
RAGSTONE MODELS

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MR/LMS 4F S7 chassis parts pack

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MR/LMS 4F chassis parts pack

About this kit

This kit is designed to provide the components to models an accurate chassis for Midland and LMS 4F 0-6-0in 33mm gauge (S7) using any 4F kit as a base. It is an addition to another kit, this is not a complete chassis kit

There are four sub-assemblies that are used as replacements for existing chassis spacers, plus some valve gear parts, principally the parts that are unique to the 4F. For full working valve gear an appropriate Stephenson's link motion valve gear kit is also required

These instructions detail how to assemble the parts, but not how to build the chassis itself as this will vary depending on the manufacturer of the loco kit being used

General

The spacers are supplied to as scale 29mm width, however for this to work successfully several other factors must be taken into consideration:

- a – The frames must be no more than 0.022" thick
- b - The hornblocks must not be too thick i.e. the Slater's type, when the bearing is hard against the back of the (33mm gauge/31.3mm b2b) wheel, are 28.3mm over hornguide faces which become the maximum frame spacing without modification to the hornblocks

In practice it has been found that reducing the width of the spacers by 0.5mm each side (to 28mm) may be a better option and improve running clearances

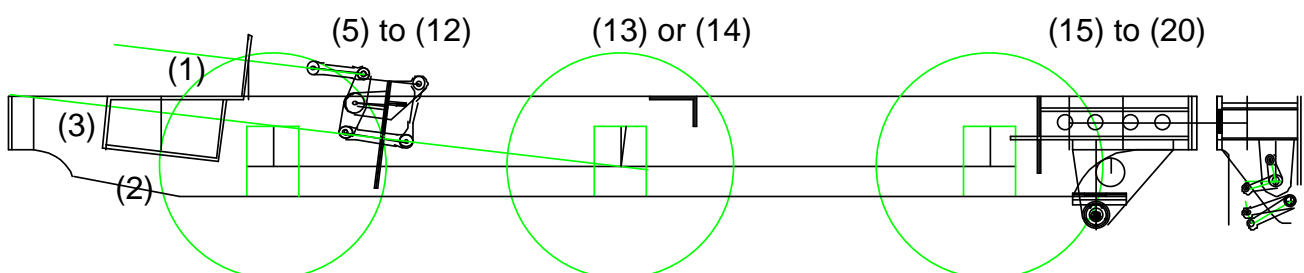
Carefully cut parts from the fret when required to avoid losing any of the very small parts (some spares are included so don't panic if there are parts left over). One released from the fret carefully clean up the tags and cusp with a fine file, this will improve the appearance (and more importantly) the fit of the parts

Detail pictures of 4F motion are available on Flickr by the 44123 group – well worth a look for anyone building a model 4F

<https://www.flickr.com/photos/4123lms/sets/72157636385320434/>

Assembly

Part location diagram



Cylinder block

1. Form rivets on cylinder block lower (2) and fold to 90 deg. Fold cylinder block upper (1) as shown in the diagram using part 2 as a guide. Once happy with the shape fix the two parts together. Form rivets and add front cover (3). Part 4 is a backing plate for the half etch valve cover of part 1 - use if required. Holes are provided to in the lower part of the block to locate draincock valves if required

Motion plate

2. Identify the front of the motion plate (5), for RHD locos, it's the side of the etch without numbers, for LHD it's the side with numbers. Fit flange (6), trapping two suspension link brackets (12) to the rear face.
3. Rivet flanges (9) and fit to motion plate (5).
4. Laminate 2x (one of each hand) rocker link bracket overlay (11) with 1x rocker link bracket (10), repeat and laminate the 2 remaining brackets (10) with the overlays (11) to give a thicker bracket. Drill 1.5mm and fit to the middle (thick bracket) and outer vertical holes in the motion plate, pointing forwards using the drill shank to ensure the holes line up
5. Add bottom flange (7), then fit draincock rod brackets (41) to the rear face of the motion plate, pointing downwards. Fit a piece of 0.9mm wire between these, with cranks, (36) outer and (37) inner, to the outside of the brackets. After assembly to the chassis, rodding can be added from under the firebox to the outer crank and from inner crank to under the cylinders
6. The top flange (8) incorporates a lubricator drive bearing, this points forward on the opposite side to the draincock brackets. Once the correct orientation is established, cut off the redundant bracket, form rivets and fold the remaining one round a piece of 0.7mm wire and secure to top of flange. The various links for the lubricator drive attach to the rod once the chassis is assembled

Intermediate spacer

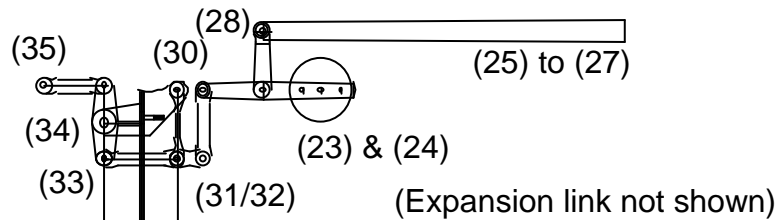
7. Part 13 is a scale height stretcher, and comes above footplate height, so might need trimming to fit between the splashers/cosmetic frames. You may wish to use the modified version (14), which fits flush with the top of the model chassis, but beware – it may foul the cranks/big ends, so careful positioning is required

Rear dragbox

8. Prepare parts 15/16/17/18, form rivets on 16 and check all slots are a clean fit. Slot parts 16 & 17, then fit parts 18. Top plate 15 locks the parts together, ensure it is square and apply solder to joints.
9. Fold and form flange on 19, this fits in the two slots in 18, folded flange to front. Add bearing detail 20 to holes on trunnion 18
10. Use rear holes in 15/16 for drawbar, laminate two 21 or 22 and fit with a screw/nut soldered to 15 or a pin soldered to both parts (the forward holes are the actual pivot point, but totally inaccessible should you need to remove the drawbar)

Motion

Parts fitted to
Motion plate (5-12)



11. Fit two reverser shaft balance weights (23) and balance weight overlay (24) each side to two small pieces of 0.9mm wire through the holes, ensure all parts are in line and solder. Clean up edges and file the wire so it protrude by about 0.5mm each side. These two parts fit on a 1.5mm shaft, 10.5mm apart. Lifting links 31 & 32 fit between them with a piece of 0.9mm wire through the front holes, one link fits each side of your chosen expansion link, part 32 with lubricator drive being fitted to the appropriate side
12. Fold and fit reverser rod front fork (26) to inside (side with half etch line) of reverser rod (25), add rear section overlay to outside rear, but only fix forward of the half etch line as the material to the rear should be removed to create a stepped overlay between parts 25 & 27
13. Laminate reverser arm (28) and form a sight crank in this part. Steam reverser link (29) replaces the reverser rod (parts 25-27) if building locos 3835/6
14. Laminate 2x suspension link (30), 2x rocker link (34), fit two large washers (42) to each side and clean up edges. Ensure the link is a smooth fit between the brackets on the front of the motion plate
15. Laminate 2x valve drive link (33), these should be forked at both ends so that the front fits the rocker link and the rear fits your chosen expansion link
16. Top valve link (35), should be forked at the end with bosses each side (fits to top of rocker link), the end with only one boss fits to the end of the valve spindle rod (not included), boss facing outwards
17. Repeat steps 14 -16 to create a second set of parts
18. Assemble links as per diagram, noting that both the rocker link and drive link only have bosses one side, this is to step the linkage outwards to compensate for the difference between the valve centres an expansion link centres. The rocker link has the boss facing outward at the top. Fit assembled parts to motion plate with 1.5mm wire through the rocker links, with Suspension links (30) located on a piece of wire threaded between the rear facing brackets on the motion plate, one each side. To make them removable, use a piece of PVC cable sheath that is a tight fit on the wire between them

Lubricator drive

19. Lubricator drive rod – main (38) fits between the lubricator drive lifting link (32) and a crank (36) fitted on the rocker shaft (0.7mm wire) fitted in the bearing on the top of the motion plate,
20. Lubricator drive rod – short (39)(one lubricator) & lubricator drive rod – long (40) (for 2nd lubricator if fitted) are fitted to short cranks 37 on the outer end of the rocker shaft, to the rear of the lubricator(s)

Parts List

Etch

- | | | | |
|----|---|----|---------------------------------------|
| 1 | Cylinder block - upper | 23 | Reverser shaft balance weight |
| 2 | Cylinder block - lower | 24 | Reverser shaft balance weight overlay |
| 3 | Cylinder block - front overlay | 25 | Reverser rod |
| 4 | Valve cover support plate | 26 | Reverser rod front fork |
| 5 | Motion plate | 27 | Reverser rod rear section |
| 6 | Motion plate - middle flange | 28 | Reverser arm |
| 7 | Motion plate - top flange | 29 | Steam reverser link |
| 8 | Motion plate - bottom flange | 30 | Suspension link |
| 9 | Motion plate - side flange | 31 | Lifting link |
| 10 | Rocker link bracket | 32 | Lifting link with lubricator drive |
| 11 | Rocker link bracket - overlay | 33 | Valve drive link |
| 12 | Suspension link bracket | 34 | Rocker link |
| 13 | Frame stiffener | 35 | Top valve link |
| 14 | Frame stiffener (modified for 7mm) | 36 | Drive crank - long |
| 15 | Rear dragbox - top plate | 37 | Drive crank - short |
| 16 | Rear dragbox - bottom plate | 38 | Lubricator drive rod - main |
| 17 | Rear dragbox - front plate | 39 | Lubricator drive rod - short |
| 18 | Rear dragbox stiffener & brake trunnion | 40 | Lubricator drive rod - long |
| 19 | Brake trunnion stiffener plate | 41 | Cylinder cock rod bracket |
| 20 | Brake shaft bearing overlay | 42 | Large washer |
| 21 | Drawbar - scale | 43 | Small washer |
| 22 | Drawbar - scale +2.67mm | | |

