See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on		7	1	-1	-6	-28	-11	1
	57 off	-7		-6	-8	-13	-35	-18	-6
	409	-1	6		-2	-7	-29	-12	0
	421	1	8	2		-5	-27	-10	2
	4038	6	13	7	5		-22	-5	7
	121	28	35	29	27	22		17	29
	67	11	18	12	10	5	-17		12
	87	-1	6	0	-2	-7	-29	-12	

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	-1	6	0	-2	-20	-29	-12	0
	57 off	4	11	5	3	-2	-24	-7	5
	409	17	24	18	16	11	-11	6	18
	421	6	13	7	5	0	-22	-5	7
	4038	45	52	46	44	39	17	34	46
	121	33	40	34	32	27	5	22	34
	67	32	39	33	31	26	4	21	33
	87	0	7	1	-1	-6	-28	-11	1

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	-1	6	0	-2	-7	-29	-12	0
	57 off	-8	-1	-7	-9	-14	-36	-19	-7
	409	0	7	1	-1	-6	-28	-11	1
	421	37	44	38	36	31	9	26	38
	4038	10	17	11	9	4	-18	-1	11
	121	44	51	45	43	38	16	33	45
	67	30	37	31	29	24	2	19	31
	87	20	27	21	19	14	-8	9	21

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-3	4	-2	-4	-9	-31	-14	-2
	57 off	-3	4	-2	-4	-9	-31	-14	-2
	409	19	26	20	18	13	-9	8	20
	421	25	32	26	24	19	-3	14	26
	4038	5	12	6	4	-1	-23	-6	6
	121	40	47	41	39	34	12	29	41
	67	-7	0	-6	-8	-13	-35	-18	-6
	87	30	37	31	29	24	2	19	31

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	44	51	45	43	38	16	33	45
	57 off	32	39	33	31	26	4	21	33
	409	0	7	1	-1	-6	-28	-11	1
	421	6	13	7	5	0	-22	-5	7
	4038	-12	-5	-11	-13	-18	-40	-23	-11
	121	-2	5	-1	-3	-8	-30	-13	-1
	67	19	26	20	18	13	-9	8	20
	87	-6	1	-5	-7	-12	-34	-17	-5

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	44	51	45	43	38	16	33	45
	57 off	15	22	16	14	9	-13	4	16
	409	33	40	34	32	27	5	22	34
	421	31	38	32	30	25	3	20	32
	4038	14	21	15	13	8	-14	3	15
	121	28	35	29	27	22	0	17	29
	67	30	37	31	29	24	2	19	31
	87	30	37	31	29	24	2	19	31

See Notes		Tread Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on	22	29	23	21	16	-6	11	23
	57 off	6	13	7	5	0	-22	-5	7
	409	27	34	28	26	21	-1	16	28
	421	25	32	26	24	19	-3	14	26
	4038	-20	-13	-19	-21	-26	-48	-31	-19
	121	33	40	34	32	27	5	22	34
	67	0	7	1	-1	-6	-28	-11	1
	87	27	34	28	26	21	-1	16	28

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See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	1	-4	-17	-6	-45	-33	-32	0
	57 off	-6	-11	-24	-13	-52	-40	-39	-7
	409	0	-5	-18	-7	-46	-34	-33	-1
	421	2	-3	-16	-5	-44	-32	-31	1
	4038	7	2	-11	0	-39	-27	-26	6
	121	29	24	11	22	-17	-5	-4	28
	67	12	7	-6	5	-34	-22	-21	11
	87	0	-5	-18	-7	-46	-34	-33	-1

See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on		-5	-18	-7	-46	-34	-33	-1
	57 off	5		-13	-2	-41	-29	-28	4
	409	18	13		11	-28	-16	-15	17
	421	7	2	-11		-39	-27	-26	6
	4038	46	41	28	39		12	13	45
	121	34	29	16	27	-12		1	33
	67	33	28	15	26	-13	-1		32
	87	1	-4	-17	-6	-45	-33	-32	

See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	0	-5	-18	-7	-46	-34	-33	-1
	57 off	-7	-12	-25	-14	-53	-41	-40	-8
	409	1	-4	-17	-6	-45	-33	-32	0
	421	38	33	20	31	-8	4	5	37
	4038	11	6	-7	4	-35	-23	-22	10
	121	45	40	27	38	-1	11	12	44
	67	31	26	13	24	-15	-3	-2	30
	87	21	16	3	14	-25	-13	-12	20

See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-2	-7	-20	-9	-48	-36	-35	-3
	57 off	-2	-7	-20	-9	-48	-36	-35	-3
	409	20	15	2	13	-26	-14	-13	19
	421	26	21	8	19	-20	-8	-7	25
	4038	6	1	-12	-1	-40	-28	-27	5
	121	41	36	23	34	-5	7	8	40
	67	-6	-11	-24	-13	-52	-40	-39	-7
	87	31	26	13	24	-15	-3	-2	30

See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	45	40	27	38	-1	11	12	44
	57 off	33	28	15	26	-13	-1	0	32
	409	1	-4	-17	-6	-45	-33	-32	0
	421	7	2	-11	0	-39	-27	-26	6
	4038	-11	-16	-29	-18	-57	-45	-44	-12
	121	-1	-6	-19	-8	-47	-35	-34	-2
	67	20	15	2	13	-26	-14	-13	19
	87	-5	-10	-23	-12	-51	-39	-38	-6

See Notes		Hiway Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	45	40	27	38	-1	11	12	44
	57 off	16	11	-2	9	-30	-18	-17	15
	409	34	29	16	27	-12	0	1	33
	421	32	27	14	25	-14	-2	-1	31
	4038	15	10	-3	8	-31	-19	-18	14
	121	29	24	11	22	-17	-5	-4	28
	67	31	26	13	24	-15	-3	-2	30
	87	31	26	13	24	-15	-3	-2	30

See Notes		Hiway Ch A							
		57	57	409	421	4038	121	67	87
Black Ch B	57 on	23	18	5	16	-23	-11	-10	22
	57 off	7	2	-11	0	-39	-27	-26	6
	409	28	23	10	21	-18	-6	-5	27
	421	26	21	8	19	-20	-8	-7	25
	4038	-19	-24	-37	-26	-65	-53	-52	-20
	121	34	29	16	27	-12	0	1	33
	67	1	-4	-17	-6	-45	-33	-32	0
	87	28	23	10	21	-18	-6	-5	27

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See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	1	8	0	-37	-10	-44	-30	-20
	57 off	-6	1	-7	-44	-17	-51	-37	-27
	409	0	7	-1	-38	-11	-45	-31	-21
	421	2	9	1	-36	-9	-43	-29	-19
	4038	7	14	6	-31	-4	-38	-24	-14
	121	29	36	28	-9	18	-16	-2	8
	67	12	19	11	-26	1	-33	-19	-9
	87	0	7	-1	-38	-11	-45	-31	-21

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	0	7	-1	-38	-11	-45	-31	-21
	57 off	5	12	4	-33	-6	-40	-26	-16
	409	18	25	17	-20	7	-27	-13	-3
	421	7	14	6	-31	-4	-38	-24	-14
	4038	46	53	45	8	35	1	15	25
	121	34	41	33	-4	23	-11	3	13
	67	33	40	32	-5	22	-12	2	12
	87	1	8	0	-37	-10	-44	-30	-20

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on		7	-1	-38	-11	-45	-31	-21
	57 off	-7		-8	-45	-18	-52	-38	-28
	409	1	8		-37	-10	-44	-30	-20
	421	38	45	37		27	-7	7	17
	4038	11	18	10	-27		-34	-20	-10
	121	45	52	44	7	34		14	24
	67	31	38	30	-7	20	-14		10
	87	21	28	20	-17	10	-24	-10	

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-2	5	-3	-40	-13	-47	-33	-23
	57 off	-2	5	-3	-40	-13	-47	-33	-23
	409	20	27	19	-18	9	-25	-11	-1
	421	26	33	25	-12	15	-19	-5	5
	4038	6	13	5	-32	-5	-39	-25	-15
	121	41	48	40	3	30	-4	10	20
	67	-6	1	-7	-44	-17	-51	-37	-27
	87	31	38	30	-7	20	-14	0	10

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	45	52	44	7	34	0	14	24
	57 off	33	40	32	-5	22	-12	2	12
	409	1	8	0	-37	-10	-44	-30	-20
	421	7	14	6	-31	-4	-38	-24	-14
	4038	-11	-4	-12	-49	-22	-56	-42	-32
	121	-1	6	-2	-39	-12	-46	-32	-22
	67	20	27	19	-18	9	-25	-11	-1
	87	-5	2	-6	-43	-16	-50	-36	-26

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	45	52	44	7	34	0	14	24
	57 off	16	23	15	-22	5	-29	-15	-5
	409	34	41	33	-4	23	-11	3	13
	421	32	39	31	-6	21	-13	1	11
	4038	15	22	14	-23	4	-30	-16	-6
	121	29	36	28	-9	18	-16	-2	8
	67	31	38	30	-7	20	-14	0	10
	87	31	38	30	-7	20	-14	0	10

See Notes		XXL Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on	23	30	22	-15	12	-22	-8	2
	57 off	7	14	6	-31	-4	-38	-24	-14
	409	28	35	27	-10	17	-17	-3	7
	421	26	33	25	-12	15	-19	-5	5
	4038	-19	-12	-20	-57	-30	-64	-50	-40
	121	34	41	33	-4	23	-11	3	13
	67	1	8	0	-37	-10	-44	-30	-20
	87	28	35	27	-10	17	-17	-3	7

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See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	3	3	-19	-25	-5	-40	7	-30
	57 off	-4	-4	-26	-32	-12	-47	0	-37
	409	2	2	-20	-26	-6	-41	6	-31
	421	4	4	-18	-24	-4	-39	8	-29
	4038	9	9	-13	-19	1	-34	13	-24
	121	31	31	9	3	23	-12	35	-2
	67	14	14	-8	-14	6	-29	18	-19
	87	2	2	-20	-26	-6	-41	6	-31

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	2	2	-20	-26	-6	-41	6	-31
	57 off	7	7	-15	-21	-1	-36	11	-26
	409	20	20	-2	-8	12	-23	24	-13
	421	9	9	-13	-19	1	-34	13	-24
	4038	48	48	26	20	40	5	52	15
	121	36	36	14	8	28	-7	40	3
	67	35	35	13	7	27	-8	39	2
	87	3	3	-19	-25	-5	-40	7	-30

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	2	2	-20	-26	-6	-41	6	-31
	57 off	-5	-5	-27	-33	-13	-48	-1	-38
	409	3	3	-19	-25	-5	-40	7	-30
	421	40	40	18	12	32	-3	44	7
	4038	13	13	-9	-15	5	-30	17	-20
	121	47	47	25	19	39	4	51	14
	67	33	33	11	5	25	-10	37	0
	87	23	23	1	-5	15	-20	27	-10

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on		0	-22	-28	-8	-43	4	-33
	57 off	0		-22	-28	-8	-43	4	-33
	409	22	22		-6	14	-21	26	-11
	421	28	28	6		20	-15	32	-5
	4038	8	8	-14	-20		-35	12	-25
	121	43	43	21	15	35		47	10
	67	-4	-4	-26	-32	-12	-47		-37
	87	33	33	11	5	25	-10	37	

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	47	47	25	19	39	4	51	14
	57 off	35	35	13	7	27	-8	39	2
	409	3	3	-19	-25	-5	-40	7	-30
	421	9	9	-13	-19	1	-34	13	-24
	4038	-9	-9	-31	-37	-17	-52	-5	-42
	121	1	1	-21	-27	-7	-42	5	-32
	67	22	22	0	-6	14	-21	26	-11
	87	-3	-3	-25	-31	-11	-46	1	-36

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	47	47	25	19	39	4	51	14
	57 off	18	18	-4	-10	10	-25	22	-15
	409	36	36	14	8	28	-7	40	3
	421	34	34	12	6	26	-9	38	1
	4038	17	17	-5	-11	9	-26	21	-16
	121	31	31	9	3	23	-12	35	-2
	67	33	33	11	5	25	-10	37	0
	87	33	33	11	5	25	-10	37	0

See Notes		Green Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on	25	25	3	-3	17	-18	29	-8
	57 off	9	9	-13	-19	1	-34	13	-24
	409	30	30	8	2	22	-13	34	-3
	421	28	28	6	0	20	-15	32	-5
	4038	-17	-17	-39	-45	-25	-60	-13	-50
	121	36	36	14	8	28	-7	40	3
	67	3	3	-19	-25	-5	-40	7	-30
	87	30	30	8	2	22	-13	34	-3

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See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	-44	-32	0	-6	12	2	-19	6
	57 off	-51	-39	-7	-13	5	-5	-26	-1
	409	-45	-33	-1	-7	11	1	-20	5
	421	-43	-31	1	-5	13	3	-18	7
	4038	-38	-26	6	0	18	8	-13	12
	121	-16	-4	28	22	40	30	9	34
	67	-33	-21	11	5	23	13	-8	17
	87	-45	-33	-1	-7	11	1	-20	5

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	-45	-33	-1	-7	11	1	-20	5
	57 off	-40	-28	4	-2	16	6	-15	10
	409	-27	-15	17	11	29	19	-2	23
	421	-38	-26	6	0	18	8	-13	12
	4038	1	13	45	39	57	47	26	51
	121	-11	1	33	27	45	35	14	39
	67	-12	0	32	26	44	34	13	38
	87	-44	-32	0	-6	12	2	-19	6

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	-45	-33	-1	-7	11	1	-20	5
	57 off	-52	-40	-8	-14	4	-6	-27	-2
	409	-44	-32	0	-6	12	2	-19	6
	421	-7	5	37	31	49	39	18	43
	4038	-34	-22	10	4	22	12	-9	16
	121	0	12	44	38	56	46	25	50
	67	-14	-2	30	24	42	32	11	36
	87	-24	-12	20	14	32	22	1	26

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-47	-35	-3	-9	9	-1	-22	3
	57 off	-47	-35	-3	-9	9	-1	-22	3
	409	-25	-13	19	13	31	21	0	25
	421	-19	-7	25	19	37	27	6	31
	4038	-39	-27	5	-1	17	7	-14	11
	121	-4	8	40	34	52	42	21	46
	67	-51	-39	-7	-13	5	-5	-26	-1
	87	-14	-2	30	24	42	32	11	36

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on		12	44	38	56	46	25	50
	57 off	-12		32	26	44	34	13	38
	409	-44	-32		-6	12	2	-19	6
	421	-38	-26	6		18	8	-13	12
	4038	-56	-44	-12	-18		-10	-31	-6
	121	-46	-34	-2	-8	10		-21	4
	67	-25	-13	19	13	31	21		25
	87	-50	-38	-6	-12	6	-4	-25	

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	0	12	44	38	56	46	25	50
	57 off	-29	-17	15	9	27	17	-4	21
	409	-11	1	33	27	45	35	14	39
	421	-13	-1	31	25	43	33	12	37
	4038	-30	-18	14	8	26	16	-5	20
	121	-16	-4	28	22	40	30	9	34
	67	-14	-2	30	24	42	32	11	36
	87	-14	-2	30	24	42	32	11	36

See Notes		Uber Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on	-22	-10	22	16	34	24	3	28
	57 off	-38	-26	6	0	18	8	-13	12
	409	-17	-5	27	21	39	29	8	33
	421	-19	-7	25	19	37	27	6	31
	4038	-64	-52	-20	-26	-8	-18	-39	-14
	121	-11	1	33	27	45	35	14	39
	67	-44	-32	0	-6	12	2	-19	6
	87	-17	-5	27	21	39	29	8	33

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See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	-44	-15	-33	-31	-14	-28	-30	-30
	57 off	-51	-22	-40	-38	-21	-35	-37	-37
	409	-45	-16	-34	-32	-15	-29	-31	-31
	421	-43	-14	-32	-30	-13	-27	-29	-29
	4038	-38	-9	-27	-25	-8	-22	-24	-24
	121	-16	13	-5	-3	14	0	-2	-2
	67	-33	-4	-22	-20	-3	-17	-19	-19
	87	-45	-16	-34	-32	-15	-29	-31	-31

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	-45	-16	-34	-32	-15	-29	-31	-31
	57 off	-40	-11	-29	-27	-10	-24	-26	-26
	409	-27	2	-16	-14	3	-11	-13	-13
	421	-38	-9	-27	-25	-8	-22	-24	-24
	4038	1	30	12	14	31	17	15	15
	121	-11	18	0	2	19	5	3	3
	67	-12	17	-1	1	18	4	2	2
	87	-44	-15	-33	-31	-14	-28	-30	-30

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	-45	-16	-34	-32	-15	-29	-31	-31
	57 off	-52	-23	-41	-39	-22	-36	-38	-38
	409	-44	-15	-33	-31	-14	-28	-30	-30
	421	-7	22	4	6	23	9	7	7
	4038	-34	-5	-23	-21	-4	-18	-20	-20
	121	0	29	11	13	30	16	14	14
	67	-14	15	-3	-1	16	2	0	0
	87	-24	5	-13	-11	6	-8	-10	-10

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-47	-18	-36	-34	-17	-31	-33	-33
	57 off	-47	-18	-36	-34	-17	-31	-33	-33
	409	-25	4	-14	-12	5	-9	-11	-11
	421	-19	10	-8	-6	11	-3	-5	-5
	4038	-39	-10	-28	-26	-9	-23	-25	-25
	121	-4	25	7	9	26	12	10	10
	67	-51	-22	-40	-38	-21	-35	-37	-37
	87	-14	15	-3	-1	16	2	0	0

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	0	29	11	13	30	16	14	14
	57 off	-12	17	-1	1	18	4	2	2
	409	-44	-15	-33	-31	-14	-28	-30	-30
	421	-38	-9	-27	-25	-8	-22	-24	-24
	4038	-56	-27	-45	-43	-26	-40	-42	-42
	121	-46	-17	-35	-33	-16	-30	-32	-32
	67	-25	4	-14	-12	5	-9	-11	-11
	87	-50	-21	-39	-37	-20	-34	-36	-36

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on		29	11	13	30	16	14	14
	57 off	-29		-18	-16	1	-13	-15	-15
	409	-11	18		2	19	5	3	3
	421	-13	16	-2		17	3	1	1
	4038	-30	-1	-19	-17		-14	-16	-16
	121	-16	13	-5	-3	14		-2	-2
	67	-14	15	-3	-1	16	2		0
	87	-14	15	-3	-1	16	2	0	

See Notes		Brit Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on	-22	7	-11	-9	8	-6	-8	-8
	57 off	-38	-9	-27	-25	-8	-22	-24	-24
	409	-17	12	-6	-4	13	-1	-3	-3
	421	-19	10	-8	-6	11	-3	-5	-5
	4038	-64	-35	-53	-51	-34	-48	-50	-50
	121	-11	18	0	2	19	5	3	3
	67	-44	-15	-33	-31	-14	-28	-30	-30
	87	-17	12	-6	-4	13	-1	-3	-3

all credits: meambobbo

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Tread Ch B	57 on	-22	-6	-27	-25	20	-33	0	-27
	57 off	-29	-13	-34	-32	13	-40	-7	-34
	409	-23	-7	-28	-26	19	-34	-1	-28
	421	-21	-5	-26	-24	21	-32	1	-26
	4038	-16	0	-21	-19	26	-27	6	-21
	121	6	22	1	3	48	-5	28	1
	67	-11	5	-16	-14	31	-22	11	-16
	87	-23	-7	-28	-26	19	-34	-1	-28

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Hiway Ch B	57 on	-23	-7	-28	-26	19	-34	-1	-28
	57 off	-18	-2	-23	-21	24	-29	4	-23
	409	-5	11	-10	-8	37	-16	17	-10
	421	-16	0	-21	-19	26	-27	6	-21
	4038	23	39	18	20	65	12	45	18
	121	11	27	6	8	53	0	33	6
	67	10	26	5	7	52	-1	32	5
	87	-22	-6	-27	-25	20	-33	0	-27

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
XXL Ch B	57 on	-23	-7	-28	-26	19	-34	-1	-28
	57 off	-30	-14	-35	-33	12	-41	-8	-35
	409	-22	-6	-27	-25	20	-33	0	-27
	421	15	31	10	12	57	4	37	10
	4038	-12	4	-17	-15	30	-23	10	-17
	121	22	38	17	19	64	11	44	17
	67	8	24	3	5	50	-3	30	3
	87	-2	14	-7	-5	40	-13	20	-7

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Green Ch B	57 on	-25	-9	-30	-28	17	-36	-3	-30
	57 off	-25	-9	-30	-28	17	-36	-3	-30
	409	-3	13	-8	-6	39	-14	19	-8
	421	3	19	-2	0	45	-8	25	-2
	4038	-17	-1	-22	-20	25	-28	5	-22
	121	18	34	13	15	60	7	40	13
	67	-29	-13	-34	-32	13	-40	-7	-34
	87	8	24	3	5	50	-3	30	3

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Uber Ch B	57 on	22	38	17	19	64	11	44	17
	57 off	10	26	5	7	52	-1	32	5
	409	-22	-6	-27	-25	20	-33	0	-27
	421	-16	0	-21	-19	26	-27	6	-21
	4038	-34	-18	-39	-37	8	-45	-12	-39
	121	-24	-8	-29	-27	18	-35	-2	-29
	67	-3	13	-8	-6	39	-14	19	-8
	87	-28	-12	-33	-31	14	-39	-6	-33

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Brit Ch B	57 on	22	38	17	19	64	11	44	17
	57 off	-7	9	-12	-10	35	-18	15	-12
	409	11	27	6	8	53	0	33	6
	421	9	25	4	6	51	-2	31	4
	4038	-8	8	-13	-11	34	-19	14	-13
	121	6	22	1	3	48	-5	28	1
	67	8	24	3	5	50	-3	30	3
	87	8	24	3	5	50	-3	30	3

See Notes		Black Ch A							
		57 on	57 off	409	421	4038	121	67	87
Black Ch B	57 on		16	-5	-3	42	-11	22	-5
	57 off	-16		-21	-19	26	-27	6	-21
	409	5	21		2	47	-6	27	0
	421	3	19	-2		45	-8	25	-2
	4038	-42	-26	-47	-45		-53	-20	-47
	121	11	27	6	8	53		33	6
	67	-22	-6	-27	-25	20	-33		-27
	87	5	21	0	2	47	-6	27	

all credits: meambobbo

Purpose	The purpose of this spreadsheet is to show the time in samples @96kHZ needed to delay Channel B in order to syncronize phase with Channel A.

Method	The way I determined these values was by running a distorted dual amp patch on the Pod, panning each Channel hard left and right.
	I selected the Tread v30 4x12/57 on axis cab/mic combination in Channel A. Channel B used every other cab/mic combination listed.
	In my DAW, I input the left and right outputs from the Pod into different tracks, and I used Voxengo Sound Delay to test the sound by adding delays in units of samples to either Channel A or Channel B.
	I also sent the tracks to a Group Track where they were mixed together, which had a Frequency Analyzer monitoring changes in frequency response.
	I chose the values that appeared to have the loudest output, which also seemed to have the least frequency cancellation throughout the entire frequency spectrum.
	I knew I found the correct value when increasing the delay on any channel changed the sound in the same way as decreasing the delay.

Warnings	Again, I only used the Tread + 57 on axis in Channel A vs. all others in Channel B. All other values were calculated from the times relative to the Tread + 57 on axis cab/mic.
	While I did a random check of some of these values, there exists the possibility that untested values are a bit off, or that my calculation has a bug in the Excel formulas. If you find a discrepancy please let me know.

Usage	In the next tab, I list relatively tone-transparent effects that delay the signal along with their delay time in approximate number of samples.
	In the subsequent tab, I list a sequence of delay amounts possible with the combinations of effects that deliver this amount of delay.
	You can use these to attempt to achieve the delay times necessary to achieve phase correction.
	The Cab/Mic used in Channel A is listed in the x axis, and Channel B the y axis.
	The value where these cab/mic choices intersect is the value that Channel B must be delayed in units of 96kHZ samples.
	Find the combination of effects necessary to achieve this delay or close to this delay using the subsequent tabs, and add those effects to Channel B.
	If the number is negative, this indicates Channel A should be delayed. Simply apply the effects to Channel A.

Recommendations	While most cab/mic combinations can achieve phase correction using combinations of effects, I prefer to limit myself to those easily achieved with no effects or 1 Parametric EQ, which delivers 6 samples of delay.

Recommendations *(continued)*	I prefer the Parametric EQ because with default settings it is tone-transparent, but is also useful to EQ whichever channel you're delaying. Most other effects are not tone transparent.
	However, don't fool yourself into thinking an EQ only applied to one cab/mic is a perfect substitute for an EQ applied to both cab/mic's. You will likely still need an EQ or two (or three) after the mixer.
	Using more than 1 EQ for delay is a bit too rough on DSP usage. Here's some DSP saving tricks:
	I may use a Mid-Focus EQ on the brighter cab/mic instead of the Parametric. It provides similar amounts of delay and is often necessary to trim the high-end fizz.
	You can use the Low Cut and Thump Cab DEP's instead of an EQ effect to trim excess low end from the darker cab/mic.
	So given the above two recommendations, you can get away with only using one EQ on your entire patch, depending on the base tone of your cab/mic and amp choices.
	Some cab/mic combinations are not feasible to achieve phase correction using the EQ-delay method. I find it is better to write them off (for now) rather than introducing tone-changing effects and eating up all your DSP to get them.
	The cells are highlighted using the legend below designed to help you find the easiest combinations to dial in. I recommend sticking to these colored cells, particularly the green ones.

Goal	The ultimate goal of this research is to convince Line 6 to add a delay by sample effect or feature into the Mixer block, so this can be done at a minimal DSP and effect block cost...or to convince Line 6 to allow importing external IR's.

	Virtually in-phase without using any additional effects to add latency and phase-correct the cab/mic combo
	Close to in-phase without using any additional effects to add latency and phase-correct the cab/mic combo
	Relatively close to in-phase without using any additional effects to add latency and phase-correct the cab/mic combo, but expect high-end loss

	Virtually in-phase using 1 EQ effect to add latency and phase-correct the cab/mic combo
	Close to in-phase using 1 EQ effect to add latency and phase-correct the cab/mic combo
	Relatively close to in-phase using 1 EQ effect to add latency and phase-correct the cab/mic combo, but expect high-end loss

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1 sample =	***1.04167E-05***	***0.01041666... milliseconds***

Effect Type	Effect	Neutral Settings	First Freq approaching - infinity in Hz	Delay Time in Samples	Low Pass Filter	Notes
EQ	Graphic	Default	8000	6		
	Parametric	Default	8000	6		
	Studio	Default	8000	6		
	Shift	Default	8000	6		
	Mid-Focus	0% HP Freq, 55% HP Q, 100% LP Freq, 0% LP Q, 0% Gain	7400	6.486486486		Adjusting Q will vary the comb filter frequency
Dynamic	Hard Gate	-96 db open/close, 800 ms hold, 4000 ms decay	750	64		
	Tube Comp	100% Tresh, 5% Level	8000	6	20k	Slightly less DSP than EQ
	Red Comp	0% Sustain, 85% Level	5333.333333	9	6kHZ, low Q	
	Blue Comp	0% Sustain, 92% Level	4800	10	6.85 kHZ, med Q	
	Blue Comp Treb	0% Sustain, 92% Level	7300	6.575342466	11 kHZ, low Q	also, HP filter at 1.45 kHZ, very low Q
	Vetta Comp	15% Sens, 100% Level	5333.333333	9	9 kHZ, med Q	
	Vetta Juice	0% Amount, 43%Level	6350	7.559055118	8.5 kHZ, med Q	
	Boost Comp	0% Amount, 43%Level	6350	7.559055118	8.5 kHZ, med Q	
Pitch	Pitch Glide	0 Pitch, 100% Mix	187.5	256		huge DSP cost - delay value floats after being on for a while
	Pitch Glide	0 Pitch, 100% Mix	600	80		This is after being on for a few minutes
	Pitch Glide	0 Pitch, 100% Mix	?	?		This may actually be a random value that changes every time you turn the effect on/off
	Smart Harmony	0 Pitch, 100% Mix	187.5	256		Huge DSP cost
Loop	FX Loop	0 db Send, 0 db Receive, 100% Mix	1200	40		Introduces Noise, consumes loop

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I try to avoid compressors with low frequencies for the LP filter, DSP heavy effects, and the FX Loop due to noise when possible.

Combination	Sample Delay	~DSP% (assuming 6% for EQ/dynamic, 0 for FX loop)
Blue Comp - Vetta Comp	1	12
Param EQ + Param EQ - Blue Comp	2	18
Vetta Comp - Blue Comp Treb	2.424657534	12
Vetta Comp - Param EQ	3	12
Blue Comp - Param EQ	4	12
Vetta Comp + Param EQ - Blue Comp	5	18
Param EQ	6	6
Mid-Focus EQ	6.486486486	6
Blue Comp + Param EQ - Vetta Juice	7	18
Vetta Juice	7.559055118	6
Vetta Comp + Vetta Comp - Blue Comp	8	18
Vetta Comp	9	6
Blue Comp	10	6
Blue Comp + Blue Comp - Vetta Comp	11	18
Param EQ + Param EQ	12	12
Mid-Focus EQ + Mid-Focus EQ	12.97297297	12
Vetta Juice + Mid-Focus EQ	14.0455416	12
Vetta Comp + Param EQ	15	12
Blue Comp + Param EQ	16	12
Blue Comp + Mid-Focus EQ	16.48648649	12
Blue Comp + Vetta Juice	17.55905512	12
Vetta Comp + Vetta comp	18	12
Blue Comp + Vetta Comp	19	12
Blue Comp + Blue Comp	20	12
Vetta Comp + Param EQ + Param EQ	21	18
Vetta Juice + Vetta Juice + Mid-focus	21.60459672	18
Vetta Comp + Mid-Focus + Mid-focus	21.97297297	18
Blue Comp + Param Eq + Param EQ	22	18
Vetta Juice + Vetta Juice + Vetta Juice	22.67716535	18
Blue Comp + Mid-Focus + Mid-Focus	22.97297297	18
Vetta Comp + Vetta Comp + Param	24	18
Hard Gate - FX Loop	24	6
Blue Comp + Vetta Comp + Param	25	18
Blue Comp + Blue Comp + Param	26	18

all credits: meambobbo