	A	B	C	D	E	F	G	H	I	J	K
1	**I. Bocal**		bocal; Savaryjeune9, Could be original						Savaryjeune3	Savaryjeune16	
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						2	2	
9											
10											
11											
12											
13	**II. Wing Joint Lengths**		bocal receiver: Savaryjeune9 no, but a shelf from wear								
14	choke bore dia.	9.3	logic 1; bore dia. of choke; logic 0; either dia. bocal bottom or beginning of bore at bottom or receiver						9	9.2	
15	receiver length (1, 0) (formally choke length)	36	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)						32	35	
16	wing joint length	524	Savaryjeune9 vrfd long; total wing joint length, including tenon and socket						510	510	
17	tenon length	49.3	tenon length						47.5	47	
18											
19	wj f2	220	dist from top of wing to where tone hole enters bore [not at the center of the tone hole]						211	209	
20	wj e	305							293	297	
21	wj d	347							335	338	
22											
23	Bore dia. Bottom of wing joint	15.6	Savaryjeune9 OOR 15.4 x 15.8						14.5	15.9	
24	Bore dia. top of boot joint small side	16							15.5	15.5	
25	Bore dia. top of boot joint large side	24.1	Savaryjeune9 OOR 23.8 x 24.3						27.1	22.9	
26											
27	**III. Boot Lengths**										
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed						1	1	
29	bj c	87	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]						80	80	
30	bj b	152							157	157	
31	bj a	196							197	201	
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						433	435	
34	bjltotal [Needed for both boot logics]	433	total length of boot, include socket, along large bore side						433	435	
35	plug small [Need for logic 0 only]	0	plug thickness, large bore side						0	0	
36	plug large [Need for logic 0 only]	0	plug thickness, small bore side						0	0	
37											
38	boots [Needed for both boot logics]	385	hook length along s bore => bjs-septum length = boot - septum <= calc the septum						385	385	
39	bootl [Needed for both boot logics]	385	hook length along l bore => bjl-septum length = boot - septum <= calc the septum						385	385	
40											
41	boots bottom [Needed for both boot logics]	27	use hook, dist of bore [dist on stick plus 7mm, diff between hook and bot of stick] 20 + 7=27						27	25	
42	bootl bottom [Needed for both boot logics]	27	use hook, dist of bore [same as boots bot except tenon depth will be different]						27	25	
43											
44	extreme bore [Needed for logic 1 only]	45.8	Savaryjeune9 vrfd large; Outside dia of plug [measured] = small bore dia + large bore dia + the septum width						44.4	40.5	
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]						0	0	
47	septum length calc - do not imput value	48	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value					48	50	
48	septum length - do not imput value	48	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum calc	do not imput value					48	50	
49											
50	sbore dia sep* [Needed for both boot logics]	19.1	septum small bore dia [assume = lbore dia sep]						19.5	19	
51	lbore dia sep* [Needed for both boot logics]	19.9	septum large bore dia [assume = sbore dia sep] [mesure if cork can be removed; for Logic 0]						20	19.5	
52	sep width exp [Need for logic 0 only]	0	septum width; direct measurement if remove plug						0	0	
53	sep width calc - do not imput value	6.8	septum width; calc. => extreme bore - sbore - lbore	do not imput value					4.9	2	
54	sep width - do not imput value	6.8	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep width	do not imput value					4.9	2	
55											
56	bj g	338	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]						336	339	
57	bj f1	149	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone hole]						147	149	
58											
59											
60											
61											
62											
63	**IV. Tone Hole Diameters**										
64	f2	5.7	Savaryjeune9 f tone hole drilled at extreme angle						5.3	5.7	
65	e	6.4							6.2	6.4	
66	d	5.6	Savaryjeune9 d tone hole drilled at extreme angle						5.7	5.7	
67											
68	c	8.1							7.7	7.4	
69	b	7.9							6.9	7	
70	a	6	Savaryjeune9 a tone hole drilled at extreme angle						6	6.2	
71	g	10.4							9.2	9.7	
72	f1	9.9							8.9	9.1	
73											
74	e1	15.6	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]						15.7	15	
75	d1	10.7	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater];						10.3	9.2	
76	c1	15.8	c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]						14.8	14.8	
77											
78											
79											
80											
81											
82	**V. Tone Hole Depths**										
83	f2	42.5	Savaryjeune9 f tone hole drilled at extreme angle						44.5	46.5	
84	e	36.6							30	34.6	
85	d	38	Savaryjeune9 d tone hole drilled at extreme angle						35	37	
86											
87	c	25.5							33	28	
88	b	24							28	27	
89	a	23.5							26.5	28.5	
90	g	13.5	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]						15	15	
91	f1	24.1	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]						24.5	24.5	
92			Savaryjeune9 has a thinner boot joint than Savaryjeune15, see extra measures								
93	e1	9.4	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]						6.7	7.6	
94	d1	9.8	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]						6	7.9	
95	c1	7.6	Savaryjeune16 vrfd shorter than the other tone hole on joint; c1 tone hole depth						6	8.9	
96											
97											
98											
99											
100											
101	**VI. Long Joint**		Savaryjeune9 a table along long joint								
102	lg_length	581	total length of long joint						592	585	
103	lg_tenon_bot	50.4	length bottom tenon on long joint [tenon going into boot joint]						47.8	47.3	
104	ll_bot_bore	23.5	long joint bottom tenon bore diameter [tenon going into boot joint]						27.1	24.6	
105	ll_top_bore	34	long joint top tenon bore diameter [tenon going into bell]						34.8	34.3	
106	lg_tenon_top	35.5	length top tenon on long joint [tenon going into bell]						36.4	36.7	
107	e1_distance	54	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]						52	52	
108	d1 distance	257	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore];						256	257	
109	c1 distance	471	dist long joint tenon to c1 [from bot of tenon to where tone hole enters bore]						474	468	
110											
111											
112											
113											
114											
115	**VII. Bore diameters at Tone Holes**										
116	f2	11.8							11.6	11.6	
117	e	13.1							13.1	13.3	
118	d	13.4							13.6	13.5	
119											
120	c	16.1							16.1	15.3	
121	b	16.6							17.1	16.2	
122	a	17.2							17.2	16.5	
123	g	20.8							20.5	20.3	
124	f1	22.3	Savaryjeune9 vrfd small at f tone hole						24.1	22.1	

	A	B	C	D	E	F	G	H	I	J	K
125											
126	e1	24	e1 tone hole bore diameter on long joint						26.8	24.1	
127	d1	26.7	d1 tone hole bore diameter on long joint						29.1	27	
128	c1	32	c1 tone hole bore diameter on long joint						33	30.6	
129											
130											
131											
132											
133											
134	**VIII. Bell**		Savaryjeune9 no tone hole in bell								
135	bell_logic	1	If bell_logic = 0 => normal conical; if bell_logic=1=>inverted concial; if bell_logic = 2 => bell expansion						0	0	
136	bell_length (0, 1, 2)	328	total length of bell [lines 141 + 144 = line 136]						327	322	
137	bell_bot_bore (0, 1, 2)	33.4	dia bore at the bottom of bell [end with socket]						34.7	33.5	
138	bell_top_bore 0, (1, 0, 2)	32.7	Savaryjeune9 measured before bell flare ; dia bore at the top of bell						35	34.5	
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)	38.6	bell socket length						38.5	37	
144	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]								
145	Bellflg	45							51.7	45	
146											
147											
148	**IX. PITCH**										
149	pitch	435	input the historical pitch of the bassoon, must input value, best guess						435	435	
150	freq_init	380	Initial frequency range variable						380	380	
151	Delta frequency	2	frequency increment parameter						2	2	
152	Number of frequencies	60	number of frequencies to scan for min chi sq						60	60	
153	Frequency_adjust	1.05	frequency adjustment parameter						1.05	1.05	
154	**X. Title**										
155	title		Bassoon Calculation: Savaryjeune9-O-Watel232-Wg1-WOB-DNM								
156											
157			Notes on long joint bore: Savaryjeune9, good								
158			Notes on boot joint bore: Savaryjeune9, both good to normal								
159	**XI. Bore Diameter Locations**		Notes on wing joint bore: Savaryjeune9, OOR at finger holes								
160		22	Number of diameters						20	20	
161	**Bell Bore**	9.3	Initial bore diameter						9	9.2	
162	33.4mm diameter at socket	425	dist1; measured from the bottom of the wing joint- 10mm				1		405	420	
163	33mm rod 50mm from socket	360	dist2; measured from the bottom of the wing joint- 11mm				1		350	362	
164	32mm rod 90mm from socket	301	dist3; measured from the bottom of the wing joint- 12mm				1		282	298	
165	31mm rod 125mm from socket	235	dist4; measured from the bottom of the wing joint- 13mm				1		220	240	
166	31.5mm rod 155mm from socket	127	dist5; measured from the bottom of the wing joint- 14mm				1		0	115	
167	31.5mm rod 115mm from bell top	0	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing jt	15.6		1		0	0	
168	31mm rod 85mm from bell top	75	Savaryjeune9 vrfd; dist7; measured from the top of the bootjoint - small bore side- 1	top boot small	16		2		85	132	
169	32mm rod 40mm from bell top	168	Savaryjeune9 vrfd gap; dist8; measured from the top of the bootjoint - small bore si	top boot large	24.1		2		150	238	
170	32.7mm diameter at bell end	290	dist9; measured from the top of the bootjoint - small bore side- 18mm;				2		275	330	
171		372	dist10; measured from the top of the bootjoint - small bore side- 19mm	sbore dia sep	19.1		2		345	0	
172		379	dist11; measured from the top of the bootjoint - large bore side- 20mm	lbore dia sep	19.9		3		0	368	
173		326	dist12; measured from the top of the bootjoint - large bore side- 21mm	Hook Length	385		3		310	273	
174		285	dist13; measured from the top of the bootjoint - large bore side- 22mm				3		270	205	
175		103	Savaryjeune9 vrfd gap; dist14; measured from the top of the bootjoint - large bore side- 23mm				3		203	0	
176		522	dist15; measured from the top of the long joint - 24mm	lj_bot_bore	23.5		4		165	544	
177		446	dist16; measured from the top of the long joint- 25mm				4		115	460	
178		368	dist17; measured from the top of the long joint- 26mm				4		75	396	
179		305	dist18; measured from the top of the long joint- 27mm				4		520	325	
180		268	dist19; measured from the top of the long joint- 28mm;				4		425	275	
181		237	dist20; measured from the top of the long joint- 29mm;				4		360	185	
182		190	dist21; measured from the top of the long joint- 30mm				4		230	142	
183		139	dist22; measured from the top of the long joint- 31mm				4		188	98	
184	Rod 33mm 55mm from top of long joint	105	dist23; measured from the top of the long joint- 32mm;	lj_top_bore	34		4		135	60	