

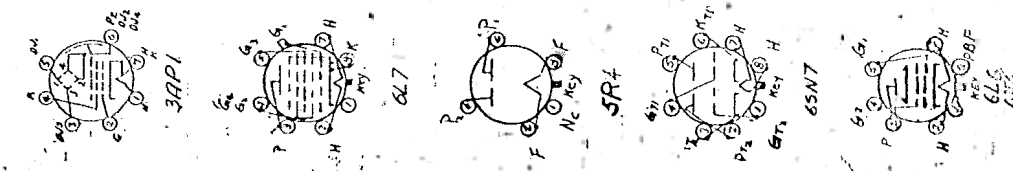
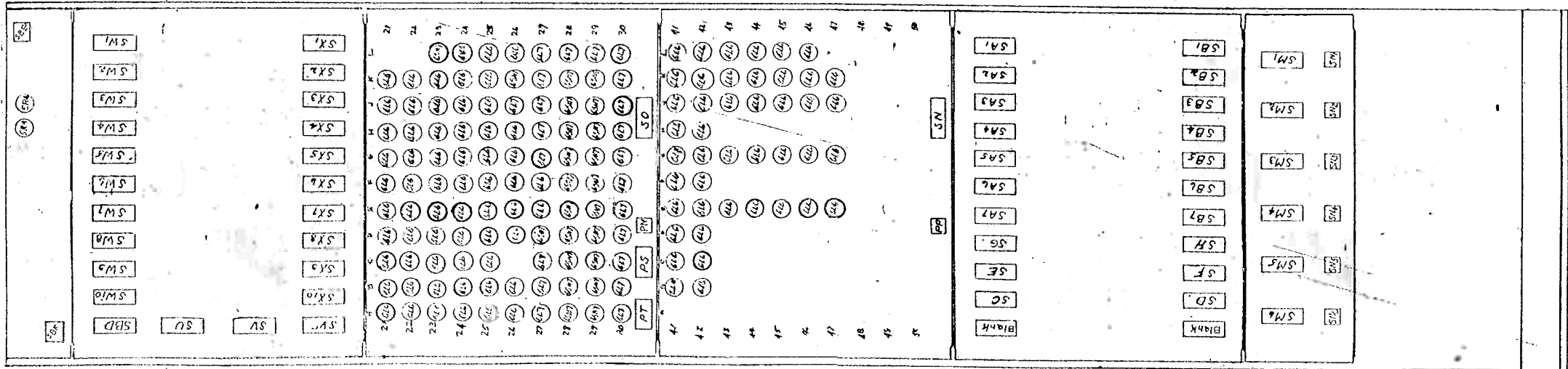
OPERATING INSTRUCTIONS: The cycling unit should be turned on with operation switch in continuous position. Close the whole sequence of events except itself each addition time the only caution that need to be observed in triggering the Test Oscilloscope is to make sure it initiates the sweep with a pulse from the Synchronization Unit which will enable one to observe in detail the pulse in SW1 in SW11M.

This chart includes measurements on **UNIT TEST 2** (see page 11) and on **UNIT TEST 1** (Initiating Unit) covering the channel 9-134 and 9-135; source pulse 9-136, 9-137, 9-138, 9-139, 9-140. Source pulse 9-140 is triggered by master programmer charts.

NOTE: All Amplitudes are minimum, for now tubes. All rise and fall times are maximum. Times are given in microseconds, amplitudes in volts. Duration includes time from start of rise to start of fall.

TIME	TERMINAL	AMPLITUDE	RISE	DURATION	FALL	NOTE	OVERLAP TO CHART OF PULSES & DATE 9-20-52
A to X 21	3	-60	0.5	P-0	0.5	This is the 0 th pulse	7
A to X 20	3	54	0.4	2.0	0.4	This is the 0 th pulse	17
A to X 25	3	54	0.4	2.0	0.4	This is the 1 st pulse	10
A to X 23	3	-60	0.5	2.0	0.5	This is the 1 st pulse	10
A to X 24	3	-60	0.5	2.0	0.5	These are the 2 pulses	1, 2, 3, 4, 5, 6, 7, 8, 9
A to X 25	3	54	0.4	2.0	0.5	These are the 3 pulses	
0 to X 24	3	-60	0.5	2.0	0.5	These are the 4 th pulses	14 and 19
0 to X 25	3	54	0.4	2.0	0.5	These are the 4 th pulses	14 and 19
A26 A27 A28	3	50	0.4	2.0	0.4	A26-1 st pulse A27-2 nd pulse A28-3 rd pulse	10 17 14 and 19
A26 A27 A28	3	-60	0.5	2.0	0.5	A26-1 st pulse A27-2 nd pulse A28-3 rd pulse	10 17 14 and 19
A to X 30 A to X 31 A to X 32	5	60	4.0	10.	4.0	Gate from ring	0.1-19.1
A27 A28 A29 A30 A31 A32	3	-60	2.0	2.0	2.0	A27-1 st pulse A28-2 nd pulse A29-3 rd pulse A30-4 th pulse A31-5 th pulse A32-6 th pulse	0 0 12 11 11 10
C50 C51 C52 C53 C54	3	-14	0.4	2.0	0.4	C50-4 th digit pulse C51-5 th digit pulse C52-6 th digit pulse C53-7 th digit pulse C54-8 th digit pulse	6 4 7 3 2 2 1
A27 A28 A29 A30 A31 A32	3	-14	0.4	2.0	0.4	A27-1 st pulse A28-2 nd pulse A29-3 rd pulse A30-4 th pulse A31-5 th pulse A32-6 th pulse	10 10 17 17 19 19
120	3	60	1.0	100	2.0	10 Pulse gate	0-10
A26 to A27 A27 to A28 A28 to A29 A29 to A30	3	-60	0.5	2.0	0.5	10 Pulse gate	0.2-9.2
A27 to A28 A28 to A29 A29 to A30	3	-60	0.5	2.0	0.5	10 Pulse gate	0.1-19.1
A27 to A28 A28 to A29 A29 to A30	3	60	0.4	2.0	0.4	Ring Driving pulse compare with standard	0-19
106	3	-60	2.0	70	5.0	On beat pulses	11-16
A to X 31	3	50	0.4	2.0	0.4	carry clear gate	1-9
A to X 32	3	-60	0.4	2.0	0.4	B-9 th digit pulse C-1 st digit pulse	6-9 4 & 5 2 & 3 2 & 3 1
A to X 33	3	40	0.4	2.0	0.4	B to K 4 pulses F and G 2 pulses H and J 2 pulses K 1 pulse	6-9 4 & 5 2 & 3 2 & 3 1
A to X 34	3	-60	0.4	2.0	0.4	K 4 pulses O 2 pulses P 2 pulses Q 1 pulse	6-9 4 & 5 2 & 3 2 & 3 1
A to X 35	3	-60	0.4	2.0	0.4	9 pulses	1-9
A to X 36	3	-60	0.5	2.0	0.5	B 1 pulse F 2 pulses G 2 pulses K 1 pulse	6-9 4 & 5 2 & 3 2 & 3 1
A to X 37	3	50	0.6	2.0	0.6	10 pulses	0.2-9.2
A to X 38	3	-60	0.6	2.0	0.6	10 pulses	0.2-9.2
A to X 39	3	50	0.5	2.0	0.5	10 pulses	11-16
A to X 40	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 41	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 42	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 43	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 44	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 45	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 46	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 47	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 48	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 49	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 50	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 51	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 52	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 53	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 54	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 55	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 56	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 57	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 58	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 59	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 60	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 61	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 62	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 63	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 64	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 65	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 66	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 67	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 68	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 69	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 70	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 71	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 72	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 73	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 74	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 75	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 76	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 77	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 78	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 79	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 80	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 81	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 82	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 83	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 84	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 85	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 86	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 87	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 88	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 89	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 90	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 91	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 92	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 93	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 94	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 95	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 96	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 97	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 98	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 99	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2
A to X 100	3	50	0.5	2.0	0.5	10 pulses	0.2-9.2

Notes: When Spec. Pulses and Gate pulses are present in certain channels they appear.



MOORE SCHOOL OF ELECTRICAL ENGINEERING
UNIVERSITY OF PENNSYLVANIA

Master's Thesis (Cycling Unit Testing Chart (Downs))

Drawn by: C.J.M.C.
Checked by: [Signature]
Date: Jan. 25, 1945

Approved by: [Signature]

Scale: 100%

PK-9-13