Turnout Curve Tables for Scaleseven Standard

The tables are based on Code 124 bullhead rail and Code 143 Flat bottomed rail, both having a railhead width of 1.6mm and on the turnout curve continuing to the gauge line intersection.

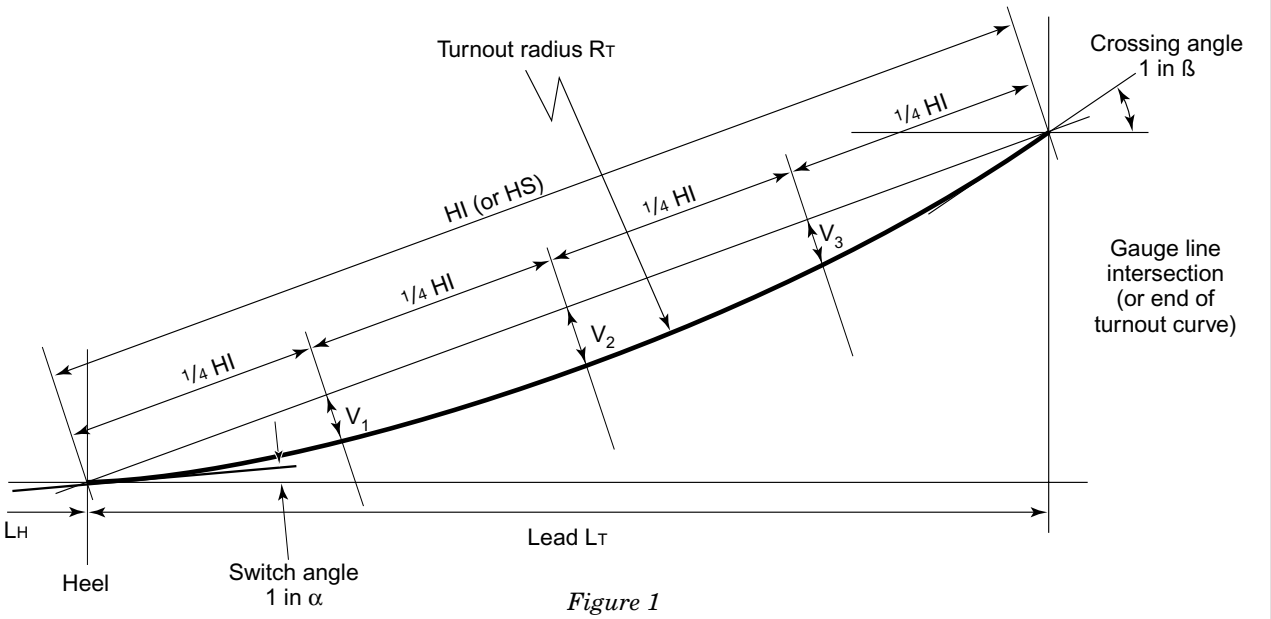

Figure 1

Offsets for Straight Switches

Straight switches were laid in bullhead rail and mainly occurred in the pre-grouping period although many lasted well into BR days. A few flat bottom versions appeared in industrial locations. Switch details are shown on data sheet D2.2.1.1, which includes location of timbers and slide chairs.

Switch		6 ft	6ft	6ft	6ft	6ft	6ft	9ft	9ft	9ft	9ft	9ft
Crossing angle	ß	3	3.5	4	4.5	5	5.5	5	5.5	6	6.5	7
Switch angle	α	16	16	16	16	16	16	24	24	24	24	24
Turnout radius mm	RT	567	781	1037	1336	1683	2084	1587	1939	2332	2769	3253
Turnout radius ft	RT	1.9	2.6	3.4	4.4	5.5	6.8	5.2	6.4	7.7	9.1	10.7
Heel divergence mm	hd	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Heel length mm	LH	42	42	42	42	42	42	63	63	63	63	63
Lead mm	LT	152	173	193	212	230	248	250	271	291	310	328
Nose distance mm	LN	1.3	1.5	1.8	2.0	2.2	2.4	2.2	2.4	2.6	2.9	3.1
Full lead mm	L	195	217	237	256	275	292	316	336	356	376	395
Offsets V1 and V3 mm		3.9	3.7	3.4	3.2	3.0	2.8	3.7	3.6	3.4	3.3	3.1
Offset V2 mm		5.2	4.9	4.6	4.3	4.0	3.7	5.0	4.8	4.6	4.4	4.2

Switch		12ft	12ft	12ft	12ft	12ft	15ft	15ft
Crossing angle	ß	6	6.5	7	7.5	8	7.5	8
Switch angle	α	32	32	32	32	32	40	40
Turnout radius mm	RT	2266	2677	3126	3615	4147	3541	4049
Turnout radius ft	RT	7.4	8.8	10.3	11.9	13.6	11.6	13.3
Heel divergence mm	hd	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Heel length mm	LH	84	84	84	84	84	105	105
Lead mm	LT	306	327	348	368	388	383	404
Nose distance mm	LN	2.6	2.9	3.1	3.3	3.5	3.3	3.5
Full lead mm	L	393	414	435	456	476	491	513
Offsets V1 and V3 mm		3.9	3.8	3.7	3.5	3.4	3.9	3.8
Offset V2 mm		5.2	5.0	4.9	4.7	4.6	5.2	5.1

Offsets for Semi-curved switches

Semi-curved switches were introduced in the grouping period and continued into BR days. Switch details are shown on data sheet D2.2.1.2, which includes location of timbers and slide chairs.

Switch		A	A	A	A	A	A	A	B	B	B	B	B
Crossing angle	ß	4	4.5	5	5.5	6	6.5	7	6	6.5	7	7.5	8
Switch angle	α	13.96	13.96	13.96	13.96	13.96	13.96	13.96	17.84	17.84	17.84	17.84	17.84
Turnout radius mm	R_T	895	1160	1472	1838	2267	2770	3361	2173	2608	3101	3658	4289
Turnout radius ft	R_T	2.9	3.8	4.8	6.0	7.4	9.1	11.0	7.1	8.6	10.2	12.0	14.1
Heel divergence mm	h_d	7.33	7.33	7.33	7.33	7.33	7.33	7.33	6.23	6.23	6.23	6.23	6.23
Heel length mm	L_H	140	140	140	140	140	140	140	158	158	158	158	158
Lead mm	L_T	159	174	188	202	215	227	239	240	254	268	282	295
Nose Distance mm	L_N	1.8	2.0	2.2	2.4	2.6	2.9	3.1	2.6	2.9	3.1	3.3	3.5
Full lead mm	L	300	316	330	344	357	370	382	400	415	430	443	457
Offsets V1 and V3 mm		2.7	2.5	2.3	2.1	1.9	1.8	1.6	2.5	2.3	2.2	2.0	1.9
Offset V2 mm		3.6	3.3	3.0	2.8	2.6	2.3	2.1	3.3	3.1	2.9	2.7	2.5

Offsets for Fully curved switches

The tables are based on Code 124 bullhead rail having a railhead width of 1.6mm.

Fully curved switches laid in bullhead rail were used by the GWR and many lasted well into BR days. Switch details are shown on data sheet D2.2.1.3, which includes location of timbers and slide chairs.

Switch		B	B	B	B	B
Crossing angle	ß	6	6.5	7	7.5	8
Switch angle	α	19.01	19.01	19.01	19.01	19.01
Turnout radius mm	R_T	2173	2600	3080	3620	4226
Turnout radius ft	R_T	6.9	8.2	9.7	11.4	13.4
Heel divergence	h_d	5.83	5.83	5.83	5.83	5.83
Heel length mm	L_H	157.5	157.5	157.5	157.5	157.5
Lead mm	L_T	247	262	277	291	305
Nose distance mm	L_N	2.6	2.9	3.1	3.3	3.5
Full lead mm	L	407	423	438	452	466
Offsets V1 and V3 mm		2.7	2.5	2.4	2.2	2.1
Offset V2 mm		3.5	3.3	3.1	2.9	2.8

Offsets for semi-curved switches in flat bottom rail

The tables are based on Code 143 Flat bottomed rail having a railhead width of 1.6mm.

BR Flat bottom switches can be either semi-curved or fully curved. Note that there are no A semi-curved switches. Switch details are shown on data sheets D2.2.1.2 and D2.2.1.3, which include location of timbers and slide chairs.

Switch		B	B	B	B	B
Crossing angle	ß	6	6.5	7	7.5	8
Switch angle	α	15.77	15.77	15.77	15.77	15.77
Turnout radius mm	RT	2095	2533	3037	3617	4288
Turnout radius ft	RT	6.9	8.3	10.0	11.9	14.1
Heel divergence mm	hd	8.12	8.12	8.12	8.12	8.12
Heel length mm	LH	189	189	189	189	189
Lead mm	LT	216	228	241	252	264
Nose distance mm	LN	2.6	2.9	3.1	3.3	3.5
Full lead mm	L	407	420	433	445	456
Offsets V1 and V3 mm		2.1	1.9	1.8	1.7	1.5
Offset V2 mm		2.8	2.6	2.4	2.2	2.0

Offsets for fully curved switches in flat bottom rail

Switch		A	A	A	A	A	A	A	B	B	B	B	B
Crossing angle	ß	4	4.5	5	5.5	6	6.5	7	6	6.5	7	7.5	8
Switch angle	α	13.24	13.24	13.24	13.24	13.24	13.24	13.24	15.77	15.77	15.77	15.77	15.77
Turnout radius mm	RT	859	1117	1422	1783	2210	2715	3318	2095	2533	3037	3617	4288
Turnout radius ft	RT	2.8	3.7	4.7	5.9	7.3	8.9	10.9	6.9	8.3	10.0	11.9	14.1
Heel divergence mm	hd	8.61	8.61	8.61	8.61	8.61	8.61	8.61	8.12	8.12	8.12	8.12	8.12
Heel length mm	LH	172	172	172	172	172	172	172	207	207	207	207	207
Lead mm	LT	149	162	176	189	201	212	223	216	228	241	252	263
Nose distance mm	LN	1.8	2.0	2.2	2.4	2.6	2.9	3.1	2.6	2.9	3.1	3.3	3.5
Full lead mm	L	323	337	350	363	375	387	398	425	438	450	462	474
Offsets V1 and V3 mm		2.5	2.3	2.1	1.9	1.7	1.6	1.4	2.1	1.9	1.8	1.7	1.5
Offset V2 mm		3.3	3.0	2.8	2.5	2.3	2.1	1.9	2.8	2.6	2.4	2.2	2.0

Note: If a number of identical turnouts are to be built, it is worth considering making a curved template based on the curved closure rail radius. This can be used both for making the drawings and testing the accuracy of the curves when laid during construction.