

Frets designed March 2010 – Ian M. White

These are scratch builder parts. The following notes indicate how I expect to use the parts to construct Craven No 167 0-4-2ST, and Craven No. 175 2-4-0. Parts that are easily cut from thin brass are not included, e.g. most cab side sheets are simple rectangles (use 10 thou brass sheet), and the main saddle tank wrapper for 167 should be formed from 5 thou brass.

Chassis frame spacers will need to be acquired, e.g. as swaps of unwanted kit parts with those modelling different gauges (carefully file the tabs off). Frame spacers that already lack tabs are sold by Gibson (items LM1-00, LM1-EM, LM1-S4); also 00 and EM by Comet (these are also sold via Mainly Trains as items COLS15, COLS10).

The footplates of both models require bending. An appropriate allowance of length has been made but only the actual application of the frets will confirm if that is correct. Hopefully neither footplate will need any splicing to fit.

No. 167 (also suitable for No. 166, and helpful for Nos. 164/5)

Bennett wrote:

Nos. 164 and 165 had spring balances on the domes when built. The splashers were edged with brass, and the part between the brass painted green, which was an innovation, red having hitherto been the invariable colour. Although said to have been built for the Crystal Palace traffic they were rarely seen on that route, the Croydons being their more usual objectives.

Nos. 166 and 167. When built these engines had copper-topped, bell-mouth chimneys, which also had bases of bright copper, the middle portion only being the usual black. They also had spring balances on the domes, which were shaped as in Fig. 51A, and taller safety-valve pillars. No. 166 worked on the South London Line and to East Croydon chiefly, also doing shunting at London Bridge when the usual engine was off. No. 167 worked on the Tunbridge Wells branch from Three Bridges.

Photos:

- None of 166/167
- Hamilton-Ellis LB&SCR plate opposite page 65 for No. 364 (ex 165)
- Bradley Fig. 61 for same photo of No. 364 but tender lost due to being cropped

Drawings:

- LB&SCR No. 1021 (in NRM) for No. 166; shows very unusual smoke box door
- LB&SCR No. 1025 (in NRM) for coloured cross section of No. 167, showing conventional smoke box door (except that it was hinged on left).
- Burt Fig. 64 (better reproduced as Bradley fig. 62) of No. 166
- Burt Fig. 63 (better reproduced as Bradley fig. 60) of No. 164

Nickel Silver fret:

- Frames include slots of axle width for driven axles; cut-out for horn-guides for trailing axle.
- I intend to run driven axles in a pair of rocking beams (No. 1 on fret), one each side of the motor (driving middle axle); the holes should take top-hats filed back

flush; the beams rock on a pivot that is common with the brake hanger position; fit small-bore tube onto the brake hanger wire.

- The two parts numbered “2” are to help get the trailing axle fitted correctly; holes to be placed over the taper of a jig-axle or 2mm rod.
- I intend to use W&T wheels (Mainly Trains have them); 5ft drivers have 17 spokes; 4ft have 12 spokes. Drawings indicate the loco should have 20 spoke drivers and 16 spoke trailing (but a photo of 164/5 shows only 18 and 12 spokes).
- W&T wheels take Romford axles and crankpins; coupling rods designed for Romford crankpins.
- The footplate will need careful bending to get the small raised areas looking right (the “rise” is only 1mm); part numbers 5 is the narrow valance, with a large strip of “scrap” attached by a half-etched line. Firstly, solder on the extra layer to make the valance double thickness. You may want to weaken the half-etched line by scribing it or drilling small holes in it, to ensure that the “scrap” can later be broken off without damage to the valance or footplate. The “scrap” areas on each side can either be braced across with further scrap metal, or fixed to the sides of a careful dimensioned block of wood.
- Steps (parts 6) fold and fit into half-etched slot in outside frame.
- If modelling Nos. 164/5, half-etched lines on rear of inside and outside frames need to be cut; else run solder into these to stiffen.
- The outside frames are set in relative to the footplate valance (the GA shows the spring hangers pass between these parts).
- Part 4 is the brake wheel; small half etched circle marks position where a vertical handle needs to be fixed. Part 3 is brake crank.
- Cylinder covers (part 7); a disc to be fixed to the front of 5mm tube/rod to represent the cylinders. The discs are 7mm in diameter; too large to fit between 00 frames; alternative 5mm discs can be found on the brass fret, next to parts 4. These front plates appear to have had a flat on one side to fit against the frames; file as required. A recess will also have to be cut into the bottom of the smoke-box wing plate; a half etched area is provided, some or all of which should be removed; for 00 only remove 11mm wide of this; P4 all of it (and possibly need to file back even more).

Brass fret:

- Three layers of open splasher side-sheeting are provided. Part 1 is the base layer; part 2 is a half etch that includes the polished brass beading; part 3 provides separate brass beading; use either parts 1+2, parts 1+3, or parts 1+2+3 according to what looks right (all three may be too thick for P4 given how close the wheel will be). It may be possible to add part 3 after the model has been painted?
- The saddle tank has a rather odd shape. Parts 4 are formers around which I plan to wrap 5 thou brass sheet (the row of rivets along the back edge can be formed into this first or added later using the provided strip of rivets); the wrap circumference has been estimated as 42mm (likely to be a bit over that so test using a strip of scrap at least 45mm long). The boiler to be formed of tube (I have some that is 16.6mm; I think it is K&S No. 144, 21/32”); smoke box of 18mm tube (Eileens); firebox was flush to boiler. Prepare boiler/smoke box tubes, then cut slits into which 4 of parts 4 can be fitted; position these so they will not conflict with dome etc positioning; DO NOT solder them in place.
- Use 2mm and 1mm rods/tubes through the holes in the plates (parts 4); fit 5th plate at immediately inside front end positions of boiler; fit 6th plate a short way

forward of rear position of tank plates so that spectacle plate can be set in as shown in drawing; solder the rods to the plates. The tank assembly is then to be removed from the boiler tube, and the 5 thou brass wrapper formed around it.

- Check how motor is to be fitted; some plates may need lower edge cut outs to clear motor.
- Half etched over-wrappers (50mm long) are provided to solder over the first wrapper; note that each is a different width (check against drawing); may be best to cut back excess length after fixing.
- Spectacle plate is provided with a half-etched area to fit against end of boiler/tank assembly, but note that it should be fixed just in front of rear end of tank; rivet strip runs behind the spectacle plate.
- If using rivet strip: add it behind spectacle plate.
- Smoke box wing plate; see notes under part 6 on NS fret above.
- Splasher tops need strip brass; 2.6mm wide to be in-scale. The strip of brass along the lower edge of the fret is 2.6mm wide.
- Note that the smoke box door was fitted with the hinge to the left in No. 167; No 166 had an almost triangular smoke box door; No. 167 a round door.
- Within the footplate I have placed a pair of almost triangular parts, each with a curved top; these fit either side of the cylinder front plate, to the front of the sand box (use a sand box casting from 5&9 Models, or fabricate from brass or plastic). This rear part (behind front plate) should continue to taper down across the entire bottom side of the smoke box; that extension behind and to the rear of the sandbox will have to be fabricated from sheet (no space left to include and it is not clear how to fit it anyway as it implies the lower edge of the smokebox is not horizontal).

No. 175 (some parts probably also helpful for other 2-4-0s of the period)

Photos:

- Side-view of No. 175 known from private collections

Drawings:

- LBSCR Drawing 1026 (in NRM) shows coloured cross section
- Burt Figs 70, 71, are of similar locos and formed the basis of the frets

Needs a Craven tender with tall open frame cut-outs and a Stroudley-type toolbox at rear.

Nickel Silver fret:

- Frames are designed for a fixed rear axle; motor drives this via London Road 50:1 gear box with drive extender.
- Slots for horn guides on other axles; use coupling rods plus jig axles to fix guides of other driven axle; part 2 can be used to get correct spacing of trailing axle from front driven axle.
- Coupling rods designed for Gibson crank pins; plan to use Gibson wheels; compensation beam (parts 1 – solder two parts together for strength) allows for use of a 4' 1.5" trailing wheel in place of correct 4ft wheel.
- This fret includes the centre splasher side-sheet and the structural layer of the smoke box wing plate.
- Larger springs for trailing axle.

- Part 3 folds to form the “prop” between the footplate and the firebox; Burt (figs 70, 71) show this fits in front of cab side sheet. Some modification may be needed to get this looking “right”.
- Smoke box wing plate and spectacle plate shaped as per photo of what may be No. 175 at Uckfield (Marx-Minnis Album page 15).

Brass fret:

- I plan using 16.6mm (KS144) tube for boiler; the smokebox will be packed to near 18mm (including half etched wrapper on brass fret); the firebox should be near 18.5mm diameter.
- The footplate has half-etched areas across it either side of the centre wheels; these should be left to help stiffen plate while being shaped over outside frames, then removed.
- Set outside frames 24mm apart.
- I plan to use a smoke box door that is 15.5mm diameter.
- Part 1. This does not appear on drawings of similar locos but it is apparent in many photos of 2-4-0s (immediately in front of the sand box) and there is some indication of it in the side-on photo of No. 175.
- Boiler pipe work should be as Burt fig. 70 (not fig. 71).
- The top small overlays for the outside frames are all paired; the middle and rear ones differ very slightly (blame Burt) so ensure the spring hanger holes align properly; if they do not you are using the wrong overlays.