CALCULATING SCALE SPEED

By Trevor Gibbs

Much has been written over many years in various magazines about the subject of scale speed and a number of devices have been produced such as speedometers in boxcar doorways. Often it has involved many complicated formula, which if you wanted to be to the instant, would send you scurrying for a calculator every time you cared to accelerate.

Like many of us, my main measure used to be what looked to be visually correct imagining a "scale man walking alongside the train" among the other techniques that we modellers use. I was starting to get frustrated by the guess work until I saw an article or letter in a magazine (possibly *Model Railroader*) which stated "... in HO, the scale speed of an engine is equivalent to the number of inches that are travelled in 5 seconds".

My own HO layout (sorry but S scale is relatively unknown here in Australia) is a 4x8 with a section of relatively straight track at the front 38 inches long. So if that distance was travelled in 5 seconds then it was travelling at 38 mph, slightly less was 35 mph and slightly more was 40 mph. Checking this out on a calculator, I found this to be very accurate. About half the distance travelled was 20 mph, 6-8 inches less than the section was 30 mph. As this suited the speed of my freight trains which I mostly run, this worked out quite well for a while.

To transpose this to S Scale, if you were to measure out a section of track 55 inches long, that would be the equivalent of 40 mph.

About six months after happily working with this system, I realised that with an HO 40 foot boxcar being 51/2 to a 50 ft boxcar being 7 inches long that I could check speeds in the yard by lining it up passing a signal, pole, tree or other marker. By counting 5 seconds in ANY SCALE when a 40 ft or 50 ft boxcar is passing, I could be travelling between 5 and 8 smph, or multiples such as 12 to 15 scale mph (allowing for the coupler gap). You will be surprised at how accurate you can become at counting 5 seconds. I used this on other portions of the layout where I would not have been able to read a digital readout boxcar anyway, even if I could justify or afford to buy one or was able to make one.

After some time again, I saw an O scale exhibition layout which as part of its detail showed a recently "re-laid" section complete with survey pegs which bought back a lot of memories. As a child in Adelaide South Australia, I would often ride the front of suburban railcars on a section of line that had been recently duplicated with pegs adorning the centre of the track at even intervals. I would try to count them as the train accelerated and then decelerated between stops. Once used for track alignment, survey pegs are left to rot so those were evident for quite some years depending on the extremes of weather.

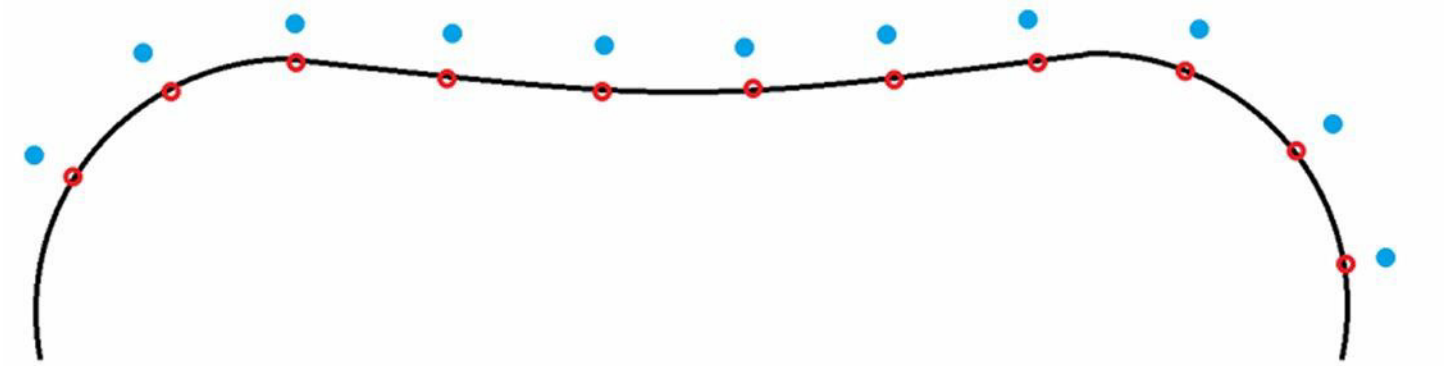
I do not recall having seen survey pegs in North America, but I did find a colour photo on Page 175 of "America`s Colourful Railroads" by Don Ball showing a Santa Fe passenger train negotiating a section of track with pegs clearly showing. Anyway, I applied them to my own layout over every 5 inches in a space of 80 inches using spikes, clipping off the heads and painting most of them white except every fourth one which is yellow (for Start, 20, 40, 60 & 80) at the front of the layout. The detail is small enough not to be outstanding (in fact most people do not notice them at all) and the odd speeds can be worked out as a portion of my 5 inch space. In S Scale, the spacing would be 6. 875 (or 6 7 / 8 “inches) for each 5 scale mph marker.

If, as I do, you live in a metric country and you wish to work in metric (which for model railroading purposes only, I do not) then it is easy to use a multiple of 5 kilometres per hour using the survey peg method

and the spacing of the pegs would be 108.5 mm in S scale. Obviously you may need more pegs as the speed factor is higher i.e. as 50 mph is approximately 80 kph you will need 16 pegs by comparison to 10 and as European and Japanese passenger trains in particular are usually operated faster in the prototype, a longer section would be required. I would not try to count a factor of less than 5 seconds as your accuracy may suffer. I must admit though, I know of no models in S Scale of European or Japanese trains.

However, you are not always in a position to see spikes because of the distance away from your viewing point or age related reasons... or both.

So, when I was dealing with the back of my layout during the renovation following our move, I installed a number of Telegraph poles around that align with 10 smph spacing at the track centre. Given that these poles are trackside on the convex and concave sides of the curves, they are not totally geometric in their spacing. In S scale, that 10 scale mph in 5 seconds means that the poles would be alongside track centres of 13.5 inches which should be visually OK for us as modellers.



Note the apparent irregular spacing of the blue dots representing the poles relative to the track centers. Do we ever see poles exactly evenly spaced in the big outdoors?

SO HOW DOES IT WORK??

For a Visual Example, here is 9653 Westbound on a through freight starting a sectional count.

Five (5) seconds later, the train is just on the midway mark between 4 and 5 poles away. Therefore the train is doing about 45 smph!

This section of my layout is shaped similarly to the diagram shown on the previous page so as you can see the telephone poles are not totally geometric in their spacing, but the track centre spacing is evenly set.

A little confession is appropriate here in that one of the poles is at a slightly tighter spacing because of its location near the backdrop so the next pole corrects this “problem”. However, this adds to the visual realism ever so slightly of the irregular pole spacing.

While the timing consideration seems a little arcane, I have often seen engineers in this country double check their speedometers by timing mile posts particularly on the Budd RDCs on the old Commonwealth Railways. That railway had three stock standard RDC1s delivered in 1951. By the time I was riding them in the early 1970’s, the drivers (engineers) were concerned about the reliability of the speedometers so you would incorporating a prototypical practice from an engineer’s perspective, just using spikes and/or poles rather than mileposts.

So there you have it... Happy Railroading and speed timing, regardless of your scale.