



TABLE A BILL OF SWITCH TIES FOR TURNOUTS WITH STRAIGHT SWITCHES

FROG No.	LENGTH OF SWITCH RAIL	TOE LENGTH TO 1/2" POINT	LEAD P.S. TO 1/2" POINT	LENGTHS AND QUANTITIES OF TIES																QTY OF TIES	BOARD MEASURE	TRACK LENGTHS OF CROSS TIES REPLACED
				9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"			
5	11'-0"	3'-6 1/2"	42'-6 1/2"	4	6	3	3	2	1	2	1	2	1	2	1	2	2	2	2	37	2352	60'-11"
6	11'-0"	3'-9"	47'-6"	4	6	3	3	2	3	2	1	2	1	2	2	3	2	2	2	41	2628	69'-8"
7	16'-6"	4'-8 1/2"	62'-1"	7	9	4	3	3	3	2	1	2	2	2	2	4	3	3	2	52	3263	88'-0"
8	16'-6"	5'-1"	68'-0"	7	9	4	3	3	3	4	2	1	3	2	3	2	5	3	3	57	3630	97'-8"
9	16'-6"	6'-4 1/2"	72'-3 1/2"	7	9	4	4	3	4	3	3	3	3	2	3	5	3	3	4	63	4040	105'-8"
10	16'-6"	6'-5"	78'-9"	7	10	5	4	4	4	3	3	3	3	3	4	4	4	4	68	4360	115'-11"	
11	22'-0"	7'-0"	91'-10 1/4"	10	10	7	4	5	5	3	4	3	3	3	5	5	3	4	78	4935	132'-9"	
12	22'-0"	7'-9 1/2"	96'-8"	10	10	7	5	5	5	4	4	4	3	4	3	6	5	4	83	5289	141'-4"	
14	22'-0"	8'-7 1/2"	107'-0 3/4"	10	10	7	6	7	6	4	4	5	4	4	5	6	5	5	94	6064	159'-2"	
15	30'-0"	9'-5"	126'-4 1/2"	15	12	9	8	7	6	5	5	5	4	5	6	6	6	6	110	6985	182'-3"	
16	30'-0"	9'-5"	131'-4"	15	12	9	8	7	6	6	7	5	6	5	4	6	6	6	114	7248	191'-0"	
18	30'-0"	11'-0 1/2"	140'-11 1/2"	15	14	10	9	8	7	6	5	6	6	5	6	7	7	7	124	7930	208'-1"	
20	30'-0"	11'-0 1/2"	151'-11 1/2"	15	15	11	10	9	8	6	6	5	7	6	5	7	8	9	133	8534	226'-7"	

TABLE B BILL OF SWITCH TIES FOR TURNOUTS WITH CURVED SWITCHES

FROG No.	LENGTH OF SWITCH RAIL	TOE LENGTH TO 1/2" POINT	LEAD P.S. TO 1/2" POINT	LENGTHS AND QUANTITIES OF TIES																QTY OF TIES	BOARD MEASURE	TRACK LENGTHS OF CROSS TIES REPLACED
				9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"			
5	13'-0"	3'-6 1/2"	44'-6 1/2"	5	5	3	3	2	2	2	1	2	1	2	1	2	2	2	38	2410	62'-11"	
6	13'-0"	3'-9"	49'-9"	5	5	3	3	2	3	2	2	2	1	2	2	3	2	2	42	2691	71'-11"	
7	13'-0"	4'-8 1/2"	54'-8 1/2"	5	6	4	3	3	3	2	2	2	2	2	4	3	3	2	48	3084	80'-7"	
8	13'-0"	5'-1"	58'-11 1/8"	5	6	4	3	3	3	3	3	3	2	3	2	5	3	3	54	3520	88'-7"	
9	19'-6"	6'-4 1/2"	74'-1 1/4"	9	8	5	4	4	4	2	3	3	3	2	3	5	3	3	65	4132	107'-6"	
10	19'-6"	6'-5"	78'-11"	9	8	5	5	4	4	3	3	3	3	3	4	4	4	4	69	4410	116'-1"	
11	19'-6"	7'-0"	83'-6"	9	9	5	5	4	4	4	3	3	3	3	5	5	3	4	73	4667	124'-1"	
12	19'-6"	7'-9 1/2"	87'-3 1/2"	9	9	5	5	4	5	4	4	4	3	4	3	6	5	4	78	5030	131'-11"	
14	26'-0"	8'-7 1/2"	108'-7 1/2"	12	10	9	7	6	5	4	4	5	4	4	5	6	5	5	97	6200	160'-9"	
15	26'-0"	9'-5"	113'-5"	12	10	9	7	6	6	5	4	5	5	4	5	6	6	6	102	6565	169'-4"	
16	26'-0"	9'-5"	118'-5"	12	12	9	8	6	6	5	4	5	6	5	4	6	6	6	106	6788	178'-1"	
18	39'-0"	11'-0 1/2"	147'-0 1/2"	20	16	11	8	7	6	5	5	6	6	5	6	7	7	7	129	8145	214'-2"	
20	39'-0"	11'-0 1/2"	156'-0 1/2"	20	17	10	9	6	8	6	6	7	6	5	7	8	9	7	138	8775	230'-8"	

TABLE C BILL OF SWITCH TIES FOR CROSSOVERS WITH STRAIGHT SWITCHES

FROG No.	LENGTH OF SWITCH RAIL	TOE LENGTH TO 1/2" POINT	LEAD P.S. TO 1/2" POINT	LENGTHS AND QUANTITIES OF TIES INCLUDES THE TOTAL NUMBER OF SWITCH TIES FROM POINT OF SWITCH TO POINT OF SWITCH																QTY OF TIES	BOARD MEASURE	TRACK LENGTH (PARALLEL TRACKS) OF CROSS TIES REPLACED = S + X	
				7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	15'-0"	S			X	
5	11'-0"	3'-6 1/2"	42'-6 1/2"	1	4	8	8	12	6	8	6	2	4	2	8	4	1	4	78	4365	37'-7"	26'-0"	
6	11'-0"	3'-9"	47'-6"	2	2	10	8	12	6	9	7	6	4	2	10	2	2	4	86	4833	42'-7"	29'-6"	
7	16'-6"	4'-8 1/2"	62'-1"	2	4	12	14	18	8	9	9	6	4	2	12	4	2	4	110	6087	55'-6"	36'-5"	
8	16'-6"	5'-1"	68'-0"	1	4	16	14	18	10	8	8	10	4	2	16	4	1	4	120	6660	59'-10"	43'-2"	
9	16'-6"	6'-4 1/2"	72'-3 1/2"	1	6	16	14	18	10	10	8	10	6	6	16	6	1	4	132	7384	64'-1"	46'-9"	
10	16'-6"	6'-5"	78'-9"	4	4	18	14	20	14	8	8	12	6	6	18	4	4	4	144	8043	70'-7"	50'-3"	
11	22'-0"	7'-0"	91'-10 1/4"	4	6	20	20	20	16	10	12	12	6	8	20	6	4	4	168	9356	82'-1"	57'-0"	
12	22'-0"	7'-9 1/2"	96'-8"	2	6	22	20	20	16	13	13	12	8	8	22	6	2	4	174	9705	86'-10"	60'-7"	
14	22'-0"	8'-7 1/2"	107'-0 3/4"	5	6	28	20	20	16	16	18	14	8	8	28	6	5	4	202	11295	94'-0"	74'-1"	
15	30'-0"	9'-5"	126'-4 1/2"	4	8	28	30	24	22	18	16	18	10	10	28	8	4	4	232	12889	113'-4"	77'-7"	
16	30'-0"	9'-5"	131'-4"	4	8	30	30	24	22	18	16	16	12	14	30	8	4	4	240	13382	118'-3"	81'-2"	
18	30'-0"	11'-0 1/2"	140'-11 1/2"	6	6	36	30	28	22	24	22	16	10	10	36	6	6	4	262	14548	124'-8"	94'-8"	
20	30'-0"	11'-0 1/2"	151'-11 1/2"	6	8	38	30	30	28	23	21	18	12	10	38	8	6	4	280	15548	135'-8"	101'-8"	

TABLE D BILL OF SWITCH TIES FOR CROSSOVERS WITH CURVED SWITCHES

FROG No.	LENGTH OF SWITCH RAIL	TOE LENGTH TO 1/2" POINT	LEAD P.S. TO 1/2" POINT	LENGTHS AND QUANTITIES OF TIES INCLUDES THE TOTAL NUMBER OF SWITCH TIES FROM POINT OF SWITCH TO POINT OF SWITCH																QTY OF TIES	BOARD MEASURE	TRACK LENGTH (PARALLEL TRACKS) OF CROSS TIES REPLACED = S + X	
				7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	15'-0"	S			X	
5	13'-0"	3'-6 1/2"	44'-6 1/2"	1	4	8	10	10	6	8	6	4	4	2	8	4	1	4	80	4481	39'-7"	26'-0"	
6	13'-0"	3'-9"	49'-9"	2	2	10	10	10	6	9	7	6	4	4	10	2	2	4	88	4959	44'-10"	29'-6"	
7	13'-0"	4'-8 1/2"	54'-8 1/2"	2	4	12	10	12	8	9	9	6	4	4	12	4	2	4	102	5730	48'-2"	36'-5"	
8	13'-0"	5'-1"	58'-11 1/8"	1	4	16	10	12	10	8	8	8	6	6	16	4	1	4	114	6439	50'-9"	43'-2"	
9	19'-6"	6'-4 1/2"	74'-1 1/4"	1	6	16	18	16	12	10	10	10	4	6	16	6	1	4	136	7568	65'-11"	46'-9"	
10	19'-6"	6'-5"	78'-11"	4	4	18	18	16	14	10	8	12	6	6	18	4	4	4	146	8143	70'-9"	50'-3"	
11	19'-6"	7'-0"	83'-6"	4	6	20	18	18	12	12	10	10	8	8	20	6	4	4	158	8820	73'-8"	57'-0"	
12	19'-6"	7'-9 1/2"	87'-3 1/2"	2	6	22	18	18	12	13	11	12	8	8	22	6	2	4	164	9185	77'-6"	60'-7"	
14	26'-0"	8'-7 1/2"	108'-7 1/2"	5	6	28	24	20	20	18	16	12	8	8	28	6	5	4	208	11568	95'-7"	74'-1"	
15	26'-0"	9'-5"	113'-5"	4	8	28	24	20	22	16	14	18	10	8	28	8	4	4	216	12049	100'-4"	77'-7"	
16	26'-0"	9'-5"	118'-5"	4	8	30	24	24	22	18	14	16	10	8	30	8	4	4	224	12464	105'-4"	81'-2"	
18	39'-0"	11'-0 1/2"	147'-0 1/2"	6	6	36	40	32	24	22	20	14	10	10	36	6	6	4	272	14978	130'-9"	94'-8"	
20	39'-0"	11'-0 1/2"	156'-0 1/2"	6	8	38	40	34	26	21	15	22	12	12	38	8	6	4	290	16031	139'-9"	101'-8"	

NOTES

1. Data - For tabulation of general turnout and crossover data for straight switches, see Plan Basic No. 910.
2. Data - For tabulation of general turnout and crossover data for curved switches, see Plan Basic No. 920.
3. Lengths of switch ties in tables are based on 8'-6" cross ties.
4. Board measure given in tables is based on switch ties 7" x 9".
5. Data in tables are based on locating ties under switches and frogs as indicated on AREMA Trackwork Plans of these units and on spacing of other ties approximately 20" center to center.
6. Lengths shown for crossovers in Tables "C" and "D" are based on 13'-0" track centers and should be modified to suit for other track centers.
7. Cross ties may be used for lengths 8'-6" and less in Tables "C" and "D" and board measure of switch ties reduced accordingly.

AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION

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