	A	B	C	D	E	F	G	H
1	**I. Bocal**		Original bocal; Palanca1 Probably not, but there is a bocal on the bassoon					
2	dia reed end	4.1	inside diameter of reed end of bocal Palanca1 bocal dimensions					
3	bocal string length (0, 1)		length of bocal inserted into receiver					
4	metal bocal length top (0, 1)	343	meas. along top of bocal					
5	metal bocal length bot (0, 1)	327	meas. along bottom of bocal					
6	dia wj end	9.8	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**		Palanca1; a bocal receiver, very large rotted out, a cork liner in bocal reciever					
14	choke bore dia.	10.9	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)	51	logic 1; length of choke from top of wing joint; logic 0; length of receiver (same as string length)					
16	wing joint length	476	Palanca1 top of wing broken off, meas. to top of ferrule; total wing joint length, including tenon and socket; verified					
17	tenon length	39.3	tenon length					
18								
19	wj f2	182	dist top of wing to where tone hole enters bore [not at the center of the tone hole]					
20	wj e	250						
21	wj d	285	Palanca1, all finger hole positions vrfd short, wing broken off					
22								
23	Bore dia. Bottom of wing joint	16.3	Need to Average, usally oval; Palanca1 no					
24	Bore dia. top of boot joint small side	15.4	Palanca1, verified, boot socket smaller than wing tenon					
25	Bore dia. top of boot joint large side	25.6	This is an average, see below at 25mm bore measurement, bore is oblong					
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	89	dist from top of boot to where topmost tone hole enter bore [not at center of tone hole]					
30	bj b	151						
31	bj a	195						
32								
33	bjstotal [Needed for both boot logics]	429	Palanca1 vrfd short; total length of boot, include socket, along the small bore side					
34	bjltotal [Needed for both boot logics]	429	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]	381	hook length along s bore => bjs-septum length = boot - septum <= calc the septum					
39	bootl [Needed for both boot logics]	381	hook length along l bore => bjl-septum length = boot - septum <= calc the septum					
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					
42	bootl bottom [Needed for both boot logics]	27	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	48	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput value				
48	septum length - do not imput value	48	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]	18.6	Palanca1, larger than up bore; septum small bore dia [assume = lbore dia sep]					
51	lbore dia sep* [Needed for both boot logics]	18.5	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	5.2	septum width; calc. => extreme bore - sbore - lbore	do not imput value				
54	sep width - do not imput value	5.2	if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = se	do not imput value				
55								
56	bj g	339	dist from top of boot (socket) to where G hole enters bore [not at cent of tone hole]					
57	bj f1	141	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	6.3						
66	d	6.1						
67								
68	c	8.6						
69	b	7.4						
70	a	5.5						
71	g	8.6						
72	f1	8.3						
73			Palanca1, long joint tone holes small					
74	e1	9.1	e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]					
75	d1	8.3	d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually greater]					
76	c1	11.2	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	30.1	Palanca1, tone hole not drilled exactly into center of bore					
84	e	33						
85	d	32						
86								
87	c	23.8						
88	b	24.2						
89	a	24.3						
90	g	16.7	meas along bot tone hole wall [north wall, toward reed,tone hole usually at angle]					
91	f1	20.7	meas along east side tone hole wall [north wall, toward reed,t hole usually at angle]					
92								
93	e1	5.5	e1 tone hole depth;meas east/west with deapth gauge [at center, or shortest dist]					
94	d1	5.6	d1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]					
95	c1	5.1	c1 tone hole depth; meas east/west with deapth gauge [at center, or shortest dist]					

	A	B	C	D	E	F	G	H
96								
97								
98								
99								
100								
101	**VI. Long Joint**		Palanca1, There is a table along the long joint					
102	lg_length	605	total length of long joint					
103	lg_tenon_bot	41.7	length bottom tenon on long joint [tenon going into boot joint]					
104	lj_bot_bore	25.2	long joint bottom tenon bore diameter [tenon going into boot joint]					
105	lj_top_bore	30.4	long joint top tenon bore diameter [tenon going into bell]					
106	lg_tenon_top	30.6	Palanca1, vrfd short; length top tenon on long joint [tenon going into bell]					
107	e1 distance	46	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	482	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	12.5						
117	e	13.1						
118	d	13.5						
119								
120	c	16.1						
121	b	16.9						
122	a	17.5						
123	g	19						
124	f1	24.1						
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	29.4	c1 tone hole bore diameter on long joint					
129								
130								
131								
132								
133								
134	**VIII. Bell**		Palanca1, No tone hole on bell					
135	bell logic	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)	279	Palanca1, vrfd short; total length of bell [lines 141 + 144 = line 136]					
137	bell_bot_bore (0, 1, 2)	32.8	dia bore at the bottom of bell [end with socket]					
138	bell_top_bore 0, (1, 0, 2)	36	Palanca1, very OOR; 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)	32	bell socket length					
144	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]					
145	belflg	44	Usually about 10mm more than line 138					
146								
147								
148	**IX. PITCH**							
149	pitch	440	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: Palanca1-O-NazionaleRoma-Wg1-WOB-DNM					
156								
157			Notes on long joint bore: Palanca1 in bad shape, OOR; very out of round					
158			Notes on boot joint bore: Palanca1; a bit OOR					
159	**XI. Bore Diameter Locations**		Notes on wing join boret: Palanca1 very OOR near large tenon					
160		19	Number of diameters					
161	**Bell Bore**	10.9	Initial bore diameter					
162	32.8mm dia. at socket	0	dist1; measured from the bottom of the wing joint- 10mm				1	
163	32mm rod 85mm from socket	430	dist2; measured from the bottom of the wing joint- 11mm				1	
164	31mm rod 125mm from socket	340	Palanca1 OOR; dist3; measured from the bottom of the wing joint- 12mm				1	
165	30.6mm rod 155mm from socket	225	Palanca1 OOR, gap vrfd; dist4; measured from the bottom of the wing joint- 13mm				1	
166	31mm rod 90mm from bell	130	dist5; measured from the bottom of the wing joint- 14mm				1	
167	32mm rod 70mm from bell OOR	92	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing	16.3		1	
168	33mm rod 45mm from bell very OOR	85	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot sma	15.4		2	
169	36.0mm dia.at bell end	170	dist8; measured from the top of the bootjoint - small bore side- 17mm	top boot larg	25.6		2	
170		235	dist9; measured from the top of the bootjoint - small bore side- 18mm				2	
171		345	dist10; measured from the top of the bootjoint - largel bore side- 19mm	sbore dia sep	18.6		3	
172		295	dist11; measured from the top of the bootjoint - large bore side- 20mm	lbore dia sep	18.5		3	
173		245	dist12; measured from the top of the bootjoint - large bore side- 21mm				3	
174		215	dist13; measured from the top of the bootjoint - large bore side- 22mm				3	
175		183	dist14; measured from the top of the bootjoint - large bore side- 23mm				3	
176		160	dist15; measured from the top of the boot joint- large bore side- 24mm	lj_bot_bore	25.2		3	
177		568	dist16; measured from the top of the long joint- 25mm				4	
178		515	dist17; measured from the top of the long joint- 26mm				4	
179		445	dist18; measured from the top of the long joint- 27mm				4	
180		350	Palanca1 OOR 320 x 380; dist19; measured from the top of the long joint- 28mm				4	
181		270	Palanca1 very OOR; dist20; measured from the top of the long joint- 29mm				4	
182		0	dist21; measured from the top of the long joint- 30mm				4	
183		0	dist22; measured from the top of the long joint- 31mm				4	
184		0	dist23; measured from the top of the long joint- 32mm	lj_top_bore	30.4		4	