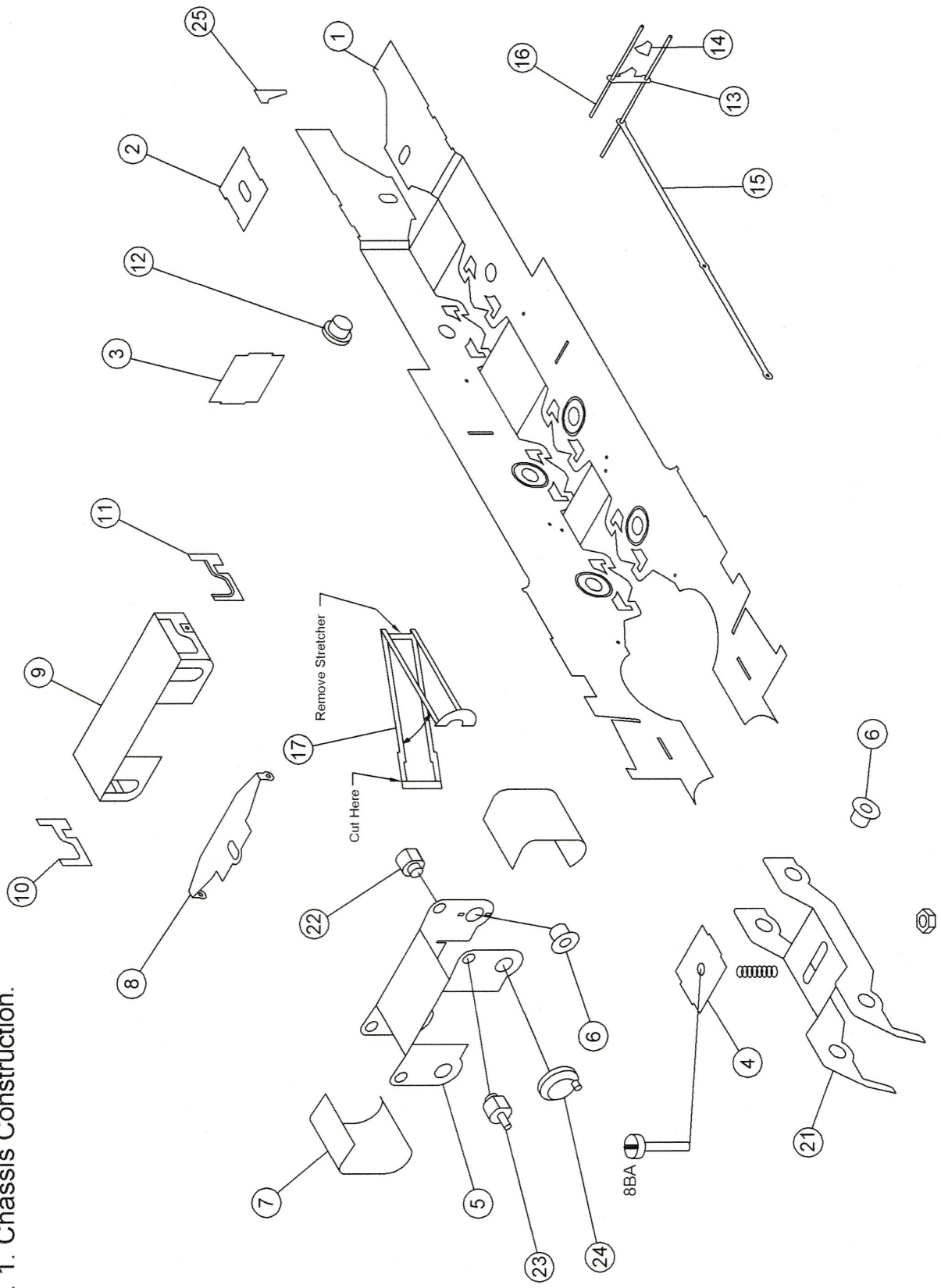
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Fig. 1. Chassis Construction.



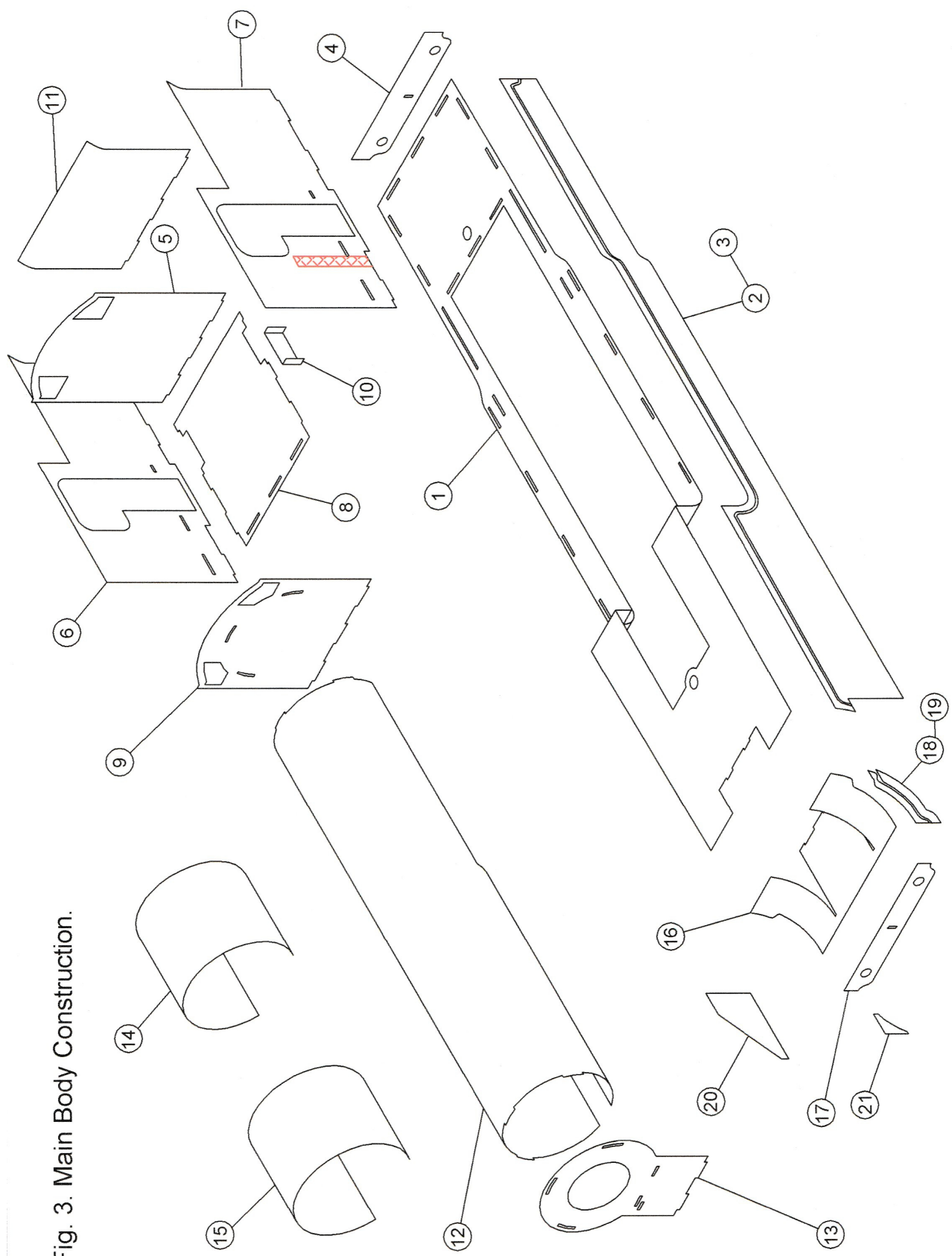


Fig. 3. Main Body Construction.

Fig. 4. Tank Construction.

