

MODEL SIGNAL ENGINEERING



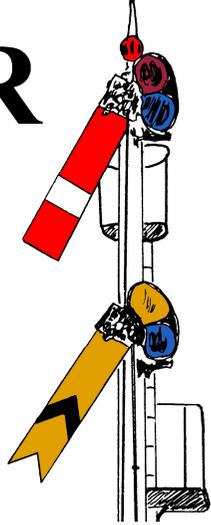
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SCALE	CODE	
3mm	ST14	

GWR

WOODEN ARM SIGNAL PARTS

1887 to mid-1960s



These wooden arms, on wooden posts, were the most common style in the heyday of the Great Western Railway. From the 1930s onwards, they were replaced by the new steel arms, at first on the original posts, and later by steel arms on tubular steel posts. Some are still in use today on the various preserved lines.

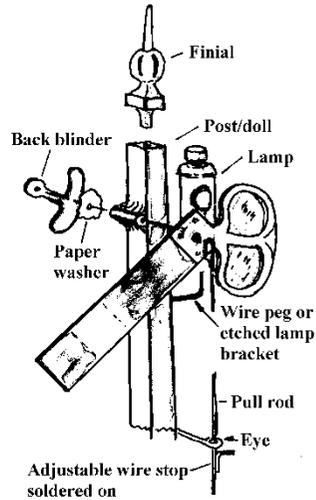
Identification of components on fret:

1. 5' distant arm x1
2. 5' home arm x2
3. 4' distant arm x1
4. 4' home arm x4
5. 3' home arm x2
6. Spectacle plates for 1-5 x10
7. Back blinders for 1-5 x10
8. Balance levers for 1-5 x10
9. 3' restricted clearance centre balance arm, spectacle (9a), boss (9b) x1
10. Calling on arms x2
11. 4' centre balance arm, spectacle (11a), boss (11b) x1
12. Restricted clearance calling on disc x1
13. Rule 55 diamonds x2

1 & 2 were used on posts over 26' tall

The parts are designed for soldered assembly. Use a 25-40W pencil bit iron with 188° and 145° solders and a liquid flux. Pinning parts to a balsa block helps keep things square. Burnish both sides of the fret before removing any parts. It is easier to tin some parts before removal.

A typical straight post signal:



Select the appropriate signal arm, and a spectacle frame. Lay them on the block with a 0.8mm brass wire axle driven through the holes into the wood and solder together. Clear the pull rod hole, using a 5-sided broach for preference. If more than one signal is being made, do a batch, then spray them all over with white matt car undercoat. When dry, the final colours can be applied and the spectacles glazed with MSE LENS material. Set aside until the posts are complete.

Height (ft/ins)	Post cutting length (mm)	Post to ladder distance (mm)
12.0	41.5	7.5
14.0	47.5	8.0
16.0	53.5	9.0
18.0	59.5	11.0
20.0	65.5	11.5
22.0	71.5	12.5
24.0	77.5	13.0
25.0	80.5	13.5

Prototype signals usually came in one of a range of standard heights, chosen to give adequate sighting, as shown in the first column of the table above. The height given is the height of the arm centre-line above rail level, so the post cutting length given in the second column includes an allowance of 2.5mm and 3mm at the top and bottom of the post respectively. Non-standard

cutting heights can thus be calculated from the table - don't forget to make allowance for any signal not mounted on the ground. Note that a platform starter is typically 16ft high, and that posts 18ft and above were fitted with a lampman's platform.

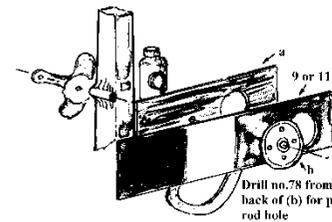
The post needs to have a bearing on the left-hand side, as shown, made from MSE T116 tube. Solder it 2.5mm from the top of the post.

Establish the correct lamp position by placing the arm axle into the bearing and with the arm at horizontal adjust the lamp so its lens is behind the upper spectacle. Solder it in place, using a wire peg to make a lamp bracket, or scrap etch.

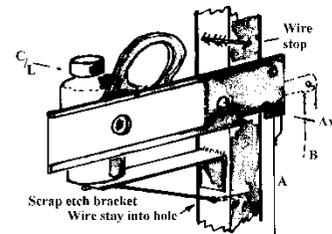
Balance weights were normally on the left-hand side of the post about 4' (12mm) from the ground. If this posed a danger to staff or public, then they were mounted 4'6" (13.5mm) below the arm at the front of the post. Fold scrap etch to make a bearing, with a 26swg nickel silver axle. The arm pull rod is attached to the hole nearest the weight, and the operating wire to the hole furthest from and in line with the weight.

To complete the signal, add the finial. After painting, place the axle through the bearing, and solder on the back blinder, using a paper washer to avoid straying solder. Connect the operating wire to your chosen means of operation.

Other arms:



The restricted clearance arms 9 and 11 are mounted with the spectacle frame behind the arm as shown above.



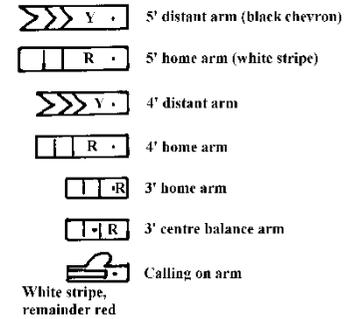
Calling on arms are also pivoted on the left-hand side, but with the lamp on the same side. They may be operated by a pull rod at A as shown, or by a lever B at the rear made from scrap etch.

The disc (12) should be mounted on a bracket, at a minimum of 3'6" from any other signal on the same bracket. They were often found under platform canopies, where the fall of a conventional arm had obvious dangers for passengers below!

The Rule 55 diamonds were usually mounted 13ft above ground level, or around 3'9" below the arm bearing centre line on short posts.

Painting:

Painting detail



Generally, spectacles and ironwork are black, with posts and dolls white. Rule 55 diamonds had a black band 1' deep above and below. Arm fronts and edges are as shown above. The arm backs are white, with a black stripe or chevron repeating the symbol on the front. Discs are all white with a horizontal red stripe on the front. For both arms and discs, the top lens is glazed red (yellow for distant), and the bottom one green.

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