	A	B	C	D	E	F	G
1	**I. Bocal**		Original bocal; Savpère8, 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 = 1 =>choke in wing joint calc; if bocal logic = 2 => no bocal				
9							
10							
11							
12							
13	**II. Wing Joint Lengths**		bocal receiver: Savpère8 no, shelf from ware				
14	choke bore dia.	9	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)	45	Savjeune9, vrfd deep; logic 1; length of choke from top of wing joint				
16	wing joint length	515	total wing joint length, including tenon and socket				
17	tenon length	47.4	tenon length				
18							
19	wj f2	202	dist from top of wing to where tone hole enters bore [not at the center of the tone hole]				
20	wj e	302					
21	wj d	343					
22							
23	Bore dia. Bottom of wing joint	15.4	Need to Average, usally oval; Savpère8 no				
24	Bore dia. top of boot joint small side	15.4					
25	Bore dia. top of boot joint large side	24	Savpère8, vrfd				
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	82	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]				
30	bj b	161					
31	bj a	204					
32							
33	bjstotal [Needed for both boot logics]	433	total length of boot, include socket, along the small bore side, meas. with boot cap on				
34	bjltotal [Needed for both boot logics]	433	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]	390	hook length along s bore => bjs-septum length = boot - septum <= calc the septum				
39	bootl [Needed for both boot logics]	390	hook length along l bore => bjl-septum length = boot - septum <= calc the septum				
40							
41	boots bottom [Needed for both boot logics]		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]		use hook, dist of bore [same as boots bot except tenon depth will be different]				
43							
44	extreme bore [Needed for logic 1 only]	42.3	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		dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value			
48	septum length - do not imput value		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]		septum small bore dia [assume = lbore dia sep]				
51	lbore dia sep* [Needed for both boot logics]		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]		septum width; direct measurement if remove plug				
53	sep width calc - do not imput value		septum width; calc. => extreme bore - sbore - lbore	do not imput value			
54	sep width - do not imput value		if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep	do not imput value			
55							
56	bj g	346	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]				
57	bj f1	143	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	5.5					
65	e	5.9					
66	d	5.3					
67							
68	c	7.4					
69	b	6.8					
70	a	6.1					
71	g	9					
72	f1	9.1					
73							
74	e1	14.7	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
75	d1	9.4	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater];				
76	c1	14.6	c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
77							
78							
79							
80							
81							
82	**V. Tone Hole Depths**						
83	f2	48	Savpère8, F tone holes drilled at VERY extreme angle				
84	e	33.2	Savpère8, very long wing finger holes				
85	d	35.5	Savpère8 d tone hole not drilled into center of bore				
86							
87	c	29.5					
88	b	26.2					
89	a	27	Savpère8, boot tone holes NOT drilled at extreme angle				
90	g	17.7	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]				
91	f1	22	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]				
92							
93	e1	9	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]				

	A	B	C	D	E	F	G
94	d1	9.8	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]				
96							
97							
98							
99							
100							
101	**VI. Long Joint**		Savpère8, There is a table along long joint				
102	lg_length	582	total length of long joint				
103	lg_tenon_bot	48	length bottom tenon on long joint [tenon going into boot joint]				
104	lj_bot_bore	23.8	Savpère8, large tenon split twice; long joint bottom tenon bore diameter [tenon going into boot joint]				
105	lj_top_bore	34.5	long joint top tenon bore diameter [tenon going into bell]				
106	lg_tenon_top	47	length top tenon on long joint [tenon going into bell]				
107	e1 distance	55	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]				
108	d1 distance	256	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore];				
109	c1 distance	470	dist long joint tenon to c1 [from bot of tenon to where tone hole enters bore] verified				
110							
111							
112							
113							
114							
115	**VII. Bore diameters at Tone Holes**						
116	f2	11.5					
117	e	12.7					
118	d	13.2					
119							
120	c	15.7					
121	b	16.2					
122	a	17					
123	g	cm					
124	f1	22.1					
125							
126	e1	24.3	e1 tone hole bore diameter on long joint				
127	d1	27.4	d1 tone hole bore diameter on long joint				
128	c1	31.2	c1 tone hole bore diameter on long joint				
129							
130							
131							
132							
133							
134	**VIII. Bell; NO Bell**						
135	bell logic		If bell_logic = 0 => normal conical bore; if bell_logic = 1 => inverted concial bore				
136	bell_length (0, 1, 2)		total length of bell [lines 141 + 144 = line 136]				
137	bell_bot_bore (0, 1, 2)		dia bore at the bottom of bell [end with socket]				
138	bell_top_bore 0, (1, 0, 2)		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)		bell socket length				
144	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]				
145	Bellflg						
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: Savarypère8-O-Helgesen-Wg1-WOB-DNM				
156							
157			Notes on long joint bore: Savpère8 normal				
158			Notes on boot joint bore: Savpère8 normal				
159	**XI. Bore Diameter Locations**		Notes on wing joint bore: Savpère8 normal				
160		21	Number of diameters				
161		9	Initial bore diameter				
162		412	dist1; measured from the bottom of the wing joint- 10mm				1
163		335	dist2; measured from the bottom of the wing joint- 11mm				1
164		277	dist3; measured from the bottom of the wing joint- 12mm				1
165		177	dist4; measured from the bottom of the wing joint- 13mm				1
166		104	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 jt	15.4		1
168		100	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot small	15.4		2
169		209	Savpère8, vrfd; dist8; measured from the top of the bootjoint - small bore side	top boot large	24		2
170		286	dist9; measured from the top of the bootjoint - small bore side- 18mm;				2
171		0	dist10; measured from the top of the bootjoint - small bore side- 19mm	sbore dia sep	0		2
172		320	dist11; measured from the top of the bootjoint - large bore side- 20mm	lbore dia sep	0		3
173		265	dist12; measured from the top of the bootjoint - large bore side- 21mm; yes ve	Hook Length	390		3
174		230	dist13; measured from the top of the bootjoint - large bore side- 22mm				3
175		83	Savpère8, vrfd; dist14; measured from the top of the bootjoint - large bore side- 23mm				3
176		544	dist15; measured from the top of the long joint - 24mm	lj_bot_bore	23.8		4
177		503	dist16; measured from the top of the long joint- 25mm				4
178		445	dist17; measured from the top of the long joint- 26mm				4
179		370	dist18; measured from the top of the long joint- 27mm				4
180		250	Savpère8 OOR; dist19; measured from the top of the long joint- 28mm				4
181		195	dist20; measured from the top of the long joint- 29mm				4
182		160	dist21; measured from the top of the long joint- 30mm				4
183		135	dist22; measured from the top of the long joint- 31mm				4
184		75	dist23; measured from the top of the long joint- 32mm	lj_top_bore	34.5		4