

**ALAN GIBSON, THE BUNGALOW  
CHURCH ROAD, LINGWOOD, NORWICH, NORFOLK**

**MIDLAND/L.M.S. Class 4F.**

These instructions and history should be carefully studied BEFORE starting on any assembly.

The standard kit is complete with 00/EM Midland pattern 5'2" 16 spoke driving wheels and 4'3" 12 spoke tender wheels and requires an M.G. Sharp D11 motor and 40-1 gears to finish off. If you require wheels for 18.83 gauge I would gladly exchange the wheels for you — please supply return postage.

**HISTORY** - Obtained from information published by the L.M.S. Society.

Referred to by the Midland as the 'Big goods', and by Midland standards they were big engines. Introduced in 1911 when only two engines were built, the main building started six years later in 1917, when they were principally employed upon mineral traffic. Not much use was made of their mixed traffic potential until the standard engines began to appear after the grouping.

Basically, the class can be divided into four sections —  
The Midland engines Nos. 3835—4026 built between 1911—1922.  
The standard Fowler engines 4027—4556 built between 1924—1928.  
The ex S & DJR engines 57—61 built in 1922 and known as 'Armstrongs'.  
The Stanier engines 4562—4606 built 1937—41.

Having outlined the four basic types or divisions, there is another obvious one which cuts the class in two again; the right and left hand drive engines. The ex M.R. & SDJR engines were right hand drive while the majority of the standard engines were left hand drive. Right hand drive engines were numbered as follows — 3835—4206, 4302—4311, 4557—4561 (Ex SDJR 57—61) all others up to 4606 built in 1941 being left hand drive.

All loco's up to 4011 had beaded splashers and cabs but as years passed these could be changed as repairs were undertaken. When first built only one lubricator was fitted but from 3886 all new engines received two as did the others when they were shopped. Lubricators were always on the firemans side.

Up to engine No.4026 the tenders supplied were either Johnson 3,250 gal or Johnson 3,500 gal types, but between 4027—4556 they were fitted with Fowler 3,500 gallon tenders. With the possible exception of very few engines in the late 4400's or early 4500's, none of the Fowler tenders were built with either coal doors or coal rails, but quite a number were modified in later years so that one could have any type of variation.

The S & DJR engines were built with the Johnson 3,500 gal tenders but these were replaced by Fowler 3,500 straight sided tenders as with the ex Midland engines. Loco No's 4562—4606 were provided with second hand tenders from the 'Jubilees' mostly 3,500 Fowlers with coal rails. A few had the Straight sided Stanier tenders (3,500) originally on 'Jubilees' 5607—16. Finally it should be noted that a few locomotives were fitted with tender cabs — and whilst most of the above variations are supplied in this kit anyone who requires a tender cab to fit to the Fowler tender will find one in the range supplied by Perseverance Models.

**Boiler fittings.**

Midland & SDJR loco's were fitted with Ramsbottom safety valves, Chimney 1 and dome 1. As time passed the Ramsbottom valves were replaced by Ross pops which were standard for LMS engines.

All pre-Stanier engines were built with tail rods and these were removed from about 1935, but the bulbous cones were not necessarily removed at the same time. Stanier engines also differed in that they were built with flat coupling rods whereas all the others were given fluted type.

Having mentioned the Midland and SDJR boiler fittings, the others are as follows — Chimney No. 5 for Fowler engines as built. The Stanier engines had chimneys No. 2 & 3 and later these were used to replace the Fowler chimneys, although mostly No.3 appears to have been used, with the tall dome replaced by the short one. Chimney No.4 was issued in 1956 and was a replacement for any 4F chimney that required changing.

NEVER COULD THE TERM 'REFER TO PHOTOGRAPHS' BE MORE APT !!!

I WISH TO EXPRESS MY GRATITUDE TO BILL IBBOTT FOR THE USE OF HIS DRAWINGS.



## BODY ASSEMBLY

Remove footplate item 1 from fret and also remove the entire centre section from the footplate which is retained by two tabs. The front of the footplate is the end with the cut out. Midland built engines had beaded splashers and LMS built had plain type. Either of these can be represented by either bending splashers up or down — mark which you intend to be the under side of the footplate.

Rear drag beam 17 should be soldered right at the back of the footplate with the slot nearest the footplate. The footplate valances are contained on the chassis fret and the front of these can be established by reference to the drawings. Solder these valances to footplate 1mm in from the edge and against the drag beam at the rear. Item 16 is soldered to 15 thereby making the front buffer beam. This should now be soldered to the footplate against the front of the valance and with the projection fitting into the cutout in the footplate, At this stage I found it to be of considerable help if a section of 2" x 1" planed wood was cut to support the footplate during the actual body assembly.

Bend the six splashers up and also the small section of frame between the front and middle splashers,

Bend small tabs on steps 11, 11A, 12 and 12A at right angles to main step and solder these into the etched sections on brackets 10 and 10A. Bend the top of brackets 10 and 10A forward so that they act as spacers to set steps in from footplate valance. Solder brackets 10 at rear of footplate and 10A so that the two small holes for handrail on footplate line up above them. Solder a 12BA nut above the etched hole at the rear of the footplate.

The full chassis should now be assembled and test run per instructions.

Having decided on which cab to use (Panel type 3 for Midland/LMS or 2 for Stanier built) make a very light scratch mark on the centre line of the inside from front to back. Do the same with part 7 cab front from top to bottom. Line these marks up and tack solder in position, then checking that the cab front is at right angles to roof/sides curve the side assembly a fraction at a time round the cab front and solder as you go. DO NOT RUSH THIS OPERATION and use pencil or rods to ease curves and to make roof profile sit correctly. When satisfied with the finish strengthen with item 26 by soldering to underside of the roof where the final piece curves out towards the back.

Assemble firebox 4 by bending the front and rear frames down and slowly forming the wrapper round them soldering as you go. Solder splashers 19 to front splashers and splashers 20 to middle sides — cut out in parts 20 to rear and inside. Fit rear splashers 21.

Items 8 are fixed round the cab lookouts with the small etched hole (drilled No.77) to the bottom. Trim off any excess. Pass a 12BA nut and bolt through cab front and firebox, place on level surface and tighten up. Offer firebox and cab assembly to footplate and carefully file the cutouts in middle splashers and rear splashers to enable the firebox to fit snugly between them without distortion and also to allow the cab to sit forward enough to butt against the splashers. When satisfied with the fit, solder the assembly to the footplate but ensure it is sitting square and central. Solder firebox to cab front and remove the nut and bolt.

Take the boiler and smokebox, both of which have been cut to length and remove all traces of burrs from inside and outside. Polish outside with a very fine emery. Push smokebox onto the end of boiler barrel until both ends are flush. At the firebox end a slot 13mm wide and 17 deep to clear the motor should be cut. Part 13 is the smokebox saddle and is bent into a U section with etch lines to the inside. Solder a 12BA nut in the bottom of this part over the etched hole. Secure saddle to smokebox at the same time line up with cutout in boiler. Offer boiler assembly to footplate to ensure everything is clear for motor.

Smokebox wrapper 5 is now fitted by folding round smokebox and splaying out onto the saddle at the bottom. Fit cast smokebox front and file all joints flush. Fix boiler to footplate using solder.

Parts 6A & 6B are fitted to inside of cab with all etch lines on the inside of any bends.

Fit boiler bands 28 by securing with a small dab of glue at bottom then stretching the band round boiler and secure other end beneath the boiler again. Position bands so that one is on Boiler but against smokebox, the second 20mm back from back of smokebox and the third against the firebox front.

Fit handrail to smokebox door by fitting two handrail knobs in holes drilled at position of dimples in casting. Fit handrails to cab sides and long handle from roof to floor passing through hole in item 8.

Fit reversing lever 27 having first decided if left or right hand drive loco required. Fit mainframe sections 13D to either side of smokebox and solder item 13B to fit between these but on top of them at the front. Glue item 13A to smokebox front and fit two small handrails in the etched holes. Also fit handrails to holes in footplate above the steps.

Assemble and fit buffers into buffer beam and also vacuum pipe to same. Fit castings with dished cut out behind cutouts in firebox. Follow these with the cast sandbox filler caps which are located one just behind the handrail on footplate and another just in front of the dished castings.

Sandboxes and pipes can now be fitted to chassis at locations shown on drawing but first drill castings to take the sand pipe.

Fit handrail to boiler sides as follows — take a compass and set distance between lead and pivot at 18.5mm. Rest pivot on footplate and run the compass along loco leaving a pencil mark on boiler and firebox. Handrail knobs are then positioned at the following measurements from the cab front, 19mm, 39mm, 60mm.

•Note — Split pins may be supplied instead of handrail knobs.

Ejectors were always fitted on the drivers side and an additional handrail knob is fitted on the smokebox on the opposite side to this. see plan.

On the NON ejector side of boiler the handrail is in fact a pipe until it reaches the smokebox and two dia of the brass wire have therefore to be joined. Having done this trim the assembly to length and fit to the correct side of boiler. Trim ejector casting to give correct handing and fit a large dia brass rod to the cast box long enough to reach the cab front, and a short length of normal handrail wire at the front end. Trim to length and fix to boiler.

Fit lamp irons 23 by bending into an 'L' shape and fitting one above each buffer (on footplate), one central between these two and a fourth on smokebox door just above the top hinge strap. Treat tender the same.

Parts 19A are recessed sandbox lids and are soldered beneath the footplate with the detail section showing in the etched hole.

When first built these loco's were fitted with ramsbottom safety valves but many had these replaced by Ross pops. Verify which fittings to use by reference to the history and photographs.

Three types of chimney are supplied — types 1, 2 & 5. Type 3 can be produced by filing the lip off type 5. Of the two domes supplied the taller one was the original Midland type with the other being LMS design. Fit boiler fittings of choice to model. Whistle is fitted by reference to plan supplied.

Fit cab roof ventilator.

Items 14 are the original type of washout plug and are fitted on the crown of the firebox — see drawing. If requiring to use the new type a line should be drawn on the firebox 22mm up from the footplate and 2mm holes drilled after reference to photographs, 4 to each side.

Fit cab footplate 18 to inside of cab, shaping to clear any projection of gears into the cab. Fit backplate into cab, trimming where necessary.

Fit loco chassis to body using the stepped spacer on the rear fixing screw and using one of these on the front of the tender.

### **Livery.**

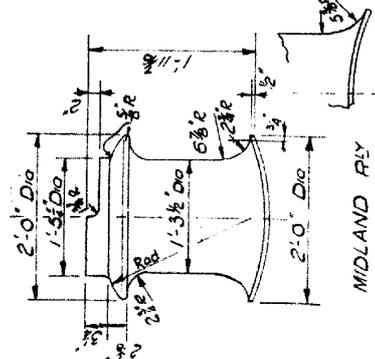
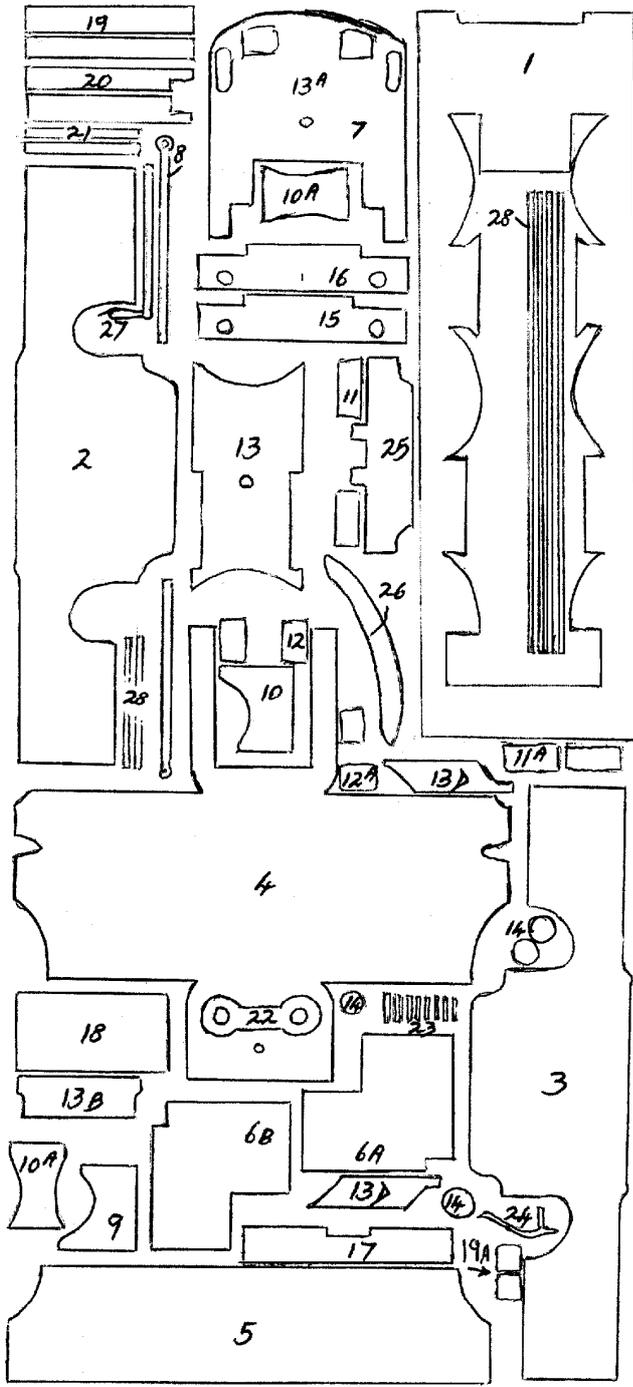
Very complicated - plain black with a few in LMS days in black lined red.

Midland: Black as stated other than the buffer beams which were vermilion with the company's armorial device on the lower cab sidesheet. The loco number was on the tender in 18" Gilt numerals with black shading.

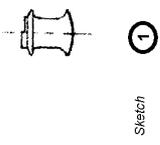
Early LMS: Again black livery with the 18" numerals on the tender. A red panel was situated on the cabside with the initials LMS in this panel.

Late LMS: Mostly plain black with a few — very few - receiving the black lined red livery. LMS on the tender side at 40" spacing - when lettering the Johnson 3,250 gal tender the 'M' should be placed off centre towards the rear just over the centre beading. Many types of numerals and lettering were used and I can but say again — refer to photographs.

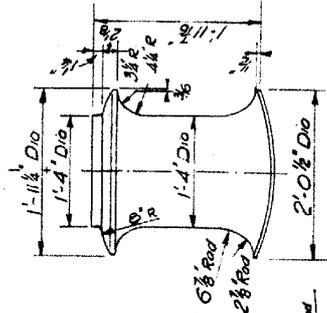
BR: Plain black with number on cabside and BR crest on tender side - again offset to the rear if centre beading in the way.



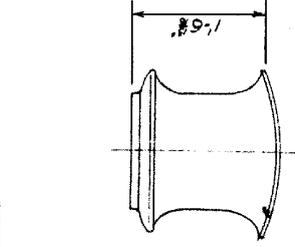
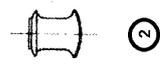
MIDLAND RLY  
"FOWLER"  
Originally fitted to - 3035-4026 (ex. M.R.)



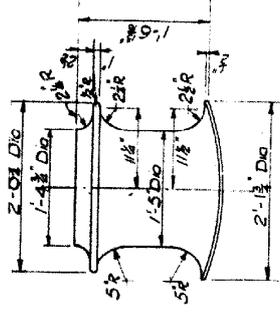
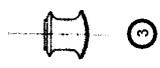
Sketch



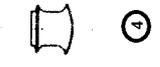
L.M.S. RLY  
"LONG STANGER"  
4562-4576



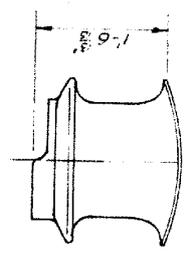
"SHORT STANGER"  
All obtained as Long. ④  
4577-4606



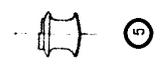
BRITISH RAILWAY  
"BARRACMENT CHIMNEY"  
FOR MIDLAND & L.M.S.  
No. of FLOWERS. (10-6-0)



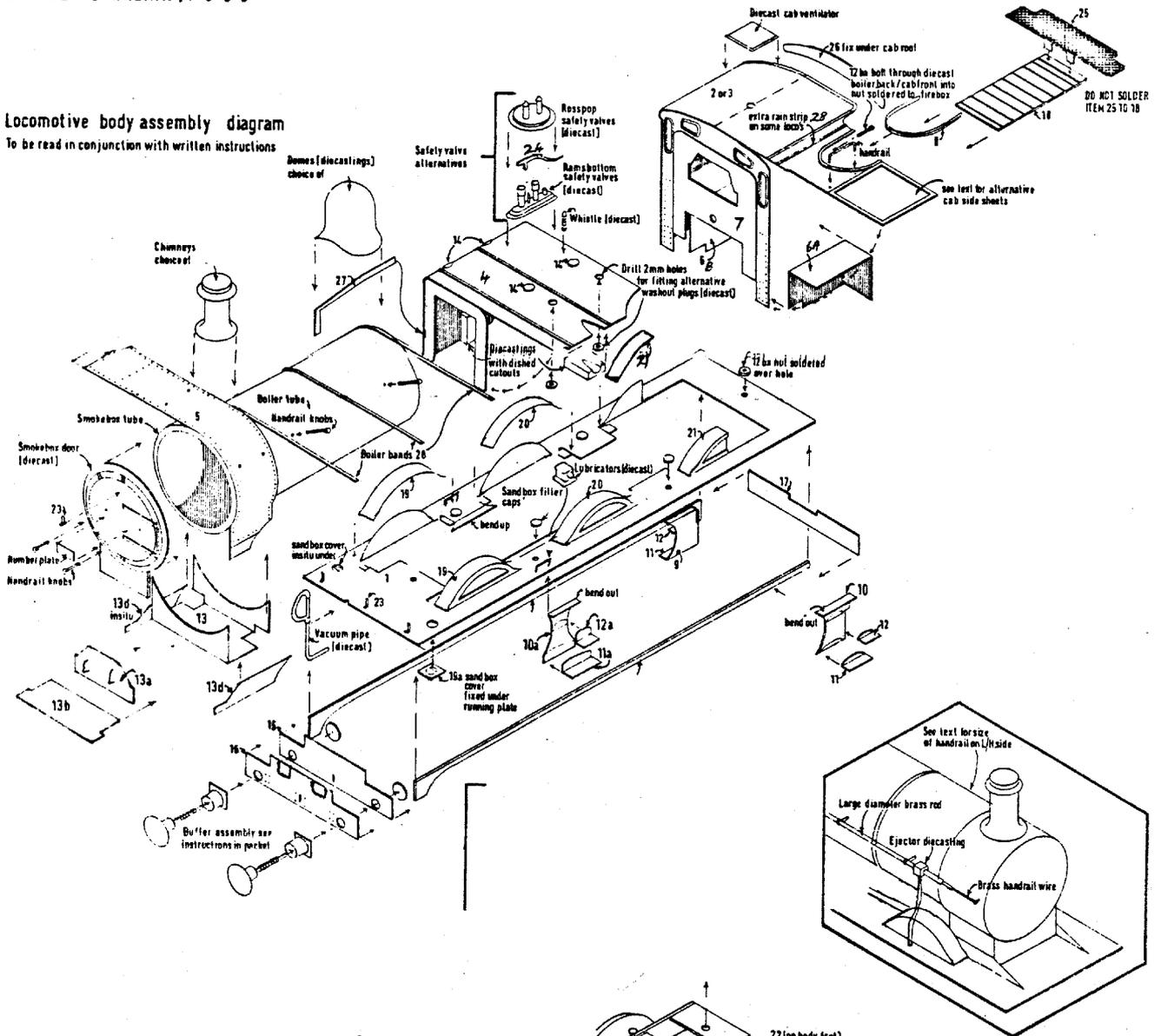
Sketch



L.M.S. RLY  
"FOWLER"  
ORIGINALLY FITTED TO  
4027-4551  
ALL OBTAINED AS MIDLAND RLY  
"FOWLER" ①



**Locomotive body assembly diagram**  
To be read in conjunction with written instructions



**ALAN GIBSON, THE BUNGALOW  
CHURCH ROAD, LINGWOOD, NORWICH, NORFOLK**

**SPRUNG HORNBLOCK CHASSIS FOR 4F LOCOMOTIVE 8'x 8'6".**

This chassis has been designed for our own 4F locomotive kit but can of course be used on a variety of other kits with the same wheelbase. It has been designed so as to use the M.G.Sharp D11 motor and 40:1 gears, driving onto the rear axle. A Portescap motor/gearbox could be used driving onto the middle axle.

**Assembly.**

Assemble the hornblocks completely according to the instructions with them and solder the frame of the horn into the cutout in the mainframe. Before doing this however it may be wise to drill the holes for the brake rigging No 76 and also holes for plunger pickups if intending to use these.

Two widths of frame spacer are supplied - the shorter one being for '00' and the longer type for 'EM' and 18.83. Secure the selected spacer to front and rear of loco body by 12BA Screws and trapping a piece of paper between the spacer and footplate. The sideframes can now be soldered to these spacers ensuring that they are upright and in line with each other — an axle layed in the bearings would help to ensure the frames are in line. Remove assembly from loco body and secure another spacer between the front and middle axles.

Pass brass rod through the holes drilled for brake gear and solder in position. Remove any protruding wire from between middle and rear axles. Fit plunger pickups if wishing to use these.

Solder 1/8" bushes into the front holes in the etched motor cradle and fold cradle per drawing. File excess of these bearings off to allow the gear an easy fit.

Assemble coupling rods again by reference to drawing and noting that complete rods pivot by means of a lap joint on the middle axle. Fluted or smooth rods can be made depending on the way round that they are fitted.

Fit driving wheels to mainframes not forgetting to locate the motor cradle and gearwheel at the same time — D11 motor drives onto the rear axle. It will be found easy to quarter the driving wheels if it is treated first as an 0—4—0 getting free running, locking these wheels right home, and then fitting the other axle and adjusting that axle until free running is obtained.

Note fit crankpin bolt to wheels before fitting wheels into the frames.

Fit motor to bracket having fitted the worm and trimmed any excess shaft off. Note the motor may need slight packing to achieve the correct gear mesh.

Place chassis- on a flat surface and adjust the front and rear hornblock screws so that no rocking can take place. Fit brake shoes to brake hangers, ensuring that you make three of each hand and fit these in turn onto the brake hanger wires in the mainframe. Secure brakes so that they are in line with but do not touch the wheel tread. Place and secure brake pull rods between opposite sides of brake hangers.

