



**LM40 Motion Set for
LM44 BR Standard Britannia
and Clan 4-6-2s, and
5MT 4-6-0**

COMET MODELS components complementing this motion set are:

Frames	LF40 (4-6-2) or LF44 (4-6-0)
Cylinders	LC5 Bogie LS4
Trailing truck	LS19 Crossheads LS9

This motion set etch is designed to fit our loco frame packs LF40 (Britannia/Clan) and LF44 (BR Standard 5). All folds should be made with the half-etch to the inside, and reinforced with solder. All parts are numbered on the etch and are identified in the instructions by the number in brackets. Where components are handed they are marked on the etch 'L' for left (nearside) and 'R' for right (offside). We recommend that all holes are drilled before you remove parts from the fret, with the exception of the coupling and connecting rods which are best drilled after assembly. Drill 0.85mm for riveted joints.

NOTE: Crossheads and pins are NOT supplied in this pack, but are available separately - COMET MODELS pack LS9.

We strongly recommend that the cylinder and motion bracket assemblies are arranged to bolt on to the frames so that everything can be stripped down and re-assembled as required, otherwise you are sure to finish up with an axle nut or whatever hidden behind the motion. A little forethought when positioning the frame spacers for chassis assembly will facilitate this.

If you wish to model the expansion link assembly as per the prototype please refer to section 9. The main instructions provide for a simplified version.

If you are building the Class 5 4-6-0 please note that the correct coupling rods are included in the frame etch LF44 and those contained in this motion set are not used.

Parts List

- | | |
|--------------------------------------|-----------------------------------|
| 1. Coupling rods (LF40 only) | 11. Eccentric rod |
| 2. Coupling rod overlays (LF40 only) | 12. Expansion link |
| 3. Connecting rods | 13. Lifting arm |
| 4. Connecting rod overlays | 14. Lifting arm links |
| 5. Slidebars | 15. Motion bracket |
| 6. Not used | 16. Offside outer motion bracket |
| 7. Union link | 17. Nearside outer motion bracket |
| 8. Combination lever | 18. Eccentric rod bearing overlay |
| 9. Valve rod | 19. Valve rod forks |
| 10. Return crank | |

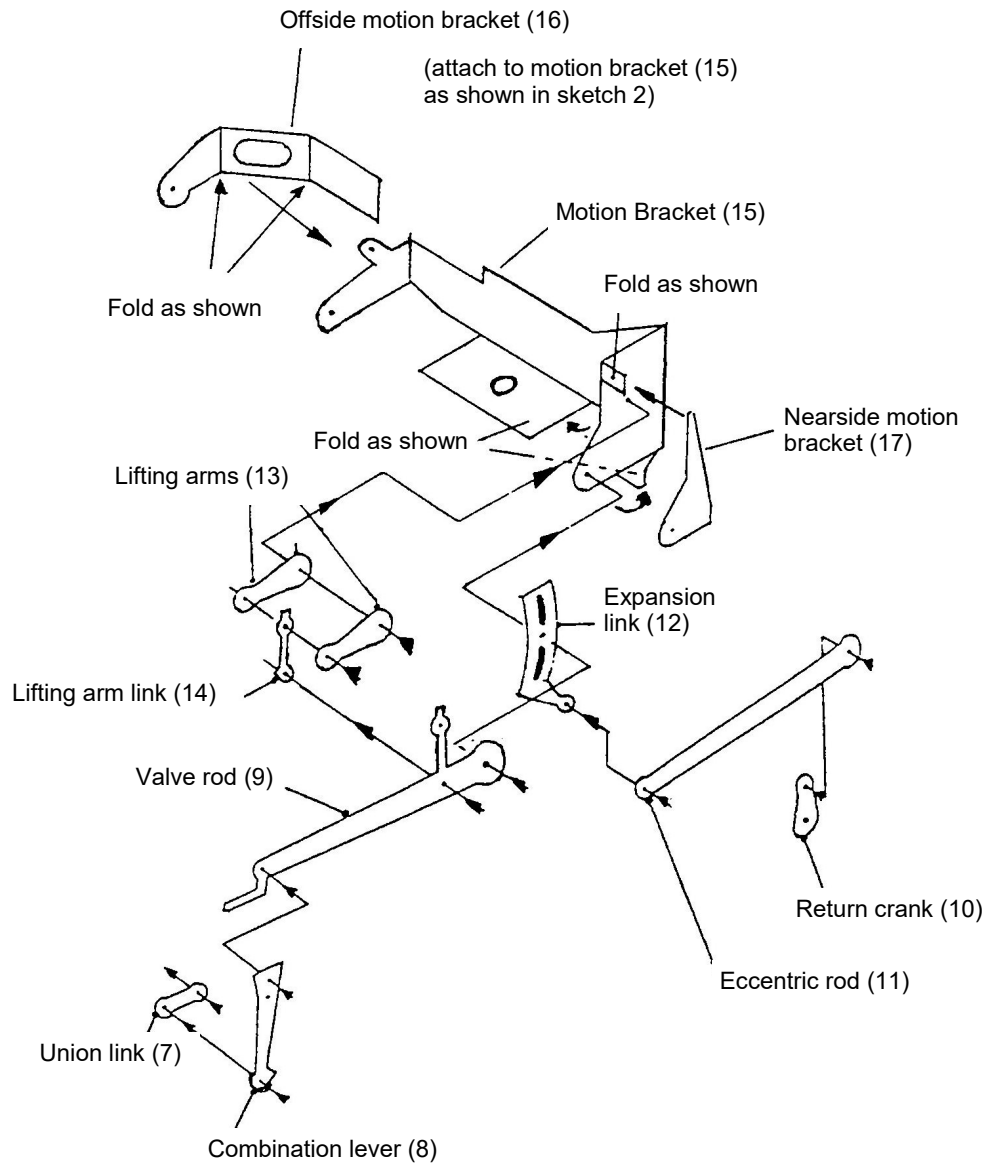
Assembly sequence

- Fix the outer coupling rod overlays (2) to the plain inner rods (1) - note the rods are handed. If you wish to articulate the rods, the inner rod should be split at the half-etched marks before assembly.
N.B. The first batch of Britannias (70000-70024) were built with fluted rods, but most had replacement plain rods fitted within a short time. However, at least five of this batch (70004/14/19/23/24) survived into the 1960s with a combination of fluted rear rod and plain front rod. The later batches (70025-70054) received plain rods from new. All the Clans were built with fluted rods but unlike the Britannias kept them until withdrawal.
- Fix the outer connecting rod overlays (4) to the plain inner rod (3). Note the rods are

handed.

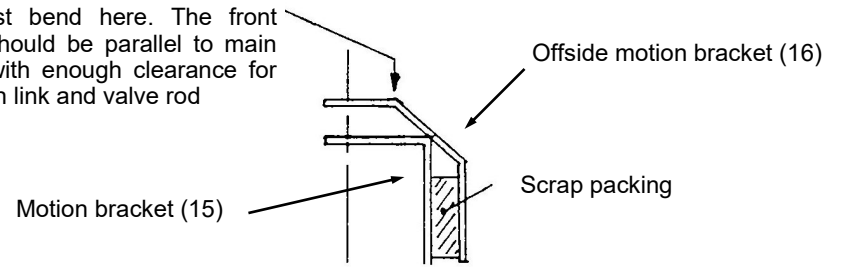
- If you wish to model the forked end of the valve rod refer to section 9. Using the rivets supplied, assemble the union link (7) to the combination lever (8) and the combination lever to the valve rod (9). Note the combination lever is outside both the union link and the valve rod. Note that the assemblies are handed.
 - Fold up the slidebars (5) as per sketch 3 and check that the crossheads are a good sliding fit, fettling as required. Assemble the connecting rods to the crosshead (pack LS9) using the plain wire in the crosshead pack as the pivot, noting that the connecting rod fits into the fork of the crosshead. Assemble the union link (7) to the outside of the crosshead drop link - insert the pin from the front, solder it to the inner face of the drop link, then cut and file flush.
 - Fit the crosshead assemblies into the slidebars and locate and solder the slidebars to the cylinders. Note the small folded tab at the front of the slidebars should be to the top.
 - Assemble the return crank (10) to the eccentric rod (11) and the eccentric rod to the expansion link (12), noting that the eccentric rod is outside both the return crank and the expansion link. If you wish to add the bearing overlay (18) you will need to make this a soldered joint using a bright plated steel pin (not supplied) inserted from the rear, soldered on the outer face of the eccentric rod, then cut and filed flush. This presents a flush surface onto which to glue the overlay.
 - Fold up the motion bracket (15) as per the sketches and fit the expansion link and valve rod assemblies using 0.7mm wire and paper washers to prevent soldering everything together. Fit the lifting arms to the bracket using 0.7mm wire, line up with the top of the lifting link and fix using 0.7mm wire. Note that the lifting arms (13) pass each side of the expansion link. You will find that assembly is made easier if you use long pieces of wire which span the full width of the motion bracket. Now fit the outer motion brackets - the nearside (17) is soldered to the two small tabs which fold out from the main bracket. The offside (16) should be folded as per the sketch using the half-etched marks on the back as a guide for fitting in place.
- NOTE:** Refer to the sketch for the nearside valve gear, but remember to transpose from left to right when assembling the offside gear.
- Assemble the motion bracket and cylinders to the frames at the same time feeding the front of the valve rods into the holes in the rear of the valve chests. Make sure the cylinder and motion assemblies are bolted securely. Place the connecting rod over the driven crankpin and fix the return crank outside this, remembering to allow a few degrees of forward lead on the return crank.
 - If you wish to model the forked end of the valve rod bend the ends of the valve rod fork (19) through 180° with the half-etched line to the outside of the bend. Feed the valve rod and valve rod fork onto a length of 0.7mm wire and solder together as per sketch 4. You should now find that the two forks of the valve rod fit each side of the expansion link, and assembly can proceed as outlined above. Separate lifting arm links (14) are also provided should you wish to represent the model in forward gear.

Sketch 1 Motion bracket / valve gear assembly

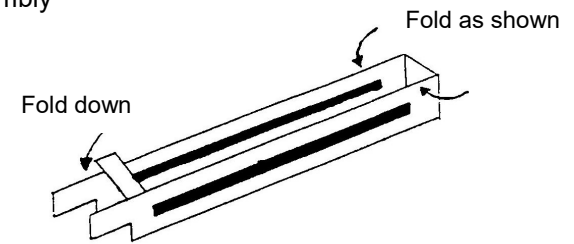


Sketch 2 Motion bracket assembly

Make first bend here. The front section should be parallel to main bracket with enough clearance for expansion link and valve rod



Sketch 3 Slidebar assembly



Sketch 4 Valve rod assembly. Section 9 only.

