



Tight Curves

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It is a fact of modern life... Unless you own a pre-1920's house you are unlikely to have room for the one thing that every railway needs and loves - big curves (!). I grew up with locomotives capable of small chain radius curves and the works of Henry Greenly (HG). This has perhaps given me a perspective on the problem of how to get big locomotives round tight curves. First and foremost let me say that I am not a locomotive engineer - like my late father. I am however a pretty good designer and student of locomotive design.

First of all it might pay dividends to examine what sort of curves a G3 loco is likely to find in the garden. According to HG the 'normal' curve is 12 feet radius with 8 feet radius being classed as 'tight'. However modern gardens are not so generous and it has become necessary to adopt 8 feet radius as the standard.

This equates to a scale radius of 2.7 chains!!!

The practice of gauge widening by 1mm on curves helps to counteract the small radius, and there are in the 1920's books two main schools of thought on how to approach your corner. The first is that you spread the gauge evenly as you approach the corner. The second is that you keep the outer rail constant and spread the gauge on the inner rail. The idea of this is that the wheel thus sits on a smaller radius (due to the coning) and is thus 'eased' around the corner. It is the second technique that I have adopted for my trackwork. Tests with my two functioning locos, a B0-B0 and a 2-D0-2, both seem to take to the corner without a murmur of complaint.

This corner is 7 feet 6 inches radius...

So, is the future of G3 short wheelbase 0-4-0's? No - I don't think so. The problem with people like me who like large locos and have to have tight radius curves - is the choice of engine to use and the configuration of it. When I first set out to design my track layout I began with the premise that I would have to design my locos and rolling stock to take tight curves. Just how tight the curves were going to have to be came as something of a shock. So, I sat down and worked out the biggest wheelbase that I could get around a FIVE foot radius curve - knowing that if I could get it round that - then I could get it round anything! The results from the pocket calculator all pointed to a configuration of 2-C0-2 or 4-6-4 as being the biggest thing possible. It was with a mile wide grin I set off looking for suitable locos in my books. This configuration fits some of my favourite locos; the Baltic Tanks of the LSBC, the beautiful Art Deco New York Central Hudson Type J, the Rhodesia Rails Class 15A Garrat and (wonderfully!!!) the NER No. 13.

Ok, the question you may ask yourself - So how big IS a 5 foot radius curve? If you took a sheet of A4 graph paper and drew a line down the centre and measured 8mm to one side and then bent the ruler to fit - you would have a 5 feet radius curve. The 'bend' is 8mm in 140mm. I have the commercially drawn plans for a Furness Baltic tank and the driver wheelbase is 180mm. Thus the spacing between the wheels is 90mm. This measures out on my sheet of graph paper as a side to side deflection, (side float), of 1.5mm.

When I built my 2-D0-2, I allowed for 2mm side float. The very amusing thing was when I brought the 2-D0-2 to the last AGM I tried to fit it on the five foot circle of track there. The driving wheels all fitted the curve beautifully however there was not enough 'crush length' on the front and rear bogie springs to fit BOTH bogies on the track. I could get one end on and one of the axles on the

other end. Another 1 or 2mm of 'crush length' - and then it would have circuited!!! Ironically the original configuration of this loco was 1-D0-1 and they were converted to 2-D0-2 in order for them to corner better. To give you some idea of 'real world' curves the standard curve on the Great Central would have a radius of just under 80 foot - the standard curve of the Midland Counties Railway would be just over 13 feet.

So, if you like big locos and have a small garden -then don't despair. It IS possible to get large locos around screechingly tight corners, you just have to be careful about the choice of loco!!!