



ANDREW BARCLAY 0-6-0 SIDE TANK LOCOMOTIVE

Wheels x 6	Alan Gibson	EM/OO - 4844A	P4- 4S44A
Note	Some locos of this type (including No 1338) had flangless middle wheels. Alan Gibson will provide this if requested.		
Hornblocks	Alan Gibson G4M60 (Pack of six)		
Gears/Motors	The motor and the gears can be mounted on the middle or rear axles and the size of the cutaway on the boiler can be increased considerably if required.		

General Construction Hints

It is best to leave the parts in the fret until they are required for use as this will protect them and makes identification easier. Any small parts which have to be removed, in conjunction with larger parts should be stored safely and labelled if necessary.

Where an accurate hole size is required, the hole is etched undersize so that it can be reamed or drilled to the correct dimension.

Some of the feeds on the lost wax castings are used to locate the parts on the model.

Use the illustrations to identify the locators before the parts are removed from the sprues.

Some of the small holes (e.g. for wire location etc.) can be drilled more easily whilst the parts are attached to the sprues or frets. This also applies to the tinning of small parts.

Fitting Boilerbands

The point during construction at which the boilerbands are fitted, will depend upon the material used to represent them. The dimensions in the table below refer to the diagram on Page 11, which shows the location of the boilerbands.

	Front edge to band centre line	Smoke box pipe	Boilerband thickness
A	13mm	F 1.5	H 0.9mm
B	26mm	G 8.5	J 0.7mm
C	on dome centre		
D	52mm		
E	64mm		

Colours

These colours refer to 1338 in its present condition at Tanfield Railway.

Body Black, Lined NCB

Buffer beams - Red

Chassis and wheels- Black

Motion - Red or steel finish

Cab detail

Cab interior including handbrake, tanks, uninsulated area of boiler (see Page 10) - black

Cab interior from waistline upwards or including underside of roof - cream

Regulator, reverser boiler where insulated - red

Pressure gauge face - white

Glass area of sightglass - greyish blue

Andrew Barclay 0-6-0 Side Tank Locomotive

The High Level kit is based on No 1338 (No 17 of the Dalmellington Iron Company) The table below lists locomotives which differ only in detail(s) from No 1338

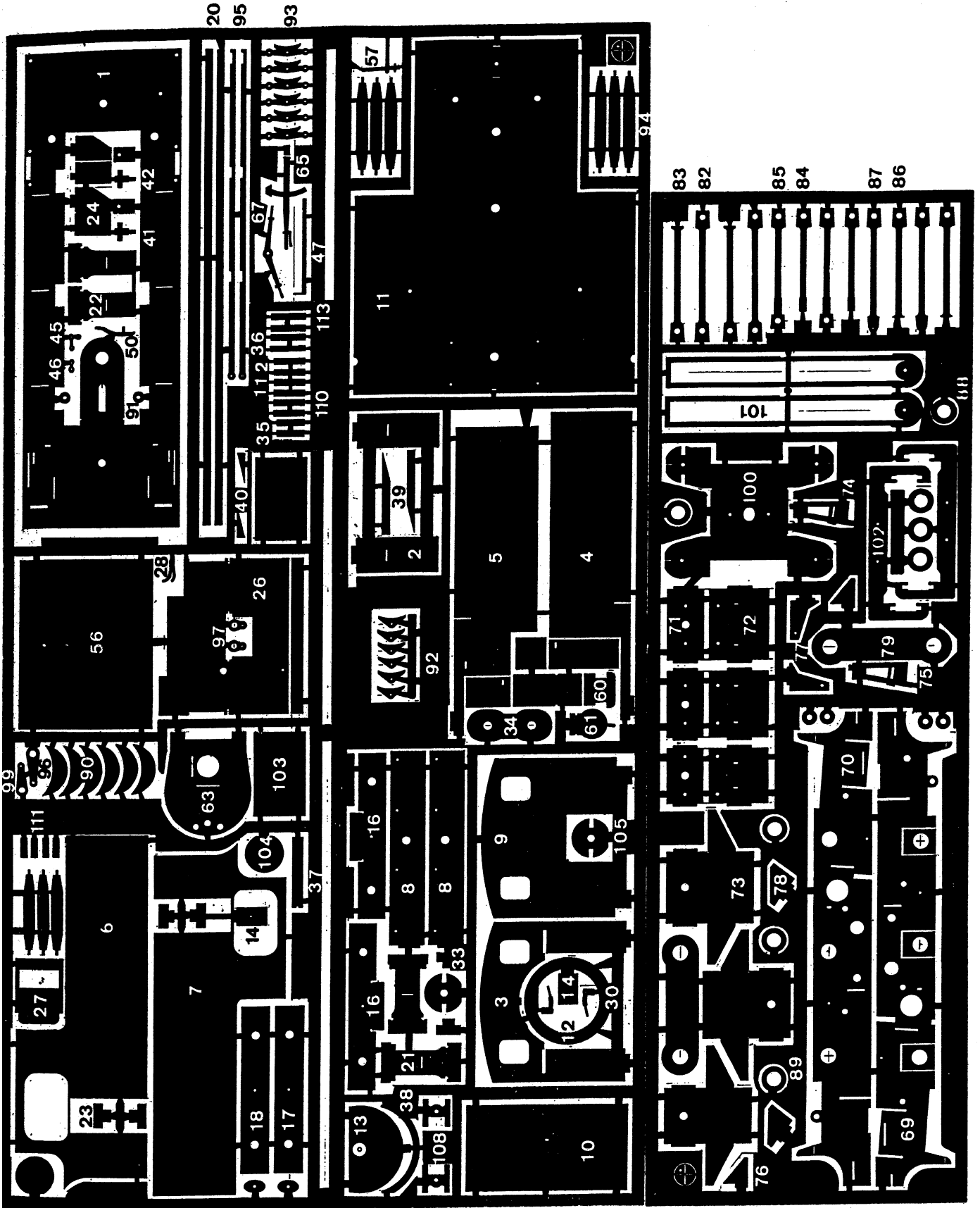
Works No/Year Built	Original Owner Pre NCB Service	NCB Service	Disposal	Details
1245(1911)	New to Carron Co. Falkirk, then to Bannockburn near Stirling	Passed to NCB in 1949 Continued to work at Bannockburn. Later worked around Methil at Wellesley/Micheal Colliery	Withdrawn 1972 to Muirs scrapyard at Thornton. Since moved to Peak railway Buxton	Flat topped dome, footsteps in front of cylinders
1296(1912)	New to Alloa coal Co. also worked at Bannockburn later taken over by Carron Co. 1936	Bannockburn, then to Glenochie in 1956 and then to Methil. To Comrie in 1970 Bedlay in 1971 and Polkemmet in 1977	After closure around 1986, locomotive moved to Minniviey and is presently dismantled at Waterside.	As above plus Giesl injector fitted between 1922 to 1968. Cut away corners on bufferbeams. Pop safety valves. Straight smokebox handrail.
1332(1913)	Edinburgh collieries Mid/ East Lothian. Worked at Preston Links colliery- Cockenzie	Continued in service at Preston Links.	Scrapped 1966.	Very similar to 1338 as built, except cut aways on bottom corners of bufferbeams, bigger balance weights.
1338 (1913)	Dalmellington Iron Co., Waterside No. 17	Continued in service at Dalmellington until withdrawal	At Tanfield Railway	Later fitted with flangeless centre drivers. Front footsteps moved to front bufferbeam (possibly ran without front step at some point) sliding shutter on cab (LHS only) Front smokebox handrail altered toolbox added.

Parts list

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Key: E = Etched, L/W = Lost Wax Casting
W/M = Whitemetal Casting

1.	Footplate	(E)	58.	Whistle	(L/W)	
2.	Tank Fronts	(E)	59.	Steam Turret	(L/W)	
3.	Cab Front	(E)	60.	Firebox Shelf	(E)	
4.	Tank Inside Lh	(E)	61.	Firebox Door	(E)	
5.	Tank Inside Rh	(E)	62.	Regulator Pivot	(L/W)	
6.	Tank/Cab Side Lh	(E)	63.	Backhead	(E)	
7.	Tank/Cab Side Rh	(E)	64.	Sightglasses X 2	(L/W)	
8.	Tank Tops X 2	(E)	65.	Reverser	(E)	
9.	Cab Back	(E)	66.	Pressure Gauge	(L/W)	
10.	Bunker Bank	(E)	67.	Regulator	(E)	
11.	Boiler	(E)	68.	Axle Bushes X 6		
12.	Front Boiler Former	(E)	69.	Frame Lh	(E)	
13.	Rear Boiler Former	(E)	70.	Frame Rh	(E)	
14.	Washout Plugs X 2	(E)	71.	Spacer Front	} 00/Em Or P4	
15.	Saddle	(W/M)	72.	Spacer Middle		(E)
16.	Front And Rear Inner Bufferbeams X 2	(E)	73.	Spacer Rear		
17.	Front Bufferbeam Detail	(E)	74.	Dummy Inside Motion Lh	(E)	
18.	Rear Bufferbeam Detail	(E)	75.	Dummy Inside Motion Rh	(E)	
19.	Coupling Details X 2	(E)	76.	Web Front X 2	(E)	
20.	Valances X 2	(E)	77.	Web Middle X 2	(E)	
21.	Rear Steps X 2	(E)	78.	Web Rear X 2	(E)	
22.	Front Steps X 2	(E)	79.	Compensation Beams X 2	(E)	
23.	Footsteps X 4	(E)	80.	1.6Mm Dia Tube		
24.	Rear Sandboxes X 2 (Handed)	(E)	81.	0.8Mm Dia Pivot Wire		
25.	Injectors X 2	(L/W)	82.	Front Inside Side Rod X2	(E)	
26.	Cab Floor	(E)	83.	Front Outside side Rod X2	(E)	
27.	Bunker Door	(E)	84.	Rear Inside Side Rod X2	(E)	
28.	Dampers	(E)	85.	Rear Outside Side Rod X2	(E)	
29.	Handbrake	(L/W)	86.	Connecting Rod Inside X 2	(E)	
30.	Injector Operating Lever Lh	(E)	87.	Connecting Rod Outside X 2	(E)	
31.	Injector Operating Lever Rh	(E)	88.	0.25 Mm Spacer Washer X 4	(E)	
32.	Clack Valves X 2	(L/W)	89.	0.5Mm Spacer Washer X 4	(E)	
33.	Tank Steps X 2	(E)	90.	Balance Weights X 6	(E)	
34.	Tank Filler Flanges X 2	(E)	91.	Small Thrust Washer X 2	(E)	
35.	Tank Step Rivet Strip X 2	(E)	92.	Brake Shoes X 6	(E)	
36.	Tank Top Rivet Strip X 2	(E)	93.	Brake Hangers X 6	(E)	
37.	Cab Back Rivet Strip	(E)	94.	Stretchers X 3 Em/00 Or P4	(E)	
38.	Boiler/Cab Flange	(E)	95.	Brake Rods	(E)	
39.	Frame Details X 2 Handed(Lh)	(E)	96.	Handbrake Lever	(E)	
40.	Frame Pieces X 2	(E)	97.	Actuating Levers X 2	(E)	
41.	Front Lamp Iron	(E)	98.	Brake Cylinder	(W/M)	
42.	Rear Lamp Iron	(E)	99.	Brake Lever	(E)	
43.	Buffers X 4	(W/M)	100.	Cylinder Saddle	(E)	
44.	Front Sandboxes X 2	(W/M)	101.	Slidebars	(E)	
45.	Front Sandbox Lever Lh	(E)	102.	Motion Bracket Layers X 2	(E)	
46.	Front Sandbox Lever Rh	(E)	103.	Cylinder Wrappers X 2	(E)	
47.	Sandbox Operating Rod	(E)	104.	Cylinder Front Covers X 2	(E)	
48.	Toolbox	(W/M)	105.	Cylinder Rear Covers X 2	(E)	
49.	Safety Valve	(W/M)	106.	Crossheads X 2	(L/W)	
50.	Safety Valve Lever	(E)	107.	Piston Glands X 2	(L/W)	
51.	Dome	(W/M)	108.	Crosshead Back Pieces X 2	(E)	
52.	Chimney	(W/M)	109.	Leaf Springs X 2	(W/M)	
53.	Tank Fillers X 2	(W/M)	110.	Rivet Strip X2	(E)	
54.	Smokebox Dart	(L/W)	111.	Rivet Strip X 4	(E)	
55.	Smokebox Door	(W/M)	112.	Rivet Strip X4	(E)	
56.	Cab Roof	(E)	113.	Rivet Strip X2	(E)	
57.	Whistle Lever With Linkage	(E)				



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BRASS

NICKEL

Whilst parts are being fitted to the footplate it must be checked for flatness as each structural part is added. Any deviations will be difficult to remove once all the parts are in place.

Some locomotives are fitted with a toolbox, front steps and handrail knobs above the steps and above the front bufferbeam. There are drill starts provided on the underside of the footplate for these parts. The holes can be drilled before construction commences.

Solder an M2 nut on the topside of the footplate, (1) over the rear chassis mounting hole. Check that a bolt will fit into it. Bend the boiler mounting tab to about 30degrees from horizontal.

You will notice that the tank fronts and the cab front have cross members. The recommended method of construction is to leave the crossmembers in place until the main structure is built. This will make the components easier to fit and will ensure their widths correspond. If you prefer not to use this method, you can cut the crosspieces off the tank fronts before assembly, however, it is advisable not to cut the crosspiece from the cab front, as it is very delicate at this stage.

Fit the tank front (2) and cab front(3)into the footplate and make sure that they are square, vertical and straight when viewed from all directions. Put a straight edge between the two parts and check that it runs parallel with the footplate edge. If necessary adjust by filing the locator tabs. When you are satisfied with their position solder them in and grind away the excess locator tabs. Bend up and fit the tank insides(4) (5) and fit them in position by passing them through the cab front. Their top edge should sit at the same height as the tank fronts. Push the tank insides up against the cab front inner edges. The front edge of the tank insides sits behind the tank fronts to form a corner(see page 10). When soldering in position be sure to

solder the rear extensions as they make the footplate rigid.

Bend the boiler mounting tab to vertical. Remove the cab/tank sides(6), (7) from the fret. Do not remove the cross pieces or strengtheners from the cab sides (in the doorway) at this stage. Ensure that they are flat. Cut two pieces of square bar to 38mm long. The bars will be soldered along the bottom inner edges of the tank sides. Offer up the cab/tank sides and using the cab front corner as a datum. Mark the position of the bar on the tank sides. Remove the cab/tank sides and on a flat surface solder the bar in position. Line up the cab front face with its corresponding vertical edge on the cab/tank side. Tack in position. Check that the cab/tank side is sitting flat on the footplate. There may be some overhang at the tank front. This extra material will be easily trimmed off at a later stage. When you are satisfied with the position of the cab/tank sides, solder in. Do not solder the rear area of the cab sides to the footplate. If you are using a powerful iron the tank sides may deflect away from the iron, causing warping. To prevent this happening, the bottom edge can be tacked in position then the iron applied to the lower side of the footplate to distribute the solder.

Fit the tank tops (8x2). They sit on top of the tank fronts, and tank insides, but not on top of the tank outsides. Line up the tank top front edge with the tank fronts, any gap at the cab front will be covered with a rivet strip (see page 10). When the whole assembly is soldered up the cross pieces can be cut and ground away from parts 2 and 3. The front edges of the tank sides can be trimmed flush with the tank fronts, using a file and cutting on the inward stroke only. Masking tape can be used to protect the footplate from the file edge.

Fit the cab back (9) between the cab sides. Check that it is vertical and lines up with the corresponding edges of the cab

sides. Check that the cab sides at the rear are in line with the rest of the structure. Solder into position. Bend and fit the bunker back (10). The bottom edge of the bunker back can also be reinforced with square bar, if so wished. Remove the strengtheners (x) from the cab doorways.

Boiler

Roll up the boiler (11) and solder in the front and rear formers (12),(13). Satisfactory results were achieved on the test etches by annealing the metal and rolling it round an extension from a half inch drive socket set, on the middle pages of a phone book. Bend and solder the washout plugs (14x2) into position on the inside of the boiler. When in position a piece of 0.4mm wire in the centre provides the finishing touch.

Pass the rear of the boiler through the cab front and secure it to the mounting tab using an M2 nut and bolt (not too tight) Slot the saddle (15) between the footplate and the boiler smokebox. Push an M2 bolt through the front mounting hole, saddle and footplate and secure using an M2 nut(not too tight) The front and rear position of the boiler can now be adjusted Check that it looks level and looks right in relation to the existing structure. When you are satisfied with the position of the boiler, solder it in position at the rear making sure no solder runs onto the nut or bolt, which is then removed. The saddle area can be soldered or glued. This time only the nut is to be removed so the bolt forms a fixing stud.

Bend out the tabs on the front and rear inner buffer beams (16x2). Layer up the inner beams with the front and rear beam details (17), (18) (Note the top edge of the beam detail should protrude slightly higher than the top edge of the inner beam, to form a lip) Fit the buffer beams using the bent tab to tack them in position. The lip on the top of the beam locates on the lip on the underside of the

footplate (see page 11). When the beams are correctly positioned they can be soldered along their full width.

Fit the couplings and coupling details (19x2).

Fit the valances (20 x2).

Bend up, assemble and fit the rear steps and the front steps (if fitted) (21x2), (22x2), (23x4)

Bend up and fit the rear sandboxes (24x2 handed).

The injectors (25x2) are situated under the cab sides.

Using the drill starts provided, drill the footplate for the injectors. The injectors are made right or left handed by cutting the pipe off one side or the other. Fit the injectors and pipe work as shown on page 11.

Bend up and fit the cab floor (26) With the floor fitted, fit the coal bunker door (27).

Fit the damper (28) (see page 10) and handbrake(29).

Bend the injector operating levers (30) and (31) and fit them into the tanks. Fit 0.5mm wire to the levers as shown on page 10.

Drill out the clack valves (32x2) to accept 0.5mm wire. Fit the clack valves and the wire. Fit the tank steps (33 x2) and tank filler flanges (34x2). If the rivet strips (35x2), (36x2), (37x2) including the boiler to cab flange (38) are to be soldered in position, do so now. If they are to be glued this can be left until soldering has finished.

If the locomotive you are modelling has a pipe running from the smokebox drill the boiler as shown on page 11 and fit 0.4mm wire.

Fit the handrail knobs and handrails. The handrails in the cab doorway can be fitted in the following manner. Bend the wire into a 'L' shape, keeping the vertical long so it extends above of the cab and can be held in position. The bottom of the 'L' can be pushed into the cavities, positioned, and soldered to the footplate. The top end of the

handrail is then positioned on the crosspiece and soldered in position. A handrail knob is then slid down the wire, so it sits on the crosspiece. When all four handrails and knobs are soldered firmly in position, the wire can be cut flush with the handrail knob. The pin can be clipped off the knob itself, and the crosspieces cut off and very gently trimmed, if necessary.

Fit the frame details (39x2 handed), to the outside of the saddle and thicken at the front using frame pieces (40x2). Bend and fit the front (41) and rear (42) lamp irons.

Solder 0.5mm dia wire into the rear sandboxes. This can be bent into position when the chassis is built. Fit the buffers(43x4). Trim the mounting pegs so they are absolutely flush with the back of the bufferbeam.

Using the drill starts, drill a 0.4mm dia hole in each front sandbox (44x2). Push a piece of wire into each hole. Leave the wire proud. Fit the sandbox levers (45), (46) onto the wires and trim the wire. Fit the sandboxes to the footplate. Connect the levers as shown on page 11. Fit the operating rod (47) into the left hand lever and anchor the other end on the tank inside.

Fit the tool box (48) if applicable. Fit the safety valve (49) and the safety valve lever (50). Fit the dome (51) and chimney(52) and the tank fillers (53x2). Fit the dart (54) into the smokebox door (55) and glue the door onto the smoke box.

Bend the cab roof (56) to shape. If you wish to make the roof removable, solder some fret material on the underside as shown. This will locate the roof on the cab. The overhang of the roof must be equal either side and front and rear.

Cab Detail (Page 10)

Fit the whistle lever and linkage(57) into the cab roof. Shorten its locator tab so it looks like a bolt. Solder the whistle (58)

onto the roof. Solder a piece of 0.4mm dia wire, (about 10mm long) onto the whistle and linkage.

Using the drill start provided, drill the brake valve (on the steam turret (59)) to accept 0.5mm wire. Cut, bend and fit the wire to represent the brake lever as shown. Drill the steam turret to accept 0.7mm dia wire. Bend the wire to shape and solder the wire into the steam turret. Solder the shelf(60), door(61) and regulator pivot (62) to the backhead(63). The bottom pin on the sightglasses (64x2) is only a feed and should be trimmed off before fitting.

Painting

It is recommended that the body is painted after the chassis has been built, tried in position and any adjustments made. Try all the cab detail parts in their positions and make any adjustments prior to painting. Clean up all the parts ready for painting. Mask off the whistle and its pipe and the rear sandpipes. Prime and paint the locomotive body and cab roof.

The following parts can now be painted separately - the cab interior, roof underside, backhead, reverser (65), pressure gauge (66)(face only) regulator (67) and sightglasses (glass area only). Remove the masking from the whistle and the rear sand pipes. The whistle and pipe, sightglass ends, steam turret, pressure gauge body and the rear sand pipes can be laquered to preserve their brass finish.

Glue the sightglasses into the backhead. Run fuse wire up to the sight glasses as shown. Glue the backhead into position. Glue the pressure gauge to the cab front (opposite the two mounting bolts on the outside). Fit the steam turret and reverser. Kink the regulator, so it clears the sightglasses, and fit. Offer up the cab roof. Bend and trim the pipe from the whistle until it sits nicely on the centre of the steam turret.

The chassis can be built either rigid, compensated or sprung. A useful feature of the chassis is the easily removable motion and brake gear.

Method 1 Rigid Construction

Axle bushes are fitted directly into the frames.

Before assembly - ream out all the holes to accept axle bushes(68) Fit the bushes into the frames with the shoulder on the outside.

Method 2 Fully Sprung Construction

The inside of the frames are marked to suit Alan Gibson hornblocks.

Before assembly - file out the cut ways at all axles.

Method 3 Compensated Construction

Using beams provided in the kit at the middle and rear axles. The front axle rocks on a single central pivot and moves in hornblocks.

Before assembly - file out the hornblock cut ways at the front axle. Ream out the holes to accept bushes at the middle and rear axles.

Drill the spacer (72) to accept the pivot bar.

Method 4 Compensated construction

A rocking bar runs centrally on the leading and middle axles. The bar is pivoted at its centre. The axles pivot on the beam and moves in hornblocks. Some of the details, such as the bar and pivot assembly are left to the builder to improvise.

Before assembly - file out the hornblock cut ways at the front and middle axles.

Ream out the holes and fit axle bushes (68) at the rear axle.

Cut away the half etched area on the spacer(72).

Methods 1 2 3 and 4

Check the spacers and webs for fit in the frames (69) (70). Check for squareness and straightness as you proceed. Fit the front (71) middle (72) and rear (73) spacers. Bend and fit the dummy inside motion(74), (75). Fit the webs (76x2), (77x2), (78x2). The middle web mouting tab must be filed flush with the inside of the frames if the compensation beams are to be used.

Fitting Compensation Beam Method 3

Ream out the compensation beams (79x2) to accept axle bushes.

From the outside of the frames, push the axle bushes through the frames at the middle and rear axle holes.

Push the compensation beams over the protruding axles bush ends, inside the frames. Mark the beams left and right.

Drill a 0.8mm dia hole through the pivot hole in the frame and through the compensation beam. Keep the drill as level and straight as possible. Remove the beams and bushes. Enlarge the pivot hole in the beams to accept 1.6mm dia tube (80). Solder the bushes into the beams so the shoulder will be facing the outside when the beams are fitted.

Cut two pieces of 1.6mm dia tube so their lengths are half the width between the frames (and the sum of their lengths equals the width between the frames.) Push the tubes into the pivot holes in the beams. Fit the beams between the frames and push a piece of 0.8mm dia pivot wire (81) through the frames and tubes. Make sure the axles bushes are up against the inside of the frames. Solder the tubes into the beams.

The pivot can be made permanent by gluing or soldering at one end of the wire and then trimming to length. Be very careful not to get glue or solder into the tube. The tube between the beam and the frame can be filed flush with the

beam to prevent glue or solder penetrating. Swing the beams out of the way and ream the chassis holes out to about 4 mm dia.

Methods 1 2 3 and 4

Layer up the rods (82-87 all x2) as shown on page 14 Do not solder the rods together at the middle crankpin area as they pivot around the crankpin bush.

Drill the small end of the connecting rod to accept a 14 BA bolt or a valve gear rivet. Drill the rest of the holes in the rods to accept the crankpin bushes.

Compensated or sprung chassis Methods 2, 3 and 4

Assemble and fit the hornblocks according to the manufacturers instructions. For methods 3 and 4 it is not necessary to fit any springs, nuts or bolts to the hornblocks. To achieve accurate positioning of the hornblocks it is recommended that proprietary axle jigs be used in conjunction with the side rods.

Methods 1 2 3 and 4

Assemble and fit the wheelsets and motor/ gearbox using spacer washers (88), (89) where appropriate. Bearing tubes may be fitted if desired.

Set gauge and quarter the wheels according to the manufacturers instructions.

Fit the balance weights (90 x 6) to the wheels.

Sprung chassis Method 2

Achieve a level chassis in accordance with the hornblock manufacturers instructions. Test for free running

Compensated chassis Method 3

On a piece of track, chock the chassis until it sits level and solder a pivot into the spacer (72) so it rests on the middle of the front

axle (or bearing tube). Test for free running.

Compensated chassis

Method 4

Fit a bar and pivot assembly and test for free running.

Methods 1 2 3 and 4

Cut the crankpin bearings to give a running clearance with the rods on. Do not forget to include the connecting rod and bush when cutting the crankpin bolt on the middle wheel. Remove the connecting rod. Fit the crankpin fixers and achieve a free running chassis.

It is possible in P4 to use the standard arrangement at the front crankpins, without them catching the crosshead, however, it is essential that all the components involved have very little sideplay (more difficult if compensation is used). The crankpin fixer must be filed very thin and the cylinder assembly must be exactly central. The diagram on page 14 shows an alternative arrangement which reduces the width across the crankpins. A flat washer(91x2) is glued over the crankpin, on the wheel. The front layer of the rod (83) is cut as shown, and the crankpin bush (cut to length) is fitted back to front. The bush is glued onto the crankpin and also acts as a crankpin fixer.

This method is certainly worth considering, bearing in mind that the crankpin is obscured by the crosshead for a large part of the revolution. The front steps (if fitted) will put this area in shade.

Brake Gear (Page 13)

It is sufficient to hang the brake gear from two points - the actuating levers on the shaft behind the rear wheels and the front brake hanger pivot. Additional support can be given at the middle and rear brake pivots.

Compensation beams and the position and type of motor/gearbox, may make it necessary to use short pieces of

tube at the middle and rear pivots, leaving the area inside the frame free. In any event make sure all the tubes protrude by an equal amount from the chassis sides.

The overall width of the tube (s) depends on the gauge. The widths are 00 16mm EM 18mm P4 19mm. The tube is 1.6mm dia, as used in the compensation beams.

Using a piece of 0.5mm dia wire to locate them, solder the brake shoes(92x6) to the brake hangers (93x6). Do not forget to make three left handed and three right handed. File the wire almost flush. Fit the appropriate stretchers (94x3) to the brake rods(95x2). Fit the hanger assembly to the ends of the stretchers so they are vertical. Fit the pre cut tube into the chassis at the brake hanger pivots. Take a piece of 1.5 mm dia bar at least 20mm long and push one end through the left hand frame. Now fit the handbrake lever, (96) then the brake actuating levers (97x2) onto the bar (between the frames). Push the bar through the right hand frame, do not solder at present. Offer up the brake gear assembly.

Push a piece or pieces of 0.5mm wire through the hangers and tubes. Push a piece of 0.5mm dia wire through the rear of the brake rods and the actuating levers. The actuating levers sit up against the inside of the brake rods.

Check the brake gear is square and straight when viewed from the underside. Check the brake rods do not foul the compensation beams if fitted.

Solder the actuating levers to the shaft. Some degree of adjustment can now be achieved by twisting the shaft.

When you are happy with the position of the brake gear solder the shaft into the right hand frame, so it cannot rotate.

Remove the brake gear by pulling out the pieces of 0.5mm wire.

Fix the wire into the actuating levers and trim off the outside edges so the wire protrudes about 1 mm. Position and fix the

handbrake lever, be sure to leave access for the brake rod on the actuating levers.

Fit a piece of 0.5mm wire into the handbrake lever and solder the top end to the rear spacer back edge. Drill out the brake cylinder (98) to 0.5mm dia.

Bend a piece of 0.5mm wire into an L shape. Fit the wire into the brake cylinder (98) and into the hole in the lever(99).

Fix the lever in position and trim off the excess shaft and wire.

For the final fitting of the brake gear (After painting) bend a piece of 0.5mm wire into an L shape, offer up the brakegear.

Push the L shape wire through the hangers and tube, at the front pivot point.

Bend the wire at its straight end and trim off any excess length. To remove and refit - clip off and replace the wire. The rear of the brake rods can be simply sprung into position on the wire at the rear shaft. The other hangers can be kept in position on straight wires which have been bent along their length to stop them moving in the tubes.

Cylinder and motion assembly (Page 13 and 14)

Drill out the holes in the cylinder saddle (100) and slide bars(101 x2) to 1.2mm dia.

Bend up the cylinder saddle. Bend over the slide bars and solder the two layers together. Bend the disc through 90 degrees.

Cut away the crosspiece nearest the disc. Do not remove the other crosspiece. Layer up the motion bracket(102x2).

Fit the cylinder saddle and motion bracket into the chassis using nuts and bolts into the chassis spacers.

Check the motion bracket angle corresponds with the cylinder face angle (a check can be made using a straight edge across two marks provided on the inside bottom edge of the the frames. Use the front edge of the marks)

Slot the slide bars through the cylinder front face and into the motion bracket.

Push a piece of 1.2 mm dia wire through the whole assembly. When the wire lines up with the centre of the middle wheel and runs centrally between the slide bars tack the slide bars in position at their points of contact with the motion bracket and cylinder faces. File an angle at the mouth of the slide bars as shown at the top of page 14. This will provide clearance for the connecting rod.

Working up the drill sizes - enlarge the holes in the cylinder front face and the slide bar disk to 2mm dia. Bend and fit the cylinder wrappers (103x2). Try and make them a good fit before soldering them in position.

Fit the front (104x2) and rear cylinder covers (105x2). Solder a piece of fuse wire on the front covers to represent the cylinder oil feeds. Cut the crossheads (106x2) to length. Put the crossheads in position and check that they slide freely on the slide bars. Adjust if necessary, and then remove the crossheads. Drill out the piston glands (107x2) to 1.2 mm dia and fit them up against the rear cylinder covers between the slide bars. Make sure the holes are on centre with the cylinders and the crossheads move freely. Fix the glands in position.

Stick pieces of masking tape on the crossheads as shown on page 14 and file backs of the crossheads flush with the slide bar faces. Remove the crossheads and tape and clean off any traces of glue.

Put the small ends of the connecting rods into the recesses in the back of the crossheads. Push valve gear rivets or 14 BA bolts through the rods into the crossheads. Check that the big ends of the connecting rods are free to move 5mm up and 5mm down from the horizontal. Secure the rods into the crossheads. Fit the crossheads, with the connecting rods, into the slide bars. Secure the crossheads by carefully gluing the back pieces (108x2) in position.

Fit the cylinder/motion assembly into the chassis using bolts. Fit the big ends of the connecting rods into the middle driver crankpins. Secure them with the crankpin fasteners and test for free running.

N.B. In 00 gauge the connecting rod may need to be extended to prevent the crosshead from hitting the motion bracket. A piece of scrap fret material soldered on the small end of the rod will suffice.

This cylinder and motion assembly can be removed at any time by simply undoing the securing bolts and disconnecting the connecting rods from the crankpins.

Fit the front sandpipes (made from 0.5mm dia wire) using a wheel set and the brake gear for positioning. Fit the leaf springs (109x2) and rivet strips (110x2), (111x4), (112x4), (113x2) to the chassis. It is best to cut one end of the rivet strip, position it and trim to length in situ.

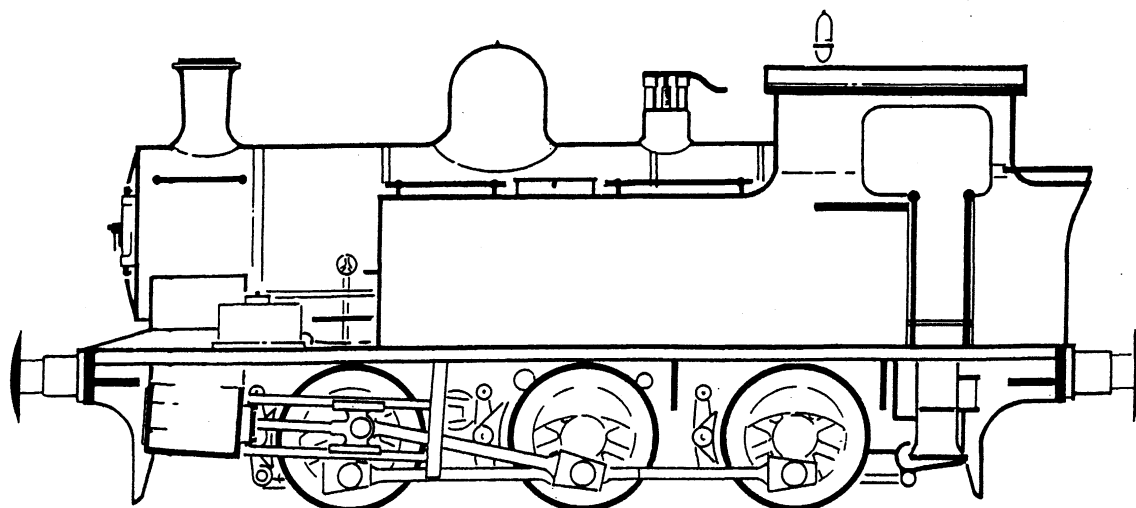
Check that the body and chassis fit together. It may be necessary to enlarge the holes in the front spacer and cylinder saddle. Make sure the rear mounting screw is not too long or it will damage the cab floor.

Pick Ups

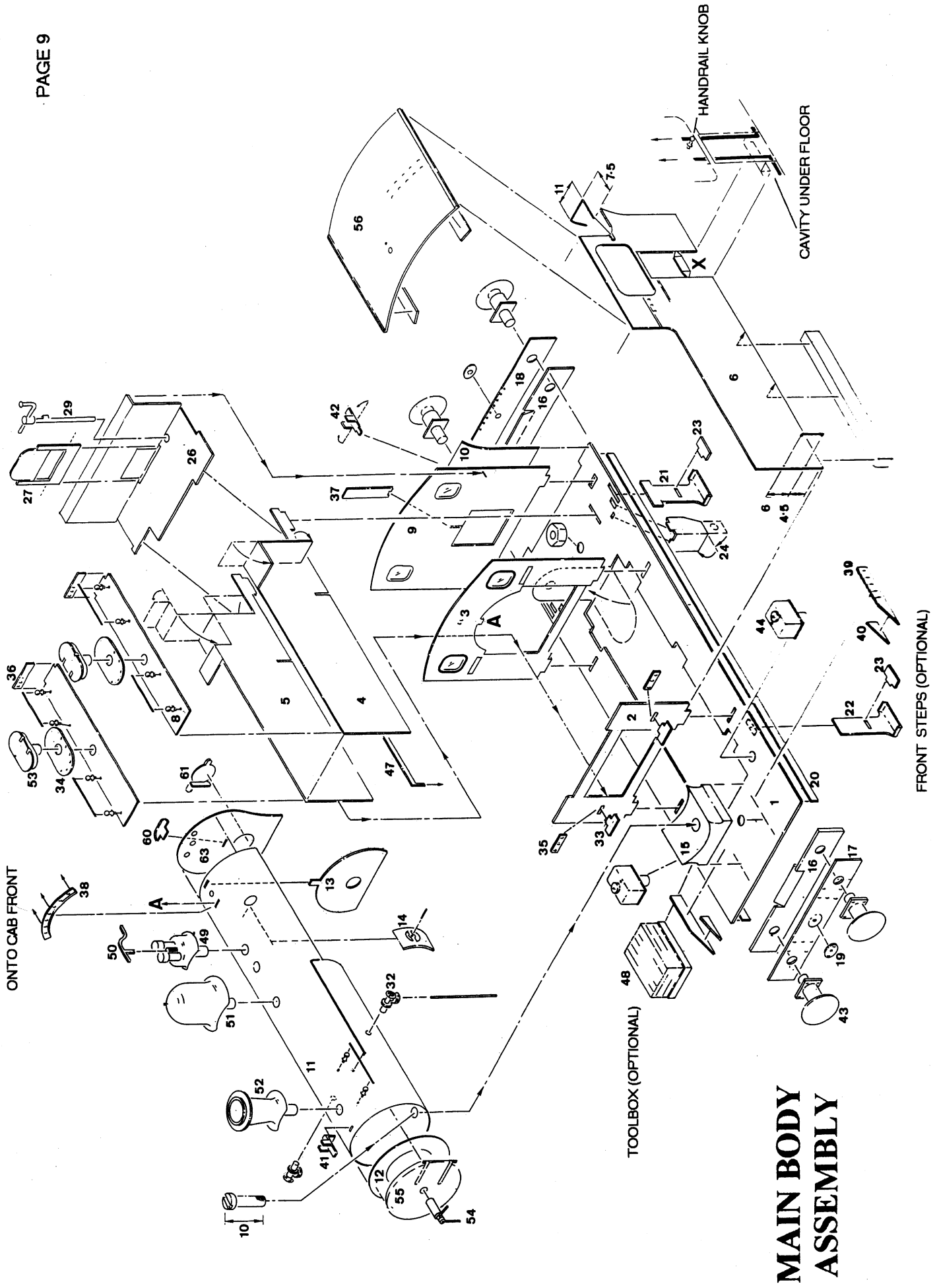
Pick ups can be fitted to the brake rods using paxilon board and light gauge wire (i.e. handrail wire)

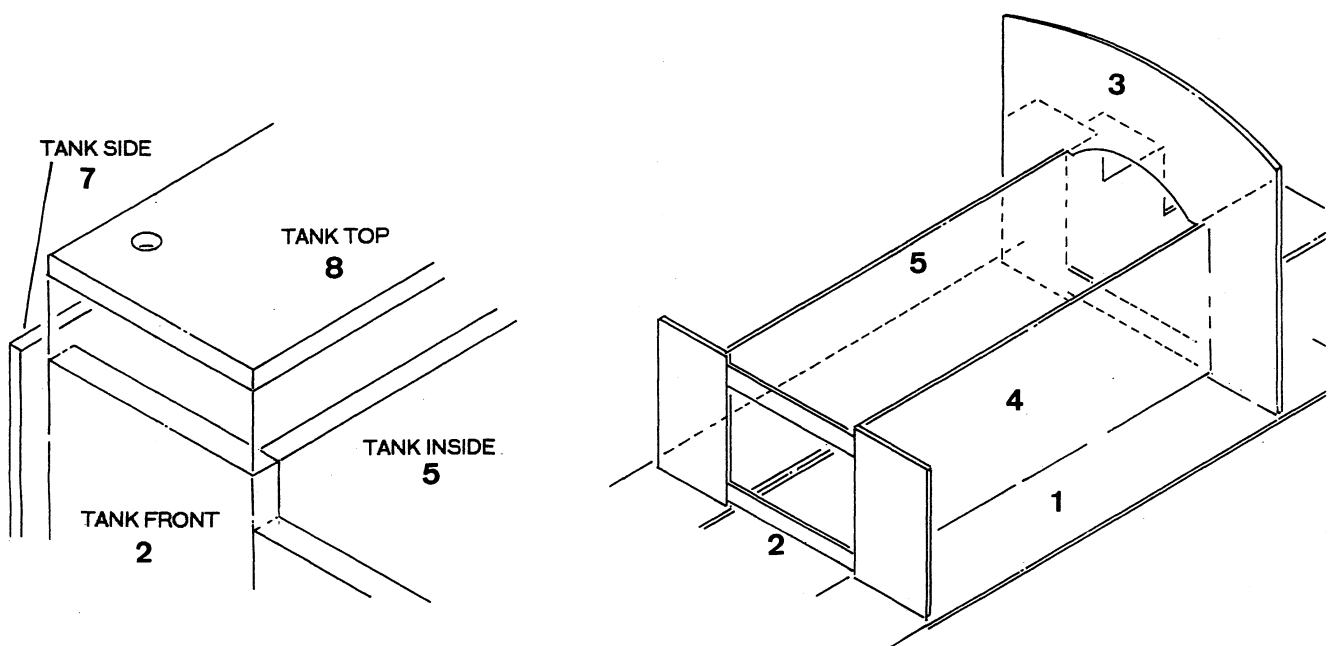
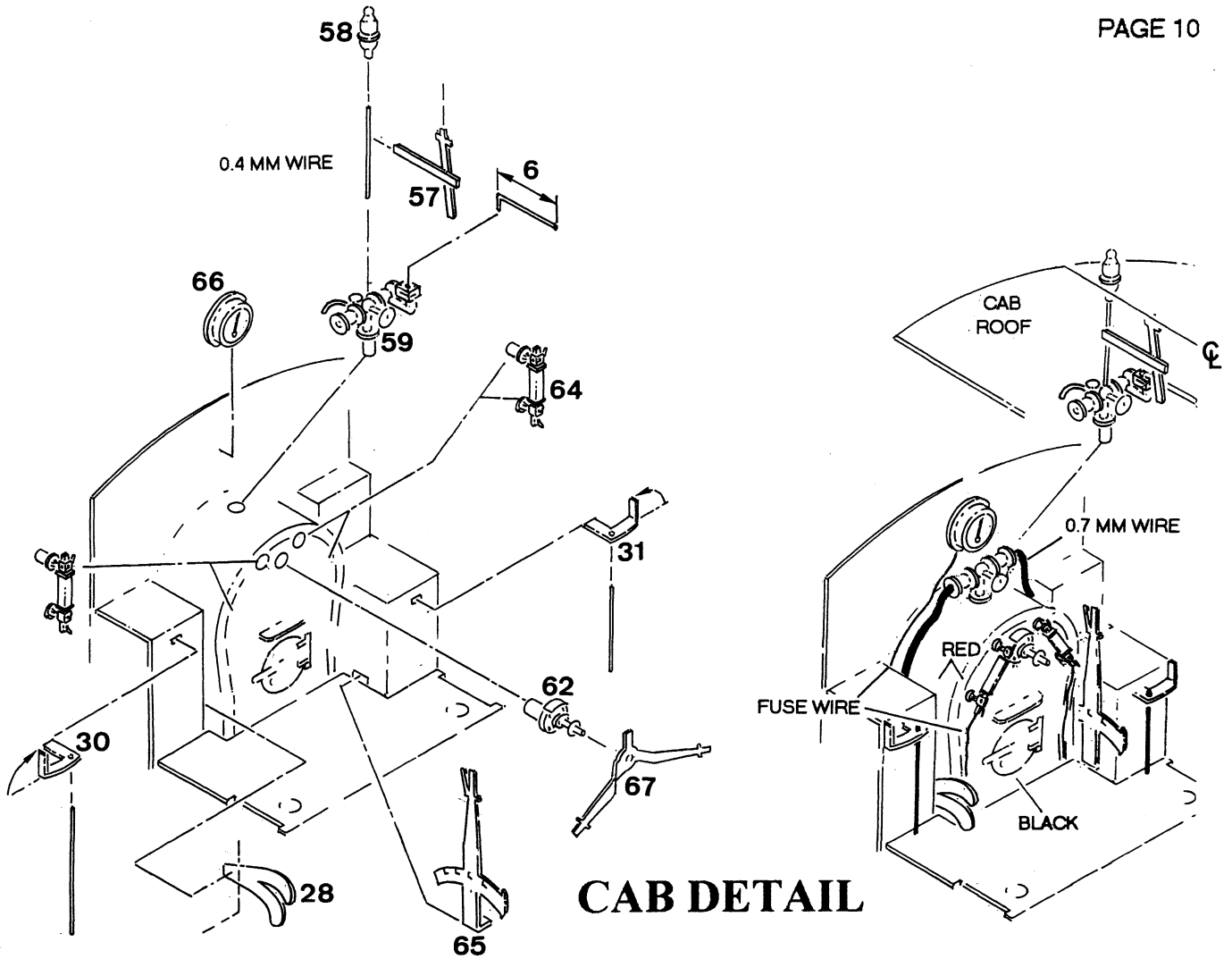
Painting

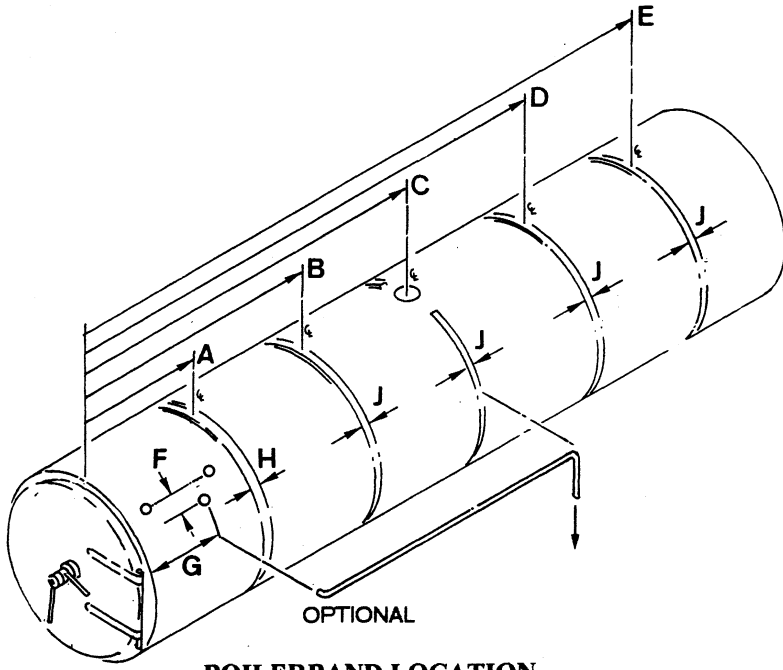
It is best to remove the wheels and breakdown the chassis into sub assemblies (brake gear, cylinders, chassis frames) before painting



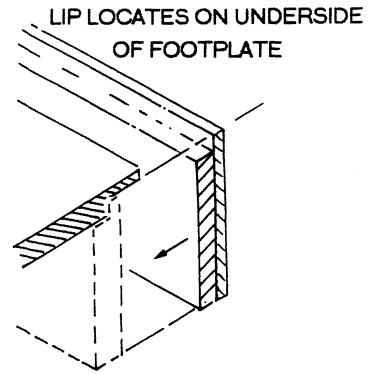
NOT TO SCALE



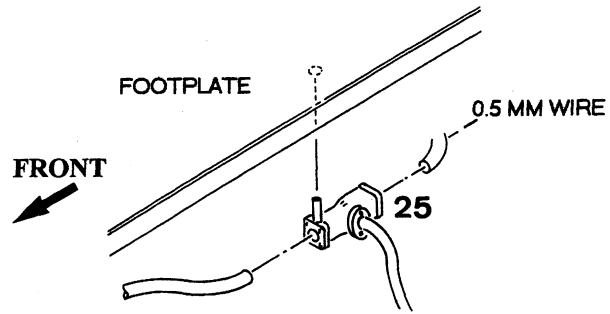




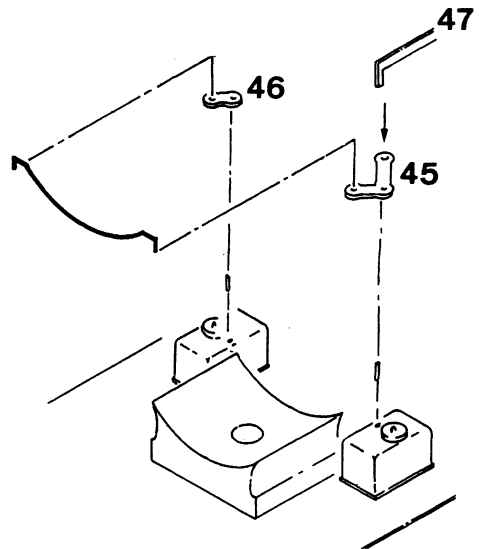
BOILERBAND LOCATION



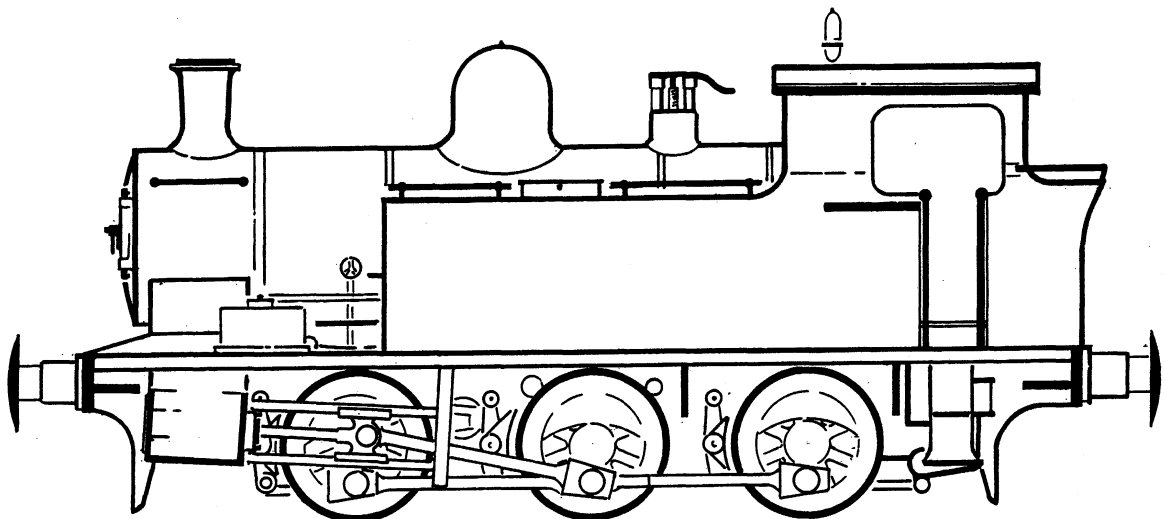
BUFFERBEAM



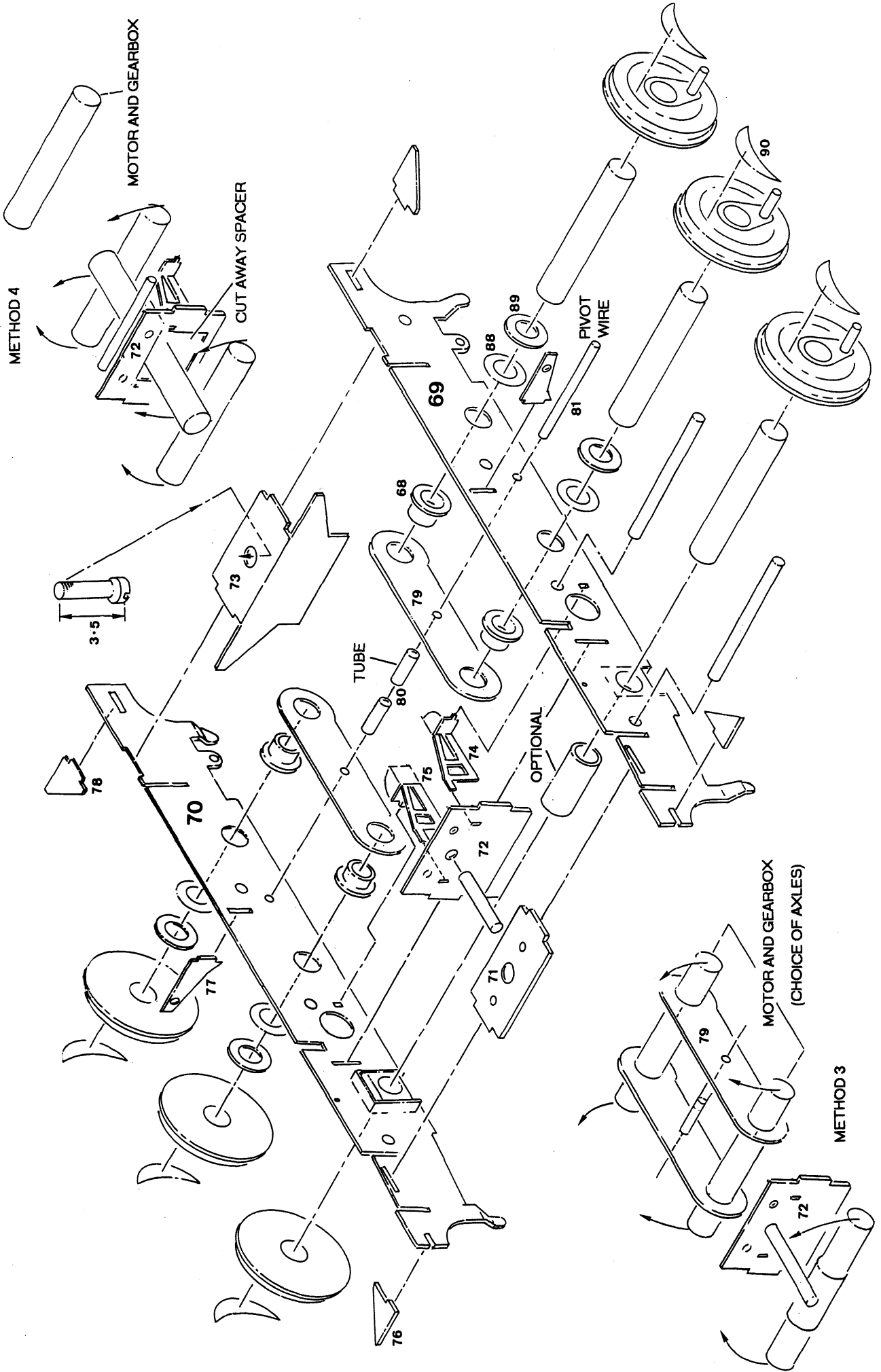
INJECTOR LOCATION (LHS)



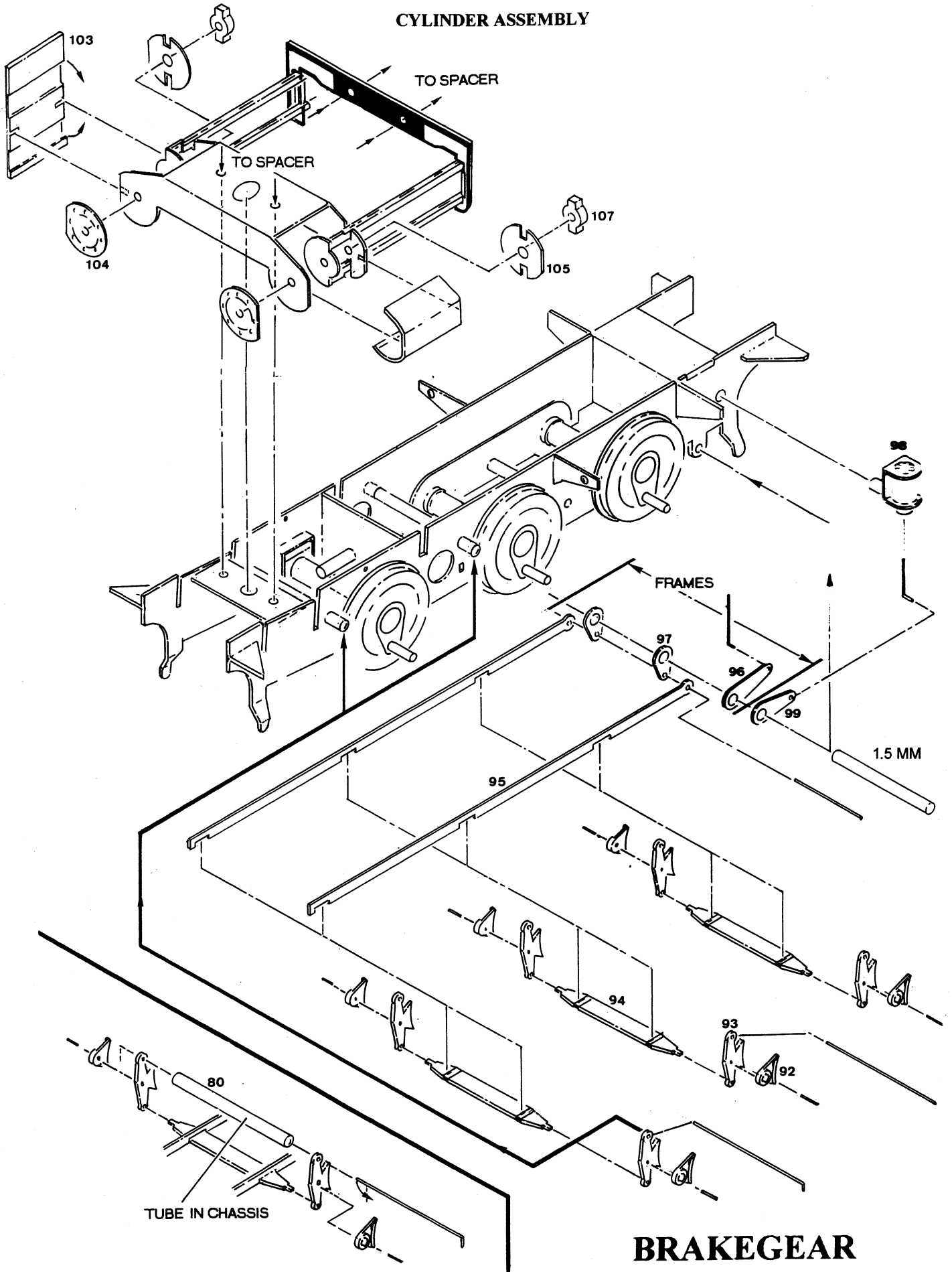
FRONT SANDBOX LINKAGE

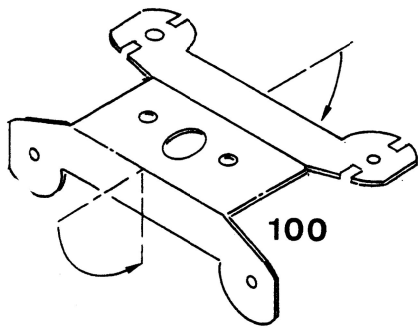


COMPENSATED CHASSIS

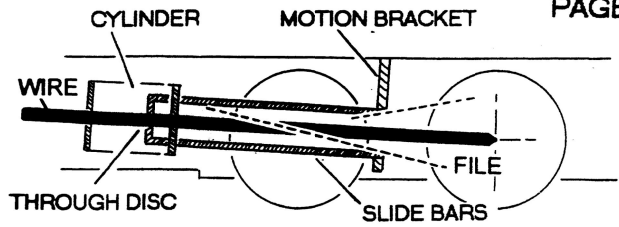


CYLINDER ASSEMBLY

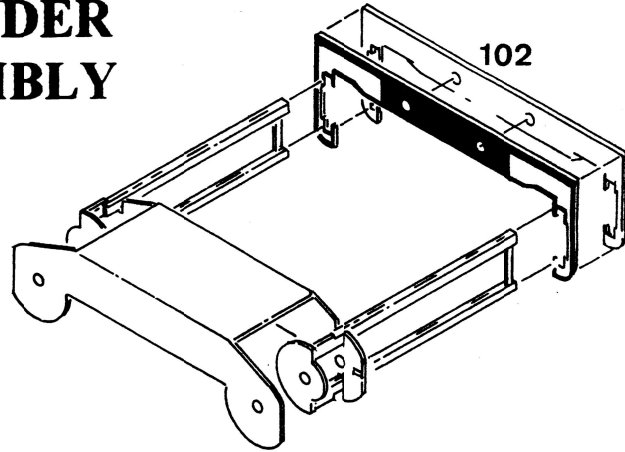




100

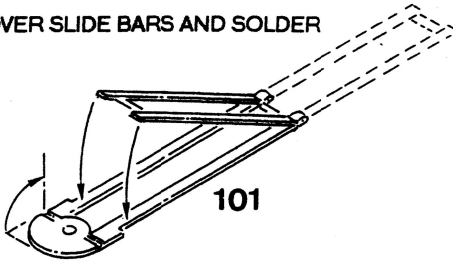


CYLINDER ASSEMBLY



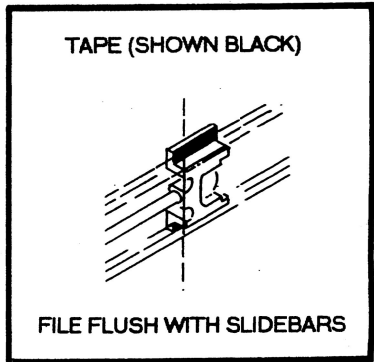
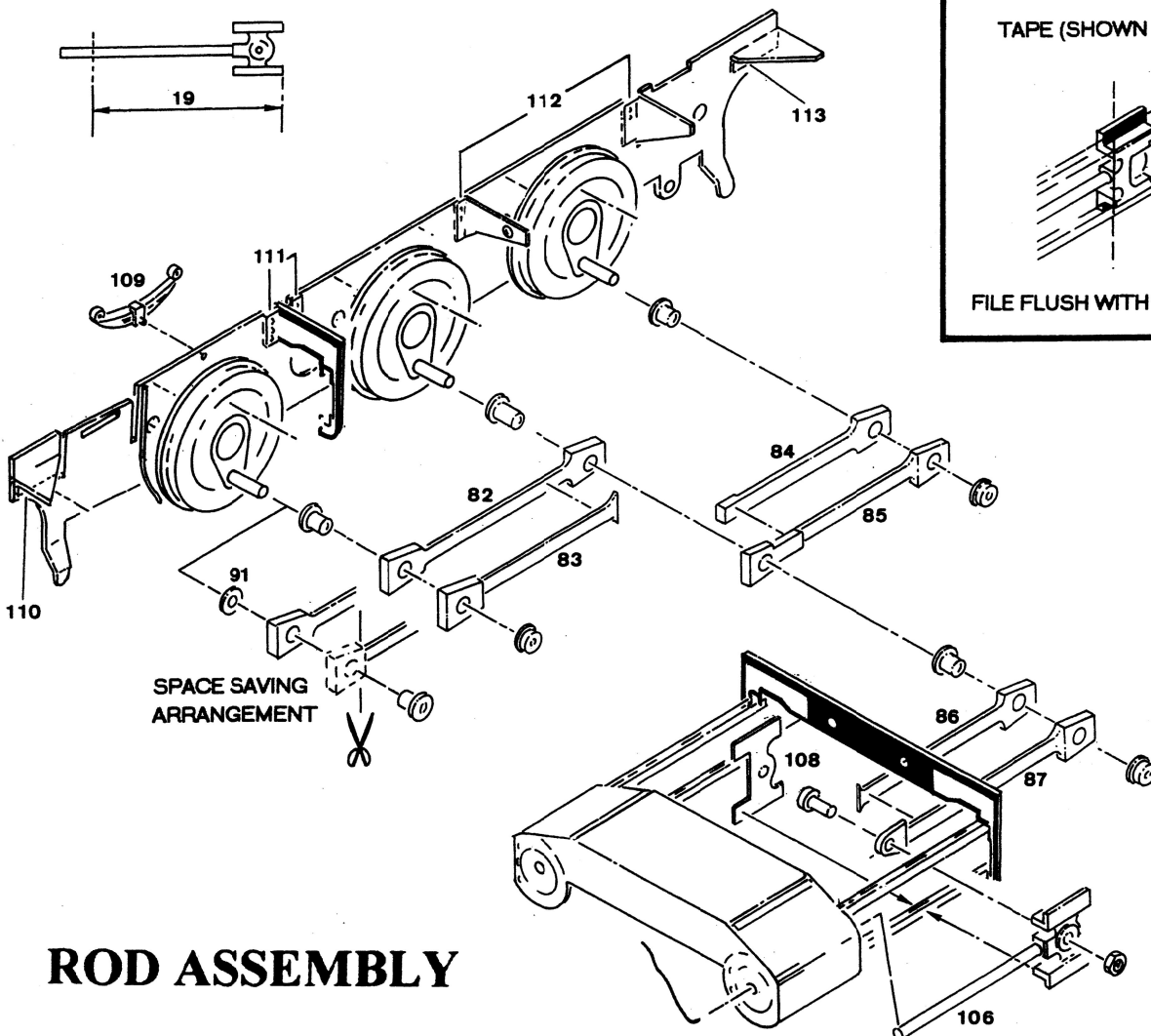
102

DOUBLE OVER SLIDE BARS AND SOLDER



101

THEN BEND UP DISC



SPACE SAVING ARRANGEMENT

ROD ASSEMBLY