	A	B	C	D	E	F	G	H	I
1	**I. Bocal**	Wg1	Wg2	Wg3	Original bocal; Savarypère2 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	2	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: Savarypère2 Wg3 yes, a shelf				
14	choke bore dia.	9.2	9.3	9.1	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)	53	53	28.6	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)				
16	wing joint length	506	520	517	total wing joint length, including tenon and socket				
17	tenon length	44.5	46	47	tenon length				
18									
19	wj f2	210	221	210	dist top of wing to where tone hole enters bore [not at the center of the tone hole]				
20	wj e	285	299	300					
21	wj d	336	343	343					
22									
23	Bore dia. Bottom of wing joint	15.4	15.7	15.3	Need to Average, usally oval; Savarypère2 no				
24	Bore dia. top of boot joint small side	16	16	16					
25	Bore dia. top of boot joint large side	24.7	24.7	24.7	This is an average, see below at 25mm bore measurement, bore is oblong				
26									
27	**III. Boot Lengths**								
28	bj logic	1	1	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed				
29	bj c	98	98	98	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]				
30	bj b	152	152	152					
31	bj a	197	197	197					
32									
33	bjstotal [Needed for both boot logics]	431	431	431	total length of boot, include socket, along the small bore side				
34	bjltotal [Needed for both boot logics]	431	431	431	total length of boot, include socket, along large bore side				
35	plug small [Need for logic 0 only]	0	0	0	plug thickness, large bore side				
36	plug large [Need for logic 0 only]	0	0	0	plug thickness, small bore side				
37									
38	boots [Needed for both boot logics]	381	381	381	hook length along s bore => bjs-septum length = boot - septum <= calc the septum				
39	bootl [Needed for both boot logics]	381	381	381	hook length along l bore => bjl-septum length = boot - septum <= calc the septum				
40									
41	boots bottom [Needed for both boot logics]	23	23	23	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]	23	23	23	use hook, dist of bore [same as boots bot except tenon depth will be different]				
43									
44	extreme bore [Needed for logic 1 only]	48.2	48.2	48.2	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	0	0	dist. from very bottom of boot to septum [point between the large and small bore]				
47	septum length calc - do not imput value	50	50	50	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value			
48	septum length - do not imput value	50	50	50	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum (	do not imput value			
49									
50	sbore dia sep* [Needed for both boot logics]	18.4	18.4	18.4	septum small bore dia [assume = lbore dia sep]				
51	lbore dia sep* [Needed for both boot logics]	18.6	18.6	18.6	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	0	0	septum width; direct measurement if remove plug				
53	sep width calc - do not imput value	11.2	11.2	11.2	septum width; calc. => extreme bore - sbore - lbore	do not imput value			
54	sep width - do not imput value	11.2	11.2	11.2	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = se	do not imput value			
55									
56	bj g	335	335	335	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]				
57	bj f1	145	145	145	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	5.7	5.5	5					
65	e	6.2	6.2	7.1	Savarypère2 vrfd large				
66	d	6	5.9	6.3					
67									
68	c	7.4	7.4	7.4					
69	b	7.1	7.1	7.1					
70	a	6.9	6.9	6.9					
71	g	9.5	9.5	9.5					
72	f1	9	9	9					
73									
74	e1	13.5	13.5	13.5	Savarypère2 Wg3 Oblong; e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
75	d1	9	9	9	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]				
76	c1	14.4	14.4	14.4	Savarypère2 Wg3 Oblong; 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**				Savarypère2 Wg3 Bassetto vrfd long épaule				
83	f2	32.6	34.7	45.5	Savarypère2 vrfd long				
84	e	30.6	30	36.8	Savarypère2 vrfd long				
85	d	35	32.8	39	Savarypère2 vrfd long				
86									
87	c	24.9	24.9	24.9					
88	b	26.4	26.4	26.4					
89	a	28.2	28.2	28.2	Savarypère2 a tone holes drilled at fairly extreme angle				
90	g	21.7	21.7	21.7	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]				
91	f1	24.2	24.2	24.2	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]				
92									
93	e1	8.8	8.8	8.8	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]				
94	d1	10.2	10.2	10.2	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
95	c1	9.4	9.4	9.4	c1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]				
96									
97									
98									
99									
100									
101	**VI. Long Joint**				Savarypère2 a table along long joint				
102	lg_length	581	581	581	total length of long joint				
103	lg_tenon_bot	45.5	45.5	45.5	length bottom tenon on long joint [tenon going into boot joint]				
104	lj_bot_bore	24.8	24.8	24.8	long joint bottom tenon bore diameter [tenon going into boot joint] Average out of round				

	A	B	C	D	E	F	G	H	I
105	lj_top_bore	35	35	35	Savarypère2 Wg3 oblong 34.5 x 35.5; long joint top tenon bore diameter [tenon going into bell]				
106	lg_tenon_top	36.2	36.2	36.2	length top tenon on long joint [tenon going into bell]				
107	e1_distance	54	54	54	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]				
108	d1 distance	253	253	253	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore]				
109	c1 distance	468	468	468	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	11.9	12					
117	e	12.8	12.8	12.6					
118	d	13.7	13.3	13.1					
119									
120	c	16.2	16.2	16.2					
121	b	16.9	16.9	16.9					
122	a	17.5	17.5	17.5					
123	g	19	19	19					
124	f1	21.8	21.8	21.8					
125									
126	e1	25	25	25	e1 tone hole bore diameter on long joint				
127	d1	27.6	27.6	27.6	d1 tone hole bore diameter on long joint				
128	c1	32.1	32.1	32.1	c1 tone hole bore diameter on long joint				
129									
130									
131									
132									
133									
134	**VIII. Bell**				Savarypère2 no tone hole in the bell				
135	bell logic	0	0	0	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)	330	330	330	total length of bell [lines 141 + 144 = line 136]				
137	bell_bot_bore (0, 1, 2)	34	34	34	dia bore at the bottom of bell [end with socket]				
138	bell_top_bore 0, (1, 0, 2)	34.8	34.8	34.8	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 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)	37.3	37.3	37.3	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	430	430	430	input the historical pitch of the bassoon, must input value, best guess				
150	freq_init	380	380	380	Initial frequency range variable				
151	Delta frequency	2	2	2	frequency increment parameter				
152	Number of frequencies	60	60	60	number of frequencies to scan for min chi sq				
153	Frequency adjust	1.05	1.05	1.05	frequency adjustment parameter				
154	**X. Title**								
155	title				Bassoon Calculation: Savarypère2-O-Rapoport-Wg3(Bassetto)-WOB-DNM				
156									
157					Notes on long joint bore: Savarypère2 very out of round in places				
158					Notes on boot joint bore: Savarypère2 small side OOR in places				
159	**XI. Bore Diameter Locations**				Notes on wing join bore: Savarypère2 Bassetto very good, a new wing				
160		22	22	22	Number of diameters				
161		9.2	9.3	9.1	Initial bore diameter				
162		395	419	423	dist1; measured from the bottom of the wing joint- 10mm				1
163		341	365	365	dist2; measured from the bottom of the wing joint- 11mm				1
164		285	292	315	dist3; measured from the bottom of the wing joint- 12mm				1
165		208	207	180	Savarypère2 Wg3 vrfd gap; dist4; measured from the bottom of the wing joint- 13mm				1
166		120	120	120	dist5; measured from the bottom of the wing joint- 14mm				1
167		17	62	17	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing jt	15.3		1
168		0	0	0	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot small	16		2
169		159	159	159	dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot large	24.7		2
170		287	287	287	Savarypère2 very OOR; dist9; measured from the top of the bootjoint - small bore side- 18mm				2
171		345	345	345	dist10; measured from the top of the bootjoint - large bore side- 19mm	sbore dia sep	18.4		3
172		265	265	265	dist11; measured from the top of the bootjoint - large bore side- 20mm	lbore dia sep	18.6		3
173		197	197	197	Savarypère2 OOR; dist12; measured from the top of the bootjoint - large bore side- 21mm				3
174		145	145	145	dist13; measured from the top of the bootjoint - large bore side- 22mm				3
175		83	83	83	dist14; measured from the top of the bootjoint - large bore side- 23mm				3
176		60	60	60	dist15; measured from the top of the boot joint- large bore side- 24mm	lj_bot_bore	24.8		3
177		523	523	523	dist16; measured from the top of the long joint- 25mm				4
178		462	462	462	Savarypère2 OOR; dist17; measured from the top of the long joint- 26mm				4
179		359	359	359	dist18; measured from the top of the long joint- 27mm				4
180		268	268	268	dist19; measured from the top of the long joint- 28mm				4
181		241	241	241	Savarypère2 OOR; dist20; measured from the top of the long joint- 29mm				4
182		190	190	190	dist21; measured from the top of the long joint- 30mm				4
183		161	161	161	dist22; measured from the top of the long joint- 31mm				4
184		107	107	107	dist23; measured from the top of the long joint- 32mm	lj_top_bore	35		4