RTBS
Bar Stretcher
(Generic notes)

AMBIS Engineering — Moving Modelling closer to the prototype in operation and appearance.

There is virtually no difference between the 7mm: 1 ft scale and the 4mm :1 ft scale item- except the size of the parts. There are 28 stretchers in one 4mm pack and 16 stretcher parts in the 7mm pack.

We expect these stretcher ends to be fixed to the switch blade with solder or perhaps glue. The ends should fit in the "web" or thinner section of rail and may even be bent to pass over a flat-bottom rail foot. It is unlikely that they will foul a passing wheeled, but care should be taken not to make them too prominent.

There were several different designs used by the prototype, notable a two bolt or one bolt fixing to the switch blade. These alternatives are provided on each stretcher end, please remove the version you do not want before folding up these stretcher ends.

Half the stretcher ends have long connecting tabs which can be folded in place or removed if not required. If required they should be folded over first before further shaping occurs.

- This fold is in the reverse to normal direction, the part etched line is to the outside of the fold is this tab is to be within the stretcher end - folding to the outside makes it more difficult to shape the end.

To complete the stretcher end shape it is best to use two pairs of pliers (or equivalent). One to hold a side of the part, the other to twist it to shape.

Making a stretcher end, (left to right) remove from fret, then remove unwanted "bolt" overlay; twist and fold up ends, then fold over the halves OUTSIDE the etched area; fold over the "bolt" overlay. The last item shows the connector tabs projecting outwards.

See the included photograph of the stages in shaping the stretcher end. Basically the sideways projecting end is twisted toward the other half of the etching, then it should be bent upwards by 90 degrees.

When both sides have been shaped fold them together IN REVERSE to normal etched folding conventions, that is the etched side should face outwards. The gap between both sides is for an insulated centre to the stretcher (Not supplied) to be grasped by the etching.

The two projecting tabs should be touching each other, then the "bolt" overlay folded over these halves. These may be soldered/glued together at this stage, but we would leave this until it is attached to the switch rail.

A final shaping is to fit the etched part into the rail web - the bend required depends on the rail section - it maybe the rail is almost flat. A small etched "dot" in the parts are there to aid this last bend. You could use a small length of "scrap" rail to shape it against.

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A point switch on a preserved railway, the second stretcher bar is missing but the bolt hole for it is just visible. The stretcher end can be seen below the nearside stock rail

If connecting the stretcher to an operating rod, twist the projecting ends through 90 degrees leaving a gap for the rod connector and add the rod connector - it will be difficult to reach once the stretcher is in position.

Lastly fix this stretcher end to the switch blade, ensuring the centre section of the stretcher bar fits between the folded together sides. The ends of the centre section will not be very deep, but between these ends it may be of almost any depth, possibly right through the baseboard and used to move the switch blades, though this is not something we would recommend.

Set the switch blades in position (use a jig to set clearances) and fix the centre part to complete the stretcher bar. It is normal practice to fix a second stretcher bar 3 feet (12mm in 4mm:1 ft scale, 21mm in 7mm:1ft scale) from the first stretcher.

It is very unlikely anyone will normally notice if the stretcher bar is very deep, though the deeper it is the larger clearance slot will be needed for it. This could be deep enough to pass through a baseboard, or it maybe shallow, we suggest not much less than 1.5mm.

We use a fibre-glass doubled side PCB, with insulating slots filed in both sides of the bar, and staggered along the length. For safety check this is insulated before fitting as fine copper strands can easily bridge any gap or the sides (top or bottom) of the stretcher.

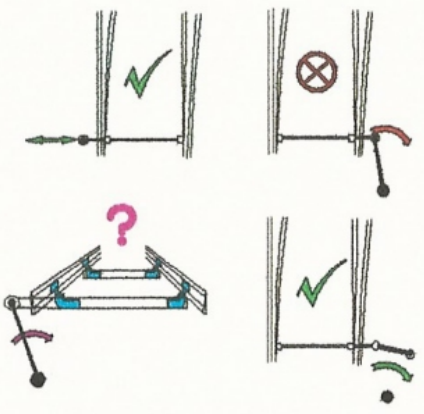
Incidently it is fairly easy to use tin snips to cut 0.5mm PCB, though it will curl it can be straightened before use. If you use any kind of saw it will turn a significant part of the PCB to dust. Also fibre-glass PCB has a grain, so cut stretchers along and not across the grain.

The fibre-glass PCB is best kept under tension, not compression, so fit the switch blades "sprung" against the stock rails not bent towards the track centre line. A switch blade should move easily otherwise it requires too high a level of force to move and will more quickly stress and break any stretcher.

Do not work these stretchers by using a direct radial movement as this will weaken them and they will quickly fracture, usually at the insulation gap(s).

A common issue with hand made points is that the switch blades rise up above the stock rail head. The usual method to avoid this is to extend the "tie bar" under the stock rails. This should be done with the PCB such that it never ends within the track gauge, obviously the smaller the switch blade movement the shorter the overlap of the stretcher. Also the smaller the movement the easier to operate the point and there is less stress on any joints in the stretcher.

The downside could be derailments if gauges are not kept within guage tolerances.



Suggested ways of moving the stretchers and methods that will not work.