

'HO' (1/87) SCALE R.O.D. 2-8-0 LOCOMOTIVE KIT



INTRODUCTION

This is the first BRANCHLINES 'HO' scale loco kit and is based on many years experience designing and producing kits for British 'OO'/16.5 and 'O'/16.5. I have designed this kit so it may be built using an "average" collection of modellers' tools and materials. The components have been made in the most appropriate materials for ease of assembly, durability and appearance.

CONTENTS OF KIT

These are packed as sub-packs, as follows:

1. Etched nickel silver components.
2. (A and B) Whitemetal castings for major body parts.
3. Brass castings, turnings and wire for body detailing.
4. Wheels, motor, gears, bearings, etc. for chassis.

A fully itemised parts list is included with these instructions.

TOOLS AND ASSEMBLY APPROACH

The following list of basic tools and materials is adequate to build this model, though if you have more, life may be a little easier, but the finished model will not necessarily be any better; experience and aptitude count as much! I envisage you will need: 1. Eye protection. 2. A pair of jeweller's tin snips for cutting up the etched sheets (or a piece of hardboard and a stout craft knife). 3. Smooth jawed pliers. 4. Tweezers. 5. Jeweller's screwdrivers. 6. Romford screwdriver. 7. Pin chuck and some small drills (0.5, 0.75, 0.9, 1.0, 1.5, 2.0mm). 8. Fibre glass burnishing "stick". 9. Small soldering iron of about 25W. 10. Liquid soldering flux (145° solder included). 11. Resin cored/electronic solder. 12. Small, fine-toothed saw. 13. Pointed tool/scriber. 14. Small vice with smooth jaws (useful). 15. Gel and liquid cyanoacrylate ("super") glues.

GENERAL HINTS AND TIPS

- A. Burnish all etched parts, especially the half-etched/dull areas, before soldering.
- B. Burnish brass and whitemetal castings before attaching, especially at the attachment point.
- C. Where applicable "rivet heads" are made in etched parts by laying the parts on a piece of hardboard and pressing a sharp tool firmly into the half-etched "dot" provided on the opposite side of the part.
- D. Almost always fold etched parts towards the half-etched fold line, to close the fold, then solder to "lock" and strengthen. On longer folds, score the fold line to make folding easier. The exception is when folding to double the thickness, when you fold back, away from the etched line (con' rods, motion bracket steps and dummy frames).

ASSEMBLY INSTRUCTIONS

The finished model will consist of four sub-assemblies which are screwed together: loco chassis, loco body, tender chassis and tender body. The loco and tender chassis are both constructed from etched nickel silver. The same material is also used for the loco and tender running plates to give a strong and flat body starting point with strong edges. The intention is that you build the running chassis plus running plate first and, if all is well, add the cosmetic body parts afterwards. The loco chassis is provided with screw-up spacers to ease accurate, initial assembly, then etched, fold-up spacers are soldered in to add strength and fixing screw locations.

Look at the assembly diagrams and components and read the instructions through carefully until you understand what everything is and where it goes. DO NOT cut out all the etched parts at once and throw everything in a bag together!

LOCO CHASSIS

1. Remove the two chassis **main frames** from the sheet, leaving everything else attached, apart from the loco brakes which should be removed and put in a safe place. Use a fine file to clean off the remains of all "ties". Ream or scrape gently the axle holes until the brass bearings just fit. NOTE: Long bearings + spacing washers are used in the 1st/front axle position to prevent any side-play. Long bearings are also used for the 3rd axle to hold the gear central. Short bearings are used for the 2nd and 4th axles to give maximum side-play.
2. Solder the **short bearings** in the 2nd and 4th axle positions, flanges on the outside (same side as the spring detail).
3. Similarly, solder the **long bearings** in the 3rd axle position.
4. For the 1st axle fit **long bearings** plus a thick and thin etched spacing washer each side, under the flange.
5. Now take each frame and carefully ream out the screw-up frame-spacer screw holes until the screws just go through (a rat-tail file will do this, "twiddled" in the fingers).
6. Assemble the two frames using the **screw-up spacers** with a washer between each end of the spacers and the frames (the washers pack out the standard 10mm spacers to a more realistic 11.5mm). Fit a pair of driving wheels

and axle to the front and rear positions and check the assembly on a perfectly flat surface (plate glass?). Adjust until all 4 wheels are in contact with the surface. Then remove the wheels.

7. Take the etched frame spacers A and B, fold them both 90°, etched fold line inside the fold and solder in position to the frames, A at the front and B at the back. DO NOT solder the screw-up spacers in position, but REMOVE them afterwards.
8. Spring the frames apart slightly and put the motor mounting plate C in position so its tabs engage in the slots in the frames and the letter 'C' is at the top.
9. Take spacer D (there is a spare one), pass a steel screw through it and tighten a brass nut on the other side. Very carefully solder the nut to the spacer with a little solder. Then solder the spacer in the frame slots with the nut on top. Leave the screw in to prevent the nut moving if stray heat affects it later during assembly.
10. Spacer E should be folded 90° and fitted in the centre of the chassis to provide a mounting for the electrical pick-ups. Ensure it will clear the gear when that is fitted to axle 3! Or break E in two if two mountings are wanted.
11. Take the cylinder formers and fold them into a square 'U' shape, fold lines inside. Place a 4mm brass screw in the central hole, hold the head flat down (over a hole in a piece of wood is ideal) and solder the screw head to the cylinder formers and solder inside the folds to strengthen.
12. Now carefully cut the slide bar/cylinder rears from the etched fret and fold the bars 90°, fold lines inside, but leave the half thickness tie between the slide bar ends. Place the round end piece against the rear of the cylinder formers (from step 11, above), ensure the central holes align and the slide bars vertical. Hold together with tweezers and solder together. If necessary, clean out the piston rod holes with a 1mm drill.
13. The half thickness cylinder wrappers should now be formed to shape round a pencil, file handle or whatever. Use pliers to bend the bottom 2.5mm back at an angle. When correct, solder to the formers.
14. Position cylinder fronts and solder (or glue, if nervous!).
15. Fit the cylinders to the frames so they slope very slightly down towards the back and secure them with nuts.
16. Remove the motion brackets from the fret and fold the top over 90°, fold lines inside. Similarly fold the frame brackets in 90°. Feed the motion brackets over the slide bars and bring them back until the rear tags on the bars are against the back of the motion brackets. Hold the brackets in place, flush to the frame top and solder the slide bar ends to the brackets. NOTE: if you wish, you can use a small screw and nut to hold the brackets to the frames.
17. Now take the step pieces for the motion brackets and fold first back on themselves, fold line outside, then fold the end step down 90°, fold line inside (see diagram). Then solder these to the motion brackets' outer edge. This is very fiddly, but there is no easy way! You may then remove the half thickness tie between the slide bar ends.
18. Take the brass crossheads, cut the piston rods back to 16mm long, clean/polish the rods and all sliding surfaces and check for free movement when in position. Lightly burnish the con-rod pivot pin on the rear of the crosshead so it will take solder.
19. Cut the connecting rods from the fret with the two sections joined together. Now, with the detailed side facing you, bend it back and right round till it is flat against the longer section, leaving the detail showing. Hold tightly together with tweezers and solder together. Clean up all edges with fine files and file off the fold tie on the big end. Clean out the hole each end 1mm. Then hold firmly with pliers and very slightly bend the ends in opposite directions so the front end will run about 1mm outside the rear. Also slightly bend outwards the slide bar guide projections at the front end (see diagram) - this is to keep the crosshead in place against the slide bars.
20. Remove the cylinder/slide bar units from the chassis. Place the crossheads in position, place the con-rod over the crosshead rear pin, hold together and check the unit can slide in the slide bars without dropping out. If it does or is too tight, "tweak" the con-rod end projections slightly. Now prick a piece of paper and press it over the crosshead pin, followed by a Romford crankpin washer. Hold all together with tweezers and very sparingly solder the washer to the pin. (The paper prevents solder flowing through to the con-rod end and making everything solid). If the joint looks good and the rod pivots, remove the paper, trim off surplus pin and file away about half the washer thickness. NOTE: you need as much clearance as possible with over scale width Romford wheels.
21. The coupling rods are provided with optional thickening pieces for the crankpin bosses. These improve the appearance and double the bearing surfaces and should be fitted to the 2nd, 3rd and 4th axle positions. (A fourth pair are provided for P.87 folk using scale width wheels). Clean all holes out to 1mm. Very slightly curve in the front section - this avoids using a crankpin washer on the first axle's wheels.
22. If necessary file the inside ends of the bearings for axle 3 until the Romford gear just slides between them. Fit the motor to its mounting plate such that the fixing screws are central in their slots. Pass an axle through bearing-gear-bearing, centralise axle and tighten the gear's grub screw. Fit worm to motor. Hold the motor shaft to prevent end float and rock the axle gear back and forth. You should be able to detect a little back-lash in the gears. If too tight or too slack, loosen the motor fixing screws, move the motor slightly, retighten everything and test again.
23. The driving wheels should now be fitted with crankpins and those for the 1st axle cut back to about 0.75mm. Fit the wheels and axles to the chassis, fit the coupling rods and check for free movement with the axle gear's screw loosened. NOTE: short lengths of insulation cut from the red lead provided make excellent temporary, push-fit crank pin washers. Ease the holes in the rods if necessary. Then add the cylinder/con-rod assemblies and repeat the exercise. The advantage of screwed on cylinders is that they may be adjusted outwards with washers if there is a crosshead/coupling rod interaction. Next, tighten the brass gear's grub screw, lightly oil the bearings, gears and

crankpins, etc. apply a few volts to the motor and check all still runs freely. You can clamp a chassis at this stage and gently run it in "on the bench", reversing the electrical supply every ten minutes or so

24. Make the **pick-ups** as per diagram from PCB, phosphor bronze spring wire and black insulated wire, fit and test again. Ensure all insulated wheel rims will pass current through the pick-ups to the motor.
25. Remove the motor, gears and wheels. Solder 20mm long pieces of 0.7mm brass wire through the frames for the brake hanger top pivots and trim off the section between the rear wheels that gets in the motor's way. Add sand pipes behind the 1st and 4th driving wheels, using 0.7mm brass wire.
26. Degrease chassis and wheels, glue the **balance weights** to the driving wheels and paint all items.
27. Take the **front bogie** from the fret and fold the sides up towards the fold lines. Open out the axle holes a little if necessary and solder in a 15mm length of 2mm bearing tube. Then solder a piece of fine wire through the tiny holes above the guard irons and trim off flush to the outside. Remove one wheel from the bogie axle (10.5mm wheels) and use to gauge the bending to shape of the guard irons. Then crank the bogie's mounting arm slightly so it will ride the track properly (test fit to chassis for this). Now solder a piece of phosphor bronze wire in the central hole of the bogie. Paint all and fit wheels. Secure to chassis spacer D with a screw (using a nut locking compound), passing the spring wire through the hole in spacer A and add glue to fix it. Adjust the spring so it pulls the bogie back to centre AND presses it down gently onto the track.
28. Reassemble the motor/gears/wheels/cylinders/rods to chassis and add rest of brake gear using a resin fluxed solder to avoid corrosive flux spray on finished items and the motor.

LOCO BODY

29. Take the etched **loco running plate** and 3 pieces of **valance** (coded 'x', 'xx' and 'xxx') from the fret. Fold down the rear drag beam 90°. Then lay the plate "TOP" down on a dead flat, heat tolerant surface. Take the valance piece 'x' and fold the ends in about 45° then solder in place at the cylinder 'bulge', so it is against the etched back edge. Then add pieces 'xx' in front and 'xxx' behind to complete the valancing.
30. Now add the **front buffer beam** and the appropriate brass **buffers**. If you wish to add safety chains use the eyes and hooks from the enclosed 'chopper' coupling etched fret plus 3 links of the chain per hook. You will need to drill the buffer beam 0.75mm at 10mm centres for this. Couplings are left to your choice and are not provided.
31. Solder the **loco rear steps backplate** behind the rear of the valance. Then fold the steps to shape and fix to the backplate. Similarly, assemble and attach the **central step** each side where the valance rear is ½ etched away.
32. Gently tin with solder the etched recess at the **tender coupling** location. Hold a brass nut on the recess, add a little flux and heat just enough to solder the nut under the footplate. The coupling bar has a series of holes to provide a wide choice of spacings; the second ones in from the centre will be suitable for most people, but you could couple closer or further. Drill out the required holes to 2mm. Fit bar with a steel screw.
33. Pass a steel screw through the front and rear chassis fixing holes from underneath, put brass nuts on top and tighten. Then very carefully solder the nut sides to the running plate top surface.
34. Take the **dummy frames**, emboss the 'rivets' in both sides, score the fold line, then fold the lower flap back, fold line outside until it lies flat on the dummy frame. Now engage the frames' tabs in the slots in the running plate and solder.
35. Similarly, emboss the 'rivets' in the **smokebox base** piece, fold the ends down, taking care not to flatten the rivets, and solder in place, tabs in slots. Check the top is flat and flush to take the smokebox casting; if not file as necessary.
36. Take the **boiler** casting and note that it has 'dimples' in it to mark the handrail knob and dome positions. Unfortunately, since producing the casting masters we have discovered that the handrail numbers and locations varied with time, if not between loco's. Therefore the old adage of "study a photograph of your chosen loco" holds true for the ROD's. Because of the casting process, it will be found that the boiler is thicker one end than the other and that the thinner end is best fitted to the smokebox. You will need to file the boiler ends flat and scrape the inside of the ends until they fit the **smokebox** and **firebox front**. Check on the assembled footplate, ensure the firebox front is vertical and the dome's location is on top, then glue the three together.
37. Look inside the **firebox sides** and see that they are marked 'RF' (right/front) and 'LF' (left/front). Place the boiler/smokebox/firebox front unit on a flat surface with card or what-have-you to chock the smokebox up 3.5mm to be level. You can then assemble the firebox sides and rear bulkhead together and whilst you (or someone else) holds them, run glue into the corners. When set, turn over and add extra adhesive inside to give a strong structure. Offer up to assembled running plate/chassis and, if necessary, file away extra clearance at the firebox front corners and 4th axle wheel arches. Also remove a little from the firebox rear/bottom to clear the nut.
38. Now attach the **cab front**, central to the firebox rear.
39. Take the boiler **backhead**, drill and fit the **regulator handle** brass casting. Add etched handwheels, then fix in cab.
40. Still working on a flat surface, attach the **cab sides**, using the cab floor/seats as a handy spacer to keep all square.
41. Two **cab roof** castings are provided because there were three variants! The long is for the Australian loco's. The short one is for some European loco's; others also had a short one, but the rear cross rib was further forward. To

produce the latter version, cut 5mm from the back of the long roof casting. NOTE the front of the roofs are recessed to fit the cab front. Attach roof to cab sides and front. With short roofs, remove cab side rear extensions.

42. Drill the smokebox and boiler and fit the chimney and dome, scraping off some boiler band to let the dome fit well.
43. Drill the firebox top and glue in the **safety valve** brass castings at 8 and 11mm from the cab front for **Ross pop valves** or a single hole 9mm from the cab for the **Great Central/Robinson safety valve**.
44. Drill the **smokebox door** centre 1mm and fit handle centre followed by either two turned bar handles or one bar handle and the etched handwheel.
45. Now is a good time to fill any joints that are less than perfect; e.g. the firebox top may benefit. Then the complete boiler/cab unit may be glued to the running plate top surface. NOTE that the rear of the smokebox should be 1mm behind the rear of the raised piece on the dummy frames.
46. Take the **cab floor/seat** casting, drill the right side, attach the **screw reverser** brass casting, then glue unit in cab.
47. Drill cab roof 0.75mm, 2mm from the front and fit **whistle** (turned brass).
48. Carefully draw a faint pencil line along the smokebox/boiler/firebox sides for the **handrail** position, then drill 0.9mm for the handrail knobs. Drill the cab side where marked 0.5mm. Form the handrails from the fine brass wire provided and attach with knobs to the boiler unit, using the 4 longer knobs for the boiler and short for the smokebox and firebox. For early condition and Australian loco's, leave an 8mm gap on the right smokebox side for the Westinghouse cylinder location. The cab-side handrails had no knobs. Fit vertical rails to the rear of the cab sides. There were also two tiny handrails per side, one by the long splasher sandbox filler and one on the running plate, above the motion bracket and 4mm in from the running plate edge. (Please also refer to instruction no.68).
49. Fit the **long splashers** up tight against the firebox sides. Then add the **front sandbox/splashers** so the front aligns with the rear of the smokebox.
50. An etched **reversing lever** is provided for the right side (+ there is a spare!). It is long enough to be fitted through a suitable hole in the cab front, but it is easier to trim it and glue it to the firebox side and rear of the long splasher.

TENDER

51. Take the **tender frame spacer (T)** and fold it to a square U-shape, fold lines inside.
52. Now take the **tender inside frames**, hold with the sides marked 'T' down and push down the central strip towards one end. Push these right back until flat against the other side so the end with the little hole is beyond the frame end. Now assemble the two frames and central spacer together, engaging the tabs in their slots. The spacers 'F' are provided incase you wish to add wiper pick-ups to the tender wheels - they go mid-way between the axles.
53. Drill 0.75mm through the 3 small holes each side for **wires for the brakes** and solder 0.7mm cross wires right through, leaving about 5mm sticking our each side.
54. Gently ream out the axle holes and then solder in 14mm lengths of **2mm bearing tube**. Remove a wheel from one tender axle (14mm wheels) pass axle through tube, refit other wheel and check side-play. You need free running and no side-play on the outer axles and about 1mm side-play on the centre axle.
55. Drill the **brake hanger** ends 0.75mm then fix to their wires, using a wheel + axle as a gauge. Fit etched cross beams between hanger bottoms and add pull rods from wire. Paint chassis and wheels then assemble wheels to it.
56. Place the **tender running plate** top down on a flat surface. Solder the **buffer beam** at the back and the slotted piece at the front. Check the two **side valance** pieces for length and solder in place with the etched away ends inside. This is where the steps fit.
57. Now take the **tender step** main sections, fold the bottom steps to shape and attach in the 4 corners, behind the valance. Fold the middle steps to shape and fit in their slots. Take the **outside, dummy frames**, fold the tabs over, glue the cast axlebox/springs in place and solder each side of under running plate.
58. Form a slight longitudinal curve in the **fall plate** and solder to the running plate front edge, set to clear the loco rear.
59. As with the loco running plate, solder a nut in the recess under the front for the **coupling bar** screw.
60. Place a brass nut on the top over each chassis fixing hole, introduce a steel screw from underneath, tighten and carefully solder the nuts to the top.
61. The **tender body** is most easily assembled with two pairs of hands. Loosely assemble the two sides, rear, front and top (faint score lines on top) on a flat surface. If all joins are close, hold dead square and add a little adhesive at each top corner and allow to set. Then turn over and add adhesive from inside to all joints. Whilst upside down you can fit in the curved **inner coal bunker** sections.
62. The locations of the **coal bunker** front and rear cross pieces are marked by feint score lines on the tender top. Fit these and for the Australian loco's ONLY add the wooden ('hungry') boards to the front., as shown.
63. Drill the **water filler** 0.5mm where marked, make and fit a small handle from wire, then attach the filler to the tender.
64. Drill the tender rear and fit the horizontal **handrail** with a knob each end and 1mm wire beyond the knobs. The vertical handrail each side is plain with no knobs. The 3 central, bottom holes are for **lamp irons** - use wire.

65. Take the **front platform/sandbox**, drill the sandbox tops 0.5mm and add operating rods from wire. Add the **handbrake** to complete this sub-assembly.
66. The **front handrails** should be soldered into the brass castings, through the top hole and against the bottom edge. Then glue to the front edge of the main sides.
67. The complete tender body together with the front platform (from 65) may now be glued to the running plate top to complete the assembly of the tender.

SUPPLEMENTARY INSTRUCTIONS FOR BRITISH, EUROPEAN AND MIDDLE EASTERN LOCO'S

68. (Refer to previous 48) For a post-1945, non-Westinghouse brake fitted loco, fit a continuous handrail on the right side. For a loco with the superheater snifting valve removed (from the right smokebox side) the handrail should be continuous, one-piece, round the whole loco. Refer to diagrams and photo's for handrail knob locations.
69. If appropriate, drill the right side of the smokebox and fit the **Westinghouse pump casting**. The **Westinghouse reservoir and brake cylinders** should be fitted under the cab footplate on both sides, but only on some loco's.

HISTORICAL NOTES

The Robinson Great Central Railway 8K class 2-8-0 tender loco's are one of the World's classic locomotives, having achieved this status as a result of their mass production during the First World War and their use then and again in the Second World War in a wide range of countries. After each cessation of hostilities they were sold and so reached even more countries.

The first of these loco's appeared in 1911 as a larger, super-heated development of earlier 0-8-0 loco's for hauling ever heavier coal trains. By 1914 126 were in service. The Railway Operating Division (R.O.D.) of the Royal Engineers regiment was formed in 1916, intending to use French and Belgian loco's. However, due to limited availability, it was soon necessary to ship loco's from the UK. Supplies were very limited and so large orders were placed for the Robinson 8K's, chosen because of their rugged simplicity. By 1918 325 had been built for service in France and then, in 1918, a further 196 were ordered, partly to keep British industry 'on the boil', thus resulting in a total R.O.D. fleet of 521 engines by 1920. The wartime engines were built by 5 different companies: North British (369), Robert Stephenson (82), Nasmyth Wilson (32), Kitson & Co. (32) and the Gorton Works of the G.C.R. (6, not counting the original 126). The original, G.C.R. loco's had steam brakes, earlier R.O.D. loco's had steam and Westinghouse air brakes, whilst later R.O.D. loco's had air brakes only. It was only these later loco's that had Westinghouse reservoirs and visible brake cylinders each side, under the cab. Most were fitted with Ross pop safety valves, French buffers and safety chains and all had sanding gear on both loco and tender.

By mid 1919 most loco's had returned from France to the UK and were stored, pending disposal. Various attempts at selling some failed and so 498 were loaned to UK railway companies which were still under Government control until 1921. The first successful overseas sales was of 3 loco's to John A. Brown for use on the 17 miles long Richmond Vale Railway in New South Wales, Australia in 1923 to supplement 4 ageing ex-Mersey Railway, outside-frame, 0-6-4 tank loco's for hauling coal trains. In 1925 and 1927 10 more were sold to J. A. Brown, the price dropping from £2000 to £1000 per loco'. Browns removed the air brakes and fitted steam brakes, removed the steam heating equipment, extended the cab roofs (probably for tender-first running in tunnels) and fitted extension boards to the bunker front. It is thought both U.K. and French buffers were carried, but details are not available. They also retubed the boilers, removing the superheaters, but had to reverse this in the late 1930's, due to poor quality water. Usage dropped in the 1930's depression and increased again in W.W.2, but by 1967 cutbacks in the system to Stockrington meant that only 4 were kept in running order with 2 in steam at a time. 3 were overhauled in 1967-8 and 2 went to work on the South Maitland line. Steam working finally ceased on the R.V.R. in 1973 and after some scrapping, 3 loco's remained to be 'preserved'. From 1925-7 46 R.O.D.'s were sold to China and many UK railways bought them as the price dropped, eventually to £340 each! Because of the political turmoil in China in that period, there is limited information, but their loco's were fitted with a headlight, cowcatcher and auto-couplers and some had side-window cab fitted. Some ran on colliery lines and they migrated, but it is thought that some survived until the late 1940's.

At the outbreak of World War 2 the U.K. government took over 300 R.O.D.'s from the London & North Eastern Railway for use in North West Europe, the first planned for use in France in 1940, though now they had become "W.D." (War Department) loco's. In 1941, 92 were sent to Egypt and Palestine; 2 were lost at sea and most were converted to oil burning. 6 of these were purchased by Iraq in 1945 and the remainder were moved to the Suez area. During the Suez crisis 5 more were sent from the UK in 1952. All the Middle East loco's passed into Egyptian State Railways ownership in 1954/5 (thought to be 83 loco's) and lasted until 1961.

Large numbers of R.O.D.'s were acquired by U.K. railways, the largest number by the LNER. Various rebuildings took place covering items such as boilers, cabs and valve gear. Their numbers diminished most rapidly during the early 1960's with the decline in mineral traffic, the last examples being withdrawn in 1966. Right to the end they hauled the trains they were designed for - long coal trains, the designer of this kit having happy memories of seeing and hearing them doing just this on ex-Great Central lines around Nottingham in the 60's. In 1963 B.R. decided to preserve no.63601 and though this has still not happened, the loco has recently been moved to the preserved section of the G.C.R. at Loughborough where it is hoped to have the loco restored to full working condition for the railway's centenary celebrations in 2000. In Australia no."21" (actually no.23 as 21 was scrapped due its poor condition) is under restoration and nos. 20 and 24 are stored at the Dorrigo Steam Railway Museum. There is a theory that the real no.21 (ex-R.O.D. 1615) was the loco that pulled the Armistice train in France in 1918.

The livery of these loco's was only exciting in China! On the G.C.R. and R.V.R they were black with red lining, in W.W.1 use they were plain black, in W.W.2. grey and under B.R. black, but in China some were red and green.

REFERENCES

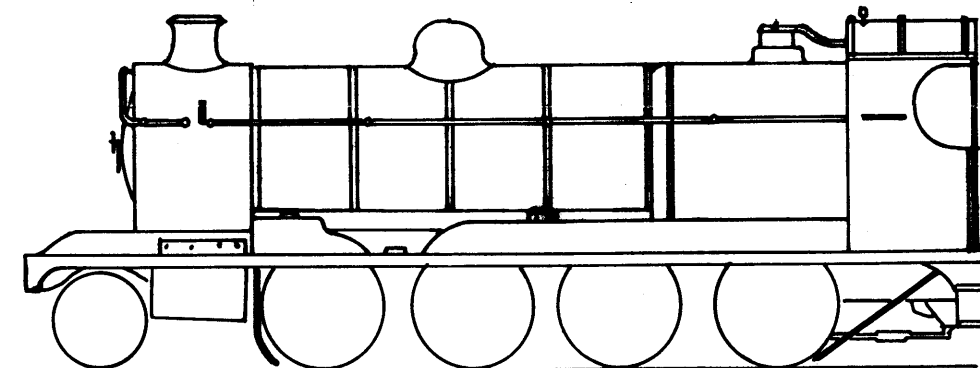
"Locomotives of the LNER - Tender Engines - Classes 01 to P2", part 6B, pub. Railway Correspondence & Travel Soc.
 "Heavy Goods Engines of the War Department", Vol.1, ROD 2-8-0, J.W.P. Rowledge, pub. Springhead Railway Books.
 "The Richmond Vale Railway", by R.G. Preston, pub. Shepp Books.

APPENDIX - AUSTRALIAN ROD LOCO DETAILS

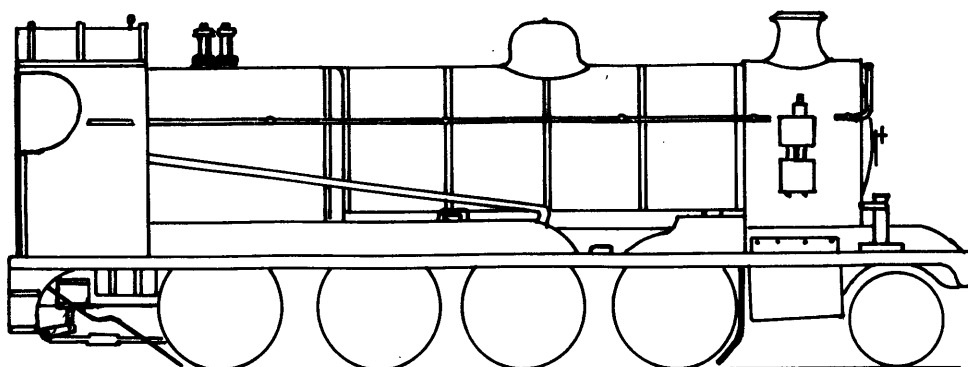
RVR number	Builder	Builder's no.	Year built	ROD no.
12	North British	2213	1919	2123
13	..	22209	1919	2119
14	..	22161	1919	2070
15	..	21866	1918	1889
16	..	21867	1918	1890
17	..	21886	1918	1909
18	..	22038	1918	1980
19	..	21918	1918	1941
20	..	22042	1918	1984
21	Kitson	5201	1918	1615
22	Great Central	-	1918	2002
23	..	-	1919	2004
24	..	-	1919	2003

DIAGRAMS

All numbers in the following diagrams relate to the instruction paragraphs to ease cross-referencing. Please note that kits do not all contain parts for all options as they are packed and supplied for 2 major options: 1. Australian condition and 2. European conditions (see parts list).



Sketch of left hand side of loco showing sand pipes, handrails with snifting valve and GCR safety valve.



Sketch of right hand side of loco showing reversing lever, handrail details, Westinghouse pump (on smokebox), Westinghouse brake cylinder and reservoir (under cab), jack, sand pipes and Salter safety valves.

Diagram showing chassis construction

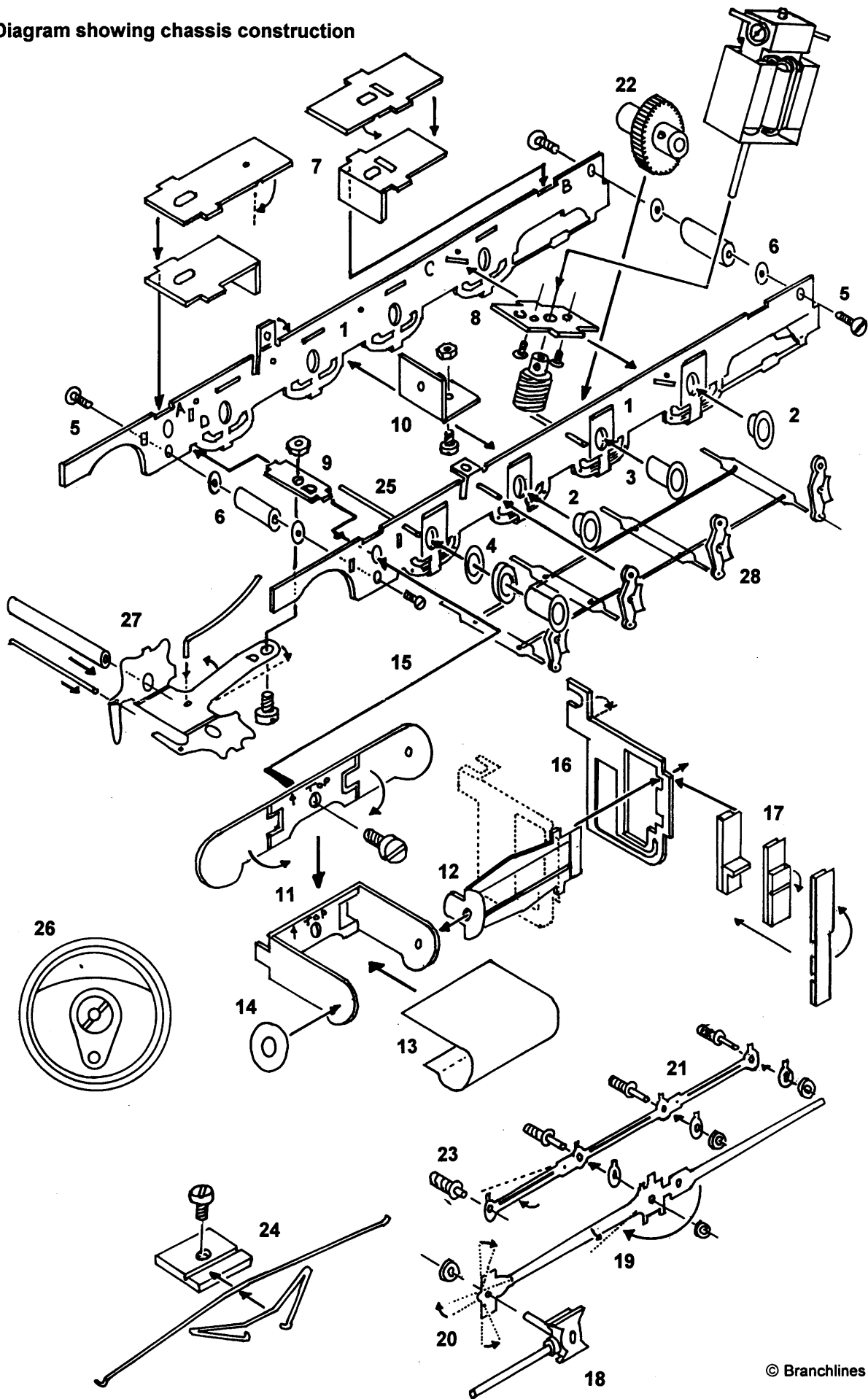


Diagram showing loco body construction

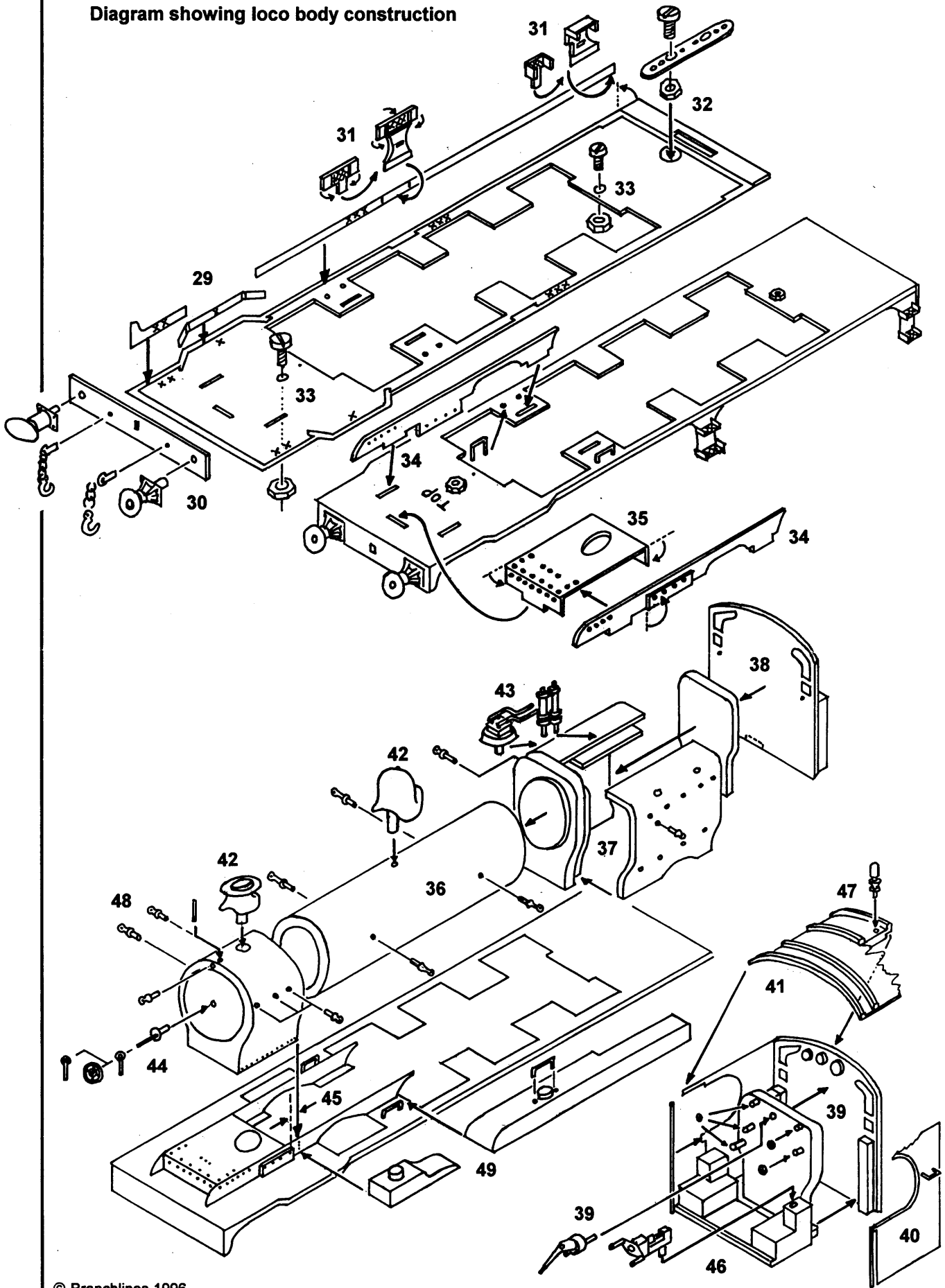
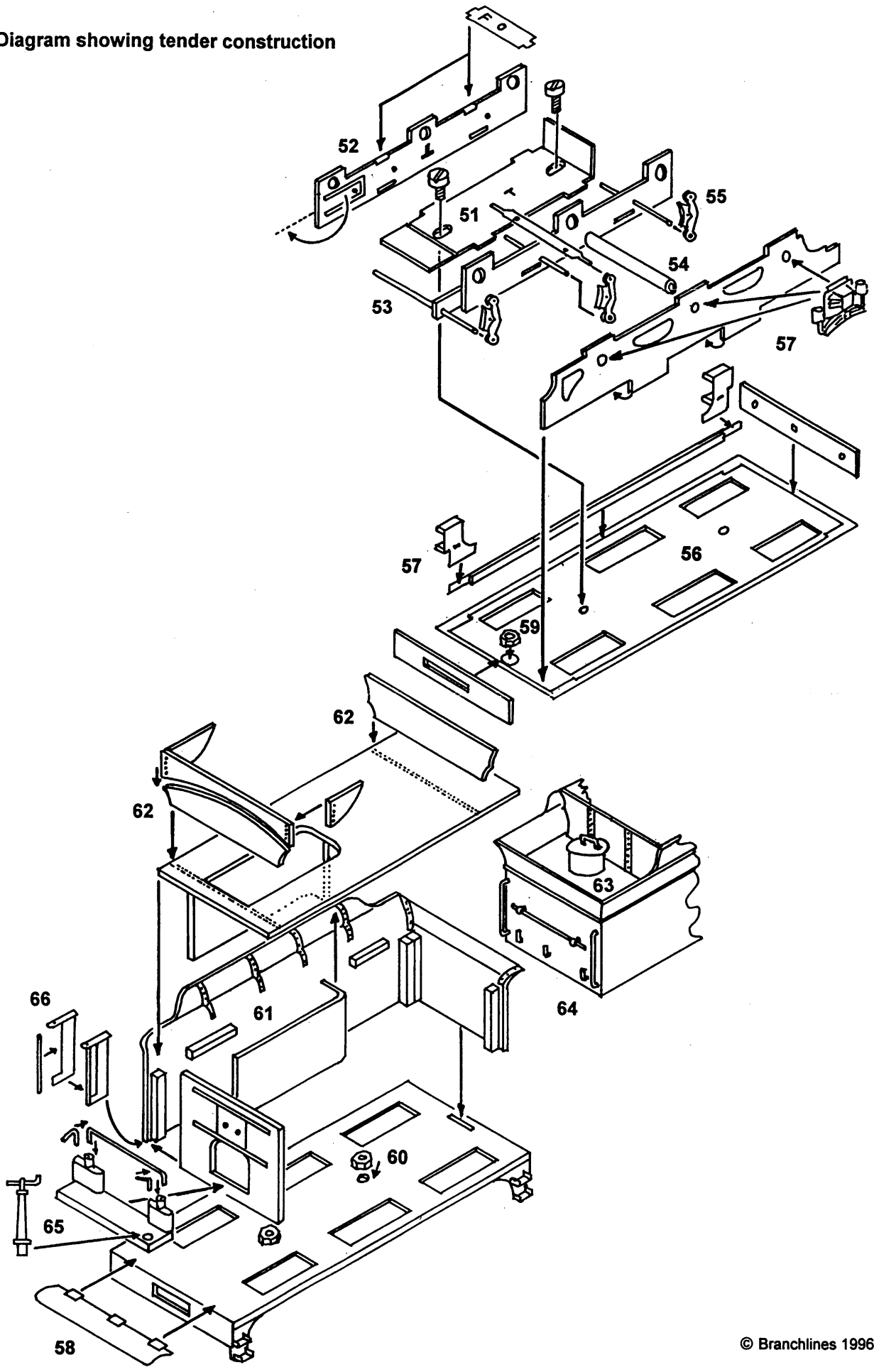
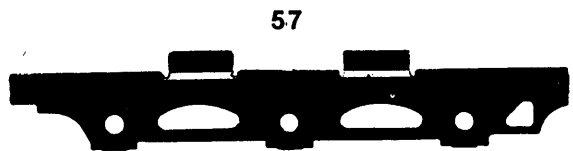
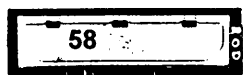
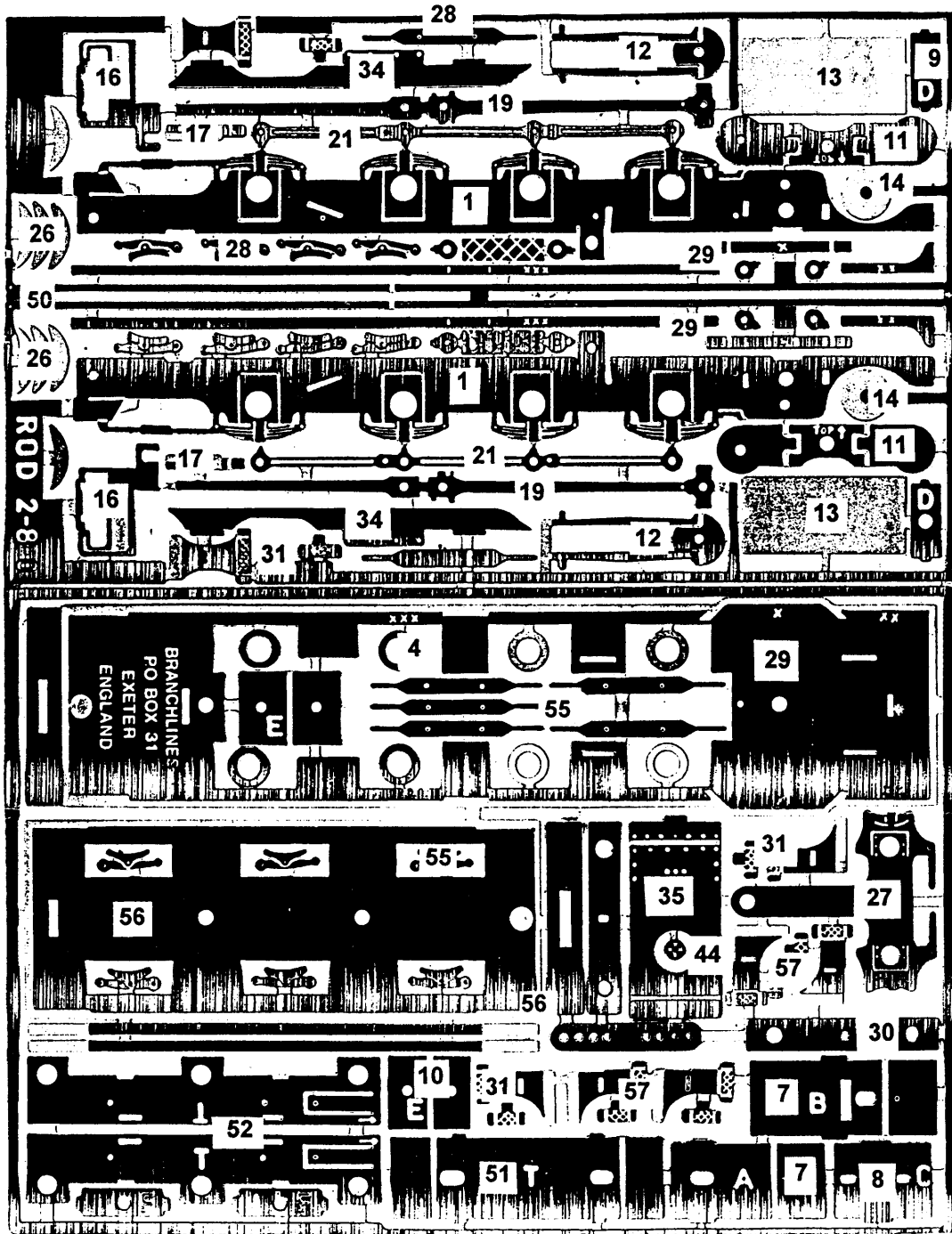


Diagram showing tender construction



Guide to etched parts



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PARTS LIST

1. ETCHED NICKEL SILVER COMPONENTS

Main fret - loco + tender chassis plus running plates
LH tender outside frame
RH tender outside frame
Tender fall plate
2 safety chain hooks, etc.
2 Lengths 0.7mm brass wire

2. WHITEMETAL CASTINGS

Bag A: Loco Parts

Boiler
Smokebox
RH Firebox
LH Firebox
Firebox rear bulkhead
Cab front
LH cab side
RH cab side
Boiler backhead
Short cab roof
Long cab roof
Cab floor/sandbox unit
LH long splasher
RH long splasher
LH short splasher
RH short splasher
Dome

Bag B: Tender Parts

LH Side
RH Side
Rear
Front
Top
Bunker front
Bunker rear
Front hungry board
LH hungry board
RH hungry board
Water tank filler
Front footplate/sandboxes
6 Axlebox/springs

3. BRASS CASTINGS, TURNINGS AND WIRE

2 Crossheads
4 French buffers
2 Oval English buffers (for loco)
2 Round English buffers (for tender)
1 Chimney
2 Safety valves
2 Tender front side sections
1 Tender handbrake
1 Regulator handle
1 Reverser
1 Smokebox door handle (3 parts)
1 Whistle
10 Short handrail knobs
4 Long handrail knobs
1 Cab handwheels etched brass fret
1 Chain
1 0.37mm brass handrail wire

4. WHEELS, MOTOR, GEARS, BEARINGS

Mashima/Branchlines 10/24 5-pole motor
4 Romford 16.5mm gauge loco axles
4 Romford 15mm driving wheels
4 Romford 15mm insulated driving wheels
1 Axle Romford 10.5mm bogie wheels
3 Axles Romford 14mm tender wheels
8 Romford crankpins
10 Romford crankpin washers
1 Romford 50:1 gear
1 Romford 50:1 worm
2 frame spacers with 4 screws and 4 washers
4 long 1/8" brass bushes
4 short 1/8" brass bushes
1 piece 2mm bore brass bearing tube
8 M2 stainless steel screws
2 M2 brass screws
10 M2 brass nuts
1 spare m1.4 motor fixing screw
1 piece of printed circuit board (PCB)
1 length phosphor bronze spring wire
1 length insulated wire
1 length 145° solder