BRIDGE CONSTRUCTION FOR LITTLE BYTHAM

Overview and some of the techniques used

Part 3 – Supplement

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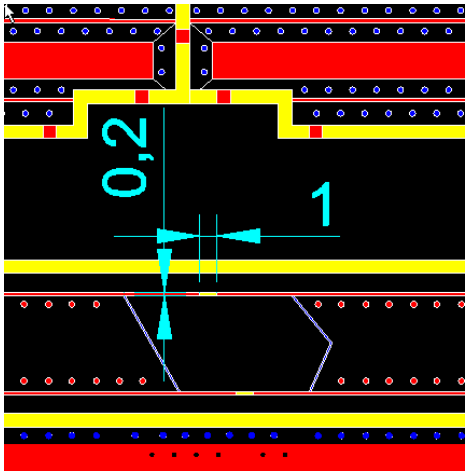
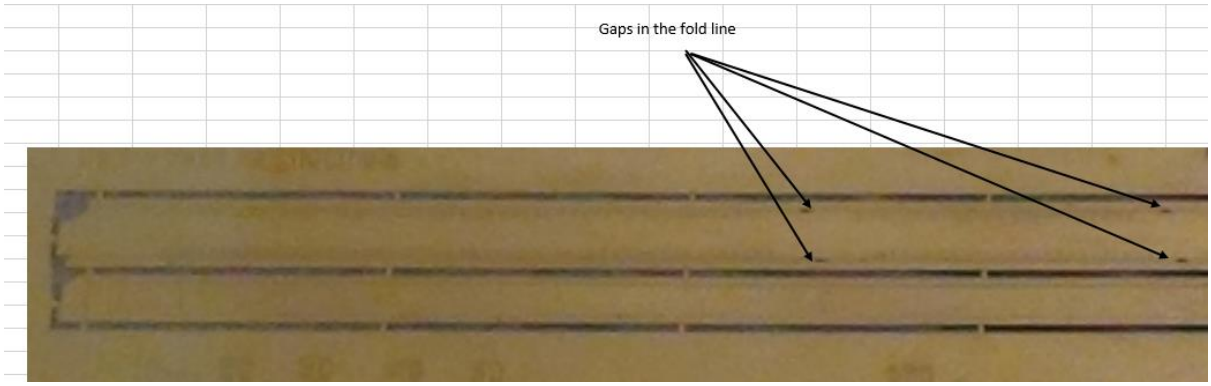
As mentioned in Part 1, a few test pieces were included on the additional photoetch which hopefully would aid the design and construction of future bridge (or other) projects.

This included gaps in the fold line so that the narrow beam flanges with a length of 385mm could more easily folded via sections without beam distortion. In addition, the fold line width for the half etch was set at 0.2mm (same as the material thickness).





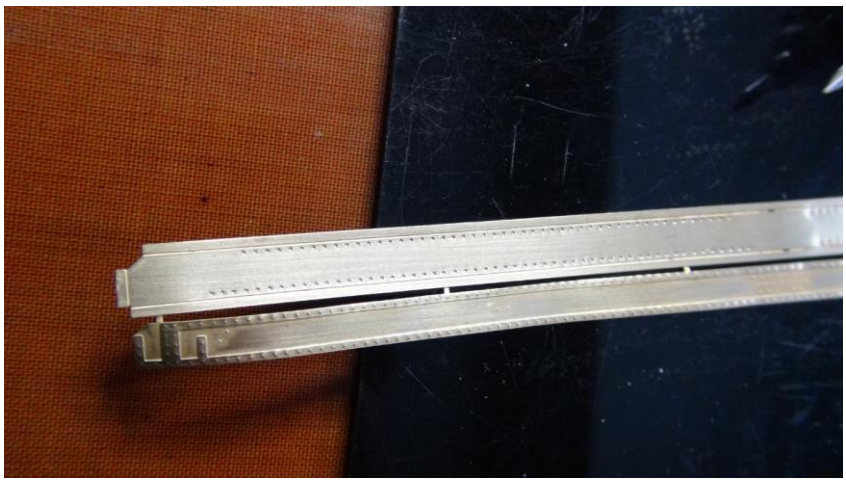
Before the folding could be done, cutting from the photoetch and rivet punching had to be done.

Lots of rivets which causes a great deal of curl in the brass.

TIP: If the rivets are primarily either on the front face or the back face of the photoetch then alternate their position on the layout to balance the curl. And, keep each piece attached as long as possible whist riveting.

As can be seen below, the two parts of each beam are attached during riveting. This is a change to the original bridge construction which had each of the beams in one piece. The change enables

additional layers to be formed with flange and rivet detail on the font, and witness lines (for flitch plate positioning) and rivet detail on the back of the beam.



Once the two parts are separated we get the excessive curl, especially on the inlay part which is mostly half etched to 0.1mm thickness.

Then, another trial. Having spent so much time on punching the rivets, it would be a shame to partly flatten them by using a steel rolling bar to counter the curl.

So a piece of 5mm diameter Balsa wood dowel was rolled over a foam bed to gently recover the shape. It was successful but has not been tried on thicker materials.

Folding next. The gaps in the fold line made folding so much easier and even though the beam was shuffled along its' length (the Hold n Fold' is shorter), there was no distortion.

Once the beam flanges are formed the inlay can be set in place, but first a test fit.

Soldering. First tinning of the beam and the inlay.

Resistance soldering

Note the small magnets holding the inlay in place. On this occasion the ceramic tipped tweezers are used edge on (not the tips) to hold the inlay down at the position of the probe contact. This was done with such thin material as using the probe to hold the inlay down would leave a small indentation. The probe position is progressively moved along the beam length.

The finished beam, showing front and back detail.