

These etched brass components represent the type of signal used by the Midland Railway from the 1900s onwards, through the LMS period and into BR days. Lower quadrant arms were still much in evidence in the late 1950s and it was only in 1960s that the majority of Midland posts received upper quadrant arms, while still retaining most of their earlier fittings. At least one lower quadrant arm can still be found on Network Rail today, along with several on the various preserved lines.

Suitable posts (SN17), brackets (SN8/2) and ladders (SN9/3, 9/7) are available to complement these parts. Ensure that you study photographs of the prototype before you begin building.

#### Identification of components on fret:

1. 4ft wooden home & distant arms
2. Spectacle plates for arms 1 & 10
3. Motion plate for arms 1 & 10
4. 4ft corrugated steel home arms & spectacle plates
5. Hammerhead calling on arms & spectacle plates
6. Lamp back blinders

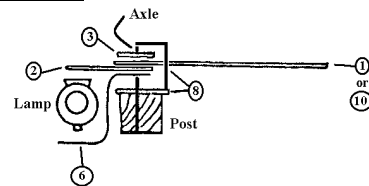
7. Rodding guides
8. Axle support bearings
9. Balance levers
10. 5ft wooden arm
11. Balance lever bearing plates

#### ASSEMBLY

Burnish the parts before removing them from the fret. In some cases, it will also be easier to tin them before removal.

Note: Model Midland signal construction is unusual as the arm rotates on an axle fixed to the post, rather than the normal arrangement of the axle being fixed to the arm, and rotating in a bearing tube fixed to the post.

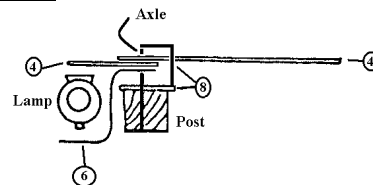
#### Wooden arms:



Open out the hole in the end of the arm (1) to a clearance fit on a piece of 0.45mm brass wire. If using arm (10), drill a similar hole on the horizontal centre line, 1.5mm from the end. Similarly open out the hole in spectacle plate (2) and the upper hole in motion plate (3). The lower hole in (3) should be opened out to be a clearance fit on 0.33mm brass wire.

Lay the arm (1) or (10) face down on a balsa block. Lay the spectacle plate (2) face down on top of the arm, and align it using an oiled wire axle or the point of a needle (or anything that won't take solder). Solder (188°) the two parts together. Lay this assembly face up, and solder (188°) the motion plate (3) on top, again using an axle to align the holes.

#### Steel arms:



Open out the hole in the end of the arm (4) to a clearance fit on a piece of 0.45mm brass wire. Notch the end of the arm if modelling a distant signal. Similarly open out the upper hole in spectacle plate (4). Open out the lower hole in (4) to a clearance fit on 0.33mm brass wire. Solder (224°) two fine (fuse?) wires to the back of the arm to represent the rear of the corrugations.

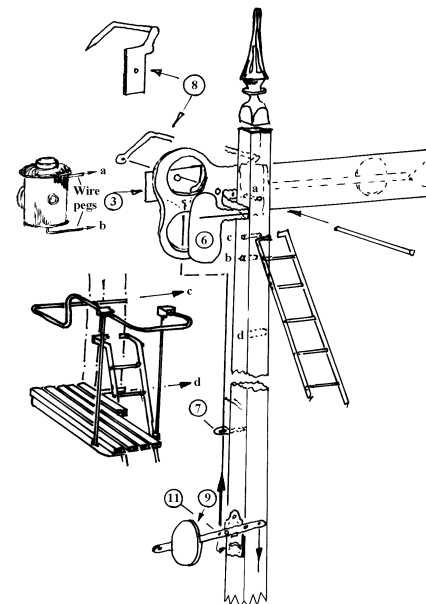
Lay the arm (4) face down on a balsa block. Lay the spectacle plate (4) face down on top of the arm, and align it using an oiled wire axle or the point of a needle

(or anything that won't take solder). Solder (188°) the two parts together.

**Calling on arms:** Assembly is similar to the steel arms. The arm may be shortened to give 2ft6in goods or shunt arm, or a 2ft miniature arm.

**All arms:** Make a 90° bend at the end of the back blinder (6) arm as shown. Solder (145°) this to the rear of the arm, again using a balsa block and axle to align it. The arm is now ready for painting.

#### The post and other parts:



Assemble the rest of the signal as shown. The axle is made from 0.45mm brass wire, soldered into a hole drilled on the post's vertical centre line, 2mm from the post top. Leave it overlong at the front. Solder the axle support bearing plate (8) onto the post and axle, such that the "spike" sticks up at 45° on the left-hand side of the post. Drill a hole on the right-hand side of the post 7mm from the bottom to take a 0.45mm wire axle for the balance lever bracket (11). Drill the centre hole in the plate to a 0.45mm clearance fit, and solder the plate to the post side. Add the balance lever (9), retaining it with a wire washer if you wish to make it move. Add the lamp, finial, ladder and platform and rodding guide (7) as shown. The post assembly is now ready for painting.

**Painting & glazing:** Clean the signal by immersing in warm detergent water, rinse under a running tap, then allow to dry overnight. Spray overall with a white primer.

**Post etc:** Pre-1923, posts were lemon chrome, with all ironwork (including the finial) and the bottom 4' of the

post in bauxite. Post-1923, posts should be white, with all ironwork (except the support bearing) and the bottom 4' of the post in black. Some signals had the bottom 4' of the ladder painted white. Don't forget a dash of silver on the lamp lenses.

**Arms:** Pre-1911, all arms were red on the front and white on the rear, with a white spot on the front, and a black spot on the rear. Some distant arms had a centred black horizontal line the full length of the reverse face instead of the spot. Between 1911 and 1923, all arms had a 10" wide white vertical stripe on the front 11" from the end, with a corresponding black stripe on the rear. After 1923, this continued for home arms, but the front face of distant arms was painted yellow, with a black chevron both front and rear.

**Spectacle plates:** painted black or bauxite prior to 1923, after which they were white (although some photos show them to be black). Home signals should be glazed with red in the top aperture and blue-green in the lower one. Distant signals should have blue-green glazing in the lower aperture, with the top aperture having clear glazing (if the arm is red), or amber if the arm is yellow. Suitable glazing is available from MSE (quote LENS).

#### Final assembly:

Place the arm on the axle, then cut off any surplus axle so that after filing flat, about 0.5mm projects above the arm face. Bend the support bearing "spike" as shown, and carefully solder it to the end of the axle. The spike should prevent the arm from rising above the horizontal. Bend the back blinder so its top edge is below the lamp's rear lens when the signal is on, but completely obscures it when the arm is lowered.

Finally, bend up an operating wire from 0.33mm brass wire, to connect the hole under the arm, and the front hole on the balance weight arm (if this is working, otherwise take it through the baseboard for direct connection to the operating mechanism). Ensure that the arm is "on" and the balance weight lowered (or vice versa) when doing this. The wire should be threaded through the rodding guide.

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