



East Bedfordshire Model Railway Society

Finchley Road St Johns Wood Signalling

There's been a lot of chat about signalling of Finchley recently, so here's my musings on the subject and how I've considered the train movements controlled by it. You may wish to retain this as a sleep aid!

I'll start these notes with some background information, which is based around our original signalling design for Finchley using semaphore signalling principles. However, for both practical and aesthetic reasons we shall end up with a mix of semaphore and electric light signalling.

Finchley Road has a signal box. This controls a BLOCK SECTION covering the signalling between the signals controlled by Hampstead Heath signal box to the east and Kensal Rise signal box to the west.

Each signal controls a set section of line to allow safe control and movement of trains, interlocked with each other to avoid conflicting movements. In some circumstances a short distance between signal boxes can result in the need for a form of interlocking between the signals known as SLOTTING, which means a signal won't be OFF unless both boxes have pulled the necessary levers, i.e the signal is jointly controlled. There may be just the possibility we should consider this for Finchley to Hampstead, but I have dismissed it for simplicity.



DISTANT signal: would be present at the start of the BLOCK SECTION. This should be a fixed signal if there is special caution required, for example a junction within the BLOCK especially on a falling gradient through a tunnel such as we have for Finchley.

When it is ON the driver needs to be prepared to stop at the next HOME signal. When it is OFF it means all STOP signals in the BLOCK are also OFF and the train can proceed at the maximum permitted speed through the BLOCK with the line ahead clear.

STOP signal: What does it say on the tin? It means STOP unless OFF. Dependent upon the features of the line there could be a number of STOP signals in the BLOCK. Should there be, say, four, there might be an OUTER HOME followed by an INNER HOME into the station then STARTER and ADVANCED STARTER.



SHUNT signal: Primarily this allows a shunting movement across running lines, often against the normal train direction of the line, and permits movement for as far as the line is clear and no further. They are generally discs but not always ground level as this image shows; visibility for the train crew is important.

SHUNT AHEAD and CALLING-ON signal: What is the difference? Visually speaking not a great deal, though the signal may carry a notation for its purpose such as a S or C. It is basically a small, subsidiary arm beneath the main STOP signal.

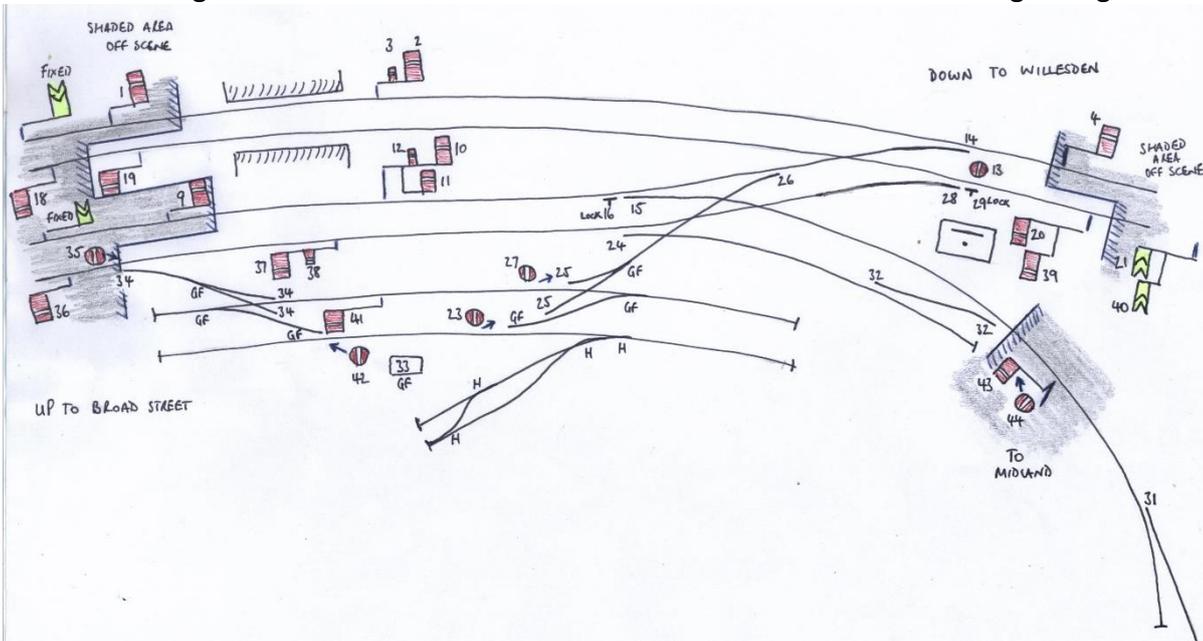
Operationally they are different.

SHUNT AHEAD: This allows a train to draw forward beyond the STOP signal only far enough to carry out a shunt manoeuvre, without actually having approval to traverse the full signal section.

CALLING-ON: Allows a train to move beyond the STOP signal to move into a section where a train or vehicle is already present. As a working example, consider our SUTTON layout. Where any train exists in a platform and we decide to move a locomotive onto the train it is a calling-on movement. We could also consider a move such as a DMU sitting in the platform and a following DMU is signalled into the same platform, perhaps with the view the two sets will be combined for the next departure. This too is a calling on manoeuvre. However, when a locomotive has run down the platform to go to shed it is a SHUNT movement when signalled.



Now you all know your signals let's consider the train movements for Finchley. I've listed train movements for DOWN (to Willesden) and UP (to Broad Street) showing which signals are designed for the line in the sequence a train would pass them, numbered as they would be in the signal box frame. On this drawing the shaded areas will not be modelled but I considered the signalling nonetheless.



Since this drawing was prepared our approach to the signalling on the layout has been adapted. We now plan to have electric light – Multiple Aspect Signalling, or MAS - on the electric lines and semaphore signalling on the steam lines.

DOWN MAIN



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Trains approach from Hampstead, and a long tunnel intervenes. The HOME signal would most likely be out of view at the edge of Hampstead tunnel or, despite limited clearances, even within it if it's an electric light. It is possible there would be a banner repeater at the beginning of the tunnel, plus a fixed distant, as the route approaches Finchley on a falling gradient and there is the junction to deal with, with possible shunting going on. Trains will not race through Finchley!

Through trains therefore approach with some caution, passing a fixed distant, 1 HOME; 2 STARTER ; 4 ADVANCE STARTER before heading out through West End Lane to the next block. Our revised approach means these are now MAS.

DOWN STEAM (to main)

This is our invented wartime capacity-boosting extra lines from Gospel Oak, for all the freight trains. Similarly to above, trains will approach at caution from the fixed distant, slowing through 9 HOME and being prepared to stop at 10 STARTER before being allowed to proceed; some trains will need to be held for the passing of passenger trains, some may slow before being given the road and gradually ease their way across the junction to 4 ADVANCE STARTER (MAS) and West End Lane.

DOWN STEAM (to branch)

The trains for the branch could be worked in two ways. The likely traffic flow would be between Brent Yard or West Hampstead exchange sidings and Poplar Docks, Victoria Docks or Bow yard.

A train would approach at caution and stop at STARTER 11. There is a gradient to West Hampstead and so the guard would be pinning down some brakes. When ready they give the bobby a toot, the road is given and off it trundles.

Alternatively we might consider that the gradient is sufficient that a train is split in two; the loco would draw the first portion as described and then return light engine for the second part. (With a limited number of wagons in the first portion the rule book will allow a short movement without a brake van) In this case the returning loco would have to wait at disc 44 before shunting to the remaining portion of the train. Note: at this stage we haven't allowed for an uncoupling point on the steam line!

Trains may also arrive on the DOWN STEAM to shunt into the yard. We are likely to avoid doing this at shows as it will interrupt the running on all lines, but the principle will be the train approaches from Hampstead and stops at signal 12 SHUNT AHEAD. When given the road it would draw forwards beyond point 14 and await DISC 13 to be cleared before setting back into one of the loops.

Notwithstanding the current lack of magnet, it is conceivable that the main portion of the train could be pinned on the steam line whilst the loco and limited wagons are shunted.

SHUNTING THE YARD



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Note that the exits to the slips at each end of the yard are controlled by the signalman, but within the yard itself there is a small ground frame numbered 33. When pulled it unlocks/locks the frame to allow controlled shunting movements in the yard and when a train is signalled to depart it ensures the frame is locked to prevent points being pulled under the moving train.

If heading to Willesden, once a train is prepared in one of the loops it would give the bobby a toot and await disc 23 or 25 to clear before setting off to the DOWN MAIN and would proceed cautiously until clear of point 14. The signalman would then clear the disc and point 14 behind the train before pulling off no 4 (MAS) to clear the road beyond West End Lane.

UP MAIN

All passenger trains and some express rated trains would use the electric lines, approaching under DISTANT 21, HOME 20 and leaving under STARTER 19 (mounted on the back of the station building) and ADVANCED STARTER 18. These will all be MAS.

Those diverting to the UP STEAM would follow DISTANT 40, HOME 39 (both MAS), STARTER 37 and ADVANCED STARTER 36. These movements are a more straightforward than the DOWN trains because there would not normally be any need to hold a train in the scenic section.

UP STEAM & BRANCH

Branch trains to UP STEAM would be controlled by HOME 43 and would always stop at STARTER 37 to allow for brakes etc before proceeding.

We may also have the opportunity for a loco plus brake van, having finished its trip to West Hampstead needing to return to Willesden. In this case it would wait at DISC 44 before proceeding to DOWN STEAM and waiting at STARTER 10 before setting off.

Trains arriving from Willesden to shunt – in reality a ‘Target 100’ working once a day – would approach under caution and have to wait at SHUNT AHEAD 38. When pulled the train would draw forwards beyond point 34 before being given the clear on DISC 35 to set back. As considered earlier, a portion of the train could in theory be left on the UP STEAM whilst the remainder is shunted. The loop could also be used as a relief refuge siding for a train to be held whilst another passes, the train being handled in the same manner.

Conceivably again we could have a shunt movement between the yard and the branch. The loco would prepare its (short) train, or could be light engine to pick up wagons from West Hampstead exchange sidings. In this case we would prepare on the loop controlled by DISC 42 to shunt clear of DISC 35. In this case 35 has a dual purpose, and when cleared the train would proceed under caution to the branch. When a train is complete in the yard it would be on the loop controlled by STARTER 41 to be signalled onwards.

Crikey! Is there really all that going on at Finchley? Whilst it will be impractical to try all the shunt-related moves at shows, it demonstrates we can be a bit creative and enjoy watching the procession of trains.