

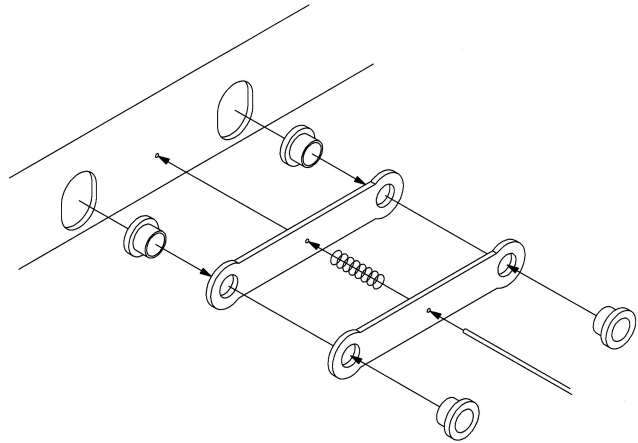
O2/1, O2/2 (with side window cabs), O2/3 & O2/4 Instructions

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 axle holes.

Fold the main chassis frames (1) up and solder the front and rear frame spacers (4) in place making sure everything is square, and then solder the rear body mount (5) in place. Solder the 10BA screw (11) into the hole in the front stretcher.

Compensated Chassis - Solder the axle bearings (3) 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. Repeat for the second set of beams and then trim the excess wire flush with the chassis side. 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 (3) into the axle holes in the chassis (1).

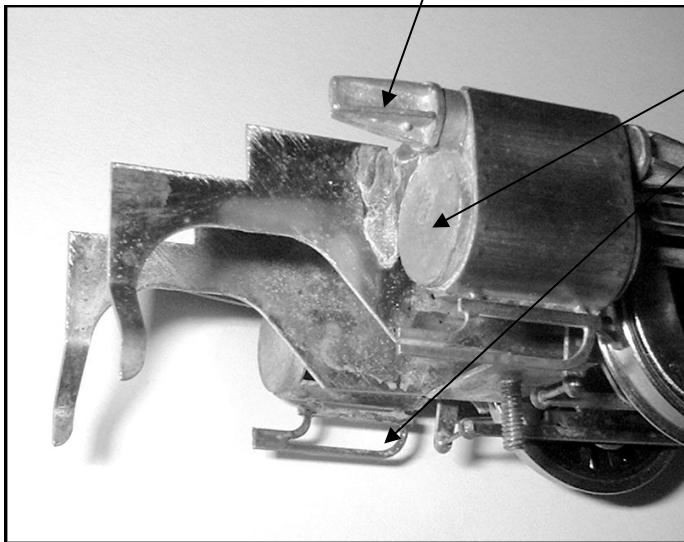
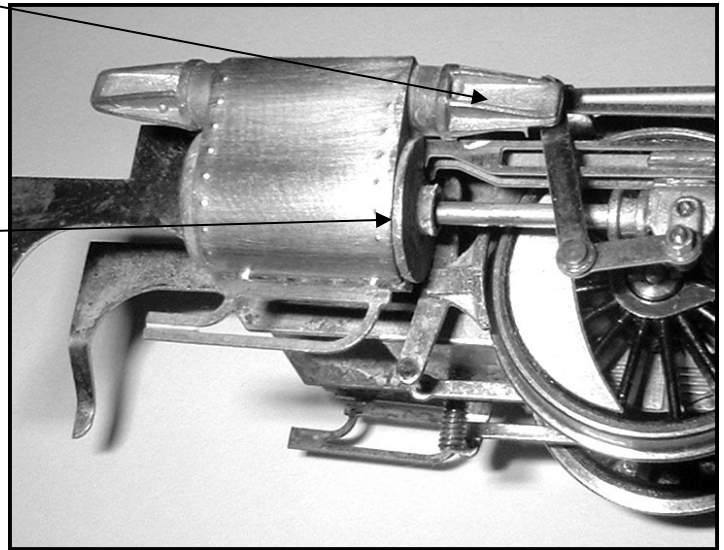
Take the cylinders (6) and curve the bottom of the cylinder sides to match the shape of the cylinder front/rear. Fold down the front and rear and the sides and solder around the seams. Fit the cylinders into the recess at the front of the frames.

Fold the front motion bracket (7) as shown, put a fillet of solder into the folds and then fit it into the recess behind the cylinders. Fold the main motion bracket (8), using the running plate support bracket (10) as a guide, again add a fillet of solder and then fit it in place. Solder the overlays (9) to the side of the motion bracket (use the brass overlays, not the nickel silver ones). Solder the running plate support bracket (10) in place (use the one on the brass fret, not the nickel silver one).

Solder four lengths of the brass wire (15) into the holes in the chassis to form the brake mountings. Take the brake hangers (12) and the brake blocks (13) and solder the blocks to the hangers, making four **L/H** and four **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 (14). Solder all the joints. Refer to the inset drawing and assemble the brake actuating rods and levers (16 & 17).

Glue the valve guides (24) in place.

Glue the piston guides/ cylinder rear covers (25) in place.



Glue the cylinder end covers (26) in place

Solder the drain cocks (27) under the cylinders.

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

Fit the balance weights and paint the wheels.

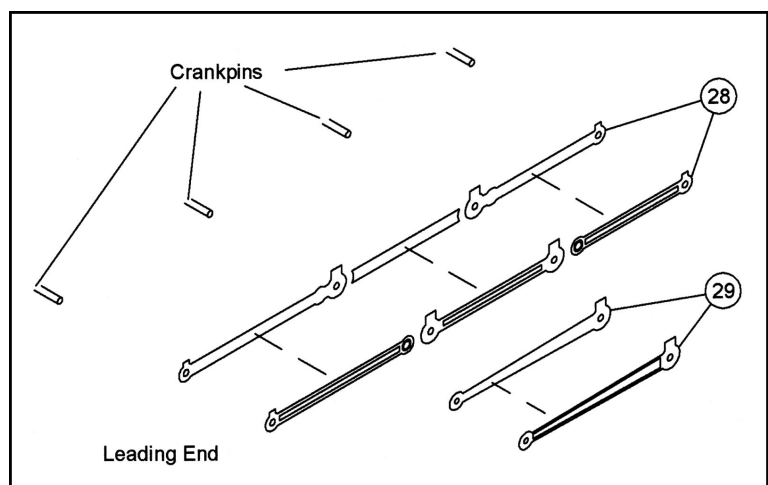
Assemble the pony truck (20 & 21).

Coupling Rods and Valve Gear -

With the chassis painted the wheels can be fitted permanently. Fit the crank pins and assemble the coupling rods (28) as shown. Take care in this as the rods need to move freely, both for side play and compensation.

The connecting rods (29) can also be assembled at this stage.

Refer to the diagram (P. 6.) and assemble the valve gear. Rivet together the parts and attach them to the motion brackets with the **16BA** screws and nuts.



Body Assembly

Take the running plate (1) and using the valances (2) as a guide form it to shape. Fold the rear drag beam down. Fit the running plate valances into the recesses under the running plate.

Leave the support frames on the valances. Fit the bufferbeam (3 for O2/1 & 2 or 4 for O2/3). Solder the centre cylinder cover (5) into the open space at the front of the running plate, followed by the front frames (6) into the recesses above the bufferbeam. Fold down the fall away sections in the running plate at an angle that roughly matches the running plate support bracket (on the chassis). Solder the fall away beading (7) in place. Solder an **8BA** screw (11) into each of the holes in the running plate. Solder the smokebox saddle front and rear (8) and sides (9) in place. Form the saddle top (10), with the lines on the inside radius, and solder it on top of the saddle sides and fronts.

Fold the cab front/sides (12) to shape and check the fit of the unit into the running plate. Once a good fit is obtained solder it in place. Fold the cab floor support (14) and fit inside the cab. Now fit the cab floor (15) on top of the floor support. Solder the detailed cab side overlays (13) to the cab sides.

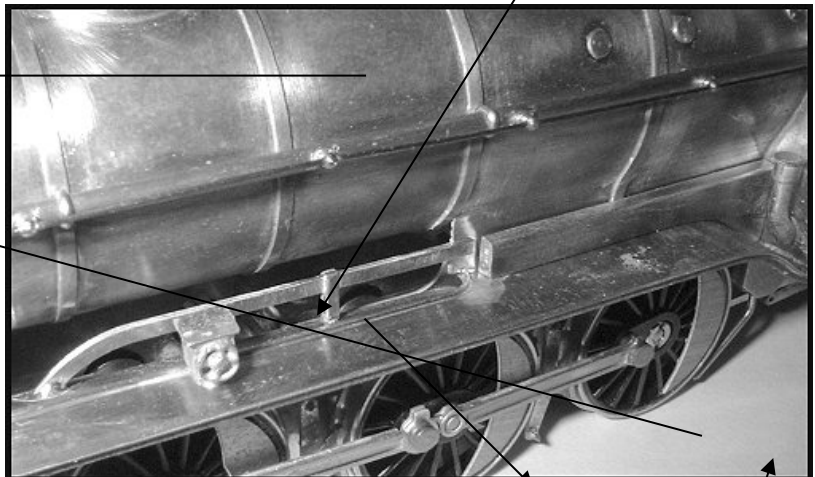
Solder the seam of the boiler (16) together. Bend out the firebox bottom to match the gap between the two sides of the running plate. Check the fit of the boiler into the slots in the cab front and to the shape of the running plate. Form the smokebox wrapper (17) and solder to the boiler. Consult the boiler fittings diagrams for the position of the boiler bands for **O2/3** (1 & 2 same as 3) or **O2/4** and then fit the boiler bands (48). Solder the boiler in place, fit the cab end first, make sure all is square and then solder to the smokebox saddle. For O2/4 fit the boiler support bracket (50) just in front of the first boiler band. Now fit the cab roof (18), the rain strips (19) and the roof shutter (20), **2.5mm** from the front of the roof.

The following pictures show the detail fittings on an **O2/3**, so if you are doing an **O2/4** check some photos and remember that **O2/1 & 2** were **R/H** drive & **O2/3** **L/H**, so **O2/4** can be either. Check the fact sheets first and transpose the appropriate parts.

Solder together the two halves of the reversing rod (21) and solder in place.

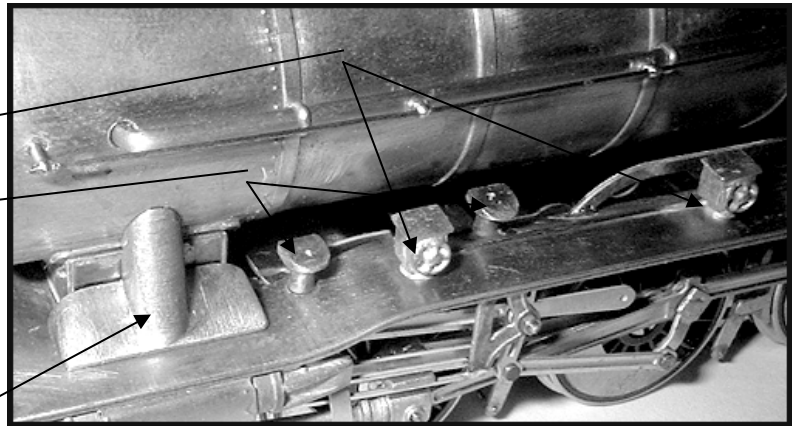
Check the fit of the firebox side covers (22) and glue or solder in place.

Solder the rear sandbox fillers (23) to the front of the cab.



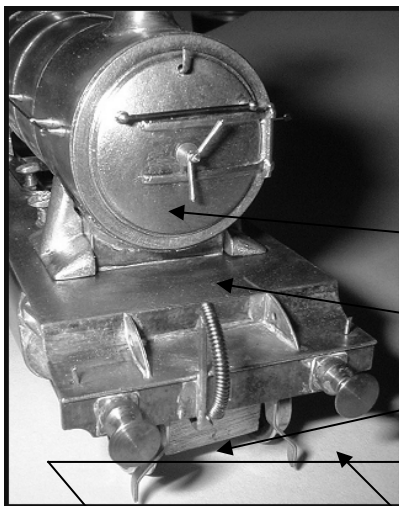
Drill out the appropriate holes (depending on **L/H** or **R/H** drive) for the mechanical lubricators (24) from the underside of the running plate. Fit them in place.

Fit the flat top sandbox fillers (25) or the round fillers (26). Either type can be fitted to either **O2/3** or **4**, but **O2/3** had them in both positions shown, whereas **O2/4** appears to only have them in the fall away.



Fit the outside steam pipes (27) at the side of the smokebox saddle.

Glue the side oil box (28) in place.



Fit the following:

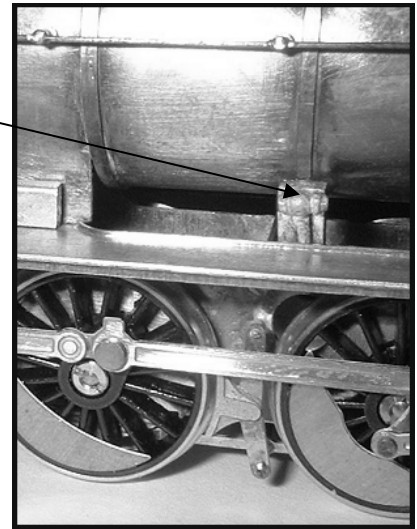
Smokebox front/door (29).

Smokebox door handle (30).

Vacuum pipe (31).

Buffer shanks (32).

Lamp brackets (36).

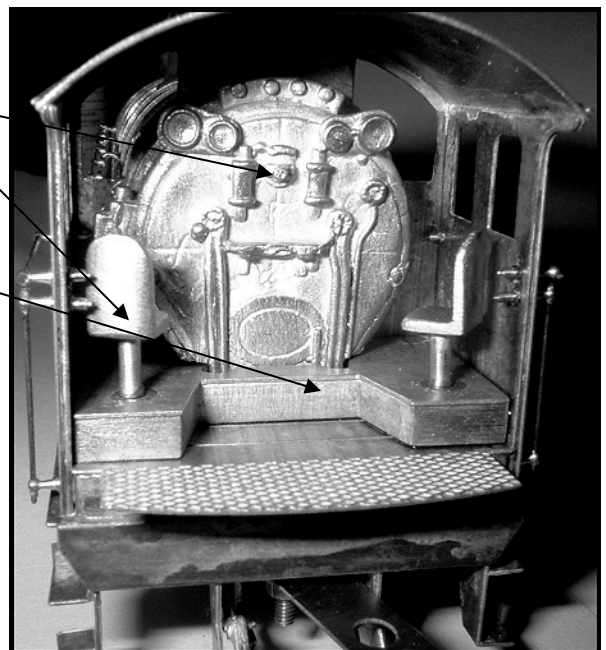


Glue the backhead (33) in place.

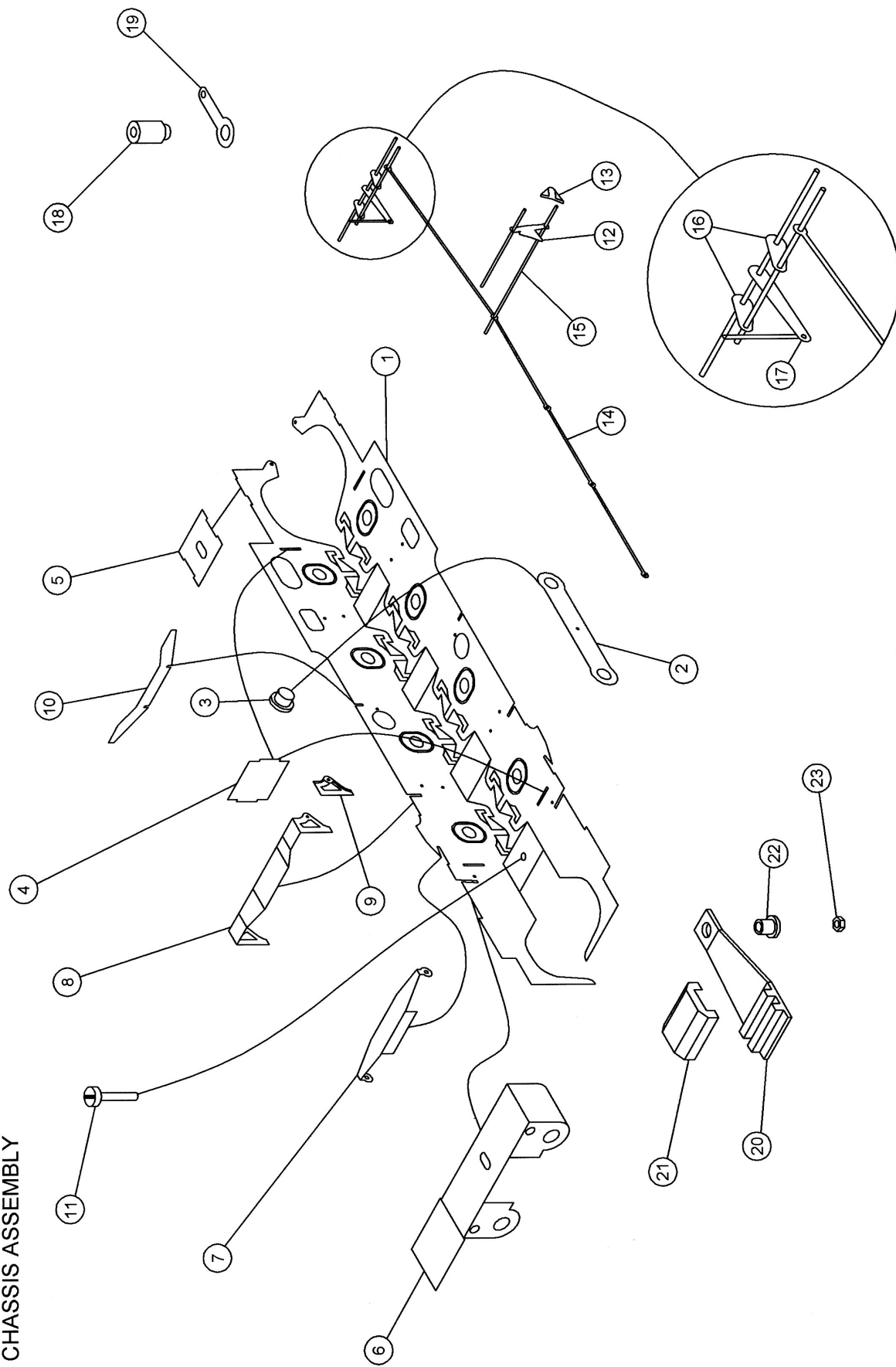
Drill out the holes in the raised cab platform (34) for the cab seats (35) and glue the seats in place.

Now glue the platform in place.

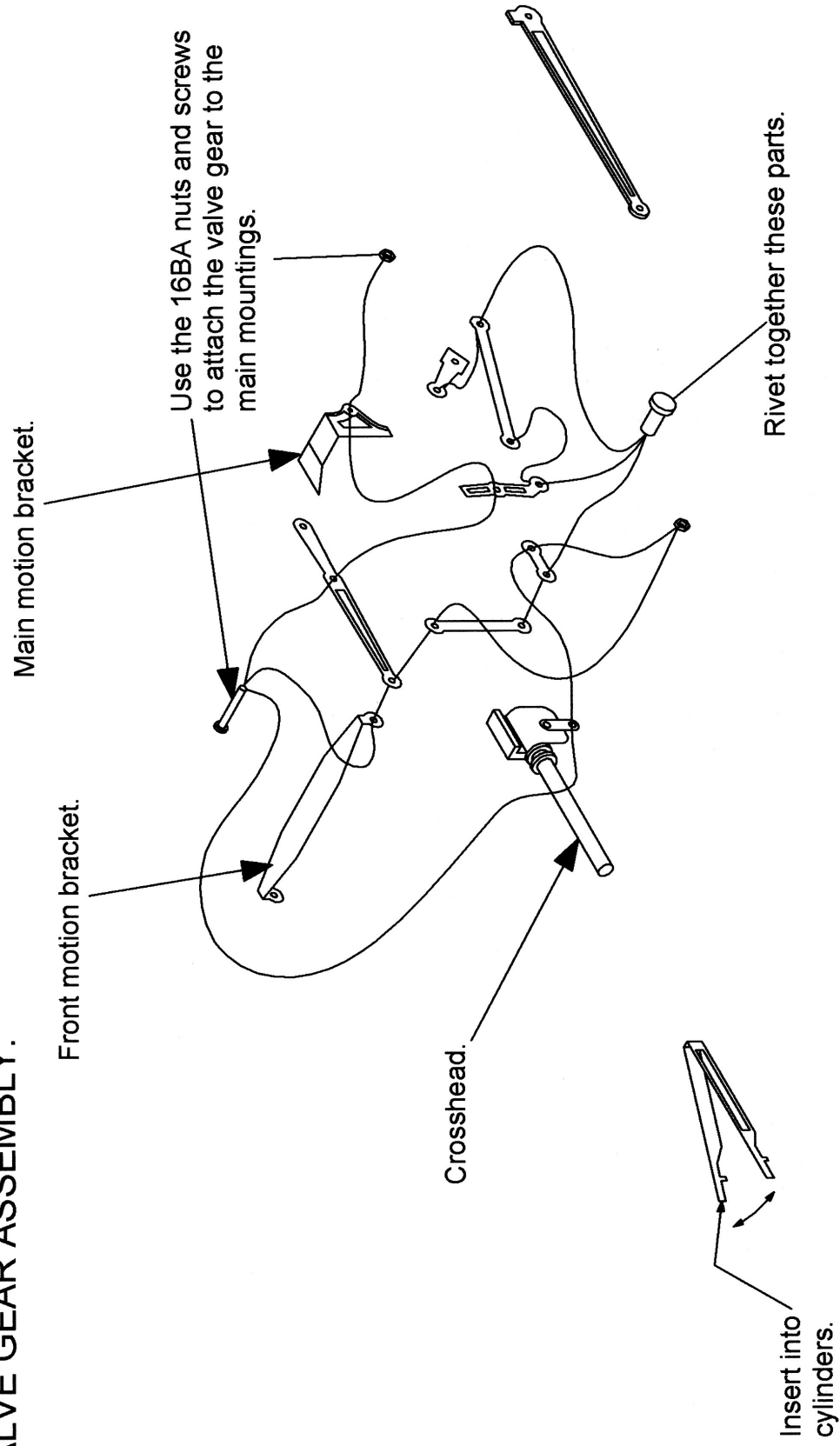
Consult the boiler fittings diagrams once again for the position of handrails, ejector pipe fixings, safety valves, whistle, anti-vacuum valve and washout plugs (check which type on your loco). Drill the appropriate holes to suit. Fit all these parts plus the handrails (On **O2/1**, **2** & **3** the boiler handrails were fitted to the ejector pipe), chimney and dome, the taller dome is for **O2/1**, **2** & **3**).

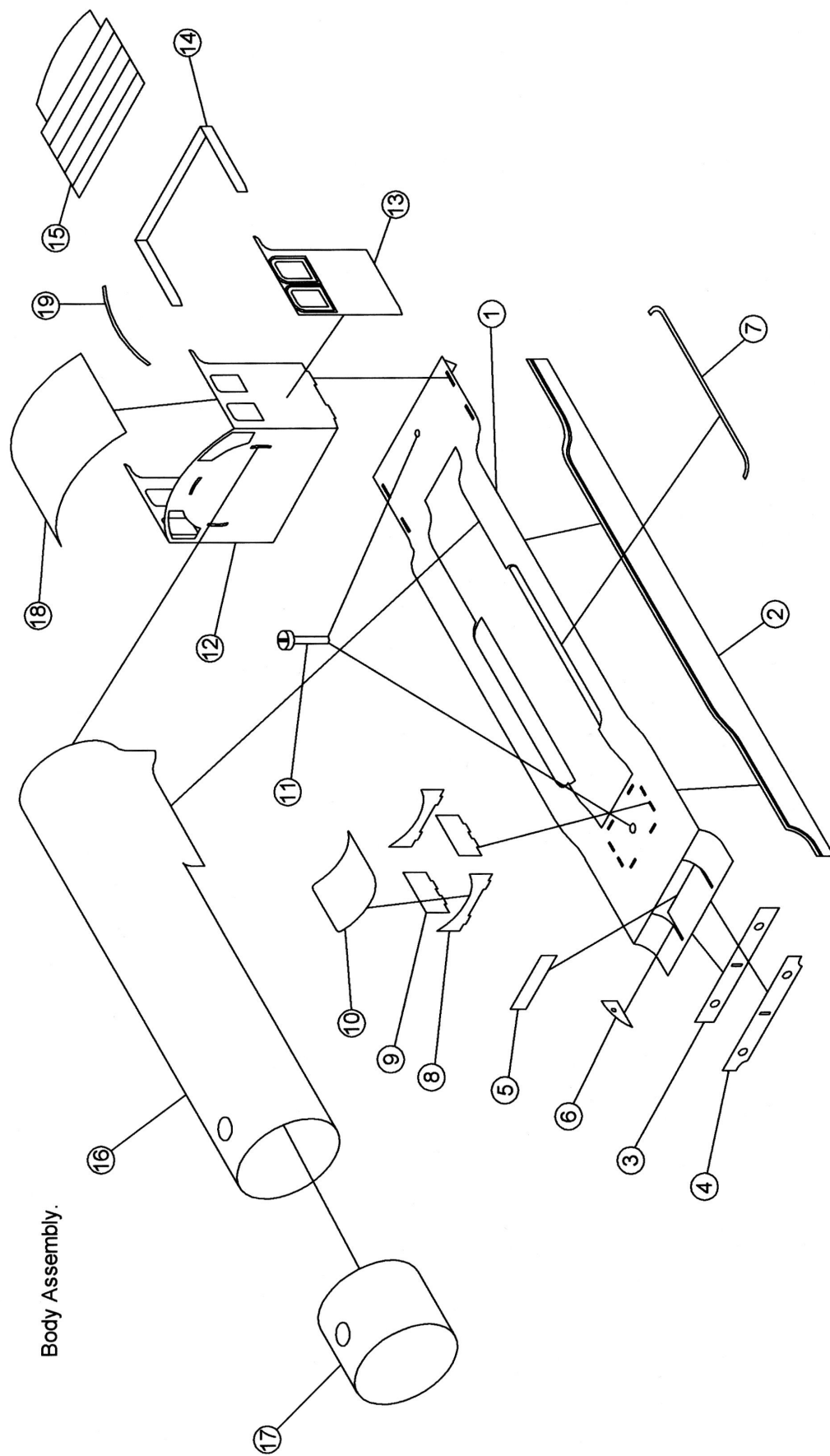


CHASSIS ASSEMBLY

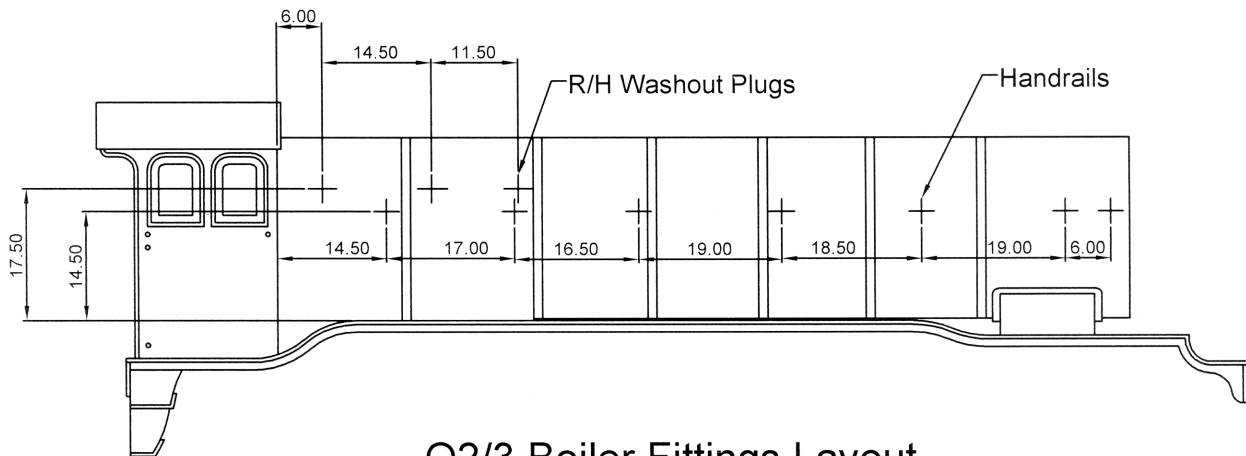
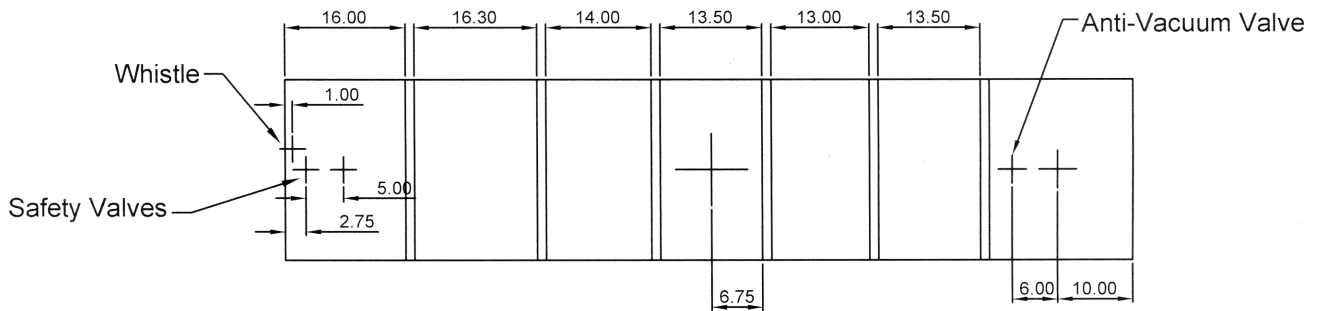
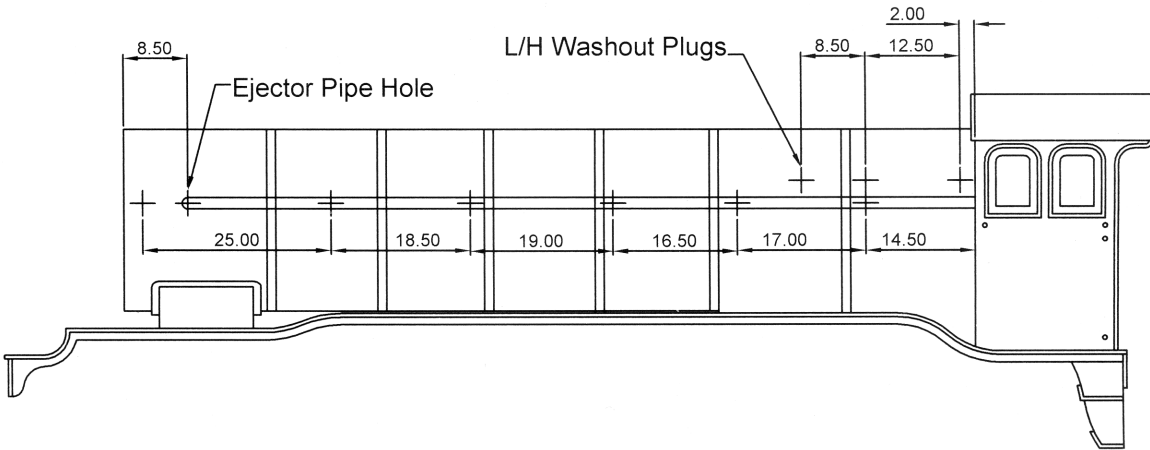


VALVE GEAR ASSEMBLY.

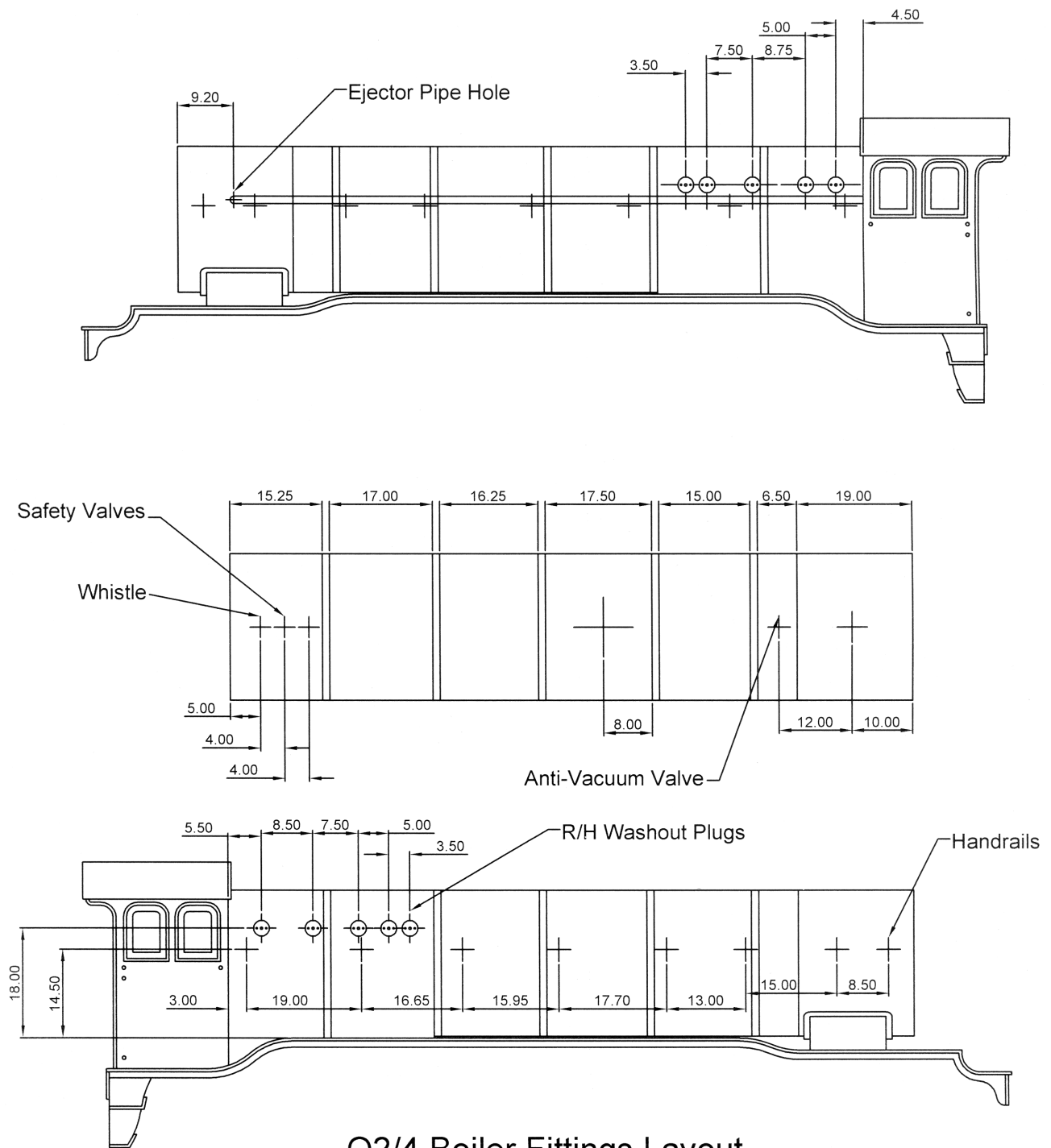




Body Assembly.



O2/3 Boiler Fittings Layout



O2/4 Boiler Fittings Layout

Chassis Parts List

- | | |
|------------------------------------|---|
| 1. Main Frames. | 21. Pony Truck Top. |
| 2. Compensating Beams. | 22. Pony Truck Pivot. |
| 3. Main Chassis Bearings. | 23. 10BA Nut. |
| 4. Front & Rear Frame Spacers. | 24. Valve Guides. |
| 5. Rear Body Mount. | 25. Piston Guides/Cylinder Rear Covers. |
| 6. Cylinders. | 26. Cylinder End Covers. |
| 7. Front Motion Bracket. | 27. Drain Cocks. |
| 8. Main Motion Bracket. | 28. Coupling Rods. |
| 9. Main Motion Bracket Overlays. | 29. Connecting Rods. |
| 10. Running Plate Support Bracket. | 30. Sandboxes. |
| 11. 10BA Screw. | 31. Crossheads & Pistons. |
| 12. Brake Hangers. | 32. Slidebars. |
| 13. Brake Blocks. | 33. Valve Gear. |
| 14. Brake Pull Rods. | 34. 16BA Nuts & Screws. |
| 15. Brass Wire. | 35. Rivets. |
| 16. Brake Actuating Levers. | 36. Balance Weights. |
| 17. Brake Actuating Rod. | |
| 18. Drawbar Pivot. | |
| 19. Drawbar. | |
| 20. Pony Truck Base. | |

Body Parts List

- | | | |
|------------------------------------|-----------------------------------|----------------------------------|
| 1. Running Plate. | 21. Reversing Rod. | 42. Anti-Vacuum Valve. |
| 2. Valances. | 22. Firebox Side Covers. | 43. Washout Plugs (Etched). |
| 3. Bufferbeam. | 23. Rear Sandbox Fillers. | 44. Washout Plugs (Cast). |
| 4. Bufferbeam for Last 25 Engines. | 24. Mechanical Lubricators. | 45. Chimney. |
| 5. Centre Cylinder Cover. | 25. Sandbox Fillers (Flat Top) | 46. O2/3 Dome. |
| 6. Front frames. | 26. Sandbox Fillers (Round). | 47. O2/4 Dome. |
| 7. Fall Away Beading. | 27. Outside Steam Pipes. | 48. Boiler bands. |
| 8. Smokebox Saddle Front & Rear. | 28. Side Oilbox. | 49. Front Oilboxes. |
| 9. Smokebox Saddle Sides. | 29. Smokebox Front/Door. | 50. O2/4 Boiler Support Bracket. |
| 10. Smokebox Saddle Top. | 30. Smokebox Door Handle. | |
| 11. 8BA Screws & Nuts. | 31. Vacuum Pipe. | |
| 12. Cab Front & Sides. | 32. Buffers. | |
| 13. Cab Side Overlays. | 33. Backhead. | |
| 14. Cab Floor Support. | 34. Cab Platform. | |
| 15. Cab Floor. | 35. Cab Seats. | |
| 16. Boiler. | 36. Lamp Brackets. | |
| 17. Smokebox Wrapper. | 37. Handrail Knobs. | |
| 18. Cab Roof. | 38. Split Pins. | |
| 19. Rain Strips. | 39. Brass Rod (For Ejector Pipe). | |
| 20. Roof Shutter. | 40. Safety Valves. | |
| | 41. Whistle. | |

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02 Information Sheet

O2/1

LNER No.	1946 & BR No. (Add 60000 For BR)	Side Window Cab Fitted.	Rebuilt To O2/4	
3477	3922	6/40		
3478	3923	7/40		
3479	3924	7/39	10/43	R/H Drive
3480	3925	10/40	7/58	"
3481	3926	10/40	3/61	"
3482	3927	10/39		
3483	3928	5/40	7/61*	"
3484	3929	8/40	7/59	"
3485	3930	6/39	8/59	"
3486	3931	5/40	1/62	"

63928 Received a high front Group Standard Tender when rebuilt to O2/4.

O2/2

LNER No.	1946 & BR No. (Add 60000 For BR)	Rebuilt To O2/4		
3487	3932	10/44 to 6/49 & 5/58	R/H	Kept Side Window Cab When
3488	3933	1/58	"	Converted Back To O2/2
3489	3934			
3490	3935	4/58	"	
3491	3936			
3492	3937			
3493	3938	7/58	"	
3494	3939			
3495	3940			
3496	3941			
3497	3942			
3498	3943			
3499	3944			
3500	3945	11/56	"	
3501	3946			

Both O2/1's & O2/2's had small Great Northern Tenders.

63937 (10/60), 63939 (1/51), 63943 (5/62) & 63946 (10/60) received Group Standard Tenders on the dates given.

O2/3

LNER No.	1946 & BR No. (Add 60000 For BR)	Tender	Rebuilt To O2/4	
2954	3947	Flared Group Standard	8/44 - 6/50	L/H Drive
2955	3948	"	8/59	"
2956	3949	"	8/55	"
2957	3950	"	7/44	"
2958	3951	"		
2959	3952	"		
2960	3953	"		
2961	3954	"		
2430	3955	"	4/59	"
2431	3956	"	12/61	"
2432	3957	"		
2433	3958	"		
2434	3959	Flush Group Standard		
2435	3960	"	8/59	"
2436	3961	"	3/59	"
2437	3962	"	5/44 – 1/50	"
3833	3963	Flared Group Standard		
3834	3964	"	3/61	"
3835	3965	"	9/59	"
3836	3966	"	1/58	"
3837	3967	?		
3838	3968	?	3/61	"
3839	3969	?*		
3840	3970	?		
3841	3971	?		
3842	3972	?		
3843	3973	?		
3844	3974	Flush Group Standard		
3845	3975	?	7/62	"
3846	3976	?	12/60	"
3847	3977	?		
3848	3978	?		
3849	3979	?	6/59	"
3850	3980	?		
3851	3981	?		
3852	3982	?	8/57	"
3853	3983	Flared GS Then Flush	7/56	"
3854	3984	Flush Group Standard		
3855	3985	?		
3856	3986	?		
3857	3987	Flared Group Standard		

3969 Was attached to a high front Group Standard tender for 16 months from 12/45