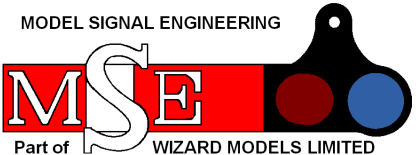
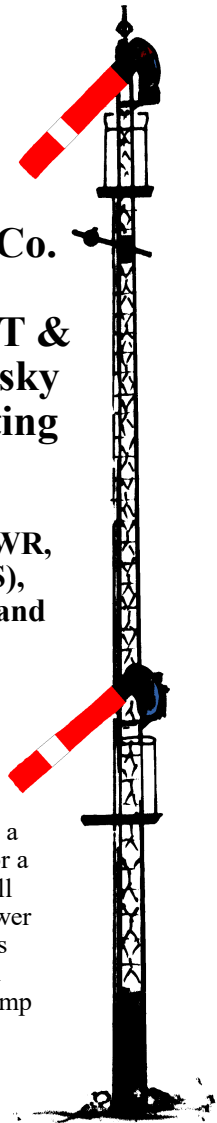


MODEL SIGNAL ENGINEERING



Part of WIZARD MODELS LIMITED  
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SCALE	CODE	
4 mm	S0023	



## STEVENS & Co. 45' LATTICE SIGNAL POST & LADDER for sky arms & co-acting signals

As used by the LSWR,  
LC&DR, SR, BR(S),  
NBR, CR, GSWR and  
overseas railways

Note: this pack contains a post and ladder only. For a complete signal, you will need: an arm (S0011 lower quadrant or S0012 series upper quadrant); a finial (SC002/13/17); and a lamp (SC001/6/11/25).

Stevens & Co. supplied lattice posts to many pre-grouping companies, most notably those shown above. The SR also used them, until the switch to rail-built posts in the mid-1930s. They were also found in lesser numbers on the NER, LNWR, SECR, LYR, and the CLC, with the odd one or two on the GWR.

Posts of such height were used when it was desired to provide a sky background for sighting, or for visibility above a bridge or around a curve. Often, particularly for starter signals, the arm is repeated down the post at the driver's eye level as it would be impossible to see the lamp or position of the top arm. The arms work simultaneously from one signal box lever and are termed co-acting.

### ASSEMBLY INSTRUCTIONS

#### General:

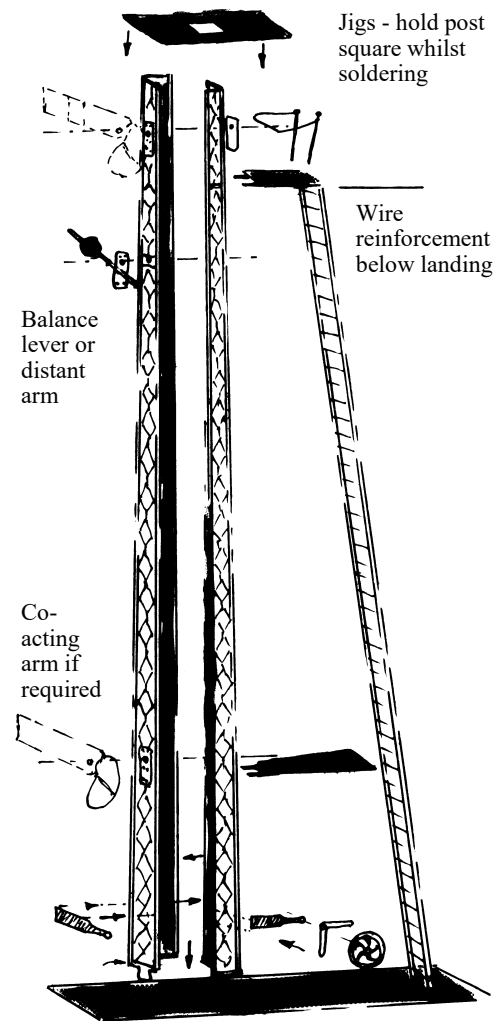
You will need a 25-50W soldering iron or resistance soldering unit, 188° solder and flux, minidrill and slitting disc, various files, pliers, drills etc., and tinsnips and small scissors for cutting out the frets. In these instructions left- and right-hand mean as viewed from the front of the signal. A selection of prototype photographs will help.

Burnish both sides of the fret before removing any parts. It may help to tin some of the smaller parts before removal. Grip the smaller parts in smooth pliers when filing off tags to avoid bending them.

#### The Post:

The post as supplied will build into a signal 45' high. For a shorter post, build it to the full height first, and then cut it to size afterwards.

Lightly tin the lattice edges on all four sides, on both sides of the fret. Cut out the two post halves, but don't bother filing off the remains of the tags - being staggered, they help to locate the post halves when



soldering. Use flat-nosed pliers to correct any distortion caused by cutting out. Accurately fold each half-post to 90°, **with the half-etch on the inside**. Solder along the inside of the bend to fill the gap as much as possible, although complete coverage is not vital at this stage.

Tin both sides of one of the rectangular baseplate jig and remove it from the fret, along with the two locating jigs from the fret.

Bring the two half-posts together, and slip on the jigs to hold them in place, ensuring

the two halves are level. Place the tags on the bottom of the post into the baseplate jig and solder up. Now make the two long joints along the post, applying light pressure from pliers to help close the gap. When done, remove the locating jigs and discard. Tidy up the joints, file the top of the post level, and file off the tags projecting underneath the baseplate. Don't worry about any remaining small gaps along the post corners - these can be filled in before painting with 145° or 70° solders, which have better gap-filling properties than 188° solder.

Cut the post to length if required, removing material from the bottom of the post, not the top - you will need to unsolder the baseplate to do this.

#### Fittings:

For an upper quadrant signal, attach 1/16" arm bearing tube(s) to the left-hand side of the post at right angles to the vertical post axis. The top most arm's bearing position below the post top seems to vary between 1.5-5mm, so check with photographs of your chosen prototype. Any second arm bearing should normally be placed 20mm (SR) or 24 mm (LMS, LNER) below this. Leave the bearing tube overlong at the rear, but use the minidrill and slitting disc to trim the front so it projects just over 1mm in front of the post.

Lower quadrant signals should have their 0.8mm brass axles placed directly into the etched holes, after fitting the motion plates to both front and rear faces of the post as shown. Form the bolt heads on each plate before fitting.

#### The Ladder:

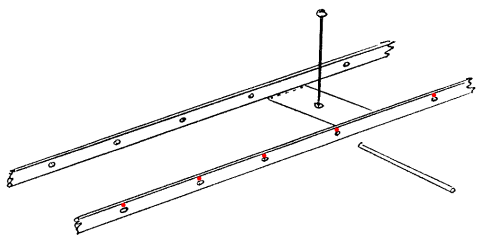
The stiles are drawn to the minimum width possible whilst still retaining etchability. This does make the ladder rather delicate, especially before the rungs have been soldered in. To avoid mistakes, build the ladder to its full length, and cut it to size at the fitting stage. The jig incorporated in the ladder fret helps to keep the ladder aligned

whilst the rungs are being soldered in place.

Before removing the ladder and jig from the fret, clear the rung holes with a no.79 drill. The holes are deliberately etched undersize to prevent failure in production and to give a fine fit to the supplied wire.

Burnish both sides of the stiles. Carefully remove the fret frame (save it to make bracing struts) to leave the ladder stiles in their jig. Fold up the stiles **with the half-etched lines on the inside**. You will find that the stiles bow out; this is normal – you haven't damaged anything! You may now wish to pin the jig to a balsa block, although I found it just as easy to hold the jig in the hand.

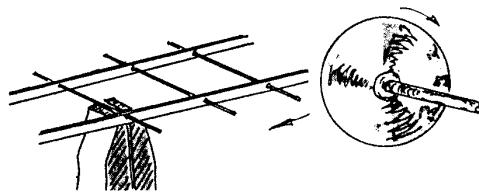
The first rungs to be soldered in should be those adjacent to the pads where the stiles are half-etched onto the jig. Insert a length of wire through two stile holes, brush on some liquid flux, and apply the smallest amount of solder straight from the iron. Always approach from the edge of the stile furthest from the jig (aim for the red dots on the sketch) to minimise the possibility of



soldering the two together; some solder mask will help here. Once soldered in place, cut off the excess wire, and move to the next pair of holes. Don't cut the rungs to length before soldering in place – a long length of wire is much easier to work with. Once the rungs near the pads are soldered in, work alternately from the two ends towards the centre, and from the centre towards the ends. Gently push in the stiles as you proceed.

Once all rungs are in place, tidy up the rung ends using a minidrill and slitting disc.

Hold the rungs in pliers as shown to avoid damage. The vibration from the drill is most useful, as it will shake apart any poorly soldered joints! Finally, cut the jig free using a piercing saw or a craft knife on



a firm hardwood surface. The slitting disc may be used, but take great care not to damage any rungs.

Add the lampman's platform(s) as shown overleaf. Establish the handrail stanchion positions from prototype photographs, as they do vary a great deal. Drill the landing perimeter at the chosen intervals with a no.79 drill, and insert scale 3' to 4' lengths of 0.3mm wire into each hole, from below, with a short L turned on the bottom of each one. A quick solder joint on each one will fix them in place, then they can be aligned by eye, and a handrail of similar wire fixed around, one stanchion at a time. Finally, trim off all excess wire.

Solder the top platform to the post, adding lengths of wire underneath for reinforcement. Cut the ladder to length, then solder it to the platform and the signal baseplate. A 1 in 12 slope is typical. Add the lower platform if required, which may need some trimming to fit.

Add bracing struts from cut from the scrap fret frame. Check their height and number with photographs. The ladder end joints should be on the outside of the stiles, and never exactly level with a rung.

### **Finishing the Signal:**

Add the balance levers as supplied on the signal arm frets or from the castings provided in SC0041 and SC0043. Assemble the signal wire crank or pulley wheel as shown, and fit it to the front or

side of the post, depending the direction the wire approaches from.

The signal can now be completed by adding lamp brackets, lamps, and the finial. Suitable components are available in the MSE range. Fit the arms after the painting stage.

### **Painting:**

Degrease the post by washing in detergent water and leaving to dry. Spray overall with white car primer, mounting the arms in their bearings to avoid painting the spindle and inside of the bearing tube. The bottom 16mm (4') of the post should be painted black, and the landings a weathered wood colour. However, do check with your photographs, as there is a lot of prototype variation.

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