



L M S GROUND SIGNALS

1941 Westinghouse stackable pattern.
Cast & etched parts for two signals.

This pattern of ground signal was introduced by the LMS in 1941 as improvement on the 1934 standard design. It enabled stacked (up to five) signals to be built from the minimum of different parts. BR adopted it as its standard design, and many are still in use today.

Assembly instructions:

The parts are designed for soldered assembly. Use a 25-40W pencil bit iron with 70° and 145° solders and a liquid flux. Burnish both sides of the fret before removing any parts. The signals (but not the balance levers) are intended to operate.

If the signal is to operate, drill a no.80 (0.35mm) operating wire hole in the disc face as indicated. Open out the spindle hole in the disc centre to

no.77 (0.45mm). From the rear, solder (145°) in a 2cm long spindle made from the supplied 0.45mm brass wire. Clean up the disc's front face.



Clean any mould lines or flash from the castings. On the larger base casting, remove the red shaded area to provide clearance for the balance lever(s).

Solder (70°) the two base castings together. Drill through the side of the base as indicated, using as large a diameter drill as possible (somewhere around no.71/0.65mm), and open out the hole in the corner of the etched balance lever(s) similarly. Tin (145°) the balance weight, fold it in half, and solder (145°) it to the lever(s) as shown, with the holes to the top. You may need to omit this step for a stacked signal, as there may not be enough clearance between the multiple levers.

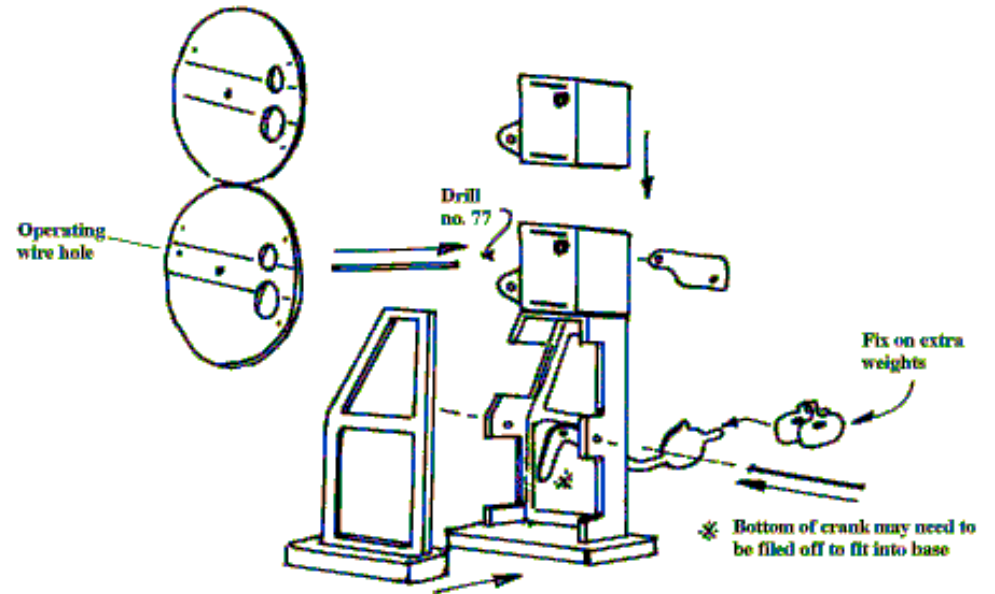
Push a 0.45mm brass wire axle through the base side holes in the body, trapping the balance lever(s) with their weights to the rear and the cranks pointing downwards. [This step is difficult, but not impossible. The alternative is to drill the sides of the larger casting and trap the levers in place before soldering the two halves together, but there is not much material to drill through, and the single casting is easily distorted.] Solder (70°) or superglue the axle to both sides of the base. Remove any excess wire and tidy up.

Carefully drill no.77 (0.45mm) down the bearing cast into the side of the lamp chamber. For a working signal, it is probably best to file off the cast bearing, replacing it with a length of MSE's T132 brass tube. Test fit the disc for adequately free rotation. Solder (70°) the lamp chamber to the base – the four rivets should be on top. If constructing a stacked signal, file off the rivets and add further lamp chambers to suit.

Wash the two assemblies thoroughly in warm water. Spray the disc assembly with white matt car primer, then add the horizontal red band (yellow for signals that could be passed at danger, e.g. into a head shunt - note that signals in areas with overhead lighting often had the face of the disc painted black, to make the yellow band more visible). Using the material supplied and MSE's

GSA adhesive or gloss varnish, glaze the top spectacle hole red or yellow to match the stripe, and the lower one green. Spray the body assembly with matt black car primer, and also blacken the disc's rear face.

Open out the hole at the narrow end of the back blinder to no.77 (0.45mm). Slightly bend the disc spindle as shown above (even for single signals), insert it into its bearing, then with a paper washer over the end against the lamp chamber, solder (145°) the back blinder to the spindle. Adjust its position so it clears the back light when the signal is on, but completely covers it when on. Tear away the paper washer, and paint the back blinder white. Lightly oil the spindle bearing. The signal is now ready for installation and connection to your chosen means of operation via a 0.31mm operating wire. Remember that LMS disc signals are lower quadrant!



Please note - the base castings have been mastered differently to the drawing - the larger casting is the front one. The drawn orientation of the sloped part is correct.

