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## LIMA Bm 4/4 CONVERSION by Graham Watson

Before the Lima Bm 4/4 was released, I had been thinking about making one, using a modified proprietary chassis as a basis. I obtained plans of the Bm 4/4 from S.B.B., who were as usual very helpful, reduced them from 'O' scale to HO (Courtesy of a friendly local printer), and selected the chassis. I was plucking up courage to make a start, when Lima released their model which seemed to nullify my efforts to date. I bought one, and whilst I was reasonably happy with it, I felt it could be improved, and started thinking back to my original ideas. The chassis I had selected was Fleischmann's DB class 212 Bo-Bo diesel (Cat. No. 4230). I've always been a fan of Fleischmann running qualities and the dimensions and wheel spacing seemed just about right, also the Bm 4/4 body was high enough to accommodate the motor at the cab end. Comparing the Lima model and the chassis, I found that apart from removing a fair bit of metal from the chassis, modification seemed fairly easy.

### Body

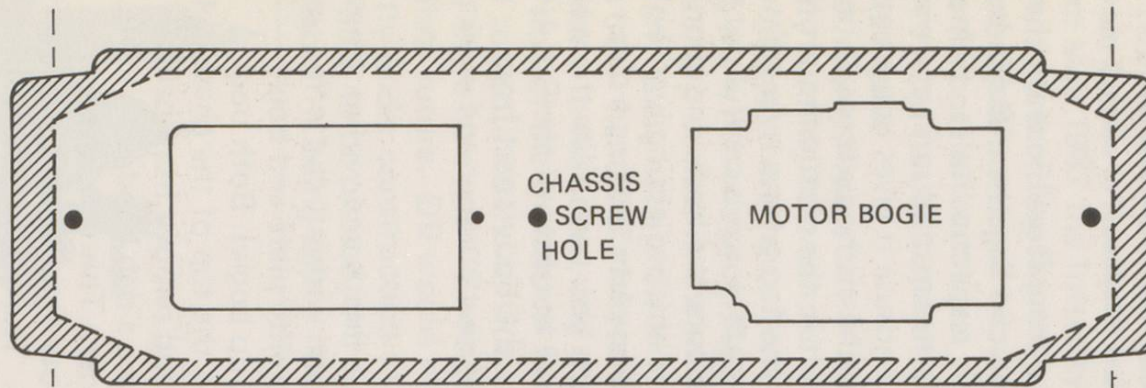
Remove body from chassis, by removing buffers and mounting screw beneath the chassis. The body and running plate are two mouldings which clip together. Begin by cementing them together and cementing the buffers into their respective holes. Some readers may wish to fill the screw holes in the chassis, re-drill, re-tap, and re-fit the metal Fleischmann buffers. If you are up to this it is a better idea because it gives one a better body/chassis securing method. It relieves strain on the single chassis/body screw if one is liable to pick up the finished loco by the body. This can result in the plastic mounting pillar parting from the body moulding after a time, particularly if you have over-tightened the screw at any time. However the earlier method will suffice if you are careful not to over-tighten the screw and to pick up the model as a whole. Once the body and running plate have set (and buffers if you choose this method) remove any projecting lugs, buffer ends, and any other knobs and lumps from beneath the running plate, leaving a clean flat surface. Although the model will now have a metal chassis you can utilise the weight mounted in the 'nose' of the DB body, by glueing it in place in the nose of the Bm 4/4 body for additional traction weight. This completes work on the body apart from replacing plastic hand rails with wire ones and the addition of new number and works plates of your choice.

### Chassis

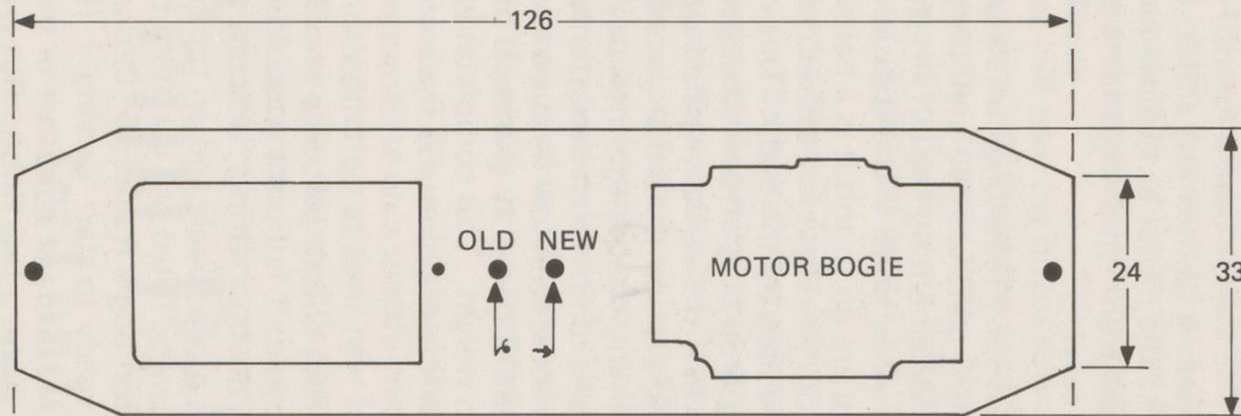
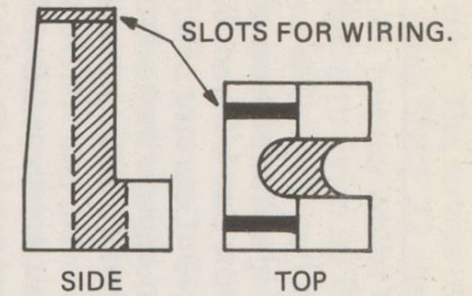
Strip this down to the bare chassis plate, by removing the lamps and wiring, (these are not required, at least I couldn't fathom a way of using them without cluttering up the shunters platforms with obvious wiring), unscrew the bakelite plate and bogie securing screws (underneath motor bogie and on top of pick-up bogie). Both bogies complete with wiring can now be lifted out carefully through the top of the chassis plate, and placed to one side. Swivel bogie frames 45° to one side and remove from below chassis plate. You are now ready to start 'carving'! If you are a dab hand with a file, all well and good, if not, like me, then use a linisher or belt sander. This does the job quickly and accurately and leaves a fine finish. But watch your fingers, things get very hot, so do it in short bursts and allow to cool down between. The sketches will show you what is required, but basically one must reduce overall width to 33mm with a chamfer at each end reducing width to 24mm. The side steps and battery box will also be reduced and the steps should virtually disappear. The main work is in reducing depth, and there is a fair bit to come off here. Aim at a completely smooth flat plate (top) with a depth of about 4mm near the battery boxes. When fitted to the body, it should tuck up nicely



TOP VIEW OF ORIGINAL CHASSIS, SHADED AREAS TO BE REMOVED.

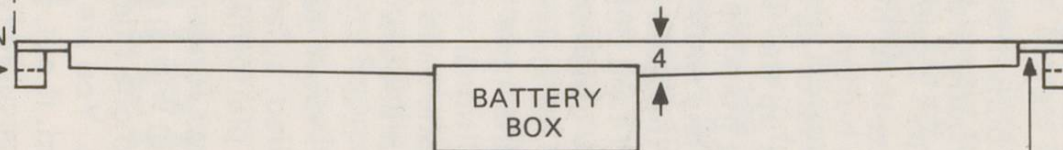


CENTRAL CHASSIS WEIGHT, SHADED AREA TO BE REMOVED, TO CLEAR CENTRAL PILLAR AND CHASSIS MOUNTING SCREW.



TOP VIEW OF MODIFIED CHASSIS.

FILL,  
RE-DRILL,  
AND TAP,  
TO FIT  
FLEISCHMANN  
BUFFERS.  
(If required).



SIDE VIEW OF MODIFIED CHASSIS.

KEEP CHECK ON THICKNESS  
AT THIS POINT WHEN REMOVING METAL.

\* ALL DIMENSIONS IN MILLIMETRES.

Drawing Author.



behind the skirt of the running plate with little visible except near the battery boxes. A new 3mm dia. hole should be drilled under the chassis for the central mounting screw, 6mm nearer the motor end, to line up with the plastic mounting pillar in the body. The central weight of the Fleischmann chassis must also be cut/filed to clear this pillar. In addition I cut two slots in the top of the weight for the motor leads to keep things tidy. The Fleischmann couplings can be used if one uses the original keeper plate from the platform assembly, trimmed and glued in place.

#### The Bogies

Grind/file down the detail on the bogie side frames, leaving a nice flat surface, but not so thin that it is likely to break easily. Remove the plastic bogie frames from the Lima model and cut away the mounting lugs on top. All you need are the side frames with the spacers at either end, this helps remount the snow ploughs. Remount the metal bogie frames to the chassis before you fit the plastic ones. This is because the extra length of the plastic side frames does not allow you to rotate the metal ones through 45° to refit. After test-fitting the plastic side frames over the reduced metal ones making adjustments if necessary, glue in place. Cut plastic card to fit over the battery box sides to represent the box lids. A coat of grey paint over chassis sides and bogie frames and that's it. You will see that you can use most of the Fleischmann chassis and its parts (apart from the lamps) and that the motor barely projects into the cab and is hardly noticeable.

I now have a Bm 4/4 that is almost silent, smooth and powerful. Although not intended for it, it will haul a fair length train around by rather steep climbing curves at the ends of my alpine layout, and is controllable down to an absolute crawl which makes shunting very easy and realistic. This was my first serious attempt at a conversion and one that I found easier than I thought and very satisfying.

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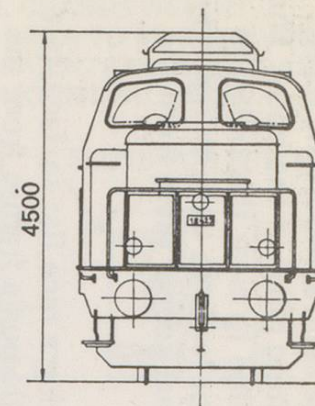
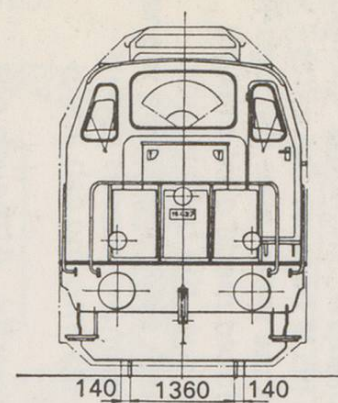
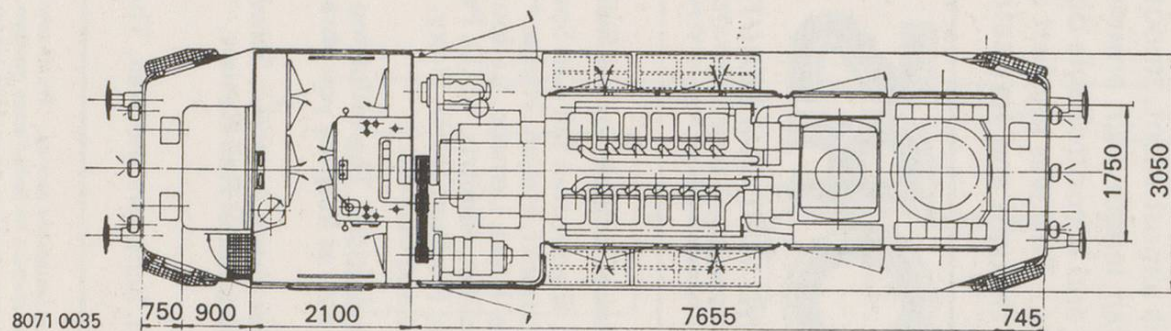
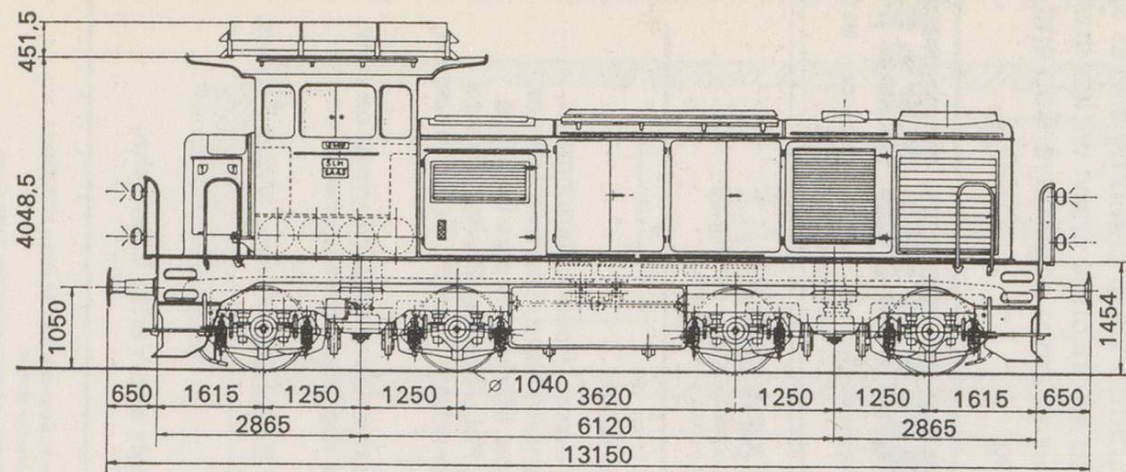
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- maximum 216 kN

*Speed*

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- one-hour 17.5 km/h
- maximum 75 km/h

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