Winckler1-O-Kampmann-Wg1-WOB-DNM

	A	B	C	D	E	F	G
1	**I. Bocal**		Original bocal, Winckler1, No				
2	dia reed end		inside diameter of reed end of bocal				
3	bocal string length (0, 1)		length of bocal inserted into receiver				
4	metal bocal length top (0, 1)		meas. along top of bocal				
5	metal bocal length bot (0, 1)		meas. along bottom of bocal				
6	dia wj end		inside diameter of bocal				
7							
8	bocal logic	2	if bocal logic = 0 => bocal is choke; if bocal logic = 1 =>choke in wing joint calc; if bocal logic = 2 => no bocal				
9							
10							
11							
12							
13	**II. Wing Joint Lengths**		bocal receiver: Winckler1, yes; the upper part of the wing has been repaired				
14	choke bore dia.	7.1	logic 1; bore diameter of choke; logic 0; either diameter bocal bottom or beginning of bore at bottom or receiver				
15	receiver length (1, 0) (formally choke length)	68	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)				
16	wing joint length	500	total wing joint length, including tenon and socket				
17	tenon length	39	tenon length				
18							
19	wj f2	232	dist top of wing to where tone hole enters bore [not at the center of the tone hole]				
20	wj e	276					
21	wj d	317					
22							
23	Bore dia. Bottom of wing joint	14.8	Need to Average, usally oval; Winckler1 OOR; slighty oval				
24	Bore dia. top of boot joint small side	14.3					
25	Bore dia. top of boot joint large side	23.4					
26							
27	**III. Boot Lengths**						
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed				
29	bj c	100	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]				
30	bj b	146					
31	bj a	193					
32							
33	bjstotal [Needed for both boot logics]	436	total length of boot, include socket, along the small bore side				
34	bjltotal [Needed for both boot logics]	436	total length of boot, include socket, along large bore side				
35	plug small [Need for logic 0 only]	0	plug thickness, large bore side				
36	plug large [Need for logic 0 only]	0	plug thickness, small bore side				
37							
38	boots [Needed for both boot logics]	396	hook length along s bore => bjs-septum length = boot - septum <= calc the septum				
39	bootl [Needed for both boot logics]	396	hook length along l bore => bjl-septum length = boot - septum <= calc the septum				
40							
41	boots bottom [Needed for both boot logics]	20	use hook, dist of bore [dist on stick plus 7mm, diff between hook and bot of stick]				
42	bootl bottom [Needed for both boot logics]	20	use hook, dist of bore [same as boots bot except tenon depth will be different]				
43			Winckler1; seems to be a 2 plug design, could not remove boot cap				
44	extreme bore [Needed for logic 1 only]	44	Winckler1 an estimate, could not remove boot cap; Outside dia of plug [measured]				
45							
46	septum length exp [Need for logic 0 only]	0	dist. from very bottom of boot to septum [point between the large and small bore]				
47	septum length calc - do not imput value	40	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value			
48	septum length - do not imput value	40	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum calc	do not imput value			
49							
50	sbore dia sep* [Needed for both boot logics]	18.2	Winckler1 could not measure an estimate; septum small bore dia [assume = lbore dia sep];				
51	lbore dia sep* [Needed for both boot logics]	18.2	septum large bore dia [assume = sbore dia sep] [mesure if cork can be removed; for Logic 0]				
52	sep width exp [Need for logic 0 only]	0	septum width; direct measurement if remove plug				
53	sep width calc - do not imput value	7.6	septum width; calc. => extreme bore - sbore - lbore	do not imput value			
54	sep width - do not imput value	7.6	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep width calc	do not imput value			
55							
56	bj g	340	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]				
57	bj f1	138	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone hole]				
58							
59							
60							
61							
62							
63	**IV. Tone Hole Diameters**						
64	f2	5.9					
65	e	5.6					
66	d	5.7					
67							
68	c	6.9					
69	b	6.9					
70	a	6.2					
71	g	8.4					
72	f1	10.9					
73							
74	e1	12	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
75	d1	9.8	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
76	c1	12.6	Winckler1 oblong 14.0 x 14.8; c1 tone hole dia, on long joint [need to average NS and EW dias]				
77							
78							
79							
80							
81							
82	**V. Tone Hole Depths**						
83	f2	27.3					
84	e	26.6					
85	d	27.4					
86							
87	c	24.7					
88	b	25.5					
89	a	25					
90	g	19	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]				
91	f1	21.3	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]				
92							
93	e1	5.7	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]				
94	d1	5.7	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
95	c1	5.4	c1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
96							

Winckler1-O-Kampmann-Wg1-WOB-DNM

	A	B	C	D	E	F	G
97							
98							
99							
100							
101	**VI. Long Joint**		Winckler1 no table along long joint				
102	lg_length	586	total length of long joint				
103	lg_tenon_bot	42.4	length bottom tenon on long joint [tenon going into boot joint]				
104	lj_bot_bore	23.9	Winckler1 OOR 23.2 x 24.6; long joint bottom tenon bore diameter [tenon going into boot joint]				
105	lj_top_bore	32.5	long joint top tenon bore diameter [tenon going into bell]				
106	lg_tenon_top	33.1	length top tenon on long joint [tenon going into bell]				
107	e1 distance	60	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]				
108	d1 distance	266	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore]				
109	c1 distance	474	dist long joint tenon to c1 [from bot of tenon to where tone hole enters bore]				
110							
111							
112							
113							
114							
115	**VII. Bore diameters at Tone Holes**						
116	f2	11.4					
117	e	11.6					
118	d	12.2					
119							
120	c	14.8					
121	b	15.2					
122	a	15.5					
123	g	19.3					
124	f1	21					
125							
126	e1	23.9	e1 tone hole bore diameter on long joint				
127	d1	27.1	d1 tone hole bore diameter on long joint				
128	c1	29.8	c1 tone hole bore diameter on long joint				
129							
130							
131							
132							
133							
134	**VIII. Bell**		Winckler1 no tone hole in the bell				
135	bell logic	1	If bell_logic = 0 => normal conical bore; if bell_logic = 1 => inverted concial bore				
136	bell_length (0, 1, 2)	300	total length of bell [lines 141 + 144 = line 136]				
137	bell_bot_bore (0, 1, 2)	31	dia bore at the bottom of bell [end with socket]				
138	bell_top_bore 0, (1, 0, 2)	27.5	dia bore at the top of bell [where low Bb exits]				
139	bell_center_bore (only for logic 2)		dia bore at max center of expansion				
140	bell_wall (only for logic 2)		bell wall thickness, Just for David				
141	bell_bot_bore_expansion (only for logic 2)		dist of bottom to maxium of expansion [including bell socket length,if bell logic=0 =>100]				
142	Outside diameter of wood at expansion		Just for David				
143	bell_tenon (0, 1, 0, 2)	33.1	bell socket length				
144	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]				
145	belflg	44	Usually about 10mm more than line 138; MEAS. 16 June 2013				
146							
147							
148	**IX. PITCH**						
149	pitch	415	input the historical pitch of the bassoon, must input value, best guess				
150	freq_init	380	Initial frequency range variable				
151	Delta frequency	2	frequency increment parameter				
152	Number of frequencies	60	number of frequencies to scan for min chi sq				
153	Frequency adjust	1.05	frequency adjustment parameter				
154	**X. Title**						
155	title		Bassoon Calculation: Winckler1-O-Kampmann-Wg1-WOB-DNM				
156							
157			Notes on long joint bore: Winckler1 very out of round in places				
158			Notes on boot joint bore: Winckler1 small side very out of round				
159	**XI. Bore Diameter Locations**		Notes on wing join boret: Winckler1 normal				
160		21	Number of diameters				
161	**Bell Bore**	7.1	Initial bore diameter				
162	31.0mm diameter at socket	373	dist1; measured from the bottom of the wing joint- 10mm				1
163	30mm rod 80mm from socket	295	dist2; measured from the bottom of the wing joint- 11mm				1
164	29mm rod 158mm from socket	197	dist3; measured from the bottom of the wing joint- 12mm				1
165	28mm rod 240mm from socket	118	dist4; measured from the bottom of the wing joint- 13mm				1
166	27.5mm diameter at bell end	29	Winckler1 OOR; dist5; measured from the bottom of the wing joint- 14mm				1
167		145	dist6; measured from the top of the bootjoint - small bore side- 15mm	Bottom wing	14.8		2
168		117	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot sma	14.3		2
169		0	Winckler1 OOR; dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot larg	23.4		2
170		0	dist9; measured from the top of the bootjoint - small bore side- 18mm				2
171		360	Winckler1 OOR; dist10; measured from the top of the bootjoint - large bore side- 19mm; 340 to	sbore dia se	18.2		3
172		222	Winckler1 OOR; dist11; measured from the top of the bootjoint - large bore side- 20mm; 205 to	lbore dia se	18.2		3
173		140	dist12; measured from the top of the bootjoint - large bore side- 21mm				3
174		102	dist13; measured from the top of the bootjoint - large bore side- 22mm				3
175		69	dist14; measured from the top of the bootjoint - large bore side- 23mm				3
176		512	dist15; measured from the top of the long joint- 24mm	lj_bot_bore	23.9		4
177		455	dist16; measured from the top of the long joint- 25mm				4
178		385	dist17; measured from the top of the long joint- 26mm				4
179		315	dist18; measured from the top of the long joint- 27mm				4
180		222	Winckler1 OOR; dist19; measured from the top of the long joint- 28mm				4
181		158	dist20; measured from the top of the long joint- 29mm				4
182		97	dist21; measured from the top of the long joint- 30mm				4
183		60	dist22; measured from the top of the long joint- 31mm				4
184		15	dist23; measured from the top of the long joint- 32mm	lj_top_bore	32.5		4