

P.D.K. MODELS
DRUMMOND LSWR/SR/BR 700 (BLACKMOTOR) CLASS 0-6-0
(URIE SUPERHEATED REBUILD)

HISTORICAL NOTES

The class was introduced in 1897 having been designed by Drummond the former Caledonian Railway Engineer. The class of 30 locomotives had all been rebuilt by Urie by 1929 which included the fitting of a superheated boiler pitched 9 inches higher than on the original and which were interchangeable with the M7 class 0-4-4t.

The whole class passed to BR and the first withdrawal of 30688 took place in 1957 following an accident at Staines. The remainder were scrapped by December 1962, although because of the severe winter, three were retained for snowplough duties until February 1963 but not actually making their last workings to the scrap yard until January 1964.

Whilst primarily intended for freight work they were not unknown on local passenger turns and longer distance excursions and engineering trains.

The class were given the nickname 'Black Motors' and it was not uncommon for locos working from Feltham to be seen with the crew's bicycles on the tender!

In the rebuilt form, as depicted in this kit, the locomotives were always painted black.

CHASSIS ASSEMBLY

Take the frames (1) and solder in the axle bushes (2), making one frame **L/H** and one **R/H**. Choose either the '**00**' or '**EM**' spacers (3) as required, bend as shown on the diagram, and solder the frames to the spacers, making sure everything is assembled square and flat. If fitting a D11 motor bend down the sides of the motor mount (4) and solder the washers (5) under the motor screw holes. Fix the plate into the chassis at its front end with a piece of the 22g wire so that the plate pivots on the wire. Bend the guard irons (6) to shape and solder to the frames. Solder pieces of the 22g wire through the 3 holes in each frame to form the brake gear supports (7). It may be found easier to paint the frames at this stage rather than after the wheels are fitted. Next fit the wheels, axles, gear, and crankpins to the chassis, using the four axle washers (8) to take up the side-play on the front and rear axles. The centre wheels require side-play to negotiate curves. Fit the pairs of coupling rod halves (9) together, place the rods on the crankpins and check that the wheels revolve freely, and then fit the six small washers (10) to retain the rods on the crankpins. Put paper between the washers and the rods to avoid soldering the coupling rods to the crankpins, and then remove the paper after soldering. Screw the collector tag (11) to the second chassis spacer using an 8BA screw and nut (12) and the two fibre washers (13). Check that the tag is not electrically live to the chassis, then form current collectors using some of the 26g handrail wire (14) soldered to the collector tag. Now take the brake hangers (15) and solder the three **L/H** and three **R/H** brake blocks (16) to them, then solder the hangers to the support wires (7), making sure the brakes do not touch the wheels, and fitting the rear brake tie bar (17) at the same time. The front and middle tie bars should be made from the 22g wire. Now fix the brake rods (18) to the tie bar ends. If fitting a D11 motor screw this to the motor mount lower it into the chassis so that the gears mesh, and thread 22g wire through the frame slots and the holes in the motor mount. Adjust the motor angle until the gear mesh is correct, and then solder the

wire ends to the frames. Access holes are provided in the third chassis spacer so that the motor can be removed. Connect the insulated motor brush to the collector tag with insulated wire. Next fit the firebox ashpan sides (19) and the dummy leaf (20) and coil springs (21) if desired. The drawbar (22) and drawbar pivot (23) are secured with the same screw used to fix the rear end of the chassis to the superstructure.

SUPERSTRUCTURE ASSEMBLY

Take the footplate (1) and lay it upside down on a flat surface (the hole for the vacuum pipe goes to the left side). Fix the drag beam (2) to the footplate, only very slightly in from the footplate edge. Press out the four rivets in each valance from behind using a pointed object such as a masonry pin (3) then solder them to the footplate, ½mm in from each edge, then fix the buffer beam (4) in place, followed by the riveted overlay (5). Now fix the step plates (6) behind the valances centrally between the front and middle splasher positions, in line with the valance rivets. Bend up the ends of the steps (7) and fix into the slots in the step plates and valances. Solder two 8BA nuts (8) under the footplate for securing the chassis. Bend the front splashers (9) along the etched fold lines and solder them to the footplate then form the splasher tops (10) and fit to the splashers. Fix the middle splasher sides (11) to the footplate, form the splasher tops (12) and fix these to the splasher.

Take the cab sides (13) and solder to the footplate, then curve the bottom ends of the cab front (14) and fix to the sides (it fits between the sides, not to the front edges). Fit the cab window rims (15) in place. Fix the smokebox saddle front (16) and saddle rear (17) into the slots in the footplate, and fit the buffer bodies (18) into the holes in the buffer beam. Bend up three of the lamp brackets (19) and fit into the small slots in the front edge of the footplate, then fit the vacuum pipe (20) into the hole in the footplate front. Fix the cylinder cover casting (21) against the smokebox saddle front, and fix the sandbox filler caps (22) into the holes in the sandbox tops.

Fit the two small frame pieces (23) into the slots in the footplate between the front and middle splashers, then make the two grab handles (24) in front of these from the handrail wire. Bend the cab floor support (25) and fit between the cab sides with its back face only very slightly in from the rear edge of the footplate. Take the cab floor (26) and bend along the etched fold line to clear the Romford worm and gear if using a D11I motor, or cut along the second fold line if using a Portescap 1219 motor, then fit in place. Curve the cab roof (27) to match the cab front, and bend up the edges before fitting to the cab. Then fit the three roof strips (28) in place, using the slightly longer one for the curved back edge of the roof. Solder the cab beading (29) to the cab sides, then make the handrails (30) from the wire provided.

Turn now to the boiler, and roll the boiler/firebox unit (31), bend out the lower part of the firebox sides, and solder up the boiler seam. Next roll the smokebox inner (32), straighten out the saddle side pieces, and fit to the boiler unit. Fit the inner smokebox front (34) to the front edge of the smokebox, then form the smokebox wrapper (33) and fit to the smokebox, followed by the smokebox front overlay (35). Fit the boiler bands (36) to the boiler and firebox. The assembled boiler unit can now be fitted to the footplate unit. Make the boiler handrails next, then fit the chimney (39) and dome (40). Fit the smokebox lamp bracket (41) to the top of the smokebox front and the step (42) to the bottom of the smokebox front. Now fit the smokebox door handle (43) and lamp brackets (44) to the smokebox door (45) and fix the smokebox door to the smokebox. Fit the two cast

rectangular pieces (46) to the firebox sides, and then assemble the two parts of the reversing lever (47) and fix in place on the **L/H** side of the loco. Fit the clacks (48) into the boiler, then form the clack pipes (49) from the 22g wire. Fit the whistle (50) in place then form the two injector pipes either side of the firebox from 22g wire, bending the upper ends to fit into the holes in the firebox top either side of the whistle. Fix three pieces of handrail wire to the whistle and the upper ends of the injector pipes, passing the other ends through the three holes in the cab front (52). Next fit the regulator handle (53) to the backhead (54), then fix the backhead into the cab. Note that the backhead can only be fitted if using a D11 motor. Curve the cab fall plate (55) slightly, make a hinge from the wire and split pins provided, and fit the fall plate to the cab floor. Make the vacuum piping (57) along the **L/H** valance from the 22g wire, and finally fit the buffer heads, springs, and nuts (58) into the buffer bodies.

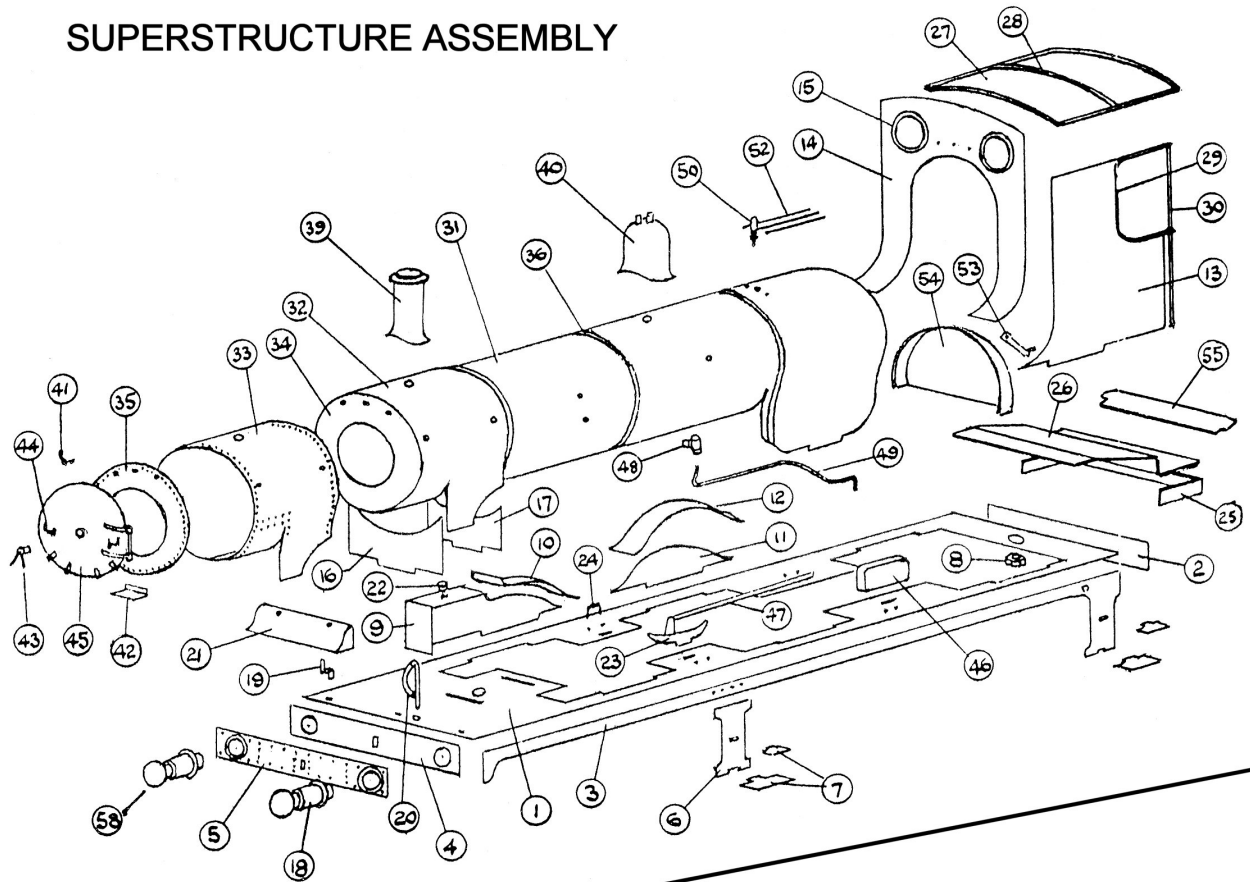
SUPERSTRUCTURE PARTS LIST

- | | | | | | | | | | | | | | | | | | | | |
|--|--|---|-------------------------------|---|-------------------------------|------|----------|-----|----------------------------|---|------------|---|----------|----|------------------|----|----------------|---|------------|
| <ol style="list-style-type: none"> 1. Footplate 2. Drag beam 3. Valances - 2 4. Buffer beam 5. Buffer beam overlay 6. Step plates - 2 7. Steps - 8 8. 8BA nuts - 2 9. Front splashers, L/H and R/H 10. Front splashers tops - 2 11. Middle splasher sides - 2 12. Middle splasher tops - 2 13. Cab sides - 2 14. Cab front 15. Cab window rims - 2 16. Smokebox saddle - front 17. Smokebox saddle - rear 18. Buffers - 2 19. Lamp brackets - 3 20. Vacuum pipe 21. Cylinder front cover 22. Sandbox filler caps - 2 23. Frame tops between splashers - 2 24. Grab handles between splashers 25. Cab floor support 26. Cab floor 27. Cab roof 28. Cab roof strips - 3 29. Cab side beading, L/H and R/H 30. Cab handrail wire 31. Boiler firebox, smokebox 32. Smokebox inner 33. Riveted smokebox outer 34. Inner smokebox front 35. Riveted smokebox front overlay 36. Boiler bands - 3 37. Handrail wire 38. Handrail knobs or split pins - 10 39. Chimney 40. Dome | <ol style="list-style-type: none"> 41. Smokebox lamp bracket 42. Smokebox front step 43. Smokebox door handle 44. Smokebox door lamp bracket 45. Smokebox door 46. Pieces either side of firebox - 2 47. Reversing lever, 2 parts 48. Clacks - 2 49. Clack pipes, 22g wire 50. Whistle 51. Injector pipes, 22g wire 52. Whistle and injector pipes 53. Regulator handle 54. Backhead 55. Cab fall plate 56. .7mm wire and 2 split pins for fall plate 57. Vacuum piping along L.H. footplate 58. Buffer heads, springs, nuts <p>Chimney</p> <p>Dome</p> <p>Vacuum pipes</p> <p>Buffers</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50px;">6</td> <td>Driving wheel axle bushes 1/8</td> </tr> <tr> <td>6</td> <td>Driving wheel axle bushes 2mm</td> </tr> <tr> <td>2'6"</td> <td>22g wire</td> </tr> <tr> <td>1'6</td> <td>26g n/silver handrail wire</td> </tr> <tr> <td>5</td> <td>8BA screws</td> </tr> <tr> <td>5</td> <td>8BA nuts</td> </tr> <tr> <td>½"</td> <td>1/16" dia. brass</td> </tr> <tr> <td>12</td> <td>Handrail knobs</td> </tr> <tr> <td>2</td> <td>split pins</td> </tr> </table> <p style="text-align: center; margin-top: 20px;">Smoke box door handle x 1 cast</p> | 6 | Driving wheel axle bushes 1/8 | 6 | Driving wheel axle bushes 2mm | 2'6" | 22g wire | 1'6 | 26g n/silver handrail wire | 5 | 8BA screws | 5 | 8BA nuts | ½" | 1/16" dia. brass | 12 | Handrail knobs | 2 | split pins |
| 6 | Driving wheel axle bushes 1/8 | | | | | | | | | | | | | | | | | | |
| 6 | Driving wheel axle bushes 2mm | | | | | | | | | | | | | | | | | | |
| 2'6" | 22g wire | | | | | | | | | | | | | | | | | | |
| 1'6 | 26g n/silver handrail wire | | | | | | | | | | | | | | | | | | |
| 5 | 8BA screws | | | | | | | | | | | | | | | | | | |
| 5 | 8BA nuts | | | | | | | | | | | | | | | | | | |
| ½" | 1/16" dia. brass | | | | | | | | | | | | | | | | | | |
| 12 | Handrail knobs | | | | | | | | | | | | | | | | | | |
| 2 | split pins | | | | | | | | | | | | | | | | | | |

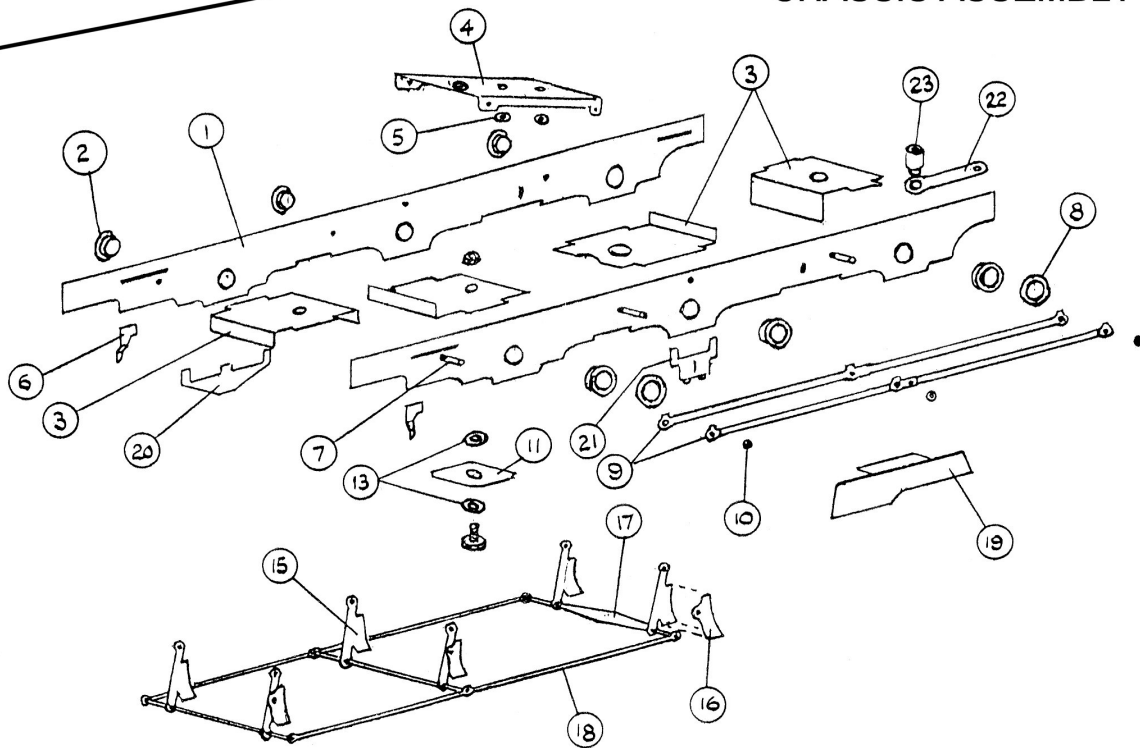
CHASSIS PARTS LIST

- | | | | |
|-----|------------------------------------|-----|--|
| 1. | Frames - 2 | 13. | Fibre washers - 2 |
| 2. | Axle bushes - 6 | 14. | Pickup wire, 26g n/silver |
| 3. | Frame spacers - 4 ('00' & 'EM') | 15. | Brake hangers - 6 |
| 4. | Motor mount for D11 | 16. | Brake blocks - 3 L/H , 3 R/H . |
| 5. | Washers for motor screws - 4 | 17. | Rear brake tie bar |
| 6. | Front guard irons - 2 | 18. | Brake rods - 2 |
| 7. | Wire for brake gear supports, .7mm | 19. | Firebox ashpan sides - 2 |
| 8. | Axle washers - 4 | 20. | Dummy leaf springs - 2 |
| 9. | Coupling rods | 21. | Dummy coil springs - 2 |
| 10. | Crankpin washers - 6 | 22. | Drawbar |
| 11. | Collector tag | 23. | Drawbar pivot |
| 12. | 8BA screw and 8BA nut -1 | 24. | 8BA screws - 2 |

SUPERSTRUCTURE ASSEMBLY



CHASSIS ASSEMBLY



DRUMMOND SIX WHEEL TENDER

Take the chassis frames (1) and solder the axle bearing washers (2) over the axle holes, then clean out the holes with a No. 47 (2.0mm) drill. Assemble the frames and spacers (3) and (4); making sure everything is square and flat. Spacers are provided for '00' or 'EM' gauge. Solder 22g wire through the three holes in each frame for the brake gear supports (5). Fit the wheels to the chassis using the axle washers (2A) to take up any side play in the front and rear axles. Take the brake hangers (6) and solder the brake blocks (7) to them, making three **L/H** and three **R/H**, then solder the hangers to the wire supports making sure the brakes do not touch the wheels. Take the pull rods (8) and thread 22g wire to form the tie bars (9) through the lower hanger hole and the pull rods, and solder everything in place when all three tie bars and both pull rods are assembled. The chassis can now be painted before fitting the wheels.

Turn now to the body, take the footplate (10) and solder the buffer beam (11) to it, ½mm in from the back edge of the footplate. Next fix the valances (12) to the footplate, also ½mm in from each edge, then fix the drag beam (13) in place. Bend up the ends of the four steps (14) and fit these into their slots in the valance. Take the frames (15) and fix into the slots in the footplate, and then fit the buffer bodies (16) to the buffer beam. Solder an 8BA nut (17) over each of the two holes in the footplate for screwing the chassis to the body.

Now take the tender body and bend the corners at 2mm radius. This must be done accurately and squarely to ensure the correct fit of the body to the footplate, and also to ensure the accurate fit of other body parts. The top of the sides and back should be flared outwards at 60 degrees to the horizontal. The front corners of the sides must also be curved at 2mm radius for a full 90 degrees. Once the tender body is properly formed it can then be slotted onto the footplate and soldered in place.

Take the front plate (19) next, bend over the two top pieces at right angles, and then fix the plate into the slot in the footplate. It should fit between, and level with the front edges of the tender body. Bend the five lamp brackets (20) and fit into the slots in the back of the body, then bend the front floor support (21) and fit to the footplate so that the floor support is only very slightly in from the front footplate edge then slot the floor piece (22) into the front plate and fix it to the floor support. Now take the long lower coping strips (23) and, starting at one end of the front of the body, fix the strip all the way round the body with its top edge against the bend of the flared coping. Next take one of the two overlays for the flared coping (24) and curve this to fit the flared top of the body. Fix in place then repeat with the other overlay. The two pieces join at the back of the tender. Bend the coal plate (25) next and fit into the body. The main section should be level with the etched line for the flared top, and the front edge should be level with the bottom edge of the coal hole in the front plate. Solder the coal rails (26) to the flared tender tops with an equal amount of the body at either end. Fit the draught plates (27) either side of the floor, bend the lower toolbox bodies (28) and fix to the floor against the draught plates and front plate, then bend the angle of the toolbox tops (29) and fit these to the toolboxes. Fix the beading pieces (30) to the top edges of the draught plates, and then make the two handrails (31) with the top of the wire through the holes in the beading ends, and the lower ends through the holes in the footplate. Put the drawbar pin (32) through the hole in the footplate and solder to the back of the drag beam, then bend the guard irons (33) and solder them to the outside frames. Form the vacuum piping (34) that runs along the valances on both sides of the tender, and then fit the axleboxes (35) into the holes in the outside frames. The brake column (36) fits against the front plate on top of the R.H. lower toolbox. Finally fit the upper toolboxes (37) tank filler (38), vacuum pipe (39), and buffer heads (40).

TENDER - LIST OF PARTS

- | | | | |
|-----|-------------------------------|-----|---|
| 1. | Chassis frames - 2 | 21. | Floor support |
| 2. | Axle bearing washers - 6 | 22. | Floor |
| 2A. | Axle washers - 4 and 2 spares | 23. | Lower coping strip |
| 3. | Large spacer ('00' or 'EM') | 24. | Upper coping strips, L/H and R/H |
| 4. | Small spacer | 25. | Coal plate |
| 5. | Brake gear supports, 22g wire | 26. | Coal rails - 2 |
| 6. | Brake hangers - 6 | 27. | Draught plates – 2 |
| 7. | Brake blocks - 6 | 28. | Lower toolbox bodies, L/H and R/H |
| 8. | Brake rods - 2 | 29. | Lower toolbox tops - 2 |
| 9. | Wire for tie bars, 22g | 30. | Beading pieces - 2, L/H and R/H |
| 10. | Footplate | 31. | Handrails, 26g n/silver wire |
| 11. | Bufferbeam | 32. | Drawbar pin (1/16" dia. brass) |
| 12. | Valances - 2 | 33. | Guard irons - 2 |
| 13. | Drag beam | 34. | Vacuum piping along valances |
| 14. | Steps - 4 | 35. | Axleboxes - 6 |
| 15. | Frames - 2 | 36. | Brake column |
| 16. | Buffer bodies - 2 | 37. | Upper toolboxes |
| 17. | 8BA nuts - 2 | 38. | Tank filler |
| 18. | Tender body | 39. | Vacuum pipe |
| 19. | Front plate | 40. | Sprung buffers |
| 20. | Lamp brackets - 5 | | |

PDK MODELS.

**HILLTOP BUNGALOW.
CARNKIE
HELSTON
TR13 0DZ**

07732213251

www.pdkmodels.co.uk

E-Mail: pdkmodels@hotmail.co.uk

ASSEMBLY DIAGRAM

