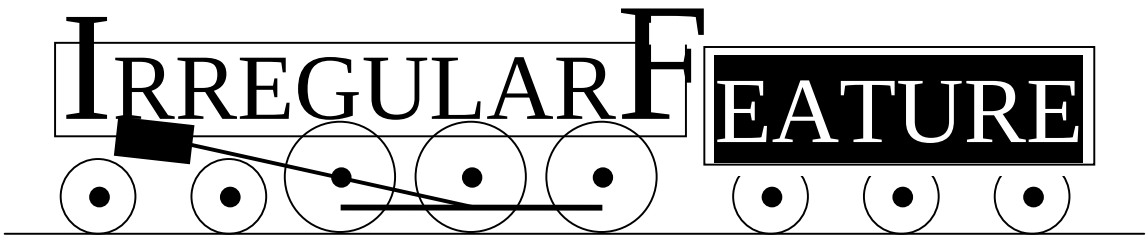

Road Warriors

We all know the scenario, you're cruising along happily when you hear…Wee whaa wee whaa, "Ok driver where's the fire?" Yes you've picked up too much speed and are now in trouble with the boys in blue; it's easy enough to do in the real world and seems almost mandatory for some in the smaller scales. In fact there seems to be a formula that works along the lines of – The smaller the scale the faster it has to go! I have seen some very long N scale freights doing over 200 scale kilometres per hour at some shows! While this may keep the kids happy, it is not really modelling, more like "playing trains" and if a derailment should happen at this speed, much more damage will occur to couplers etc. Naturally of course it will probably be the track that will get the blame!
Having now got right up everyone's noses it's probably best if I provide an answer to the problem. I have been playing with the calculator recently and developed a simple equation to give scale speed (see chart) all that is required is a stopwatch, a calculator and a length of track with a measured one metre marked out.

SCALE SPEED CALCULATOR

KILOMETRES PER HOUR		RATIO	SCALE	MILES PER HOUR	
T 1	1 scale kilometre	1 : x	Common name	1 scale mile	T 2
3600 / 1 scale kilometre	1000 / ratio			1609.3123 / ratio	3600 / 1 scale mile
576	6.25	160	N	10.05820188	357.9168568
532.8	6.756756757	148	N	10.87373176	331.0730925
313.56	11.48105626	87.1	HO	18.47660505	194.8409889
274.32	13.12335958	76.2	OO	21.11958399	170.457903
230.4	15.625	64	S	25.14550469	143.1667427
172.8	20.83333333	48	O	33.52733958	107.375057

To calculate the scale speed of a train, look down the middle columns to locate the scale or ratio required then to the left side for kilometres per hour or to the right for miles per hour. The first column out gives the length of one scale kilometre or mile in meters; this is just for reference. The next column out gives the value for T1 (kph) or T2 (mph). Load this number into your calculator memory. Time the train, in seconds over the one-metre length of track; divide this number into T1 (kph) or T2 (mph) to give scale kilometres or miles per hour. If you don't require that much accuracy then simply round off the figures to two decimal places it won't make that much difference.
I will post a larger copy of the chart on the club notice board for your convenience, try using it and discover the real speed of your train. I have worked out the more popular scales but if the scale in which you model is not listed or you wish to invent some obscure new scale the formula for calculation is as follows:

KILOMETRES

$\frac{1000}{R} = 1\ SK$

$\frac{3600}{1\ SK} = T1$

$\frac{T\ 1}{T\ M} =$ Scale K. P. H.

WHERE

R = modelling ratio
1 SK = 1 scale kilometre in actual metres
T 1 = seconds / metre at 1 K.P.H.

T 2 = seconds / metre at 1 M.P.H.
1 SM = 1 scale mile in actual metres

T M= time in seconds / metre (model)

MILES

$\frac{1609.3123}{R} = 1\ SM$

$\frac{3600}{1\ SM} = T\ 2$

$\frac{T\ 2}{T\ M} =$ Scale M. P. H.

Catch you down the track…Tony Mikolaj.