D2.2.6 Issue 1 June 2004

DATA SHEET

TIMBERING

Compiled by R. Chown, M. Holland & K. Sheale

General Timbering Notes

In the data sheets covering switches, common crossings and obtuse crossings, a single line shows the timber centreline locations. These are intended as a general guide as the timber locations can vary both between companies and over time.

Early practice tended to set the timbers at right angles to the main line (Figure 3) but timbers that form a right angle to a line that splits the crossing angle have gradually replaced this (Figure 2). Post grouping timber cross sections range from 10in x 5in (5.8mm x 2.9mm) or 12in x 6in (7mm x 3.5mm) and lengths from 8ft 6in (59.5mm) to 15ft (105mm) in 6in (3.5mm) increments. Most pre-grouping companies used timbers 6in longer, i.e. from 9ft upwards. Halved joints were used where longer timbers were needed. Some companies, notably the Midland, used 14in x 7in (8mm x 4mm) timbers under the crossings when two chairs were closely spaced. Timbering does vary, but generally the length of timber projecting beyond the rails should not be less than 14in (8mm) and ideally not less than 18in (10.5mm). Timbers adjacent to the operating rods are often extended to carry the cranks etc. (Figure 4).

In Bull Head trackwork the timbers were normally spaced at 2ft 4in (16.3mm) and in 0 gauge this should be generally maintained throughout. When marking off the timber centrelines on a drawing the following criteria should be followed:

- The switch timber centreline is set 3½in (2mm) behind the switch toe.
- The common crossing timber centreline should be 4in (2.33mm) behind the crossing nose for bull head rail and 5in (3mm) for flat bottom rail.
- The timbers carrying the slide chairs and the Z, Y, X, A, B, C and D crossing chairs are set at 2ft 4in (16.3mm)
- The timbers either side of a rail joint (switch - closure rail, closure rail - wing rail, etc.) are at 2ft 2in (15.5mm) centres, the remaining timbers should then be spaced evenly between these "fixed" timbers at nominally 2ft 3in to 2ft 6in (16 to 16.5mm) spacing.

In Flat Bottom trackwork the same basic rules apply except that the nominal spacing of timbers is 2ft 6ins (17.5mm). (Figure 4)

In general a single turnout out of straight, or in junction turnouts leading to diamond crossings, the timbers beneath the switches, up to the last fixed chair or baseplate, should be at right angles to the main line. (Figure 1). The timber under the common crossing nose should be at right angles to the crossing centre line. (Figure 2). The timbers in between these two points should "wind" (progressively increase the angle with the main line) between these two situations. On crossover layouts the timbers should ALL be at right angles to the main lines.

Some early companies used interlaced sleepers to minimise the number of special chairs and wide timbering required, the North Eastern and North British being examples. The North British illustration (Figure 6) is included for information on this practice. The system was gradually discontinued due to the difficulty in maintenance packing.

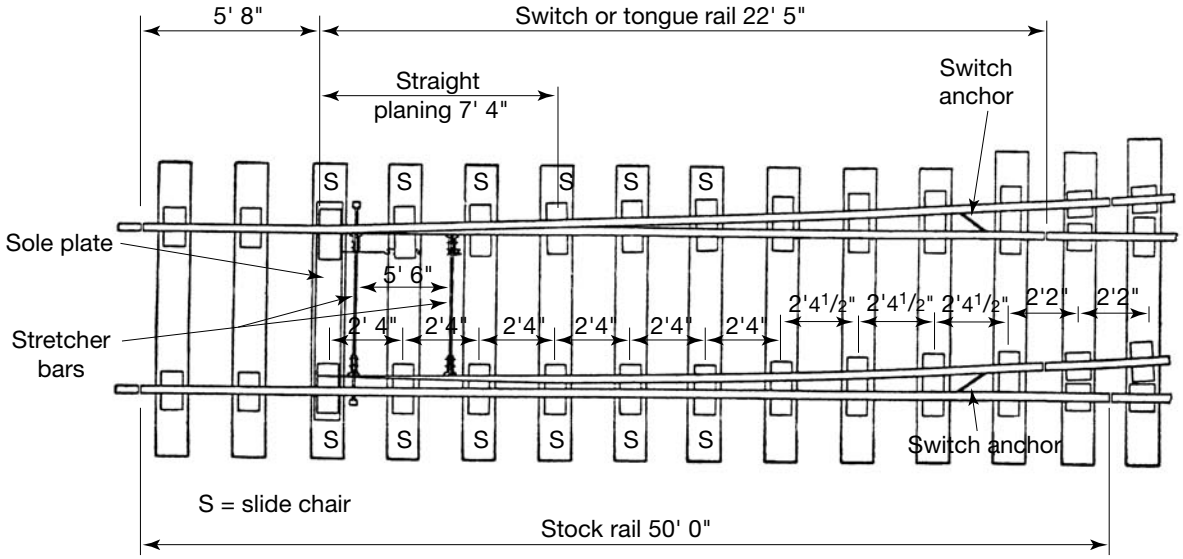


Figure 1 Timber spacing at a switch. The particular example is a semi-curved B switch but the layout is similar for straight and curved switches. The timber spacing is 2ft 4in (16.5mm) except for either side of the rail joints where it is reduced to 2ft 2in (15mm).

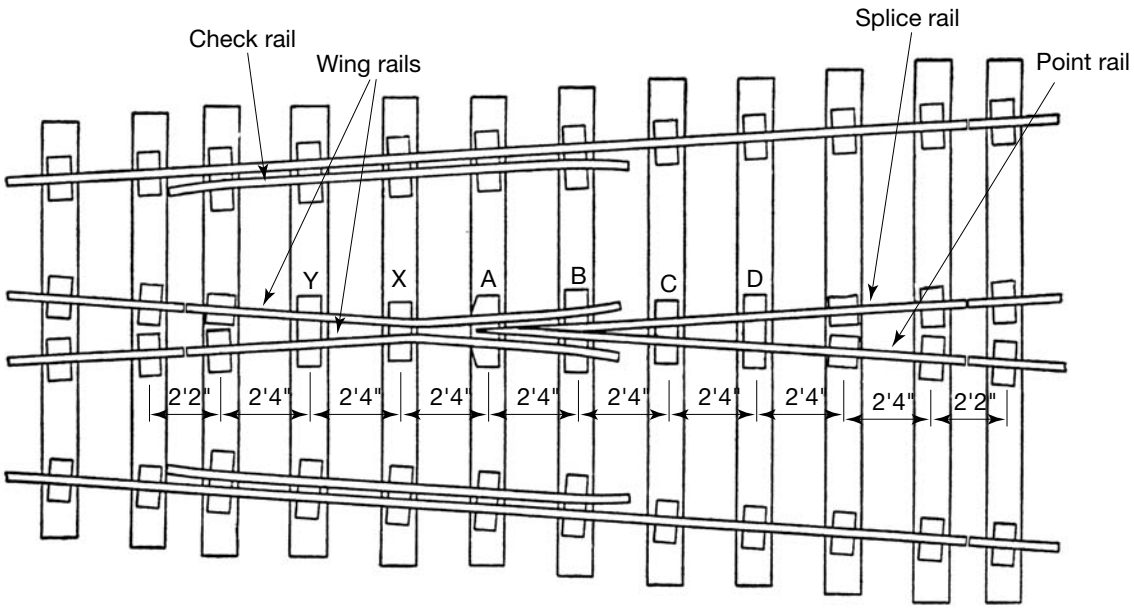


Figure 2 Timber spacing at a 1 in 7 1/2 crossing (Post grouping). The timbers are set at right angles to a line through the centre of the crossing. The timbers carrying the Y, X, A, B, C and D special crossing chairs are set at 2ft 4in spacing. The timber spacing either side of the rail joints is reduced to 2ft 2in.

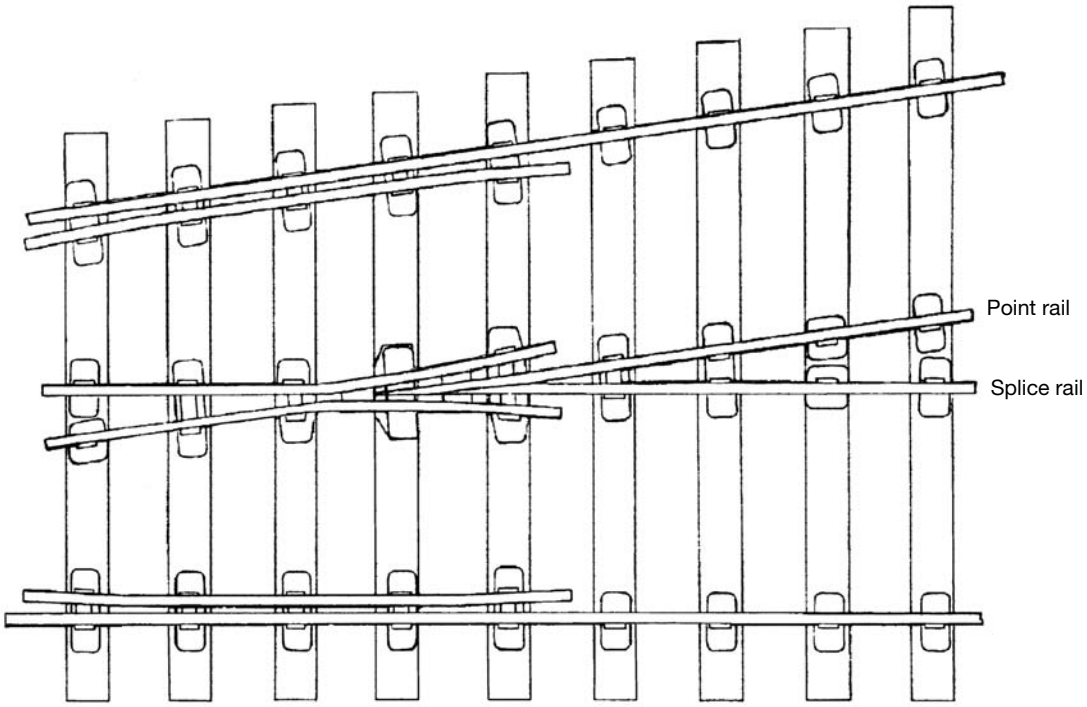
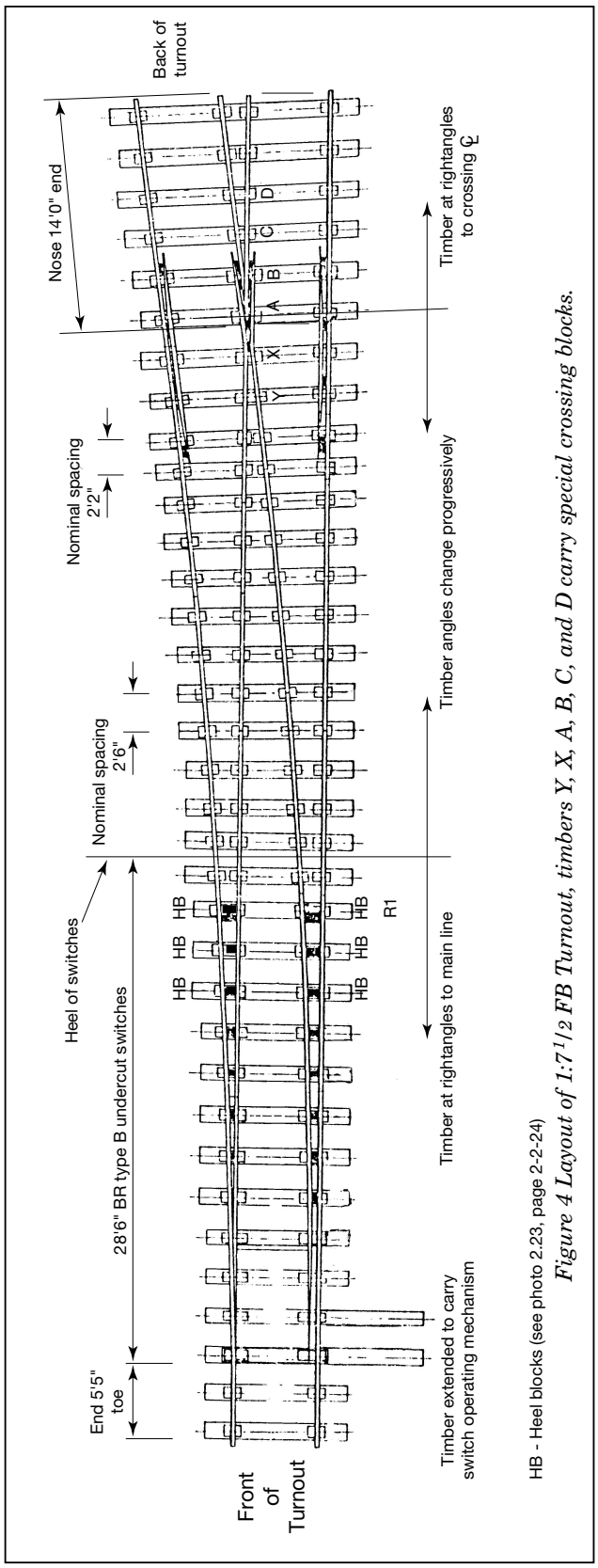


Figure 3 Where turnouts form part of a crossover, the timbers remain square to the main line at the crossing. On single turnouts, this layout was used by a number of pre-grouping companies and continued to exist on secondary lines well into BR days.



HB - Heel blocks (see photo 2.23, page 2-2-24)

Figure 4 Layout of 1:7$^{1}/_{2}$ FB Turnout, timbers Y, X, A, B, C, and D carry special crossing blocks.

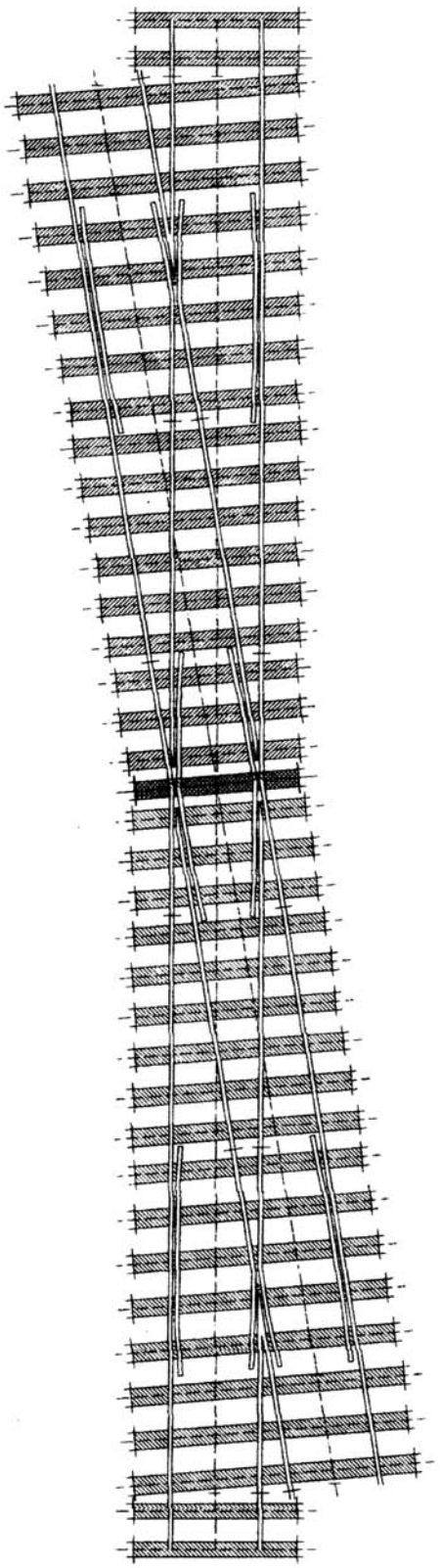
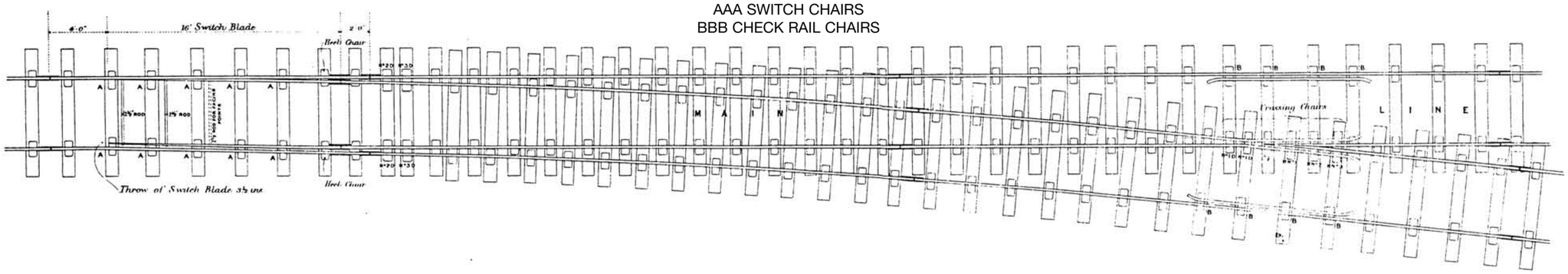
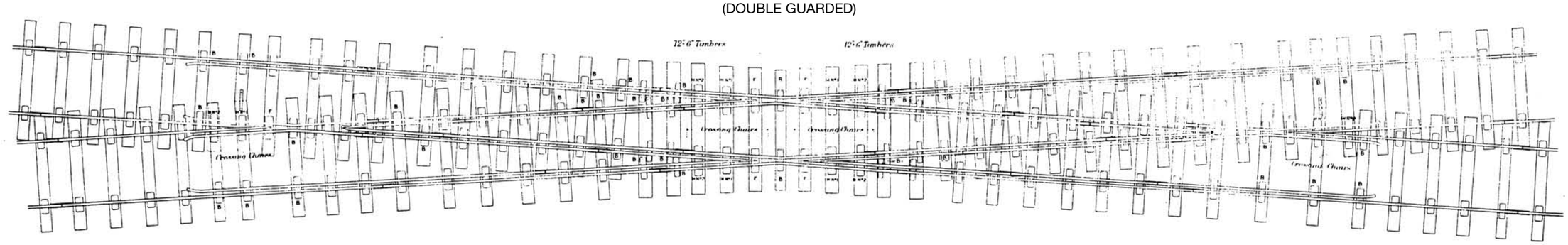


Figure 5 Layout of 1 in 8 Diamond Crossing, timbers at right angles to crossing centre line. (Drawn using Templot).

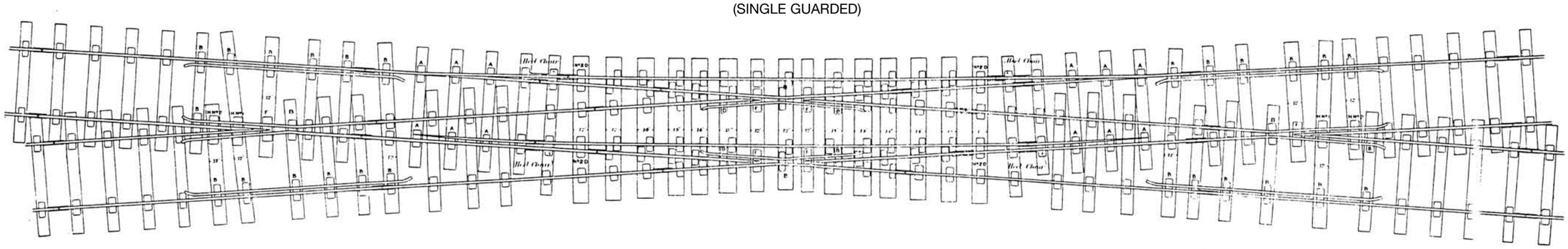
PLAN OF SIMPLE JUNCTION
ORDINARY SLEEPERS 9'0" x 10" x 5"
AAA SWITCH CHAIRS
BBB CHECK RAIL CHAIRS



PLAN OF DIAMOND CROSSING (ANGLE OF CROSSING 1 in 8)
(DOUBLE GUARDED)



THROUGH ROAD WITH SLIP
(SINGLE GUARDED)



SCALE 1/4" to ONE FOOT

0 1 2 3 4 5 10 15 20 25 30 feet

Engineer's Office
Edinburgh
March 1901