

	A	B	C	D	E	F	G
1	I. Bocal		Original bocal; no bocal, Sautermeister1				
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: No receiver on Sautermeister1				
14	choke bore dia.	10.1	logic 1; bore diameter of choke; logic 0; 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	502	total wing joint length, including tenon and socket				
17	tenon length	43	tenon length				
18							
19	wj f2	221	dist top of wing to where tone hole enters bore [not at the center of the tone hole]				
20	wj e	284					
21	wj d	318	Sautermeister1 f and d tone holes NOT at fairly steep angle				
22							
23	Bore dia. Bottom of wing joint	17	Need to Average, usually oval; Sautermeister1 Yes, slightly				
24	Bore dia. top of boot joint small side	17.2					
25	Bore dia. top of boot joint large side	24.3					
26							
27	III. Boot Lengths						
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => U tube cannot be removed				
29	bj c	88	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]	verified			
30	bj b	139					
31	bj a	180					
32							
33	bjtotal [Needed for both boot logics]	421	total length of boot, include socket, along the small bore side				
34	bltotal [Needed for both boot logics]	421	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]	365	Sautermeister1 vrfd short; hook length along s bore => bjs-septum length = boot - septum <= calc the septum				
39	bootl [Needed for both boot logics]	365	hook length along l bore => bjl-septum length = boot - septum <= calc the septum				
40							
41	boots bottom [Needed for both boot logics]	29.5	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]	29.5	use hook, dist of bore [same as boots bot except tenon depth will be different] 22.5 + 7 vrfd long				
43							
44	extreme bore [Needed for logic 1 only]	45.2	Outside dia of plug [measured] = small bore dia + large bore dia + the septum width				
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	56	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value			
48	septum length - do not imput value	56	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]	20.3	septum small bore dia [assume = lbore dia sep]				
51	lbore dia sep* [Needed for both boot logics]	20.5	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 = sep width c	do not imput value			
55							
56	bj g	314	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]				
57	bj f1	120	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	5.1					
65	e	6					
66	d	5					
67							
68	c	7					
69	b	6.6					
70	a	5.4					
71	g	9.4					
72	f1	9					
73							
74	e1	9.4	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
75	d1	8.2	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
76	c1	12.2	Sautermeister1 11.7 x 12.7; c1 tone hole dia, on long joint				
77							
78							
79							
80							
81							
82	V. Tone Hole Depths						
83	f2	33					
84	e	32.1					
85	d	30.1	Sautermeister1 F and d tone holes NOT drilled at extreme angles				
86							
87	c	22.8					
88	b	24.4					
89	a	26.3					
90	g	14.8	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]				
91	f1	19.8	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]				
92							
93	e1	7.8	e1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
94	d1	8.2	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
95	c1	9.2	c1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				

	A	B	C	D	E	F	G
96							
97							
98							
99							
100							
101	VI. Long Joint		Sautermeister1; There is a Leiste [table] along long joint, Yes, a bit high to make tone holes longer				
102	lq_length	568	total length of long joint				
103	lq_tenon_bot	46.2	length bottom tenon on long joint [tenon going into boot joint]				
104	lj_bot_bore	25	long joint bottom tenon bore diameter [tenon going into boot joint]				
105	lj_top_bore	33.4	Sautermeister1 OOR an average 33.9 x 34.9; long joint top tenon bore diameter [tenon going into bell]				
106	lq_tenon_top	36.5	length top tenon on long joint [tenon going into bell]				
107	e1_distance	59	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]				
108	d1_distance	255	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore]				
109	c1_distance	473	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	12.9	Sautermeister1 Tone hole not drilled into center of bore				
117	e	13.7					
118	d	14.1					
119							
120	c	17.5					
121	b	17.9					
122	a	18.2					
123	g	21.1					
124	f1	23.6					
125							
126	e1	25.2	e1 tone hole bore diameter on long joint				
127	d1	28.1	d1 tone hole bore diameter on long joint				
128	c1	31.3	c1 tone hole bore diameter on long joint				
129							
130							
131							
132							
133							
134	VIII. Bell		Sautermeister1 There is not a tone hole in the bell				
135	bell_logic	1	If bell_logic=0=>normal conical; if bell_logic=1=>inverted conical; if bell_logic=2=>bell expansion				
136	bell_length (0, 1, 2)	337	total length of bell (lines 141 + 144 = line 136)				
137	bell_bot_bore (0, 1, 2)	33.4	dia bore at the bottom of bell [end with socket]				
138	bell_top_bore 0, (1, 0, 2)	28.8	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 maximum 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)	37.4	bell socket length				
144	bell_expansion_length (only for logic 2)		distance of maximum expansion to top of bell [where Bb exits]				
145	bellfg	35	Usually about 10mm more than line 138				
146							
147							
148	IX. PITCH						
149	pitch	430	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: Sautermeister1-O-Charbit-Wg1-WOB-DNM				
156							
157			Notes on long joint bore: Sautermeister1, OOR near large end of Long Joint				
158			Notes on boot joint bore: Sautermeister1 normal				
159	XI. Bore Diameter Locations		Notes on wing joint bore: Sautermeister1 normal				
160		21	Number of diameters				
161		10.1	Initial bore diameter [do not include in line 160 counting]				
162		0	dist1; measured from the bottom of the wing joint- 10mm				1
163		386	dist2; measured from the bottom of the wing joint- 11mm				1
164		328	dist3; measured from the bottom of the wing joint- 12mm				1
165		257	dist4; measured from the bottom of the wing joint- 13mm				1
166		191	dist5; measured from the bottom of the wing joint- 14mm				1
167		130	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing	17		1
168		59	dist7; measured from the bottom of the wing joint- 16mm	top boot sma	17.2		1
169		0	dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot larg	24.3		2
170		150	dist9; measured from the top of the bootjoint - small bore side- 18mm				2
171		240	dist10; measured from the top of the bootjoint - small bore side- 19mm	sbore dia sep	20.3		2
172		333	dist11; measured from the top of the bootjoint - small bore side- 20mm	lbore dia sep	20.5		2
173		328	dist12; measured from the top of the bootjoint - large bore side- 21mm	Hook Length	365		3
174		250	dist13; measured from the top of the bootjoint - large bore side- 22mm				3
175		170	dist14; measured from the top of the bootjoint - large bore side- 23mm				3
176		91	dist15; measured from the top of the bootjoint - large bore side- 24mm	lj_bot_bore	25		3
177		515	dist16; measured from the top of the long joint- 25mm				4
178		453	dist17; measured from the top of the long joint- 26mm				4
179		392	dist18; measured from the top of the long joint- 27mm				4
180		318	dist19; measured from the top of the long joint- 28mm				4
181		247	Sautermeister1 OOR 230x265; dist20; measured from the top of the long joint- 29mm				4
182		187	Sautermeister1 OOR 170x195; dist21; measured from the top of the long joint- 30mm				4
183		117	Sautermeister1 OOR 95x140; dist22; measured from the top of the long joint- 31mm				4
184		45	Sautermeister1 OOR 30x60; dist23; measured from the top of the long joint- 32mm	lj_top_bore	33.4		4