

## Appendix C NABC KO Bracketing

The principles of Appendix C reduce any entry field to a power of two on day two of the event. These principles are achieved with the use of byes, four-way matches and two-way matches.

In the special cases of an entry field that exceeds a power of two by one or two teams, three-way matches (one survivor) will be used. In such cases, the staff shall seek withdrawals from the field prior to posting the first round pairings.

Below is a brief explanation of the pairing concept with several examples. The pages that follow the example indicate first round setups for an expected range of entrants.

In the formulas which follow:

N	=	Number of teams entered
E	=	Number of teams to eliminate
B	=	Number of byes
F	=	Number of four-way matches
T	=	Number of two-way matches
R	=	Reference number
S	=	Sum of the seeds

### **Instructions for First Round Matches:**

- 1) Find the number of teams (N) in the table.
- 2) If there are two-way matches, they are assigned as follows:

B+1	vs	N
B+2	vs	N-1 ...

Until B+T vs N-T+1 is reached.

Note, the sum of the two seeds is  $B+N+1=S$ .

- 3) If there are four-ways, they can be arranged as follows:

1 <sup>st</sup> Seed	2 <sup>nd</sup> Seed	3 <sup>rd</sup> Seed	4 <sup>th</sup> Seed
R+1	R+2F	R+2F+1	R+4F
R+2	R+2F-1	R+2F+2	R+4F-1 ...

Until R+F vs R+F+1 vs R+3F vs R+3F+1 is reached.

First seeds play fourth in the afternoon, second seeds play third  
Note, the sum of the seeds playing the afternoon is  $2R+4F+1=S$

### **Example:**

Below is a completed example for a thirty-nine team field. The four-way match set up is also used for forty teams, and for 47-50 teams. In each of these cases,  $R=11$  and  $S=51$ .

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The four way matches are as follows:

1 <sup>st</sup> Seed	2 <sup>nd</sup> Seed	3 <sup>rd</sup> Seed	4 <sup>th</sup> Seed
12	25	26	39
13	24	27	38
14	23	28	37
15	22	29	36
16	21	30	35
17	20	31	34
18	19	32	33

Note that the sum of the competing seeds equals 51; moreover the sum of the first and second seeds equals 37.

For thirty nine teams, the top eleven seeds receive byes on the first day of competition. For forty teams, one two-way match is added, as the eleventh seed will face the fortieth seed, with the top ten seeds receiving byes. For 47, 48, 49 and 50 teams, additional two-ways are added as follows:

47: only three byes, and eight two-ways (4 vs 47, 5 vs 46, 6 vs 45, 7 vs 44, 8 vs 43, 9 vs 42, 10 vs 41, & 11 vs 40).

48: only two byes, with nine two-ways (3 vs 48 added to the listings for forty-seven)

49: only one bye, with ten two-ways (2 vs 49 added to the listings for forty-eight)

50: no byes, eleven two-ways (1 vs 50 added to the listings for forty-nine)

The following table shows the appropriate methods to use for any number of teams between nine and one hundred twenty eight. As above, the key to the chart is

N	=	Number of teams entered
E	=	Number of teams to eliminate
B	=	Number of byes
F	=	Number of four-way matches
T	=	Number of two-way matches
R	=	Reference number
S	=	Sum of the seeds

If the number of teams is in bold, all four-ways can be used to eliminate the necessary teams. See Instruction 3) for formula for computing the teams in the four-ways.

# teams (N)	# Teams to eliminate (E)	# byes (B)	# 4-ways (F)	# 2-ways (T)	Ref # (R)	Sum of Seeds (S)	One Winner 3-ways	Other # of teams with same 4-way sets
<b>9</b>	1	5	1	0	5	15		10-14
10	2	4	1	1	5	15		
11	3	3	1	2	5	15		
12	4	2	1	3	5	15		
13	5	1	1	4	5	15		
14	6	0	1	5	5	15		
15	7	1		7		17		

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# teams (N)	# Teams to eliminate (E)	# byes (B)	# 4-ways (F)	# 2-ways (T)	Ref # (R)	Sum of Seeds (S)	One Winner 3-ways	Other # of teams with same 4-way sets
16	8	0		8		17		
17	9	0	0	7		16	8-16-17	
18	10	0	0	6		15	7-16-17 8-15-18	
<b>19</b>	3	7	3	0	7	27		20, 23-26
20	4	6	3	1	7	27		
<b>21</b>	5	1	5	0	5	23		22
22	6	0	5	1	5	23		
23	7	3	3	4	7	27		
24	8	2	3	5	7	27		
25	9	1	3	6	7	27		
26	10	0	3	7	7	27		
27	11	3	1	10	11	31		
28	12	2	1	11	11	31		
29	13	1	1	12	11	31		
30	14	0	1	13	11	31		
31	15	1		15		33		
32	16	0		16		33		
33	17	0	0	15	29	32	16-32-33	
34	18	0	0	14	29	31	15-32-33 16-31-34	
<b>35</b>	3	23	3	0	23	59		36, 55-58
36	4	22	3	1	23	59		
<b>37</b>	5	17	5	0	17	55		38, 51-54
38	6	16	5	1	17	55		
<b>39</b>	7	11	7	0	11	51		40, 47-50
40	8	10	7	1	11	51		
<b>41</b>	9	5	9	0	5	47		42-46
42	10	4	9	1	5	47		
43	11	3	9	2	5	47		
44	12	2	9	3	5	47		
45	13	1	9	4	5	47		
46	14	0	9	5	5	47		
47	15	3	7	8	11	51		
48	16	2	7	9	11	51		
49	17	1	7	10	11	51		
50	18	0	7	11	11	51		
51	19	3	5	14	17	55		
52	20	2	5	15	17	55		
53	21	1	5	16	17	55		
54	22	0	5	17	17	55		
55	23	3	3	20	23	59		
56	24	2	3	21	23	59		
57	25	1	3	22	23	59		
58	26	0	3	23	23	59		
59	27	3	1	26	29	63		
60	28	2	1	27	29	63		
61	29	1	1	28	29	63		
62	30	0	1	29	29	63		
63	31	1		31		65		
64	32	0		32		65		

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# teams (N)	# Teams to eliminate (E)	# byes (B)	# 4-ways (F)	# 2-ways (T)	Ref # (R)	Sum of Seeds (S)	One Winner 3-ways	Other # of teams with same 4-way sets
65	33	0	0	31	61	64	32-64-65	
66	34	0	0	30	61	63	31-64-65 32-63-66	
<b>67</b>	3	55	3	0	55	123		68, 119-122
68	4	54	3	1	55	123		
<b>69</b>	5	49	5	0	49	119		70, 115-118
70	6	48	5	1	49	119		
<b>71</b>	7	43	7	0	43	115		72, 111-114
72	8	42	7	1	43	115		
<b>73</b>	9	37	9	0	37	111		74, 107-110
74	10	36	9	1	37	111		
<b>75</b>	11	31	11	0	31	107		76, 103-106
76	12	30	11	1	31	107		
<b>77</b>	13	25	13	0	25	103		78, 99-102
78	14	24	13	1	25	103		
<b>79</b>	15	19	15	0	19	99		80, 95-98
80	16	18	15	1	19	99		
<b>81</b>	17	13	17	0	13	95		82, 91-94
82	18	12	17	1	13	95		
<b>83</b>	19	7	19	0	7	91		84, 87-90
84	20	6	19	1	7	91		
<b>85</b>	21	1	21	0	1	87		86
86	22	0	21	1	1	87		
87	23	3	19	4	7	91		
88	24	2	19	5	7	91		
89	25	1	19	6	7	91		
90	26	0	19	7	7	91		
91	27	3	17	10	13	95		
92	28	2	17	11	13	95		
93	29	1	17	12	13	95		
94	30	0	17	13	13	95		
95	31	3	15	16	19	99		
96	32	2	15	17	19	99		
97	33	1	15	18	19	99		
98	34	0	15	19	19	99		
99	35	3	13	22	25	103		
100	36	2	13	23	25	103		
101	37	1	13	24	25	103		
102	38	0	13	25	25	103		
103	39	3	11	28	31	107		
104	40	2	11	29	31	107		
105	41	1	11	30	31	107		
106	42	0	11	31	31	107		
107	43	3	9	34	37	111		
108	44	2	9	35	37	111		
109	45	1	9	36	37	111		
110	46	0	9	37	37	111		
111	47	3	7	40	43	115		
112	48	2	7	41	43	115		
113	49	1	7	42	43	115		
114	50	0	7	43	43	115		

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# teams (N)	# Teams to eliminate (E)	# byes (B)	# 4-ways (F)	# 2-ways (T)	Ref # (R)	Sum of Seeds (S)	One Winner 3-ways	Other # of teams with same 4-way sets
115	51	3	5	46	49	119		
116	52	2	5	47	49	119		
117	53	1	5	48	49	119		
118	54	0	5	49	49	119		
119	55	3	3	52	55	123		
120	56	2	3	53	55	123		
121	57	1	3	54	55	123		
122	58	0	3	55	55	123		
123	59	3	1	58	61	127		
124	60	2	1	59	61	127		
125	61	1	1	60	61	127		
126	62	0	1	61	61	127		
127	63	1		63		129		
128	64	0		64		129		