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NSWGR D59 2-8-0 LOCOMOTIVE AND TENDER KIT

E162 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 hard timber (eg 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 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 spigot sizes of the fittings, because some holes will be difficult to drill after parts are assembled.

This kit contains sufficient parts to make either the oil or coal version of the D59. Both oil and coal parts are shown on the drawings, therefore during assembly refer to parts listing where alternate parts are marked *. As with all classes of NSWGR locomotives, individual D59s varied in minor details from time to time in their life. Modellers are therefore advised to check photographs of the particular locomotive they have chosen to model. For assistance in general detailing, refer to the box lid photo and the photo attached to the instructions.

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 smooth 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 coupling 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 only requires from 70 to 134 degrees Centigrade depending on the type of solder used. You must 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.

It does not matter which method you choose but dry fitting parts will 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 drawings. The tender is insulated from the locomotive chassis by a plastic bush 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. Alternatively an excellent pressure pack flux remover is also available from Dick Smith stores. Then wash the 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 AR Kits 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.

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: 0.5mm, 0.6mm, 0.7mm, 0.8mm, 0.9mm,l.Omm,l.2mm,1.5mm,1.6mm,1.9mm, 2.Omm, 2.1mm, 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 the part numbers are shown in brackets.

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 Drawing T1(Parts 1 - 30)

Remove the tender body (8) from fret. The floor supports are formed by folding the long section below the sides of the tender body inwards (i.e. away from the rivet detail) to 90°, then folding the three locating tabs either side downward to 90'; see arrows on drawing 1. Next fold the tender body; note the corners have a series of lines etched on the inside of the corners to facilitate rounded corners; fold the four corners carefully to form a round corner, not a sharp one. It is best to form the corner around the tail of a hobby file (about 3.3mm diameter). Remove tender footplate (1) from fret and fold front section down 90°. Place tender body upside down on a flat surface and position tank floor (2) then tender floor (1) over the six locating tabs. Ensure floor is pushed to the rear so that it is aligned with the back of the tender and solder the rear locating tab on either side. Make sure that the two floor sections are sitting down on the tender body and that the two tabs at the front are also properly located before soldering all remaining tabs.

Remove (3x2) tender valance with steps, locate in tender footplate and solder on inside face of tabs. From now on when handling tender, be careful of the etched steps either end of the tender valances. Next, fit the tender pivots (4) to the tender footplate.

Short one wheel of each of the tender axles (25x4) using 0.7 mm wire - note that one wheel on each axle has been pre-drilled to facilitate this. Bend up the bogie stretchers (22x2) as shown. Fit the axle bearings (24x8) to the bogie side frames (23x4) using low melt solder if necessary.

Now assemble the bogies as shown using the shouldered screws (28x4), making sure that the shorted wheels are both on the same side of each bogie. Fit the tender pivots (4x2) to the tender floor. These have been pre-tapped to accept the bogie

mounting screws (28x2). Now fit the bogies to the tender using the bogie mounting screws and springs (27x2), making sure that the shorted wheels are all on the left side of the tender.

On the back end of tender valance, fold the rear upright of the ladders inwards before fitting the tender buffer beam (14). Fit the four corner vertical handrails. Use a rat-tail file to clean back any excess wire inside the top of each corner to allow later fitting of the tender top. Next fit the electrical junction box (29) (see insert drawing 1), tender drain valve (30), and lamps (17 or 18x2). Fix in place tender side supports (12x2), followed by tender back support (13), making sure they are fully seated on the tank floor. Fit tender top (19).

If you are making the oil version fit turret floor (7). Fit the draw pin (5) using the two M2 nuts (6x2). Fit tender floor (10) followed by tender floor supports (11x2), solder these from inside tender. Fit toolbox doors (9x2), buffers (15x2), brake hoses (16x2), and rear ladder (20 or 21). Lastly, fit conduit (0.4mm wire) for rear lamps. Note that on the oil version the conduit is fitted to the tender top only, and on the coal version it is fitted to the left-hand tender side only.

Tender Drawing T2 (Parts 31 - 47)

Coal Version: Fold coal turret sides (31) and fix to top of tender. Fold the four tabs inwards on turret front (32) and fix in position. Fit turret floor (34). Fold coal door (33) and fit. Fit tender coal (35), fit tender toolbox (coal) where indicated on drawing, then water filler (coal) (37).

Oil Version: Fit tender top (oil) (41) and fit detail parts as shown in drawing. Fit tender toolboxes (oil) (40x2) where indicated on drawing, followed by water filler (oil) (38).

For both versions, fit air filter (39). Fit brake handle bracket (46) to tender, then remove etched brake hand wheel (47) from fret and fit in place.

Locomotive Drawing 1 (Parts 48 - 106)

Remove the five etched components from inside cab fret (49). Fit cab window beading (50x2) on inside of the cab sides. Fold cab up as shown in drawing, and solder inside corners. Fold fall plate hinges as shown in drawing 3A. Test fit cab to boiler (48) to ensure correct alignment; if necessary, adjust locating lug before fixing. Fold footplate base (65A) (left hand side) and fold footplate detail (66) (left hand side). Ensure the two pieces are correctly aligned before soldering together. (Some modellers may prefer to use solder paste for this job, while others may find it better to spread flux between the two pieces, hold the two pieces together with a pair of flat nose pliers, then apply a “tinned" soldering iron to the inside edge - capillary action will then draw the solder between the two pieces.

Clean up any excess solder with a fiberglass brush. Fold the outside tabs down as shown on the drawing; these will be used later to support piping. (Should any break off during handling, simply put a right angle bend a length of.4mm wire and solder it in place of the tab). Repeat process for the right hand side pair. Fix footplate supports (65Bx2) and (65Cx2) to boiler.

Fit footplate assemblies to boiler, locating the tabs into the front of the cab. Add detail part numbers (54) through (105), except for cab roof (57). Some modellers may prefer to leave off smoke box door (97) or (98) until some pipe work has been fitted. Double check before you remove the marker lamps (96x2) from the sprue - you will need to cut them differently depending on whether they are for oil or coal version. The drawbar detail plate (59) and drawbar backing plate (60) should be soldered together before fixing to the underside of the cab; similarly (68) and (69)

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Locomotive Drawing 2 (Parts 107 - 110)

Note that the top electrical junction box on the smoke box has been given two part numbers in error, (85) and (107).

Fitting the handrails and pipe work may appear a daunting task at first, but provided you take it one step at a time all should go smoothly. Study the drawings and photos to see which pipes run over the top of others; obviously the pipes closest to the boiler should be fitted first. Pipes such as those attaching to the sand dome can be low-melt soldered where they meet the casting. Should you have a problem with a pipe "sitting down" on the loco., why not bend a hook up from 0.4mm wire and glue one end into the body, using the other to clamp down the pipe, after all the prototypes had brackets all over them. Electrical junction boxes (107x3): leave the sprue on the two on the smoke box using it to fix them in place and solder the wire to them. For the rear one (on the firebox) you will find it much easier to run the handrail straight through, trim the sprue off the junction box and simply spot solder it onto the handrail. Handrails fitted to the cab should be soldered from inside the cab; when finished fix the cab roof in place. You will note that the split pins (110x7) have a fairly large eye. To reduce this, place the split pin on a short length of.7mm wire and squeeze the pin with a pair of flat nosed pliers to reduce the eye to a more acceptable size.

Chassis Drawing 3 (Parts 111 - 148)

Remove any tabs from the frames (111) and (112). Note that they are left and right handed; there is a tab front and rear which has to be folded 90' as per the drawing. Note that the etched fold line is on the inside of each fold. Carefully clean out the axle holes with a 3.7mm drill bit and push fit the axle bushes (121x8). The bushes should be a firm fit in the frames - any loose bushes should be soldered in place. Check that they are all level - use a straight edge, i.e. steel ruler.

Assemble the chassis using the chassis spacers (116x2) (with holes aligned vertically) and spacer screws (117x4) as shown in the drawing. Add chassis spacer plates (113) and (114). Add motor bracket (135).

Solder power clips (138) and (142) to the motor leads as shown. Mount the motor to the motor bracket using screws (139x2), at the same time fixing the positive motor lead.

Now assemble and fit the draw bar using (140) through (148) as shown, cutting the spring to length.

Remove the axle nuts (126x8) from the axles (123x4) and fit the live (un-insulated) wheels (125x4) in place with four of the axle nuts. Place a spacer washer (122) onto the front driving axle positioning the axle into the right hand front axle bush. Push the axle through the opposite axle bush, fit another spacer washer and then fit an insulated wheel (124), 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, and fix with an axle nut. Repeat for the remaining three wheel sets, locating the gearbox axle gear (115) onto the third axle - see drawing.

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. Make sure that all axles rotate freely in the axle bushes.

Now fit the crankpins (128x8) to the wheels using a spot of superglue or Loctite 601 on the thread. Glue the counterweights (129Ax6) and (129Bx2) to the wheels. Glue axle covers (127x8) to the axle nuts after final assembly of the chassis. Cut M2 screws (131) and (133) to length and fix into front and rear chassis spacers with M2 nut (132) and (134). Install the brake components (118) through (120) as shown.

Chassis Drawing 4 (Parts 149 - 192)

Fold footplate front (149) as per drawing, add buffer beam (150), then solder to front of chassis ensuring that it is correctly aligned. Add detail parts (151) to (155), fitting the white metal components last. Fit coupling rods front and rear, (163x2) and (164x2), followed by coupling rods middle, (165x2). Place a piece of paper on the crankpins and then washers (166x8). The paper will prevent glue or solder from reaching the coupling rods when soldering the crankpin washers in place. Note: For easy removal of the coupling rods during testing, painting etc, strip a short length of insulation from some fine (approx 1mm dia.) electrical wire. Push this "tubing" onto the crankpins as a temporary retainer. Complete both sides, cutting the crankpins flush except for those on the third driver; these will be done after fitting of the valve gear. Check that all moving parts move freely.

Fit (156) to (159) to *cylinder (160). Fold tabs on end of slide bars (162x2) and glue into cylinder as per drawing. Trim crossheads (167x2) and test fit in slide bars. If necessary, slightly enlarge the crosshead hole in the cylinders. Attach cylinder assembly to chassis using 12BA screw (161x2). Fold motion bracket (169) as shown in drawing and solder to chassis.

Assemble and fit valve gear as shown in drawing. Fit the big end of the connecting rod to the crankpin of the third driver, then washer (170x2) followed by the expansion link assembly (171). Set the return crank as per the insert drawing and glue or solder in place.

Make sure through the assembly of the valve gear that all components move freely.

Short one wheel on each of the locomotive bogie axles (185) and (189) using 0.7mm wire. Assemble the bogies as shown on the drawing making sure that the shorted wheels are on the right hand side. Fit the bogies to the chassis as per drawing.

Assemble the gearbox (182) 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.Omm 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 neoprene tube (181) 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 neoprene sleeve to the motor and fit the gearbox onto the axle gear. Fit the gearbox keeper plate to the gearbox using the screws provided.

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

4 Feb 2010

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Drawing T1

1.	Tender Footplate	E
2.	Tank Floor	E
3.	Tender Valance with Steps x 1 Pr	E
4.	Tender Pivot x 2	T
5.	Drawbar Pin	T
6.	M2 Nut x 2	T
7. *	Turret Floor (Oil)	E
8.	Tender Body	E
9.	Toolbox Doors x 2	E
10.	Tender Floor	E
11.	Tender Floor Supports x 2	E
12.	Tender Side Supports x 2	W/M
13.	Tender Back Support	W/M
14.	Tender Buffer Beam	W/M
15.	Buffers x 2	W/M
16.	Brake Pipes x 2	L/W
17. *	Lamps x 2 (Coal)	L/W
18. *	Lamps x 2 (Oil)	L/W
19.	Tender Top	E
20. *	Rear Ladder (Coal)	E
21. *	Rear Ladder (Oil)	E
22.	Bogie Stretchers x 2	E
23.	Side Frames x 4	W/M
24.	Pinpoint Bearings x 8	T
25.	Bogie Wheels x 4 Pairs	T
26.	Bogie Mounting Shouldered Screws x 4	T
27.	Bogie Mounting Springs x 2	-
28.	Bogie Frame Mounting Screws x 2	T
29.	Electrical Junction Box	L/W
30.	Tender Drain Valve	L/W

0.4mm dia. Wire
0.7mm dia. Wire

Drawing T2

31. *	Coal Turret Side	E
32. *	Turret Front	E
33. *	Coal Door	E
34. *	Turret Floor (Coal)	E
35. *	Tender Coal	W/M
36. *	Tender Toolbox (Coal)	W/M
37. *	Water Filler (Coal)	W/M
38. *	Water Filler (Oil)	W/M
39. *	Air Filter	W/M
40. *	Tender Toolboxes (Oil) x 2	W/M
41. *	Tender Top (Oil)	W/M
42. *	Tender Oil Pump	W/M
43. *	Oil Filler	W/M
44. *	Tender Hatch Lamp	L/W
45. *	Short Handrail Knobs x 2	T
46.	Brake Handle Bracket	W/M
47.	Brake Handle Wheel	E

0.4mm dia. Wire

Drawing Locomotive 1

48.	Boiler	W/M
49.	Cab	E
50.	Cab Window Beading x 2	E
51.	Cab Detail (Coal)	W/M
52.	Cab Detail (Oil)	W/M
53.	Regulator Handle	E
54.	Screw Reverser	W/M
55.	Screw Reverser Hand Wheel	E
56.	Cab Seats x 2	W/M
57.	Cab Roof	W/M
58.	Cab Roof Handrails x 2	W/M
59.	Drawbar Detail Plate	E
60.	Drawbar Backing Plate	E
61.	Injectors x 1 Pair	L/W
62.	Cab Fall Plate	E
63.	Fall Plate Insulator	P
64.	Electrical Box	L/W
65a.	Footplate Base x 1 Pair	E
65b.	Footplate Supports x 2	W/M
65c.	Footplate Supports x 2	W/M
66.	Footplate Detail x 1 Pair	E
67.	Reversing Arm	E
68.	Cab Footboard Base Plate x 2	E
69.	Cab Footboard x 1 Pair	E
70. *	Reversing Box (Type A)	W/M
71. *	Reversing Box (Type B)	W/M
72.	Pipe Brackets x 3	E
73. *	Steam Turret (Coal)	W/M
74. *	Steam Turret Cover (Oil)	W/M
75.	Steam Generator	W/M
76.	Safety Valves x 2	L/W
77.	Blowdown Valve	L/W
78.	Steam Dome	W/M
79.	Whistle	L/W
80.	Regulator Pivot	E
81.	Sand Dome	W/M
82.	Step	E
83.	Step	E
84.	Top Feed	L/W
85.	Electrical Junction Box	L/W
86.	Chimney	W/M
87.	Small Air Tanks	W/M
88.	Compressor	W/M
89.	Pump Valve	L/W
90.	Smokebox Step	W/M
91.	Compressor Air Filter	W/M
92. *	Headlamp (Coal)	L/W
93. *	Headlamp (Oil)	W/M
94. *	Smokebox Door Step (Coal)	E
95. *	Smokebox Door Handle (Coal)	L/W
96.	Marker Lamps x 2	L/W
97. *	Smokebox Door (Oil)	W/M
98. *	Smokebox Door (Coal)	W/M
99. *	Ashpan x 2 (Coal)	W/M
100.*	Ashpan x 2 (Oil)	W/M
101.	Air Tanks x 2	W/M
102.	Air Tank Filter	W/M
103.	Condenser	E
104.	Ashpan Levers x 2	L/W
105.	Steam Turret Flanges x 1 Pair	L/W
106.	Short Spacer Screws x 2	T

0.4mm dia. Wire

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Drawing Locomotive 2

107.	Electrical Junction Box x	L/W
108a.	Medium Handrail Knobs x 14	T
108b.	Handrail Knobs x 2	L/W
109.	Short Handrail Knob	T
110.	Splitpins x 7	
	0.4mm dia. Wire	
	0.5mm dia. Wire	
	0.7mm dia. Wire	

Drawing Locomotive 3

111.	Chassis Frame R.H.	E
112.	Chassis Frame L.H.	E
113.	Chassis Spacing Plate Front	E
114.	Chassis Spacing Plate Rear	E
115.	Geared Axle	T
116.	Spacers x 2	T
117.	Spacer Screws x 4	T
118.	Brake Pullrods x 1 Pair	E
119.	Brake Shoes x 3 Pairs	E
120.	Rear Brake Shoes x 1 Pair	E
121.	Bushes x 8	T
122.	Washers x 8	E
123.	Axles x 4	T
124.	Ins. Driving Wheels x 4	T
125.	Live Driving Wheels x 4	T
126.	Axle Nuts x 8	T
127.	Axle Covers x 8	E
128.	Crankpins x 8	T
129a.	Balance Weights (Small) x 6	E
129b.	Balance Weights (Large) x 2	E
130.	Bogie Suspension Blocks x 2	W/M
131.	M2 x 16mm Screw C/H	T
132.	M2 Nut	T
133.	M2 x 16mm Screw C/H	T
134.	M2 Nut	T
135.	Motor Bracket	W/M
136.	Spacer Screws x 2	T
137.	Motor	
138.	Closed Power Clip	E
139.	Spacer Screws x 2	T
140.	Half Live Washer	P
141.	Half Live Insulator	P
142.	Open Power Clip	E
143.	M2 x 16mm Screw C/H	T
144.	M2 Nut	T
145.	Spring Plate	E
146.	Loco Tender Connector	E
147.	Half Live Spring	
148.	M2 Nut	T
	0.7mm dia. Wire	
	Insulated Wire	

Drawing Locomotive 4

149.	Footplate Front	E
150.	Buffer Beam	E
151.	Front Steps x 2	E
152.	Brake Pipe	L/W
153.	Buffers x 2	W/M
154.	Buckeye Coupling Arm	W/M
155.	Bogie Bearing Cover	W/M
156.	Cylinder Draincocks x 2	E
157.	Valve Crosshead Guide/Lubricator L.H.	W/M
158. *	Valve Crosshead Guide R.H.	W/M
159. *	Valve Crosshead Guide/Lubricator R.H.	W/M
160.	Cylinders	W/M
161.	12BA x 3/16" C/H Screws x 2	T
162.	Slidebars x 2	E
163.	Coupling Rods Front x 1 Pair	E
164.	Coupling Rods Rear x 1 Pair	E
165.	Coupling Rods Middle x 2	E
166.	Washers x 8	T
167.	Crossheads x 1 Pair	L/W
168.	Connecting Rods x 1 Pair	E
169.	Motion Bracket	E
170.	Washers x 2	T
171.	Expansion Link Assemblies x 1 Pair	E
172.	Valve Spindle,Radius Rod Assemblies x 1 Pair	E
173.	14BA x 1/4" C/H Screws x 2	T
174.	14BA Nuts x 2	T
175.	Washers x 2	T
176.	14BA x 1/4" C/H Screws x 2	T
177.	14BA Nuts x 2	T
178.	Lifting Links x 2	E
179.	Lifting Link Crank L.H.	E
180.	Lifting Link Crank R.H.	E
181.	Flexible Tube	-
182.	Gearbox	-
183.	Bogie	W/M
184.	Bogie Detail Plate	E
185.	Bogie Wheels	T
186.	Bogie Keeper Plate	E
187.	M2 Nut	T
188.	Pony	W/M
189.	Pony Wheels	T
190.	Pony Keeper Plate	W/M
191.	M2 Nut	T
192.	M2 x 16mm Screw C/H	T

0.4mm dia. Wire
0.5mm dia. Wire
0.7mm dia. Wire

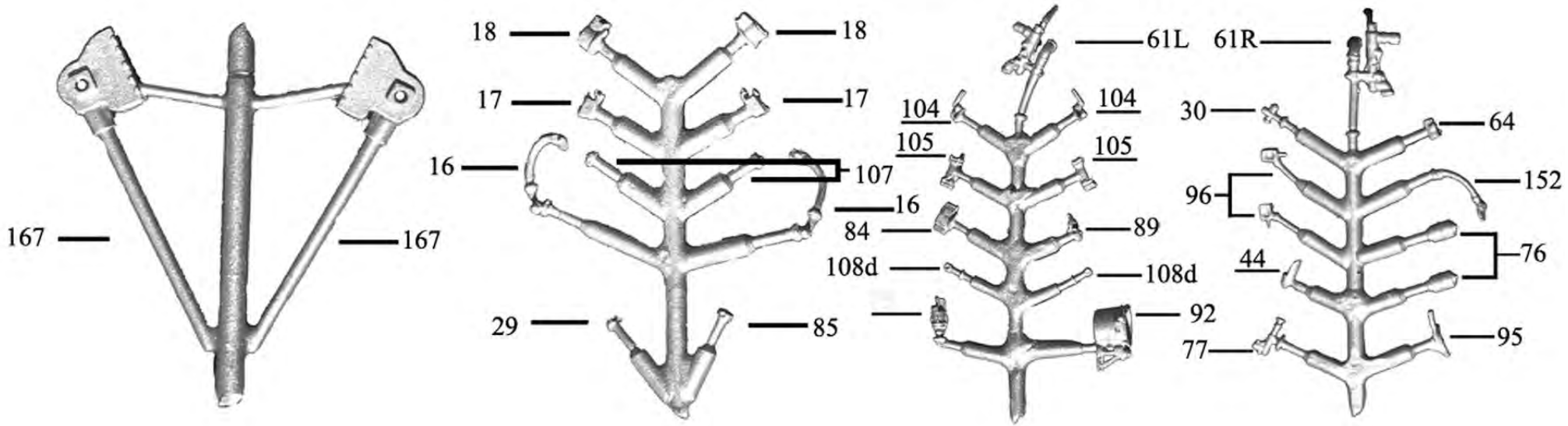
Drill Sizes - Key

0.5mm dia. - A	1.5mm dia. - H
0.6mm dia. - B	1.6mm dia. - I
0.7mm dia. - C	1.9mm dia. - J
0.8mm dia. - D	2.0mm dia. - K
0.9mm dia. - E	2.1mm dia. - L
1.0mm dia. - F	2.5mm dia. - M
1.2mm dia. - G	3.7mm dia. - N

Legend:

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

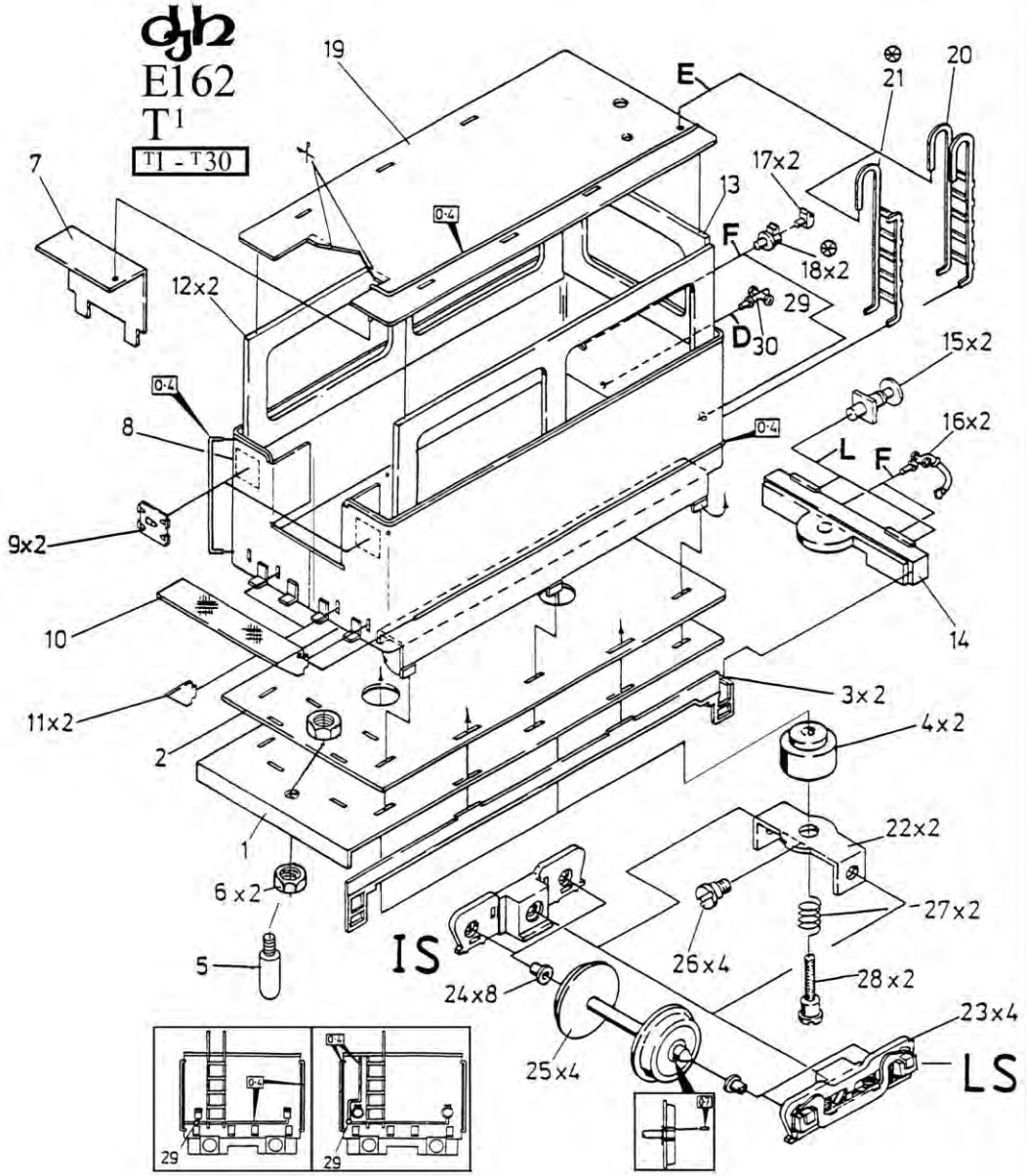
E162 - D59 - Lost Wax Brass Castings



djh

E162 T1

T1 - T30



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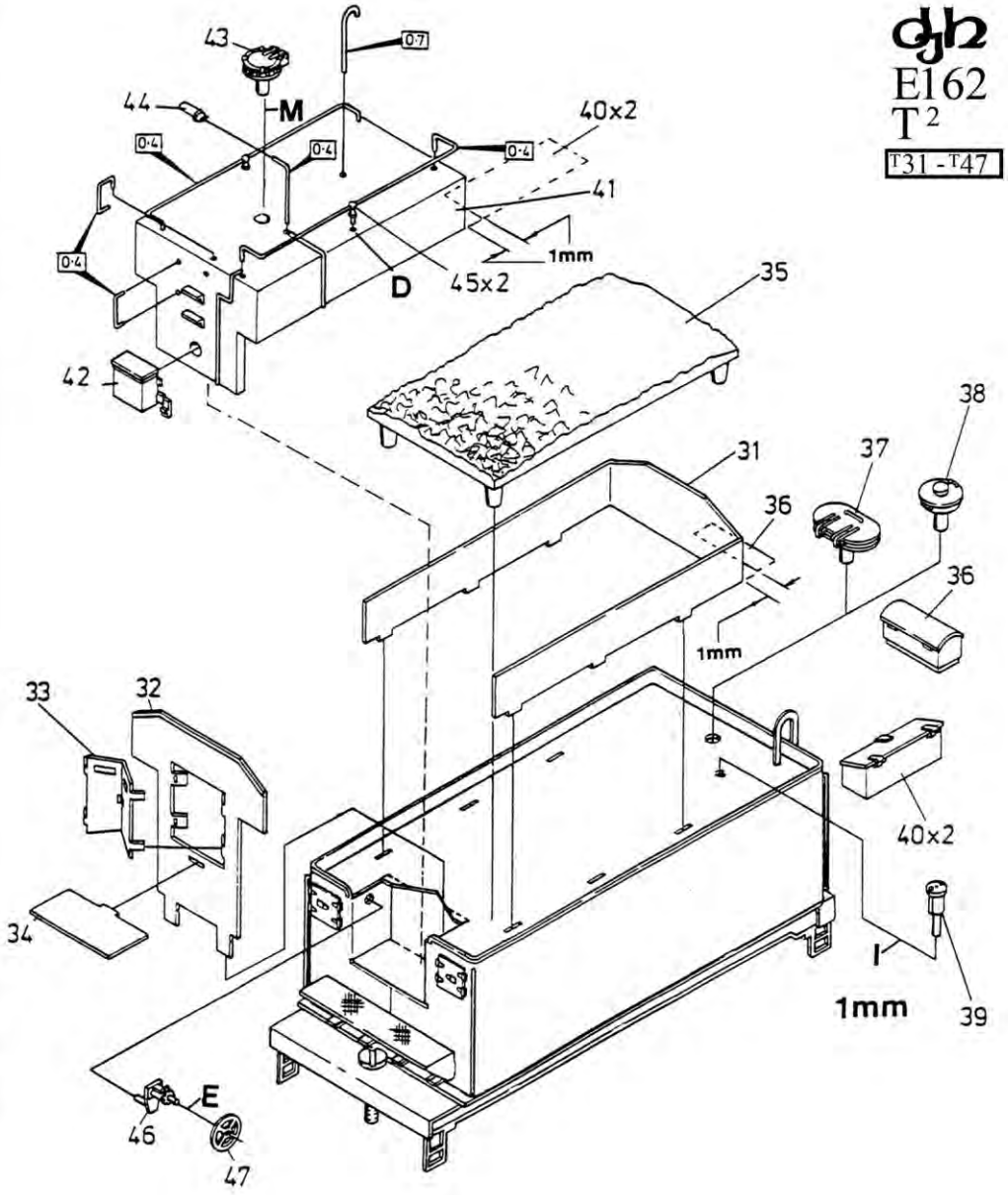
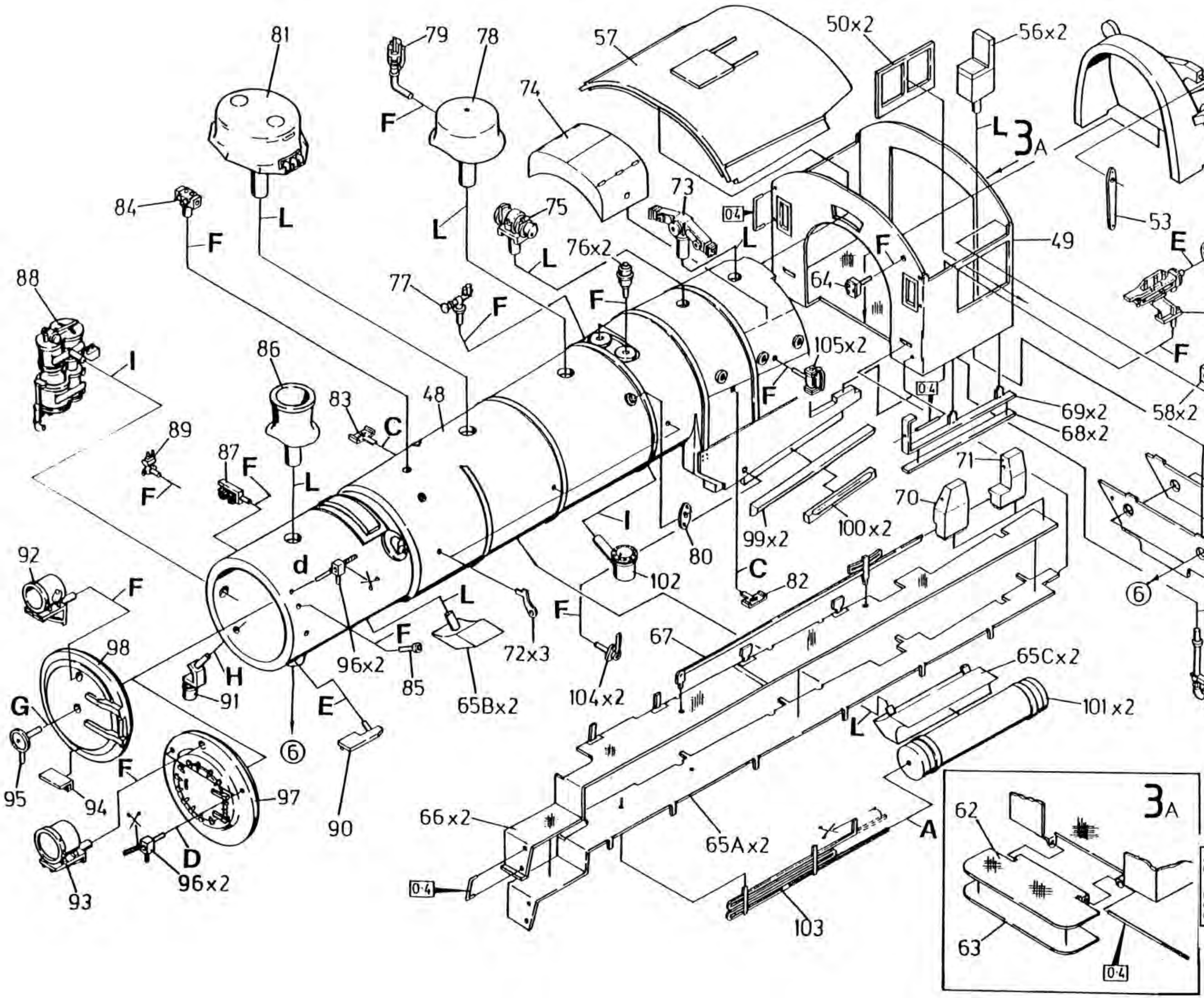
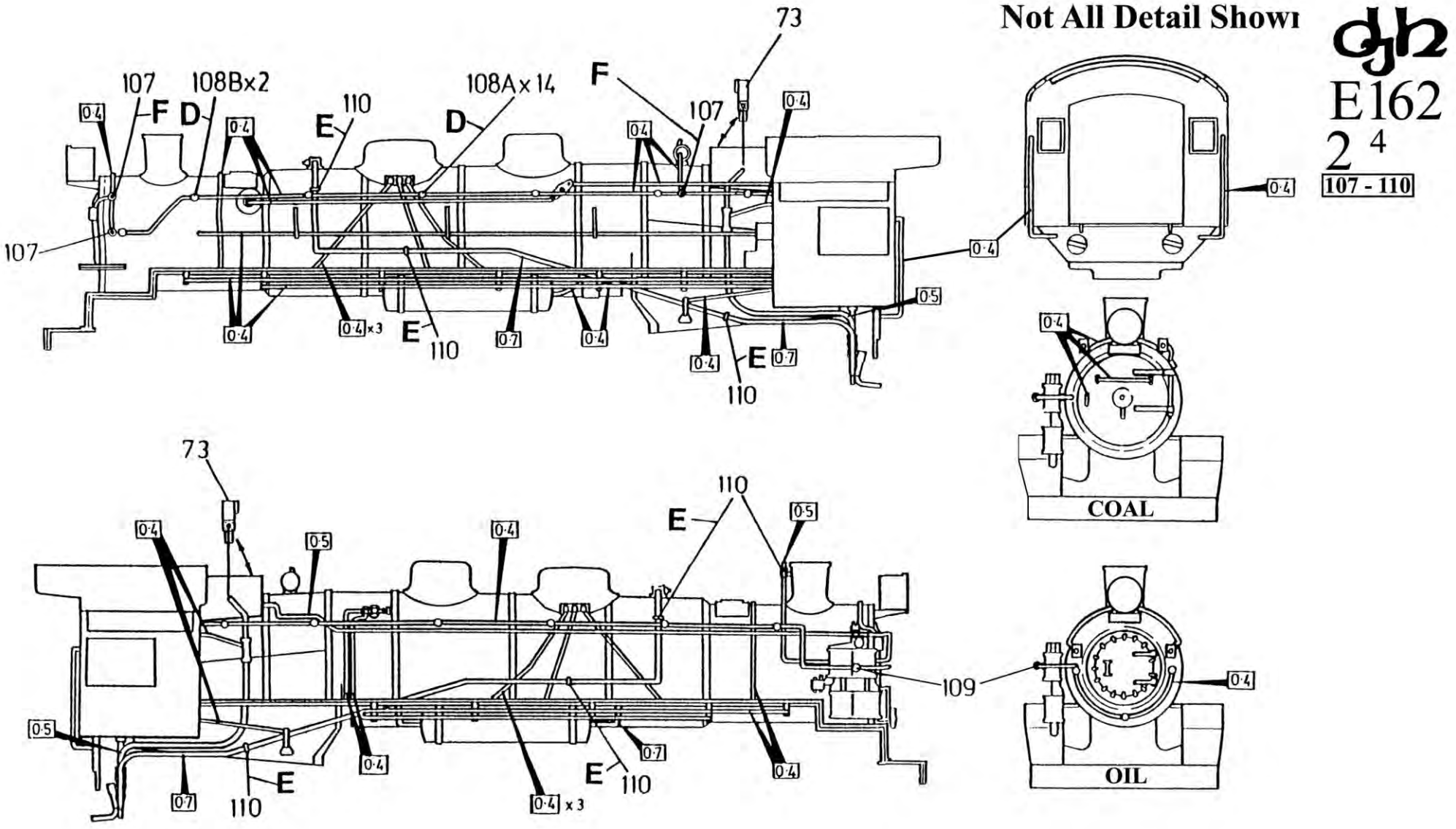
E162 T2

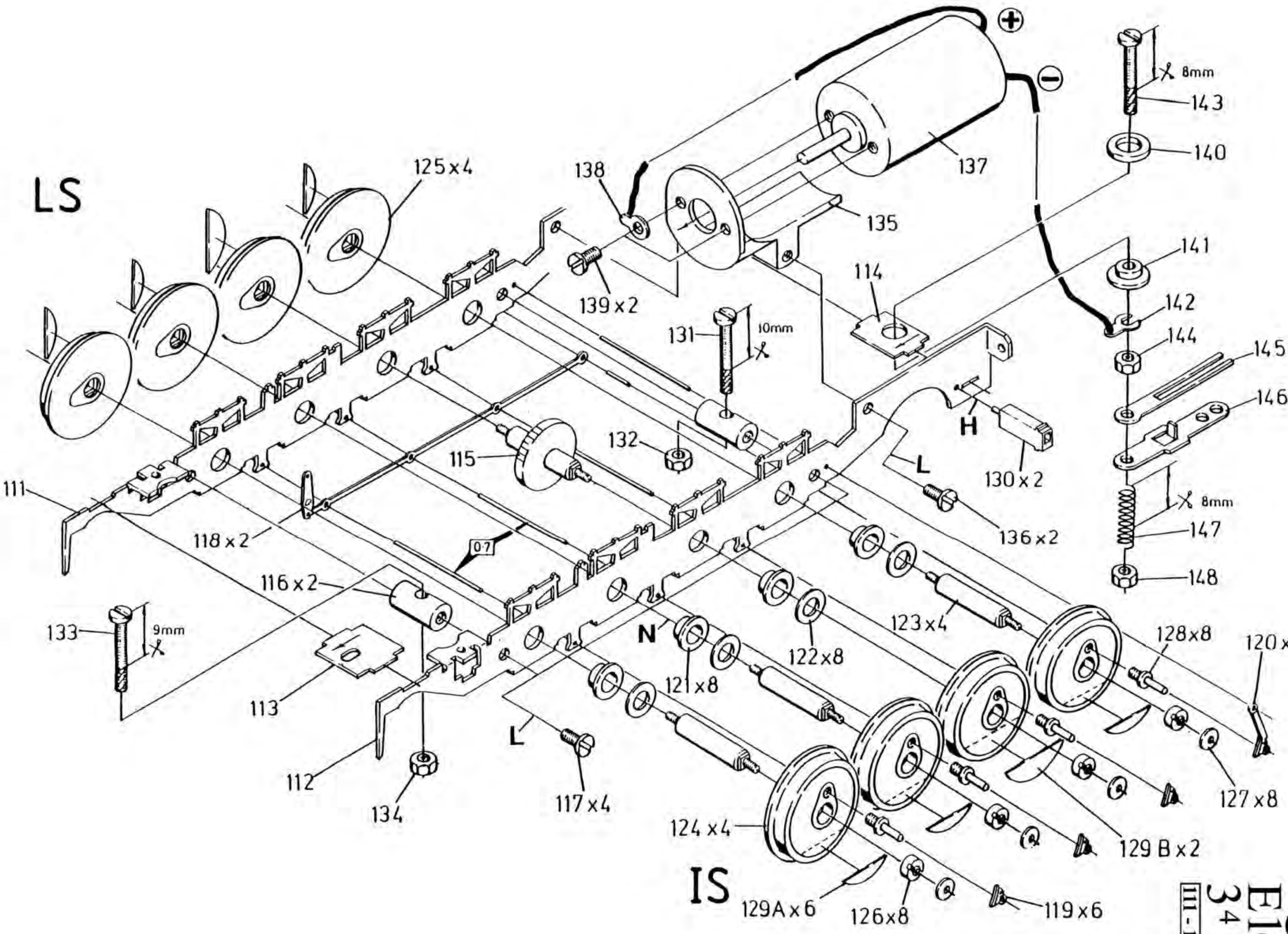
T31 - T47





E162
1 4
48 - 106


Not All Detail Show
djh
E162
2 4
107 - 110
73
107
108Bx2
108Ax14
F
D
E
110
0·4
0·5
0·7
0·4 x 3
COAL
OIL
109


LS
125 x 4
138
135
137
139 x 2
131
10mm
114
141
142
143
8mm
140
144
145
146
H
130 x 2
132
115
L
136 x 2
111
118 x 2
07
147
8mm
148
116 x 2
133
9mm
113
112
134
L
117 x 4
N
121 x 8
122 x 8
123 x 4
128 x 8
120 x 2
127 x 8
129 B x 2
124 x 4
IS
129A x 6
126 x 8
119 x 6

djh

E162

4 4

149 - 192