GrenserA4-O-Leipzig1378-Wg1-WOB-DNM

	A	B	C	D	E	F	G	H
1	**I. Bocal**		Original bocal; GrenserA4 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**		GrenserA4 bocal receiver: yes there is a receiver; formed by repair of top of wing, insert put in					
14	choke bore dia.	8.2	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)	63	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)					
16	wing joint length	528	total wing joint length, including tenon and socket					
17	tenon length	40	tenon length					
18								
19	wj f2	236	dist top of wing to where tone hole enters bore [not at the center of the tone hole]					
20	wj e	296						
21	wj d	346						
22								
23	Bore dia. Bottom of wing joint	14.5	Need to Average, usally oval; GrenserA4 yes					
24	Bore dia. top of boot joint small side	15.5						
25	Bore dia. top of boot joint large side	24.9						
26								
27	**III. Boot Lengths**		GrenserA4 Two whole design; cork on small side of boot has fallen out.					
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed					
29	bj c	84	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]					
30	bj b	140						
31	bj a	191						
32								
33	bjstotal [Needed for both boot logics]	430	total length of boot, include socket, along the small bore side					
34	bjltotal [Needed for both boot logics]	430	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]	387	hook length along s bore => bjs-septum length = boot - septum <= calc the septum					
39	bootl [Needed for both boot logics]	387	hook length along l bore => bjl-septum length = boot - septum <= calc the septum					
40								
41	boots bottom [Needed for both boot logics]	22	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]	22	use hook, dist of bore [same as boots bot except tenon depth will be different]					
43								
44	extreme bore [Needed for logic 1 only]	41.6	Outside dia of plug [measured] = small bore dia + large bore dia + the septum width					
45								
46	septum length exp [Need for logic 0 only]	44	GrenserA4 could meas. Exactly because cork is missing; dist. from very bottom of boot to septum					
47	septum length calc - do not imput value	43	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value				
48	septum length - do not imput value	43	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum c	do not imput value				
49								
50	sbore dia sep* [Needed for both boot logics]	18.4	septum small bore dia [assume = lbore dia sep]					
51	lbore dia sep* [Needed for both boot logics]	18.8	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	4.4	septum width; calc. => extreme bore - sbore - lbore	do not imput value				
54	sep width - do not imput value	4.4	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = se	do not imput value				
55								
56	bj g	329	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]					
57	bj f1	119	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	4.7	GrenserA4 vrfd tone holes are small here than on Grenser 1377					
65	e	5.5						
66	d	5						
67								
68	c	6.8						
69	b	6.8						
70	a	5.6						
71	g	8.4						
72	f1	7.8						
73								
74	e1	10	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]					
75	d1	9.3	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]					
76	c1	11.9	c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]oblong					
77								
78								
79								
80								
81								
82	**V. Tone Hole Depths**							
83	f2	23.8	GrenserA4 these tone holes are longer than Grenser 1377, wing with tone holes is larger in dia.					
84	e	22.6						
85	d	30						
86								
87	c	23						
88	b	23.3						
89	a	26						
90	g	15.4	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]					
91	f1	15.6	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]					
92								
93	e1	8.7	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]					
94	d1	7.8	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]					
95	c1	7.5	c1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]					

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	A	B	C	D	E	F	G	H
96								
97								
98								
99								
100								
101	**VI. Long Joint**		There is a table along long joint; GrenserA4 a table along long joint					
102	lg_length	609	total length of long joint; yes 600 mm					
103	lg_tenon_bot	42	length bottom tenon on long joint [tenon going into boot joint]					
104	lj_bot_bore	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	33.3	length top tenon on long joint [tenon going into bell]					
107	e1 distance	52	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]					
108	d1 distance	267	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore]					
109	c1 distance	514	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	11.8						
117	e	12.8						
118	d	13.3						
119								
120	c	15.8						
121	b	16.6						
122	a	17.1						
123	g	20						
124	f1	24.1						
125								
126	e1	25	e1 tone hole bore diameter on long joint					
127	d1	28.8	d1 tone hole bore diameter on long joint					
128	c1	31.4	c1 tone hole bore diameter on long joint					
129								
130								
131								
132								
133								
134	**VIII. Bell**		GrenserA4 There is not a tone hole in the bell					
135	bell logic	1	If bell_logic = 0 => normal conical bore; if bell_logic = 1 => inverted concial bore; if bell_logic = 2 => bell expansion					
136	bell_length (0, 1, 2)	304	total length of bell [lines 141 + 144 = line 136]					
137	bell_bot_bore (0, 1, 2)	32.2	dia bore at the bottom of bell [end with socket]					
138	bell_top_bore 0, (1, 0, 2)	29	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)	34.1	bell socket length					
144	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]					
145								
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**		dated 1788					
155	title		Bassoon Calculation: GrenserA4-O-Leipzig1378-Wg1-WOB-DNM					
156								
157			Notes on long joint bore: GrenserA4 very out of round in places					
158			Notes on boot joint bore: GrenserA4 small side very out of round and cyn.					
159	**XI. Bore Diameter Locations**		Notes on wing joint bore: GrenserA4 normal					
160		20	Number of diameters					
161	**Bell Bore**	8.2	Initial bore diameter [do not include in line 160 counting]					
162	32.2mm dia. at socket	0	dist1; measured from the bottom of the wing joint- 10mm there is an insert in top of bore, makes a chok				1	
163	31mm rod 110mm from socket	0	dist2; measured from the bottom of the wing joint- 11mm				1	
164	30mm rod 205mm from socket	275	dist3; measured from the bottom of the wing joint- 12mm				1	
165	29mm rod 280mm from socket	210	dist4; measured from the bottom of the wing joint- 13mm				1	
166	29mm dia. at bell end	6	dist5; measured from the bottom of the wing joint- 14mm				1	
167		0	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing	14.5		1	
168		110	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot sma	15.5		2	
169		180	dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot larg	24.9		2	
170		310	dist9; measured from the top of the bootjoint - small bore side- 18mm				2	
171		372	dist10; measured from the top of the bootjoint - large bore side- 19mm	sbore dia sep	18.4		3	
172		330	dist11; measured from the top of the bootjoint - large bore side- 20mm	lbore dia sep	18.8		3	
173		262	dist12; measured from the top of the bootjoint - large bore side- 21mm	Hook Length	387		3	
174		230	dist13; measured from the top of the bootjoint - large bore side- 22mm				3	
175		182	dist14; measured from the top of the bootjoint - large bore side- 23mm				3	
176		125	dist15; measured from the top of the boot joint- large bore side- 24mm	lj_bot_bore	24.6		3	
177		540	dist16; measured from the top of the long joint- 25mm				4	
178		495	dist17; measured from the top of the long joint- 26mm				4	
179		432	dist18; measured from the top of the long joint- 27mm				4	
180		393	dist19; measured from the top of the long joint- 28mm				4	
181		320	dist20; measured from the top of the long joint- 29mm				4	
182		220	OOR 170 x 270, dist21; measured from the top of the long joint- 30mm				4	
183		125	dist22; measured from the top of the long joint- 31mm				4	
184		16	dist23; measured from the top of the long joint- 32mm	lj_top_bore	32.5		4	