



Australian Railway Kits

ABN: 27 416 246 418

Incorporating Main West Models

Manufacturers, Wholesalers and Retailers of Quality Australian Model Railways

PO Box 252 Warwick, Queensland, 4370 Australia

Phone/Fax: 617 4667 1351 Website: www.arkits.com Email: info@arkits.com

NSWGR D57 4-8-2 LOCOMOTIVE AND TENDER KIT

E182 Manufactured Exclusively for AR Kits by DJH Engineering from Patterns owned by AR Kits

PLEASE READ INSTRUCTIONS THOROUGHLY BEFORE COMMENCING ASSEMBLY

CONSTRUCTION

ASSEMBLY

It is important to ensure that all parts are clean, free of "flash" (excess metal on castings) and fit properly. The "flash line" is easily removed from most areas by scraping gently with a sharp hobby knife - a round blade is more effective than a straight pointed type. Pull the blade along the "flash line" - several light strokes are better than a single one. Some areas are better cleaned up with 6" jewellers' files. Take care not to flatten round parts by filing too heavily. All locating holes for detail fittings should be pre-drilled to the size specified in the instructions. Sometimes it is necessary to clean out these holes with a "rat tail" file; take care not to snap off the tip of the file. Gently wash the castings in warm soapy water to remove mould release residue.

Etched brass items are best removed from the fret by placing the fret on a scrap piece of timber (e.g. Pyneboard) and cutting the tabs with a large Stanley knife - cut the tab at the point furthest away from the part, then trim the tab off close to the part with a small pair of quality side cutters. Hold small etched parts with a pair of flat nosed (not serrated jaws) pliers while cleaning up with jewellers' files. Be careful not to distort the etchings; they are difficult to straighten if bent or twisted. Drill all required holes before assembly, noting the sizes shown on the drawing, because some holes will be difficult to drill after parts are assembled.

As with all classes of NSWGR locomotives, individual D57s varied in minor details from time to time in their life. Unfortunately the Data Sheet's plan of the D57 is currently out of print, however good photos and a side elevation plan are contained in Ken Groves' excellent book "The Big Engines". Alex Grunbach's book "Compendium of Steam" in particular contains a very good section on the D57, complete with photos showing identification of parts.

Modellers are advised to check photographs of the particular locomotive they have chosen to model, also keeping in mind the era they are modelling.

These kits are designed to give many years of operating pleasure. A little extra time taken during construction will ensure that your kit will do this. It cannot be emphasised too strongly that the basis of a smoothly operating model is care when constructing the chassis and valve gear, i.e. you must double check every step. Check that the axles turn freely in their bearings, check again with the side rods on, then again with the connecting rods on, etc, etc.

Assembly methods

The two main construction methods are:

(a) Low melt solder - Low melt solder is an excellent medium for use with white metal kits. It is quick and easy providing a stronger joint than can be achieved with glue. It has the added advantage of easily repairing minor casting flaws, and because of the relatively low temperature, many parts can be held in the fingers while soldering. Brass to white metal joints can also be made by "tinning" the brass first with normal solder. Low melt soldering requires the correct type of soldering iron (e.g. Dick Smith T2200). These irons have temperature control, as low melt solder requires temperature between 70 degrees and 200 degrees Centigrade. You should use special low melting point solder, such as that available from AR Kits.

IT IS ADVISABLE NOT TO ATTEMPT TO SOLDER ANY CASTINGS WITH A STANDARD SOLDERING IRON

(b) Glue - Superglue and Plastibond are two types of glues suitable for use with this kit. Some modellers prefer to superglue major joints first then "fillet" the joint with Plastibond. Small detail parts are best glued with Superglue. Glue is not recommended for those parts needing good electrical contact, such as the tender bogies.

Whichever method you choose, "dry fit" parts first to ensure a good fit.

Electrical pickup.

The electrical system used on these kits is called "half live". Looking from the top facing forward the locomotive chassis collects current from the live wheels on the right-hand side, shown as LS (live side) on the drawing. The tender is insulated from the locomotive and current is collected from the wheels on the left-hand side of the tender.

Cleaning up/Painting

On completion, any areas which were soldered should be washed using a soft brush and methylated spirits to remove all traces of flux; if this not done the paint will not adhere properly to these areas. Alternatively an excellent pressure pack flux remover is available from Dick Smith stores. Then wash the complete model thoroughly in warm soapy water. Rinse with clean water and allow to dry thoroughly before applying a suitable self-etch primer.

Spare Parts

Spare parts are available on a replacement basis. Should any part be missing or damaged contact Footplate Models for replacement. Should you have any problems with the Mashima motor please do not attempt to repair it yourself - return the motor to us. Mashima will not replace motors which have been tampered with. Also, please take particular care when fitting the worm gear to the motor shaft. Do not use force, and do not allow glue or Loctite to come into contact with the motor bearings.

Should you have any queries or problems with construction please drop us a note and we will do our best to advise. Likewise we would be pleased to hear any suggestions you may have for improving the kits or instructions.

General

The following drill sizes are required: 0.3mm, 0.4mm, 0.5mm, 0.7mm, 0.8mm, 0.9mm, 1.0mm, 1.1mm, 1.2mm, 1.3mm, 1.4mm, 1.5mm, 1.6mm, 1.8mm, 1.9mm, 2.0mm, 2.1mm, 2.6mm, 3.0mm, 3.7mm.

During construction refer to the drawings at all times. A number of parts are quite similar, so double check if in doubt. Note that attached to the instructions is a photocopy of the lost wax brass castings sprues with each part numbered for easy identification. In the general instructions, part numbers are shown in brackets. On some drawings, for example Drawing 6, the number 8 shown in the circle (bottom centre of page) indicates that the part or assembly links to another shown on Drawing 8.

The instructions sometimes refer to the right-hand (R/H) and left-hand (L/H) side. This is taken as viewing the model from above and looking forward.

To minimise the risk of losing parts, do not remove them from the etched fret or the plastic packing until you are ready to use them. We recommend that you start construction with the tender.

Safety First.

These models are not toys and are not suitable for young children. White metal castings contain lead and modellers are advised to wash their hands after working with unpainted white metal castings. When using superglue, solder or when spray painting ensure your work area is well ventilated

Tender Drawings T 1 (Parts 1 – 23 and n T2 (Parts 124 - 46) These plans should be used in conjunction.

The tender is mainly comprised of etched brass, much of which requires folding to shape. It is important to remove and clean up all holding tabs on the etched parts *before* they are folded to shape. On small pieces, use a pair of flat nosed pliers (non serrated jaws) to hold the part while filing the tabs flush.

Take the tender body (1) and fold the back up to fit between the sides. Adjust one rear corner so that it is square with no overlaps, and solder from the inside taking care not to get excess solder through the joint onto the external rivet detail. Repeat for the other corner. At the front make up the angled bulkheads. Fold at the first etched line to form a 90° corner, then fold the "flap" down to form the angled section of the bulkhead, and solder the resulting joint. Now fold at the second etched line to form the bulkhead. Make sure these front corners fold sharply, they tend to "round off" due to the adjacent half etch relief where the toolbox doors fit. Next fold the front of the floor down as shown.

Add the side gusset strips (8xpair) underneath the tender. When removing the holding tabs from these, be careful not to remove the straps which support the pipe work at the front - there are two straps on the R/H side and three on the L/H side. Fix the gusset strips in position, locating the tabs through the tender floor and folding them over. Check that the gusset is square with the tender floor and solder the folded tabs in place.

Take the tender sub-floor (6) and fold the sides down as shown. Place the sub-floor in position, locating the tabs either side into the tender floor, and solder in place. Fix the tender footplate (16) to the top of the sub-floor. Fold up the edge of the tender step treads (5x4) and fix to the folded down section of the sub-floor. Fold up the edges of the two bulkhead step treads (2x2) and fix in place. Fix the handbrake bracket (3) to the R/H bulkhead. Using a 21mm length of 0.5mm wire and the handbrake wheel (17), make up the handbrake assembly, passing the wire through the handbrake bracket and the tender floor. Using 0.4mm wire, make up the two front handrails and fix in place. Locate the bogie bolsters (24x2) in the holes in the tender floor and fix in place, then fix in place the brake cylinder (22) followed by the air tank (25).

At the rear, fold up the tender buffer beam (26) as shown. Fix the four lamp brackets (30x5) in place *before* folding the coupler base over. Locate the folded tabs of the completed assembly into the tender floor and solder in place. Solder inside the corners where the side gussets meet the buffer beam. If necessary, use a small file to clean up the outside edge of these corners. Remove the two rear buffer bases (27x2) from the etch, fold and fix in place. Working from inside the tender, solder in place the rear grab handle (0.4mm wire) and the rear marker lamps (32x2), followed by the top lamp bracket (30x5).

Fold the drawbar pin bracket (7) as shown and solder it to the underside of the tender floor. Screw the threaded drawbar pin (9) in place.

Remove the tender front bulkhead (4) from the fret, cut out the detailing pieces from the coal door opening, and clean up any remaining tabs. Fix the mechanical stoker detail (11) into the hole in the tender front plate (from behind) and fix the tender front plate into the tender body. Take the coal doors (10) and using 0.4mm wire make up and fit the two grab handles before folding the doors inwards as shown to the same angle as the cut-out in the tender top. Fold back the four side tabs on the doors and fit them through the slots in the tender front plate and fix in place.

Take the tender top (13) and check that it fits into the tender body - remove for later fitting. Take the turret back/sides (14) and fold the etch as shown to form the back and sides, locate bottom tabs into the slots in the tender top and fix in place. Add a length of 0.5mm wire to the L/H side of the tender top to protrude 3.5mm above tender top. Fix in place the turret partition (15), followed by water filler (21), small toolbox (33) and large toolbox (34). Fix in place the toolbox doors (20xpair).

Remove any flash from the tender top supports (12x2) and test fit them inside the tender body, ensuring that the cut outs along the bottom edge of the supports clear the tender gusset tabs previously soldered in place.

Check carefully that the supports rest fully on the tender floor, and are an equal (and even) distance down from the top of the tender sides. With the supports correctly located inside the tender, align one edge of the tender top against the top of the tender side and use a pencil to mark where the underside of the tender top will meet the top of the support - repeat for the other side. Now remove the supports and solder them to the underside of the tender top, flush with the outside edge - make sure they are aligned with your pencil marks. Test fit the assembly into the tender before applying glue to the supports and fixing the completed assembly in place. Note: Superglue will probably not allow you enough time to align things, therefore contact cement is recommended. Hold the tender sides in while the contact cement sets.

Fold the steps (18xpair) and fix to the front of the tender before folding and adding the step treads (19x2). Remove the tender ladder (31) from the etch and fold to shape as shown. Locate the end of the ladder into the top of the tender, then locate the four "legs" into the tender rear, before soldering the bottom ladder tabs into the buffer beam. Now add brake hose (29) to the buffer beam, followed by the buffers (28x2). Using 0.7mm wire, make up the two water pipes as shown and add to either of the gusset strips.

Add the fire iron bracket (36) to the L/H front of the turret followed by the fire irons (35x2). Now add the medium hand rail knobs (37x14) to the top of the turret ensuring that the cross holes are correctly aligned (this is best done by threading the knobs onto a piece of 0.4mm wire before fixing in place). Next add medium hand rail knobs (23x2) to the front bulkhead

before adding hand rail (0.4mm wire). Fix in place the builders plate (A) - check a photo or plan for the exact location.

Fix the turned brass side frame mounts (40x4) into the bogie side frames (38x4). For good electrical pickup low melt solder is recommended here. The bogie stretchers (43x2) are on the etched nickel silver value gear fret - remove them and check that the holes either side fit over the brass side frame mounts (40x4), you may need to enlarge the holes slightly, then fold the stretchers as per Drawing 2.

Push the brass wheel bearings (39x8) into the bogie side frames using low melt solder if necessary, and attach the side frames to the stretcher with spacer screws (41x4) and washers (42x4). Tighten the screws and gently ease the side frames apart to fit the wheel sets (44x4) in place, making sure the insulated wheels are on the same side for each bogie - see Drawing 2. Using the bogie mounting screws (45x2) and the washers (46x2) attach the assembled bogies to the tender.

Chassis Drawings 4 and 5 (Parts 129 - 222)

Remove the frames (129) and (130) from the fret and clean up any holding tabs. Clean out the bearing holes with a 3.7mm drill bit. Push the axle bushes (131x8) in from the outside face of the frames (the $\frac{1}{2}$ etch folding line at the rear is on the *outside* of the frame). Place each frame on a flat piece of scrap timber to hold the bearings in place (outside face of the frame down) and run solder around the edge of the bearings to secure them in the frames.

Using the spacer screws (133x4), fix the two turned brass chassis spacers (132x2) to the inside of one frame. Align the cross hole in each spacer vertically before attaching the other side frame. Position the front spacer plate (135) (from the chassis etch) as shown, then position the rear spacer plate (134) in position. Fold the rear of each side frame outwards 90°. Remove the motor mounting bracket (138) from the chassis etch and fold the end upwards to 90°, then fold the two side tabs down 90°. Test fit the motor mount in the chassis as shown - to achieve a neat fit you may need to file off the lip caused when the holes in the side tabs were threaded. Fix the motor mount in place using spacer screws (144x2). Trim M2 screw (142) to a length of 11mm before fitting to the rear chassis spacer (132) with nut (143). Fit M2 screw (217) to the front spacer plate (135) using nut (218).

Temporarily fit the axles and wheels to the front and rear axle holes and place the chassis on a section of level track to check that the chassis sits properly on the track. If necessary, loosen the spacer screws and adjust, then remove the wheels and axles and solder the front and rear spacer plates (135 and 134) in position.

Brake gear. Trim four pieces of 0.7mm wire to a length of 25mm, pass these through the holes in the top of the mainframes and solder in place. Clean out the holes (top and bottom) in the brakes (168x6) and brake detail plates (169x6) to accept 0.7mm wire before removing them from the fret.

Turn the chassis on its side and place the strip of timber supplied over the axle bushes and slip the brakes (168x6) and the rear brakes (166xpair) onto the 0.7mm wire - the timber ensures they are correct distance off the frame. Align the brakes vertically and solder in place. Cut another four 25mm lengths of 0.7mm wire and pass through the holes in the bottom of the brake shoes, at the same time adding the brake roding (170x2) which sits against the inside edge of the frame. Now add the brake detail plates (169x6) and the rear brake shoes (167x2). Snip off the 0.7mm wire flush with the outside of the brakes - at the rear the wire must be trimmed off flush with the inside of the brake roding to allow later fitting of the rear bogie.

Motion Bracket.

Fold the motion bracket (194) as shown and add motion bracket backing plates (195xpair) and motion bracket facing plates (196xpair). Do *not* fix to the chassis yet.

Driving Wheels and Side Rods.

Fit the driving wheels (157x4 and 161x4) (insulated wheels on the L/H side -see drawing), axles (158x4) and axles washers (159x8) to the chassis with axle nuts (160x8), placing the axle gear (136) (from the gearbox packet) on the third axle from the front as shown on Drawing 6. If necessary, clean out the hole in the axle gear with a 1/8" reamer or 1/8" drill bit. Move the gear to one side of the axle, place a small spot of superglue or Loctite 601 on the centre of the axle and push the gear into the centre of the axle. Make sure that the gear is "square" with the axle. Be careful not to get any glue or Loctite in the axle bushes.

The wheels are quartered so that the crankpin on the right-hand wheel leads that of the left-hand wheel by 90 degrees when the axle rotates forward. Make sure that all axles rotate freely in the axle bushes. Use a Romford axle nut driver to tighten the axle nuts. Remove the etched counterweights (165x2) and (164x6) from the fret and glue to the wheels as shown. Using a Romford axle nut driver, fit the crankpins (163x8). Fit the coupling rods (171xpair), (172xpair) and (173xpair) followed crankpin fixers (174x8) - note: for easy removal of the coupling rods during testing, painting etc, strip a short length of insulation from some fine electrical wire and push this "tubing" onto the crankpins as a temporary retainer.

The crankpin fixers (174x8) and axle covers (162x8) should not be permanently fitted until the chassis has been completed and painted. Check that the rods revolve freely; should binding occur, locate where this is happening and gently ease out the offending hole in the coupling rod with a rat-tail file, removing the minimum amount to achieve free movement. Sometimes swapping the coupling rods around (i.e. left to right) can overcome binding.

Cylinders.

Take the cylinder block (175) and drill as shown to accept the spigots on the five crosshead guides. At this stage it is best to drill all holes as shown in the front footplate (183), before fixing the front footplate to the cylinder block (175). Carefully check the castings against the drawings to correctly identify the different crosshead guides. Fix the rear valve crossheads guides (178x2), front valve crosshead guide (centre) (179), and front valve crosshead guides (184x2). Next drill through the front and rear crosshead guides (184x2) and (178x2), 1.5mm, and front crosshead guide (centre) (179) 1.0mm. Now add the front cylinder covers (176x2) and rear cylinder covers (177x2), noting that the small cutout on the rear cylinder covers is to the top. Using the cutout on the rear cylinder cover as a guide, drill 0.9mm to a depth of around 2mm for later fitting of the slide bars. Fix in place rear cylinder cover (centre) (180), and add cylinder drain cocks (181x2).

Drill the conjugating valve gear bracket (185) 0.7mm as shown before fixing to the front footplate (183). Drill the large conjugating beam (211) and small conjugating beam (212) as shown (0.5mm and 0.7mm) before removing them from the casting sprue. Now position the valve spindle (210) into one end of the small conjugating beam (212) and place this into the end of the large conjugating beam (211) - retain it with 0.5mm wire and spot solder or crimp the wire to hold in place - if soldering be careful not to solder the joint, these parts must move freely. Place the large conjugating beam (211) into the conjugating valve gear bracket (185) and retain with 0.7mm wire, at the same time placing valve spindle (210) inside the front valve crosshead guide (centre) (179). Place this assembly aside for later fixing to the chassis.

Valve gear.

The following instructions cover the valve gear assembly, probably the most complicated area of construction. Please study the drawings carefully, noting that by following the lines you will see how the different pieces inter-relate. Note that asterisks (*) are used to show the relationship between parts in different areas of the drawing.

Take one radius rod assembly (203xpair) and twist the front rod through 90° as shown. Now pass the rear end of the radius rod assembly through the small hole in the front of the motion bracket (194) so that it locates in between the motion bracket backing plate (195) and the motion bracket facing plate (196). This is a tricky job, have patience, it does fit. Repeat for the other side. Correctly position the rear end of radius rod assemblies (203xpair) in the motion bracket (194) and add the expansion link assemblies (206xpair) before retaining these with 14BA screw (205x2) and nut (207x2). At the rear, the radius rod assembly is pinned to the motion bracket with 0.7mm wire, at the same time fitting the reversing lever (209) to the L/H side.

Now take the front cylinder block/pilot deck assembly, locate the rods from the left and right radius rod assemblies (203xpair) into the rear valve cross head guides (178x2) -these are rods you previously twisted through 90°. Carefully work the eyes of the rods through the cylinder blocks while positioning the cylinder block/front pilot assembly onto the chassis. Using screws (182x2) attach the cylinder block/front footplate assembly to the chassis. Fix the motion bracket (194) to the chassis.

Locate the eyes of the radius rod assemblies (203xpair) into the ends of the conjugating beams and retain using 0.5mm wire.

Take the crossheads (199xpair) and trim to 16mm as shown. Remove the slide bars (198xpair) from the etched fret, fold as per inset drawing and locate the crosshead (199) into the slide bars. Place the front pin of the slide bars into the rear of the cylinder and fix the tabs on top of the slide bar to the motion bracket (194) - note that they fit against the inside edge of the motion bracket backing plates (195). Fix the slide bar facing plates (200xpair) to the slide bars taking care not to get solder or glue inside the slide bars.

Using 14BA screw (201x2) and nut (204x2) fix the connecting rods (202xpair) and the small arm of the radius rod assembly to the crosshead (199xpair) - do not over tighten the screw. These parts must move freely. Place the other end of the connecting rod (202xpair) onto the crankpin of the second driving wheel followed by crankpin fixer (208x2) and the eccentric arm of the expansion link assembly (206xpair). As previously advised this can be kept in place temporarily with small diameter tubing. The setting of the correct angle of the eccentric arm (as per Drawing 8) should be left until the model has been completed.

Fit dummy crosshead and slide bar (197) between rear cylinder cover (centre) (180) and motion bracket (194). Drill the front brake cylinders (154x2) 0.5mm and locate the spigot on the brake rod (170x2) into the cylinder before fixing it to the recess in the chassis. Fix saddle plate (219) to the top of the cylinder block.

Solder power clips (140) and (146) to the motor leads as shown. Mount the motor (139) to the motor mounting bracket (138) using screws (141x2) at the same time fixing the positive power lead. Now assemble and fit the drawbar using (145) through (153) as shown.

Add frame support plates (137x2) to the rear of the chassis followed by bogie support bracket (156), then add the mechanical stoker (155).

Assemble the gearbox (214) as per the accompanying instructions trimming the worm shaft as shown. Do not force the worm onto the shaft. Carefully ream the worm bore using a 2.0mm drill or hand reamer so that the worm fits the shaft without undue force. Use a spot of superglue or Loctite 601 to permanently fix in place. Clean the shaft of excess glue or Loctite thoroughly.

Trim the flexible tube (213) to length as shown and fit to the worm shaft of the gearbox - check that the ends of the worm shaft and motor shaft are free of sharp edges which could damage the tubing. Fit the tubing to the motor and fit the gearbox onto the axle gear. Fit the gearbox keeper plate (215) using screws (216x2). Oil the mechanism and apply power to test the chassis.

Complete detailing the front pilot deck with handrail post (192) and footplate inserts (193x2). Fold front step (190) as shown and add front step tread (191) before fitting to the buffer beam. Fix guard irons (189xpair) in place and add brake hose (187) and buffers (188x2), finally add lamp brackets (186x4).

Bogies Drawing 6 (Parts 223 - 231)

Make up the rear pony truck using rear pony body (223), 12mm disc bogie wheel (224) and keeper plate (225). Attach the assembled bogie to the chassis using M2 nut (231). Make up the front bogie using front bogie body (226), 9mm spoked bogie wheels (227x2) and keeper plates (228x2) - ensure that the insulated wheels are on the same side. Attach the assembled bogie to the chassis using spring (221), bogie bearing washers (222) and (229), and M2 nut (230), with the insulated wheels on the R/H side.

Locomotive Body Drawings 1, 2 and 3 (Parts 47 - 128)

Remove the cab (47) from the etch and fold as per Drawing 3, folding also the small locating tabs at the bottom front of the cab. Take the window frames (50x2) and fix to the inside of the cab windows. Fix the mechanical stoker detail (49) to the rear spectacle plate (48) before fixing the spectacle plate to the cab. Take the boiler (51) and smokebox (53) and drill all holes as indicated in Drawings 3 and 4. Remove pump mounting plate (55) from the etch, fold as per Drawing 3 and fix to the smokebox (53). Remove the saddle seating plate (54) from the etch, fold down one end as shown and fix to the underside of the smokebox (53). Now fix the smokebox (53) to the boiler (51) ensuring that they are correctly aligned. Fix the ash pans (68xpair) either side of the firebox. Fit the assembled cab to the rear of the boiler and fix in place.

Fix the air tank (106) to the L/H side of the boiler. Fix firebox supports (63x2) either side of the firebox, and fix centre support (64) to the R/H side of the boiler. Fix leading support (65x2) either side of the boiler.

Remove the footplates (66xpair) from the fret, note the L/H side has a large cutout to clear the air tank (106). Take the valance strips (67x2) and solder them to the underside of the footplates (66xpair) 0.5mm in from the outside edge.

Note that the front of the valance strips must be set back from the front of the footplates to clear the footplate inserts (193x2) previously fitted to the front footplate (183).

Locate the tab on the rear of the footplate into the slot in the cab front and position the front of the footplate under the blast pipe spigot either side of the smokebox (53). Check the alignment before fixing in place. Add footplate access panels (87x2) to the top of the footplates. On the R/H side footplate add air tanks (85x2) and small air tank (82). Note that the etched lines on the underside of the footplate indicate their location. Fix the cab step plates (61xpair) at the rear of the footplates before adding cab step detail plates (62xpair).

Fix the short handrail knobs (98x6) to the front of the cab followed by junction box (69). Using 0.4mm wire, make up and fit handrails to the cab front. Commence detailing the boiler/firebox, fitting chimney (59), adding three 0.4mm handrails to the sandbox as shown, steam dome (58) safety valves (57), steam turret (56), R/H turret valve (86), and L/H turret valve (115), steam generator (70), boiler safety valve (71), clack valves (72) and (105), and whistle (104).

Fix in place R/H marker lamp (79) and L/H marker lamp (107) before fitting smokebox door (60). Drill all required holes in the smoke box door and fit the short handrail knobs (94x4), (95x2) and (96x3), headlight (73), smoke box door handle (74). Fold step treads (75x2) and fix in place. Fit the air pump (78) - because of its vulnerability, it is recommended that the air pump filter (76) be fitted later.

At this stage it is recommended that the heavier pipe work (0.7mm wire) be fitted before the remainder of the small detailing parts.

Pipe work/handrails.

Using double pipe brackets (97x3) fit the 0.7mm wire as shown on the R/H side of the locomotive adding pipe fitting (126) and R/H injector (125). Using pipe brackets (122x4) fit the 0.7mm wire as shown the L/H side of the locomotive adding L/H injector (127). Fit R/H blow-off cock (83) and L/H blow-off cock (114) to the ash pan and add 0.5mm wire as shown.

Continue detailing, fixing in place water release valves (77), (80), (108) and (109), adding 0.4mm wire as shown. Also add pump governor (124). Fix mechanical lubricator (110) and steam reverser (112) adding 0.5mm wire as shown. Take the reversing rod (113) and solder a short length of 0.5mm wire into the hole at one end. Trim the wire flush with the inside of the reversing rod and protruding 1mm on the other side (this will later fit into the reversing lever (209)). Place reversing rod (113) into reverser (112), placing the short wire spigot (previously soldered) into the top of reversing lever (209).

On the R/H side of the locomotive, add 0.4mm handrail using medium length handrail brackets (88x3), short length handrail brackets (89x2), medium length handrail bracket (90), long length handrail bracket (91), medium handrail knob (92) and short handrail knob (93). Fold and fit boiler steps (81x2). Fit two cab steps (84x4).

On the L/H side of the locomotive add 0.4mm handrail using medium length handrail brackets (121x3), short length handrail brackets (120x2), medium length handrail bracket (119), long length handrail bracket (118), medium handrail knob (117) and short handrail knobs (116x2). Fold and fit boiler steps (11W).

Complete the addition of handrails, adding 0.4mm wire to the handrail knobs previously fixed to the front of the smokebox. Also using 0.4mm wire fold and fix handrails to the back of the cab.

Cab Detail Drawing. Add cab floor (101) to the cab. Take the fall plate (99) and fold the tabs down 90°, then glue the plasticard (100) to the underside trimming so that it overlaps the three outside faces by 0.5mm to prevent it shorting out against the tender. Attach to the cab floor (101) using 0.7mm wire as shown. Add cab detail (102) and cab seats (103x2). Add builders plates (B) to the cab sides, checking a photograph or plan for exact location. Some modellers may prefer to fit the cab roof (52) after final painting.

Fit the locomotive body to the chassis using spacer screws (123x2) at the rear and M2 screw (220) at the front. Note that when the body and chassis are joined or separated, you will need to clip/unclip the reversing rod (113) and the reversing lever (209).

Lightly oil the mechanism and test run, checking for electrical "shorts" on sharp curves etc. Also check that the motor does not overheat due to chassis binding.

(E182) - D57 - PARTS LIST

Drawing T1

1.	Tender Body	E	50.	Window Frames x 2	E
2.	Bulkhead Step Treads x 2	E	51.	Boiler	W/M
3.	Hand Brake Bracket	L/W	52.	Cab Roof	W/M
4.	Front Bulkhead	E	53.	Smokebox	W/M
5.	Floor Step Treads x 4	E	54.	Saddle Seating Plate	E
6.	Tender Sub-Floor	E	55.	Pump Mounting Plate	E
7.	Drawbar Pin Bracket	E	56.	Steam Turret	W/M
8.	Gusset Strips x 1 Pair	E	57.	Safety Valves	W/M
9.	Drawbar Pin	T	58.	Steam Dome	W/M
10.	Coal Doors	E	59.	Chimney	W/M
11.	Mechanical Stoker Detail	E	60.	Smokebox Door	W/M
12.	Tender Top Supports x 2	W/M	61.	Cab Step Plates x 1 Pair	E
13.	Tender Top	E	62.	Cab Step Detail Plates x 1 Pair	E
14.	Turret Back and Sides	E	63.	Firebox Supports x 2	L/W
15.	Turret Partition	E	64.	Centre Support	L/W
16.	Footplate	E	65.	Leading Supports x 2	L/W
17.	Handbrake wheel	E	66.	Footplates x 1 Pair	E
18.	Steps x 1 Pair	E	67.	Valance Strips x 2	T
19.	Step Treads x 2	E	68.	Ash Pans x 1 Pair	W/M
20.	Toolbox Doors x 1 Pair	E	69.	Junction Box	W/M
21.	Water Filler	W/M	70.	Steam Generator	W/M
22.	Brake Cylinder	W/M	71.	Boiler Safety Valve	L/W
23.	Medium Handrail Knobs x 2	T	72.	Clack Valve	L/W
	0.4mm - Wire	.	73.	Headlight	L/W
	0.5mm - Wire		74.	Smokebox Door Handle	L/W
	0.7mm - Wire		75.	Step Treads x 2	E

Drawing T2

24.	Bogie Bolsters x 2	T	76.	Air Pump Filter	W/M
25.	Air Tank	W/M	77.	Water Release Valve	L/W
26.	Buffer Beam	E	78.	Air Pump	W/M
27.	Buffer Bases x 2	E	79.	R/H Marker Light	L/W
28.	Buffers x 2	W/M	80.	Water Release Valve	L/W
29.	Brake Hose	L/W	81.	Boiler Steps x 2	E
30.	Lamp Brackets x 5	E	82.	Small Air Tank	W/M
31.	Ladder	E	83.	R/H Blow Off Cock	L/W
32.	Marker Lamps x 2	L/W	84.	Cab Steps x 4	E
33.	Small Toolbox	W/M	85.	Air Tanks x 2	W/M
34.	Large Toolbox	W/M	86.	R/H Turret Valve	L/W
35.	Fire Irons x 2	E	87.	Footplate Access Panels x 2	E
36.	Fire Iron Bracket	E	88.	Medium Length Handrail Brackets x 3	E
37.	Medium Handrail Knobs x 14	T	89.	Short Length Handrail Brackets x 2	E
38.	Bogie Side Frames x 4	W/M	90.	Medium Length Handrail Bracket	E
39.	Wheel Bearings x 8	T	91.	Long Length Handrail Bracket	E
40.	Bogie Sideframe Mounts x 4	T	92.	Medium Handrail Knob	T
41.	Spacer Screws x 4	T	93.	Short Handrail Knob	T
42.	Washers x 4	E	94.	Short Handrail Knobs x 4	T
43.	Bogie Stretchers x 2	E	95.	Short Handrail Knobs x 2	T
44.	10.5mm Bogie Wheels x 4	T	96.	Short Handrail Knobs x 3	T
			97.	Double Pipe Brackets x 3	E
			98.	Short Handrail Knobs x 6	T
				0.4mm - Wire	

Drawing 2

45.	Bogie Mounting Screws x 2	T	99.	Fall Plate	E
46.	Bogie Mounting Washers x 2	E	100.	Plasticard	P
	0.4mm - Wire		101.	Cab Floor	E
	0.5mm - Wire		102.	Cab Detail	W/M
	0.7mm - Wire		103.	Cab Seats x 2	W/M
			104.	Whistle	L/W
			105.	Clack Valve	L/W
			106.	Air Tank	W/M
			107.	L/H Marker Light	L/W
			108.	Water Release Valve	L/W
			109.	Water Release Valve	L/W
			110.	Mechanical Lubricator	W/M

Drawing 1

47.	Cab	E
48.	Rear Spectacle Plate	E
49.	Mechanical Stoker Detail	E

(E182) - D57 - PARTS LIST

111.	Boiler Steps x 2	E	159.	Axle Washers x 8	E
112.	Steam Reverser	W/M	160.	Axle Nuts x 8	T
113.	Reversing Rod	E	161.	17.5mm Insulated Driving Wheels x 4	T
114.	L/H Blow Off Cock	L/W	162.	Axle Covers x 8	E
115.	L/H Turret Valve	L/W	163.	Crankpins x 8	T
116.	Short Handrail Knobs x 2	T	164.	Small Counter Weights x 6	E
117.	Medium Handrail Knob	T	165.	Large Counter Weights x 2	E
118.	Long Length Handrail Bracket	E			
119.	Medium Length Handrail Bracket	E		0.7mm 0 Wire	
120.	Short Length Handrail Bracket x 2	E		Insulated Wire	
121.	Medium Length Handrail Brackets x 3	E			
122.	Pipe Brackets x 4	E			
123.	Spacer Screws x 2	T			
	0.5mm - Wire				
	0.7mm - Wire				
Drawing 3					
124.	Pump Governor	L/W	166.	Rear Brakes x 1 Pair	E
125.	R/H Injector	L/W	167.	Rear Brake Shoes x 2	E
126.	Pipe Fitting	L/W	168.	Brakes x 6	E
127.	L/H Injector	L/W	169.	Brake Detail Plates x 6	E
128.	Builders Plate Fret	E	170.	Brake Rodding	E
			171.	Rear Coupling Rods x 1 Pair	E
			172.	Leading Coupling Rods x 1 Pair	E
			173.	Central Coupling Rods x 1 Pair	E
			174.	Crank Pin Fixers x 8	T
			175.	Cylinder Block	W/M
			176.	Front Cylinder Covers x 2	W/M
			177.	Rear Cylinder Covers x 2	W/M
			178.	Rear Valve Crosshead Guides x 2	W/M
			179.	Front Valve Crosshead Guide (centre)	W/M
			180.	Rear Cylinder Cover (centre)	W/M
			181.	Cylinder Drain Cocks x 2	E
			182.	12 BA x 3/16" C/H Screws x 2	T
			183.	Front Footplate	W/M
			184.	Front Valve Crosshead Guides x 2	W/M
			185.	Conjugating Valve Gear Bracket	L/W
			186.	Lamp Brackets x 4	E
			187.	Brake Hose	L/W
			188.	Buffers x 2	W/M
			189.	Guard Irons x 1 Pair	E
			190.	Front Step	E
			191.	Front Step Tread	E
			192.	Handrail Post	L/W
			193.	Footplate Inserts x 2	W/M
			194.	Motion Bracket	E
			195.	Motion Bracket Backing Plates x 1 Pair	E
			196.	Motion Bracket Facing Plates x 1 Pair	E
			197.	Dummy Crosshead and Slidebar	E
			198.	Slidebars x 1 Pair	E
			199.	Crossheads x 1 Pair	L/W
			200.	Slidebar Facing Plates x 1 Pair	E
			201.	14 BA x 1/8" C/H Screws x 2	T
			202.	Connecting Rods x 1 Pair	E
			203.	Radius Rod Assemblies x 1 Pair	E/T
			204.	14 BA Nuts x 2	T
			205.	14 BA x 1/8" C/H Screws x 2	T
			206.	Expansion Link Assemblies x 1 Pair	E/T
			207.	14 BA Nuts x 2	T
			208.	Crankpin Fixers x 2	T
			209.	Reversing Lever	E
			210.	Valve Spindle	E
			211.	Large Conjugating Beam	L/W
			212.	Small Conjugating Beam	L/W
			213.	Flexible Tube	-
Drawing 4					
129.	L/H Frame	E			
130.	R/H Frame	E			
131.	Axle Bushes x 8	T			
132.	Chassis Spacers x 2	T			
133.	Spacer Screws x 4	T			
134.	Rear Spacer Plate	E			
135.	Front Spacer Plate	E			
136.	Axle Gear	T			
137.	Frame Support Plates x 2	E			
138.	Motor Mounting Bracket	E			
139.	Motor	-			
140.	Power Clip	E			
141.	Motor Mounting Screws x 2	T			
142.	M2 x 16mm C/H Screw	T			
143.	M2 Nut	T			
144.	Spacer Screws x 2	T			
145.	M2 x 12mm C/S Screw	T			
146.	Power Clip	E			
147.	Insulated Washer	P			
148.	Insulated Bush	P			
149.	M2 Nut	T			
150.	Spring Plate	E			
151.	Tender Loco Arm	E			
152.	Spring	-			
153.	M2 Nut	T			
154.	Front Brake Cylinders x 2	W/M			
155.	Mechanical Stoker	W/M			
156.	Bogie Support Bracket	W/M			
157.	17.5mm Live Driving Wheels x 4	T			
158.	Axles x 4	T			

(E182) - D57 - PARTS LIST

214.	Gearbox	P	225.	Keeper Plate	W/M
215.	Gearbox Keeper Plate	P	226.	Front Bogie Body	W/M
216.	Keeper Plate Fixing Screws x 2	T	227.	9mm Spoked Bogie Wheels x 2	T
217.	M2 x 12mm C/S Screw	T	228.	Keeper Plates x 2	W/M
218.	M2 Nut	T	229.	Bogie Bearing Washer	E
219.	Saddle Plate	W/M	230.	M2 Nut	T
220.	M2 x 16mm C/H Screw	T	231.	M2 Nut	T
221.	Spring	-			
222.	Bogie Bearing Washer	E			

0.5mm - Wire
0.7mm - Wire

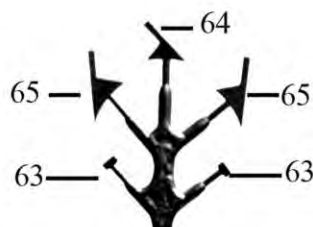
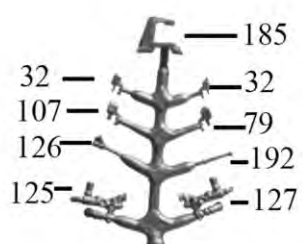
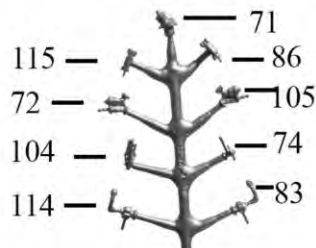
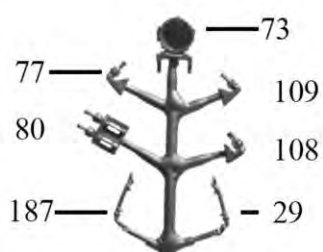
Drawing 8.

223.	Rear Pony Body	W/M
224.	12mm Disk Bogie Wheel	T

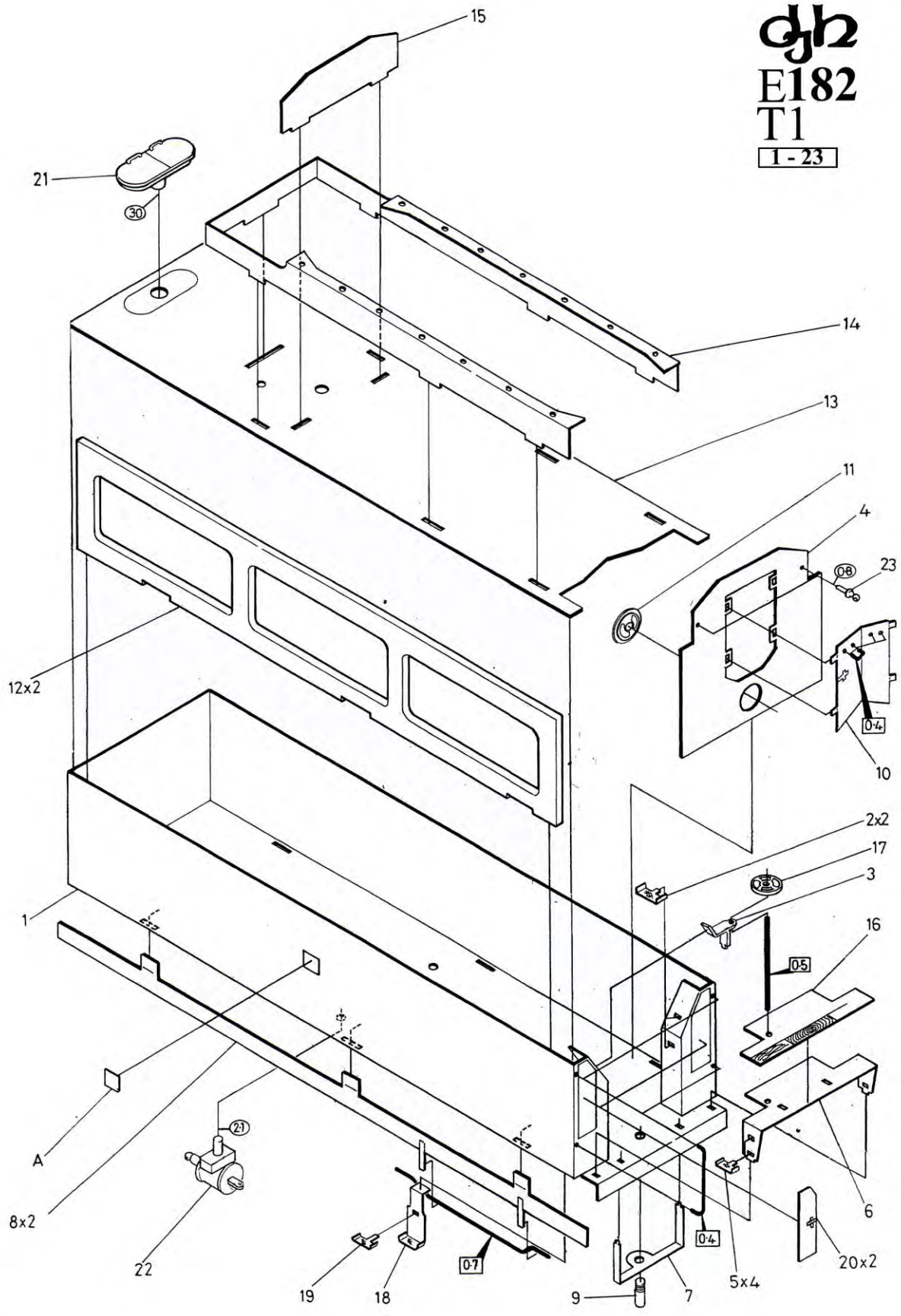
Legend:

W/M - White Metal
E - Etched brass
L/W - Lost wax brass casting
T - Turning
P - Plastic

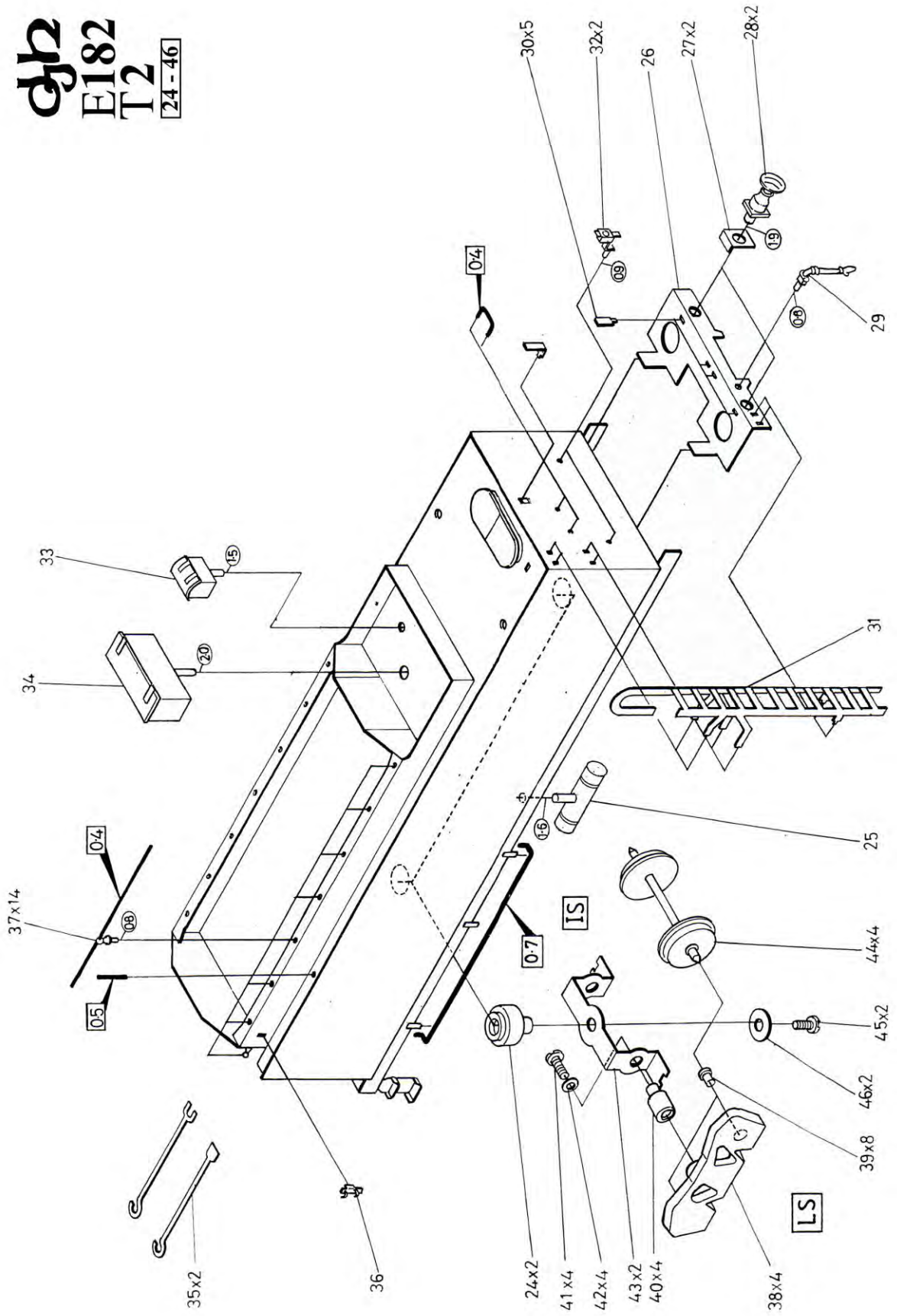
(E182) - D57 Class - Lost Wax Brass Castings



dh
E182
T1
1-23

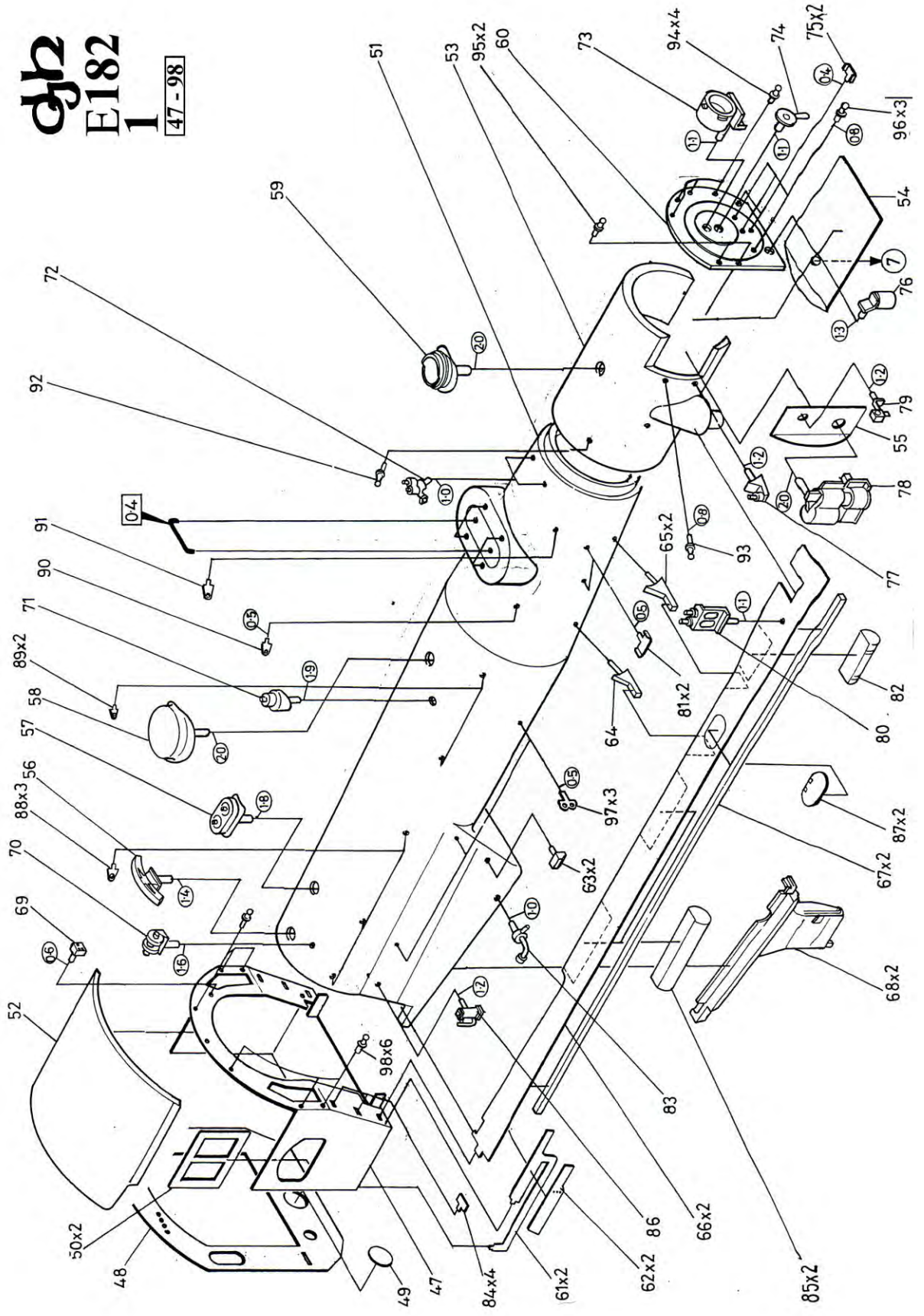


gpr
E182
T2
[24-46]



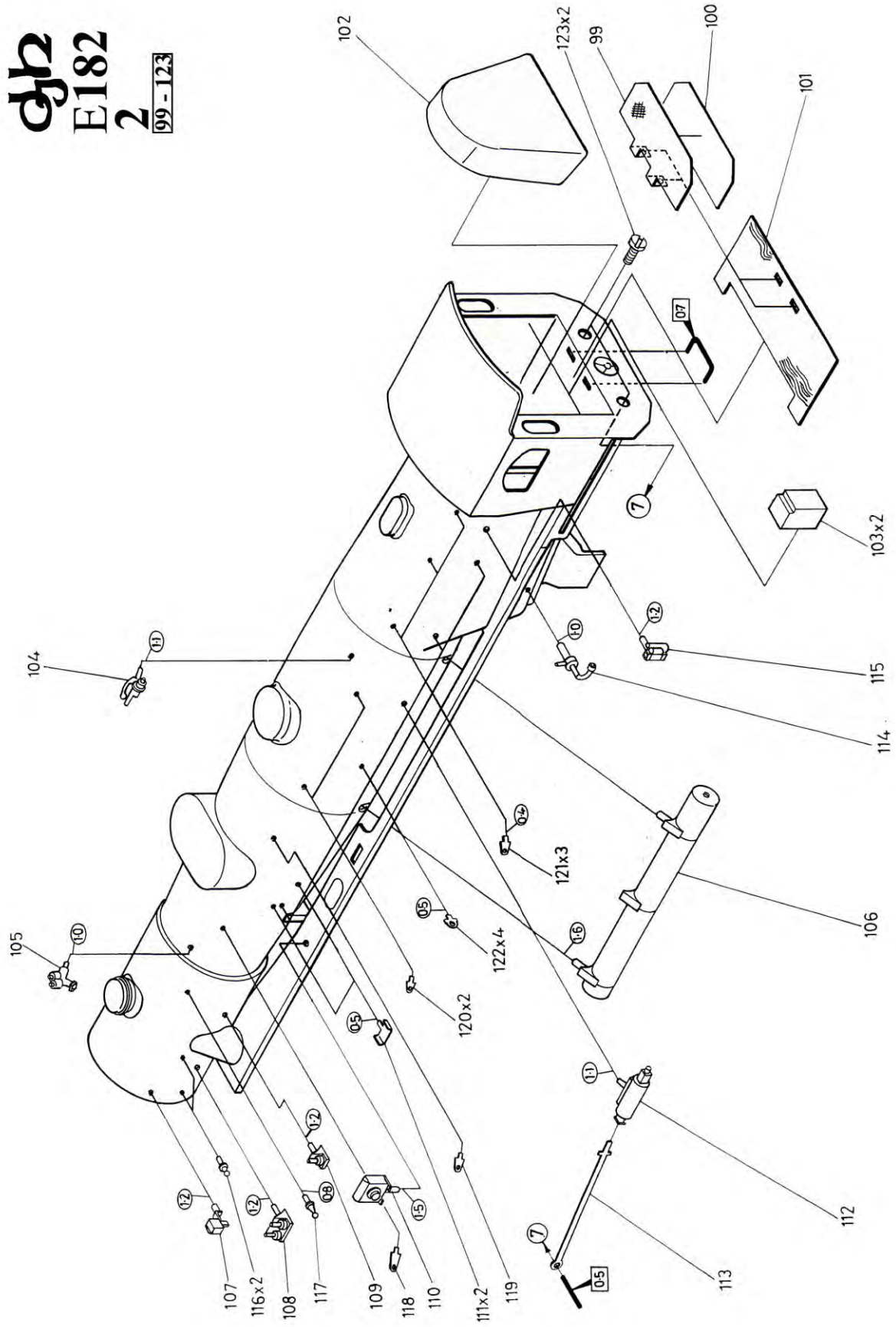
gb E182 I

47-98

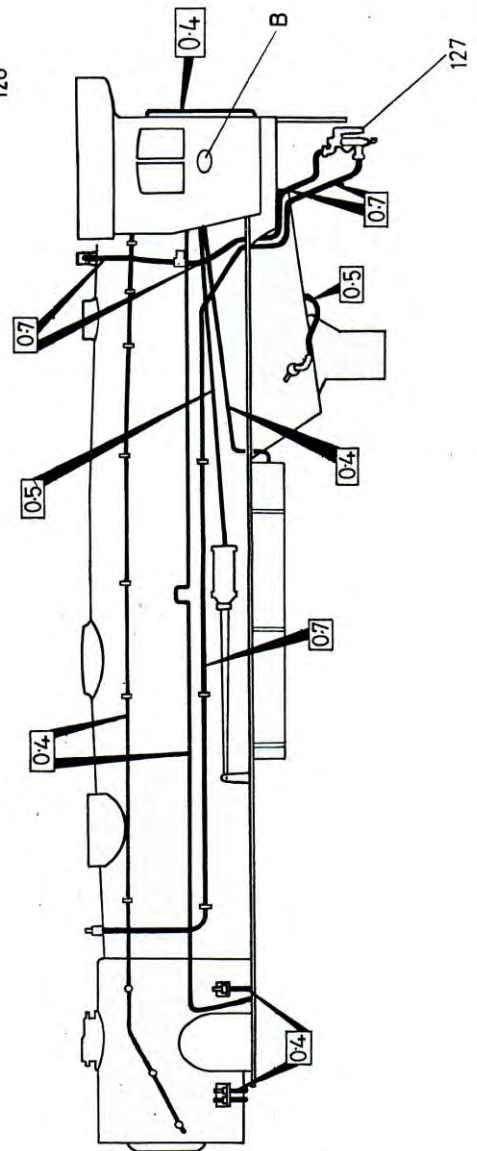
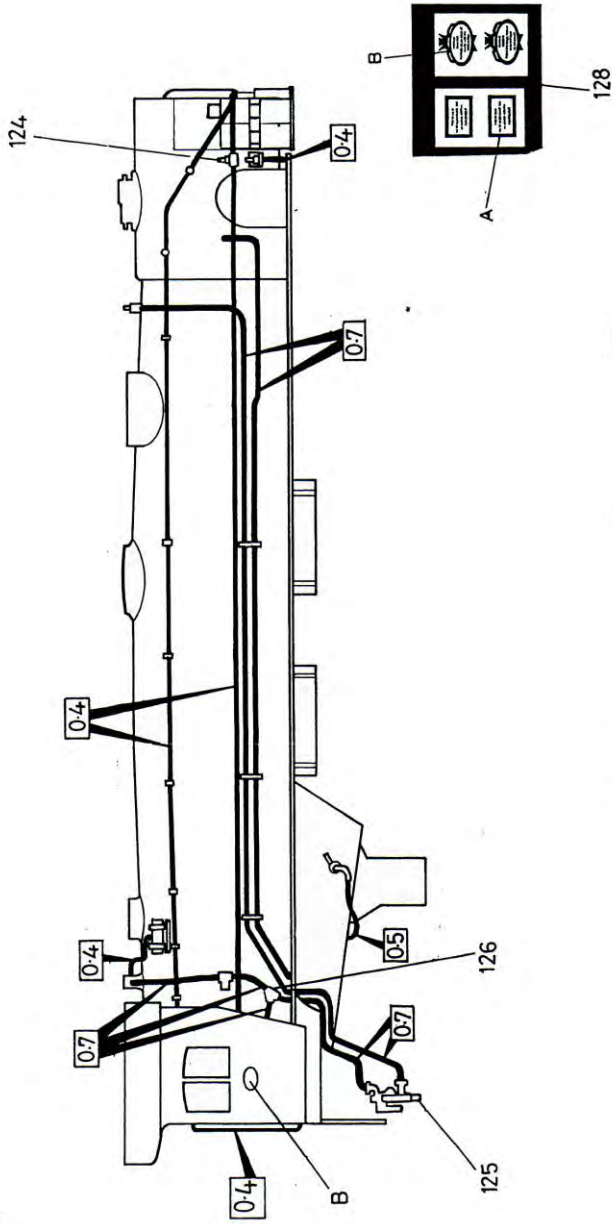
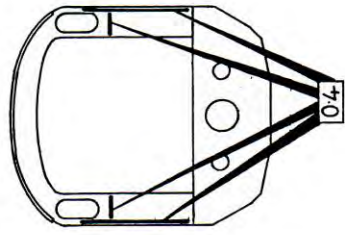
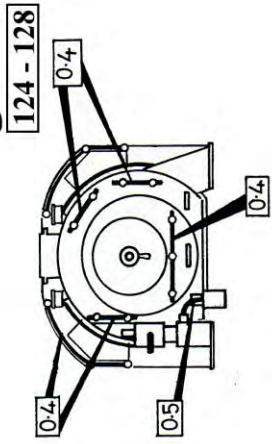


dfb E182 2

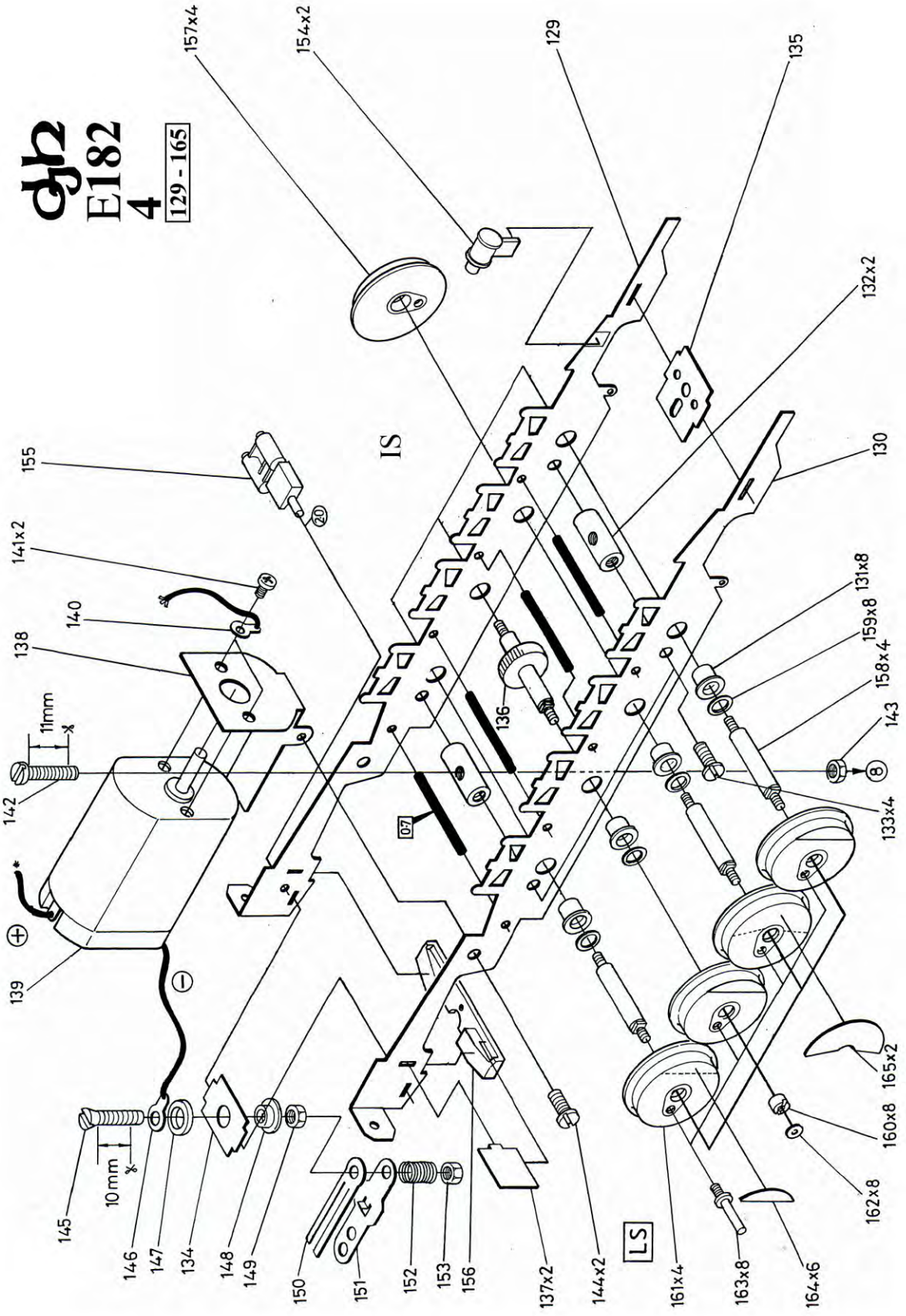
99-123



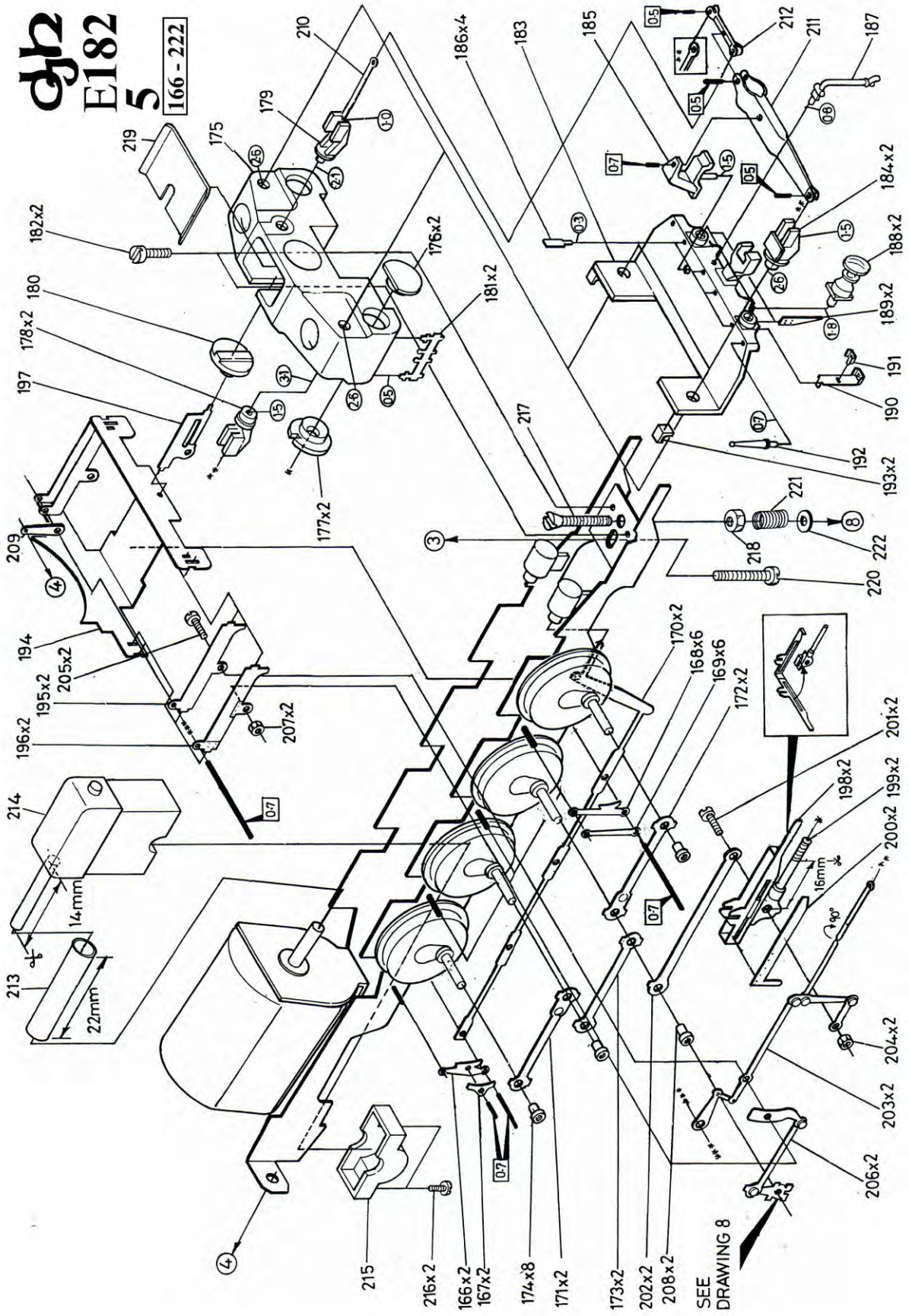
dfp
E182
3




E182
4 129 - 165



gib
E182
5
166 - 222



SEE
DRAWING 8

qj2
E182
6
223 - 231

