GENERIC TENDER CHASSIS – 13’ & 15’ WHEELBASE

These chassis may be used as scratch building aids or alternatively to convert proprietary tenders to 2FS. Some possible uses are:

13’ Chassis

- LMS Fowler-style (Crab, 4F, 4P)
- LMS Ivatt 2-6-0 64xx
- SR N
- SR Schools
- SR Bulleid (all designs except the 6,000-gall MN tenders, modelled by Farish, that were built for 35021-35030 with 7’4 + 7’0 wheelbase)
- Both BR-2 variants (76xxx)

15’ Chassis

- LMS Stanier (Black 5, Jubilee, Royal Scot, 8F, Duchess) (some of these Farish models have tender-drive as manufactured but might be converted differently)
- GWR 6-wheel 2,500-gallon (?), 3,000-gallon, 3,500-gallon, and 4,000-gallon

The chassis can be built in either of two ways, either using the separate spacers supplied in the kit, or folding the chassis into a 'U' channel and soldering Association 7mm wide PCB inside the chassis frames.

TOOLS NEEDED

- Cutting board or similar hard surfaced block
- Craft knife
- Needle file
- Broach
- Wet and dry paper
- Glass fibre brush
- Soldering iron
- Solder
- Flux
- Frame assembly jig

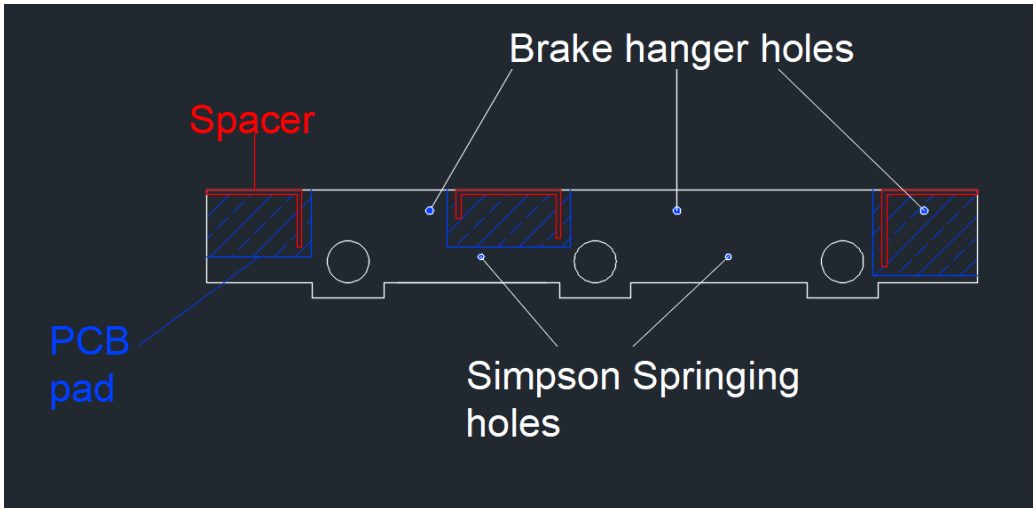
INITIAL PREPARATION

1. Place the fret on a cutting block or hard surface and cut through the tabs holding the chassis unit in place. Clean up the remains of the tabs with a needle file.
2. Open out the six axle holes with a broach until an Association bearing can just be fitted in the hole.
3. With the chassis unit laid flat, fold lines uppermost, solder bearings into each of the six holes. Check that each bearing is fully seated down against the frame. The bearings should protrude slightly on the other side of the frames. You can file the bearing flush with what will be the outside of the frame if you wish to increase the sideplay of each wheel set in the frames.
4. Rinse the chassis assembly in clean water to remove any flux and remove excess solder by scraping with e.g., old knife blades and a glass fibre brush.

5. Drill through the half etched holes for the brake hanger rod and 'Simpson' springing.

SEPARATE SPACER ASSEMBLY

1. Remove the spacers in the middle of the chassis assembly by bending the frames back and forth at the fold lines until the metal snaps. Clean up any rough edges along the top of the two frames.
2. Remove the separate spacers numbered 1, 2, 3 from the fret and remove any traces of the tabs from the edges.
3. Form right angle bends in the spacers at the fold lines.
4. Cut out pads of 0.25mm double-sided pcb slightly larger than the 'L' of the spacers. You will need two pads of approximately equal size for each spacer.
5. Tin the pads and solder them to the frames.
6. Solder the spacers onto the pads on one of the frames, checking the spacers are at right angles to the pads.
7. Mount the frames onto a frame assembly jig and solder the second frame to the other side of the spacers.
8. Rinse in water, remove any excess solder and test that each spacer is electrically isolated from both frames.



FOLD UP ASSEMBLY

1. Fold the two sides of the chassis at right angles to the central sections.
2. Mount the frames on a frame assembly jig to ensure the axle holes are kept in alignment, then solder lengths of 7mm wide PCB over the central sections of the chassis.
3. Cut gaps in the central sections of the chassis and the underside of the PCB to maintain electrical isolation between the two frames.
4. Consider grinding away part of the PCB spacer that covers the right-hand brake hanger holes so you can attach 'L-shaped' rod to the inside of the frames.

FINAL ASSEMBLY

1. Work out where you need holes for fixing screws, and drill through the appropriate half etched holes in the middle sections of the chassis or the separate spacers.
2. To attach the brake hangers, open out the holes in the frames and solder 'L-shaped' lengths of 0.3mm nickel silver rod through the holes and along the inside of the frames. At least 2mm of the rod should protrude outside the frames. Note that you would need to

electrically isolate the area around the rod that passes through the thin PCB pad if you used separate spacers. For the fold up method, you will need to drill into the side of the equivalent 7mm PCB and solder a short length of rod into the frame at the outside face. This may sound a bit complicated, but it should be self-evident what you need to do when you actually start this stage.

3. Holes are provided for 'Simpson' springing as indicated in the diagram above.
4. Solder the brake shoes to the hangers provided or use a different pattern of your choice.
5. Fit all six tender wheels to the chassis and then solder the brake hanger assemblies onto the brake hanger rods, with the brakes in line with the wheel tread.
6. Trim the rod almost level with the brake hanger.
7. A rudimentary draw-bar is included on the etch and you will need to decide whether and how to use this as opposed to some other method.

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