H	A I. Bocal	В	C Original bocal Kimpflin1 No bocal	D	E	F	G	Н	I
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 6	metal bocal length bot (0, 1) dia wj end		meas. along bottom of bocal inside diameter of bocal						
7									
8	bocal logic	2	if bocal logic = $0 \Rightarrow$ bocal is choke; if bocal logic = $1 \Rightarrow$ choke in wing joint calc;	if bocal logic = 2	=> no	boca			
9									
11									
12									
	II. Wing Joint Lengths		Kimpflin1 No bocal receiver						
14 15	choke bore dia.	10	logic 1; bore diameter of choke; logic 0; either diameter bocal bottom or beginnin logic 1; length of choke from top of wing joint; logic 0; length of receiver (same a		m or re	ceive	r		
16	receiver length (1, 0) (formally choke length) wing joint length	62 500	Kimpflin1 vrfd short; total wing joint length, including tenon and socket	s suring rengur)					
17	tenon length	46.2	tenon length						
18									
19 20	wj f2 wj e	221 280	dist top of wing to where tone hole enters bore [not at the center of the tone hole]						
21	wj d	327							
22									
23	Bore dia. Bottom of wing joint	16.5	Need to Average, usally oval; Kimpflin1 good shape here in general basn. Not very	OOR					
24 25	Bore dia. top of boot joint small side Bore dia. top of boot joint large side	15.1 24.1	Kimpflin1 verified, Simiot1 and Kimpflin1boot socket smaller than wing tenon						
26	Bore that top of Boot joint large side	2.112							
27	III. Boot Lengths		Kimpflin1 Logic 1 but boot cork missing; normal cork, not two hole design						
28	bj logic	1	logic=> if bj logic = 0 => plug removed; if bj logic = 1 => plug cannot be removed; if bj logic = 1 => plug can						
29 30	bj c bj b	99 158	dist from top of boot to where topmost tone hole enter bore [not at center of tone	noiej					
	bj a	195							
32									
33	bjstotal [Needed for both boot logics]	426	Kimpflin1 vrfd short; total length of boot, include socket, along the small bore side	e T		-		-	
34 35	bjltotal [Needed for both boot logics] plug small [Need for logic 0 only]	426 0	total length of boot, include socket, along large bore side plug thickness, large bore side	1		1			
36	plug large [Need for logic 0 only]	0	plug thickness, small bore side			L			
37									
38	boots [Needed for both boot logics]	381	hook length along s bore => bjs-septum length = boot - septum <= calc the septu						
39 40	bootl [Needed for both boot logics]	381	hook length along I bore => bjl-septum length = boot - septum <= calc the septu	T				<u> </u>	
41	boots bottom [Needed for both boot logics]	18.5	Kimpflin1 No cork but est. at 8.5 mm use hook, dist of bore [dist on stick plus 7ml	m, diff between ho	ook and	bot	of stick]		
42	bootl bottom [Needed for both boot logics]	18.5	use hook, dist of bore [same as boots bot except tenon depth will be different]			\vdash			
43 44	extreme here [Needed for logic 1 only]	43	Outside dia of plug [measured] = small bore dia + large bore dia + the septum w	idth		-			
45	extreme bore [Needed for logic 1 only]	73	Sacarac and or progressored — small bore and # large bore and # the septum w	radi		 		<u> </u>	
46	septum length exp [Need for logic 0 only]	46	dist. from very bottom of boot to septum [point between the large and small bore]						
47	septum length calc - do not imput value	45	dist. From very bottom of boot to spetum [bjl - bootl]	do not imput valu					
48 49	septum length - do not imput value	45	if bj logic = 0 => septum = septum exp; if bj logic = 1 => septum = septum calc	uo not imput vali	ıe	-			
50	sbore dia sep* [Needed for both boot logics]	18.8	Kimpflin1 OOR 18.5 x 19.1; septum small bore dia [assume = lbore dia sep]						
51	lbore dia sep* [Needed for both boot logics]	18.1	Kimpflin1 vrfd small side larger than large side; septum large bore dia [assume =	sbore dia sep] [m	esure i	f corl	can be	removed; for	Logic 0]
52	sep width exp [Need for logic 0 only]	4.5	septum width; direct measurement if remove plug						
53 54	sep width calc - do not imput value sep width - do not imput value	6.1	septum width; calc. => extreme bore - sbore - lbore if bj logic = 0 => sep width = sep width exp; if bj logic = 1 => sep width = sep w	do not imput valu					
55	Sep width do not impat value	0.1	in by rogic = 0 = 2 sep width = sep width exp, it by rogic = 1 = 2 sep width = sep w	do not impat van	ĺ				
56		0.50	urfd langu diet from top of hoot (cocket) to whom C halo enters have [not at cont.						
	bj g	350	vrfd long; dist from top of boot (socket) to where G hole enters bore [not at cent of						
57	bj f1	135	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58	oj g bj f1								
57 58 59 60	oj g bj f1								
58 59 60 61	olg bjf1								
58 59 60 61 62	bj f1								
58 59 60 61 62 63	IV. Tone Hole Diameters	135							
58 59 60 61 62 63 64 65	bj f1	5.5 5.5							
58 59 60 61 62 63 64 65 66	bj f1	5.5	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66	bj f1	5.5 5.5 5.4	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66	bj f1	5.5 5.5 5.4 8.2 6.5	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66 67	bj f1	5.5 5.5 5.4 8.2 6.5 5.3	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66 67 68 69 70 71	IV. Tone Hole Diameters f2 e d c b a	5.5 5.5 5.4 8.2 6.5 5.3 8.5	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66 67 68 69	IV. Tone Hole Diameters f2 e d c b a	5.5 5.5 5.4 8.2 6.5 5.3	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho						
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73	IV. Tone Hole Diameters 12 e d c b a q f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	IV. Tone Hole Diameters f2 e d d c b b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76	IV. Tone Hole Diameters 12 e d c b a q f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77	IV. Tone Hole Diameters f2 e d d c b b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 77 78	IV. Tone Hole Diameters f2 e d d c b b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 77 78	IV. Tone Hole Diameters f2 e d d c b b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 78 80 81	IV. Tone Hole Diameters f2 e d d c b b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 72 73 74 75 76 77 78 79 80 81 82 83	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great diagnatics]	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 80 81 82 83 84	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2	Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS average N	e]					
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 77 78 80 81 82 83 84 85	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS	e]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 77 78 79 80 81 82 83 84 85 86 87	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2	Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS average N	e]					
58 59 60 61 62 63 64 65 66 68 69 70 71 72 73 74 75 76 77 78 80 81 82 83 84 85 88 88 88	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 12.4 9.6 13.2	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS AM EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need	e]					
58 59 60 61 62 63 64 65 66 67 76 71 72 73 74 75 76 77 81 82 83 84 85 86 87 88 88 89	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2	kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS average N	er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 68 69 70 71 72 73 74 75 76 77 77 80 81 82 83 84 85 87 88 88 89 90	IV. Tone Hole Diameters f2 e d C b a g f1	5.5 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on lon	er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 78 80 81 82 82 83 84 85 88 89 90 91 92	IV. Tone Hole Diameters f2 e d d c b a g f1 e1 d1 c1 V. Tone Hole Depths f2 e d d c c	5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2 27 29 21 22 21 14.5	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone ho Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 drilled at extreme angle Kimpflin1 drilled at extreme angle Kimpflin1 vrfd not at extreme angle Mimpflin1 vrfd not at extreme angle Kimpflin1 vrfd not at extreme angle; vmeas along east side tone hole usually at angle; Kimpflin1 vrfd not at extreme angle; vmeas along east side tone hole wall	er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 77 78 80 81 82 83 84 85 87 88 89 90 91 92 93	IV. Tone Hole Diameters f2 e d d c b b a g f1 V. Tone Hole Depths f2 e d d c c b d d c f1 e1 d f1 c1 c1	135 5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2 31 27 29 21 22 21 14.5 19 8	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone hole wall finder hole similar [not hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias,	er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 72 73 74 77 75 76 87 98 81 82 83 84 85 86 87 99 99 99 99 99	IV. Tone Hole Diameters 12 e d d c b b a g f1 e1 d1 c1 c1 c1 c2 c3 c4 c5 c5 c6 c6 c6 c6 c7 c7 c8 c8 c8 c9	135 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2 27 29 21 22 21 14.5 19 8	kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpfl	le] er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 78 77 77 77 78 79 80 81 82 83 84 85 88 89 90 91 92 93 94 95 96	IV. Tone Hole Diameters f2 e d d c b b a g f1 V. Tone Hole Depths f2 e d d c c b d d c f1 e1 d f1 c1 c1	135 5.5 5.5 5.4 8.2 6.5 5.3 8.5 8.9 12.4 9.6 13.2 31 27 29 21 22 21 14.5 19 8	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone hole wall finder hole similar [not hole dia, on long joint [need to average NS and EW dias, NS usually great di tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias,	le] er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 71 72 73 74 75 76 88 89 89 90 91 92 93 94 95 99 99 99	IV. Tone Hole Diameters 12 e d d c b b a g f1 e1 d1 c1 c1 c1 c2 c3 c4 c5 c5 c6 c6 c6 c6 c7 c7 c8 c8 c8 c9	135 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2 27 29 21 22 21 14.5 19 8	kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpfl	le] er] er] and EW dias]					
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58 59 60 61 62 63 64 65 66 68 69 70 71 72 73 74 75 76 77 78 80 81 82 83 84 85 86 88 89 90 91 92 93 94 95 99 99	IV. Tone Hole Diameters 12 e d d c b b a g f1 e1 d1 c1 c1 c1 c2 c3 c4 c5 c5 c6 c6 c6 c6 c7 c7 c8 c8 c8 c9	135 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2 27 29 21 22 21 14.5 19 8	kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS Kimpfl	le] er] er] and EW dias]					
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58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 78 81 82 83 84 85 89 90 90 91 92 93 94 95 96 97 98 99 99 100 100 100 100 100 100 100 100 1	IV. Tone Hole Diameters f2 e d d c b a g f1 e1 d1 c1 V. Tone Hole Depths f2 e e d d V. Tone Hole Depths f2 e f1	135 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2 12.7 29 21 22 21 22 21 27 29 8.7 8.7	dist from top of boot (socket) to where F1 hole enters bore [not at cent of tone hole hole with the content of	le] er] er] and EW dias]					
58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 78 80 81 82 83 84 89 99 99 99 99 99 98 99 98 99 100 101 102 103 104 105 105 105 105 105 105 105 105	IV. Tone Hole Diameters f2 e d d C b a g f1 e1 d1 c1 V. Tone Hole Depths f2 e d d C U. Tone Hole Depths f2 e d d C U. Tone Hole Depths f2 e d d C C D D D D D D D D D D D D D D D D	135 5.5 5.5 5.4 8.2 6.5 5.3 8.9 12.4 9.6 13.2 27 29 21 22 21 14.5 19 8.7	kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd all finger holes similar Kimpflin1 vrfd large e1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great d1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS and EW dias, NS usually great Kimpflin1 oblong 12.8 x 13.8; c1 tone hole dia, on long joint [need to average NS are great as a series of the s	le] er] er] and EW dias]					

	A	В	С	D	E	F	G	Н	I
105	lj_top_bore	33.7	Kimpflin1 OOR 32.8 x 34.6; long joint top tenon bore diameter [tenon going into	bell]					
106	Ig_tenon_top	42.7	length top tenon on long joint [tenon going into bell]						
107	e1 distance	56	dist long joint tenon to e1 [from bot of tenon to where tone hole enters bore]						
108	d1 distance	261	dist long joint tenon to d1 [from bot of tenon to where tone hole enters bore];						
109	c1 distance	486	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	12.4							
117	e	12.9							
118	d	13.2							
119									
120	С	15.7							
121	b	15.9							
122	a	16.7							
123	g	18.6							
124	f1	22.3				L			
125						L			
126	e1	24.8	e1 tone hole bore diameter on long joint						
127	d1	27.7	d1 tone hole bore diameter on long joint			L			
128	c1	31.1	c1 tone hole bore diameter on long joint						
129									
130									
131									
132									
133									
	VIII. Bell								
135	bell logic	1	If bell_logic = 0 => normal conical bore; if bell_logic = 1 => inverted concial bor	e					
136	bell_length (0, 1, 2)	330	Kimpflin1 vrfd long; total length of bell [lines 141 + 144 = line 136]						
137	bell_bot_bore (0, 1, 2)	32.2	Kimpflin1 OOR 31.9 x 32.4; dia bore at the bottom of bell [end with socket]						
138	bell_top_bore 0, (1, 0, 2)	31.7	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)	42.4	bell socket length						
	bell_expansion_length (only for logic 2)		distance of maxium expansion to top of bell [where Bb exits]						
145	belflg	38	Usually about 10mm more than line 138						
146				1					
147		ļ		1		_			
148	IX. PITCH								
149		435	input the historical pitch of the bassoon, must input value, best guess	1					
150	freq_init	380	Initial frequency range variable	1		-		ļ	
151		2	frequency increment parameter			<u> </u>			
152	Number of frequencies	60	number of frequencies to scan for min chi sq						
153	Frequency adjust	1.05	frequency adjustment parameter						
	X. Title								
155	title		Bassoon Calculation: Kimpflin1-O-Reil-Wg1-WOB-DNM	1		-		 	├
156 157			National India Scientificano Minerallina de Laboración de Sancia d	+	-	-		 	
150			Notes on long joint bore: Kimpflin1 not very out of round, just at septum		-	<u> </u>			
158	VI Dana Diamatan Lanatiana	-	Notes on boot joint bore: Kimpflin1 normal	-	-	-		 	——
159 160	XI. Bore Diameter Locations	22	Notes on wing joint bore: Kimpflin1 normal Number of diameters	+	-	-		 	+
161	Bell Bore	10	Initial bore diameter	1	1				\vdash
162	32.2mm diameter at socket	0	dist1; measured from the bottom of the wing joint- 10mm				1		
163	32mm rod 65mm from socket	358	dist2; measured from the bottom of the wing joint- 10mm dist2; measured from the bottom of the wing joint- 11mm	+			1		
164	31.7mm diameter at bell end	303	dist3; measured from the bottom of the wing joint- 11mm	1			1	 	+1
165	5217 IIIII Gidiffeter de beir end	210	Kimpflin1 vrfd; dist4; measured from the bottom of the wing joint- 13mm				1		
166		93	dist5; measured from the bottom of the wing joint- 13mm	1		 	1		
167		65	dist6; measured from the bottom of the wing joint- 15mm	Bottom wing jt	16.5		1		
168		115	dist7; measured from the top of the bootjoint - small bore side- 16mm	top boot small	15.1	 	2		
169		225	dist8; measured from the top of the bootjoint - small bore side- 10mm	top boot sman	24.1		2		
170		275	dist9; measured from the top of the bootjoint - small bore side- 17mm	top boot large	27.1		2		
171		340	dist10; measured from the top of the bootjoint - largel bore side- 19mm	sbore dia sep	18.8	 	3		
172		318	dist11; measured from the top of the bootjoint - large bore side- 19mm	Ibore dia sep	18.1		3		
173		235	dist12; measured from the top of the bootjoint - large bore side- 20mm	Hook Length	381		3		
174		160	dist13; measured from the top of the bootjoint - large bore side- 22mm		301		3		
175		120	dist14; measured from the top of the bootjoint - large bore side- 23mm	1			3		
176		70	dist15; measured from the top of the boot joint- large bore side- 25mm	lj bot bore	25		3		
		505	dist16; measured from the top of the long joint- 1arge bore side- 24mm	.,_555_5616	-23		4		
		JUJ	dist17; measured from the top of the long joint- 25mm	+		 	4		
177		450				1	,	1	
177 178		450 380					4		
177 178 179		380	dist18; measured from the top of the long joint- 27mm				4		
177 178 179 180		380 303	dist18; measured from the top of the long joint- 27mm dist19; measured from the top of the long joint- 28mm				4 4		
177 178 179		380 303 250	dist18; measured from the top of the long joint- 27mm dist19; measured from the top of the long joint- 28mm dist20; measured from the top of the long joint- 29mm				4		
177 178 179 180 181		380 303	dist18; measured from the top of the long joint- 27mm dist19; measured from the top of the long joint- 28mm dist20; measured from the top of the long joint- 29mm dist21; measured from the top of the long joint- 30mm				4		
177 178 179 180 181 182		380 303 250 180	dist18; measured from the top of the long joint- 27mm dist19; measured from the top of the long joint- 28mm dist20; measured from the top of the long joint- 29mm	lj top bore	33.7		4 4		