. Static tests are to be made with all tubes mounted. Before plugging in the D.C. cables, a resistance measurement should be made from every voltage terminal to every other to determine shorts; this should measure "open" except in the cases listed. Static tests are made with all cables removed except the D.C. cables.

PA

1.	-170. H_1
2.	-170. H_2
3.	H_3
4.	H_4
5.	-90
6.	-90
7.	+20
8.	+20
9.	+90
10.	+110
11.	+20
12.	Remove Pin

PB

1.	A.C. Switch
2.	A.C. Switch
3.	-90. H_2
4.	H_3
5.	+55. H_4
6.	H_5
7.	+15
8.	-130
9.	0
10.	---
11.	Remove Pin
12.	---

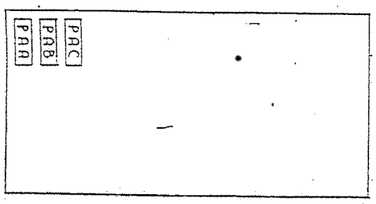
PC

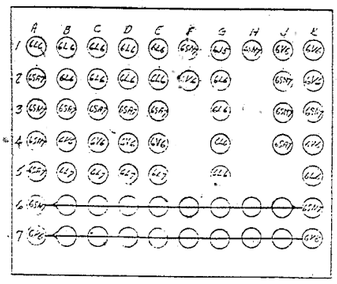
1.	+190. H_4
2.	H_4
3.	+245
4.	+370
5.	+235. H_6
6.	H_6
7.	+210. H_5
8.	H_5
9.	+415
10.	+465
11.	---
12.	+560

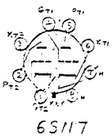
Note:
Meter levels do not agree with those in the Misc

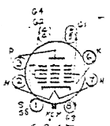
Resistance Measurements Between D.C. Plug Terminals.

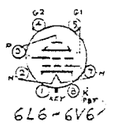
PA 9 to PA 1.	6.2K
PC 10 to PC 5.	75K
PC 1 to PC 5.	15K
PC 3 to PC 1.	25K

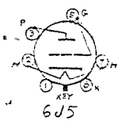


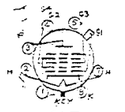












MOORE SCHOOL OF ELECTRICAL ENGINEERING
UNIVERSITY OF PENNSYLVANIA
TEST EQUIPMENT SYNCHRONIZING UNIT TESTING CO
Dr. by: H. Eckert
13 Sept. 1943

STATIC TEST

	1.	2.	3.	4.	5.	6.	7.	8.
A-E 1	0	---	+250	+250	+60	---	+55	0
	Except A-1 470 to 0	---	(For A-1 only) 470 to +250		6K to +60	---	---	---
B-E 2	-170	---	+60	-95	-157	---	-170	-170
					47K to -170			
					270K to -95			
A-2 B-E 3	+210	---	+560	+465	+415	+210	+210	+415
A-5	---	---	15K to +560	---	9.2K to +415	---	---	10K to +415
B-E 4	+190	---	+415	+245	+195	---	+190.	+190
					100K to +245			
	---	---	---	---	10K to +190	---	---	---
B-E 5	+55	---	+190	+130	+190	+60	+55	+55
					56K to +190	270K to +190		
						4.7K to +55		
A-E 6	-90	-15	-170	-90	-15	-170	-170	---
	47K to -170	39K to +60	6K to -170	47K to -170	47K to +60	20K to -170	---	---
A-K 7 K 1&2	-50	---	+60	+15	-15	---	-50	-50
	---	---	for K 1&2 3.3K to +55	---	147K to +60	---	---	---
F 1 H 1 K 3	+210	+465	+370	+245	+465	+210	+210	---
	75K to +210	47K to +465	--	---	28K to +465	1.1K to +210	---	---

	1.	2.	3.	4.	5.	6.	7.	8.
F 2 J 1 K 4	+210	---	+560	+465	+210	---	+210	+210
					101K to +210			
J 3	-90	-15	-170	-90	-15	-170	-170	---
	47K to -170	39K to +60	15K to -170	47K to -170	39K to +60	15K to -170	---	---
J 2	-170	-15	-180	-170	-15	-180	-170	---
	4.7K to -170							
J 4	-50	---	+55	+15	-40	-50	-50	-15
	---	---	82K to +55	---	4.7K to -40	---	---	---
F 5	-40	-40	-95	-40	-40	-95	-50	---
	100K to -40							
G 3&4	+190	---	+415	+245	+245	---	+190	+190
	---	---	1K to +415	---	47K to +245	---	---	---
G 5	+210	---	+560	+465	+415	---	+210	+210
	---	---	4.7K to +560	---	9.2K to +415	---	---	---
G 2 K 5	+210	---	+560	+560	+370	---	+210	+210
	---	---	4.7K to +560	---	4.7K to +370	---	---	---

DYNAMIC TEST

Note: All amplitudes are minimum, for new 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.

Tube	Terminal	Amplitude	Rise	Duration	Fall	Remarks
A 1 to E 1	5	+150	0.5	2	0.5	A 1 (+) train pulses, B 1 (-) train pulses. For number of pulses see note A.
	3	-50.	0.5	2	0.5	C 1 fixed one pulse every 200 μ seconds. D 1 Variable Train, E 1 Scope. One pulse at each setting of respective switch. Test all positions of switches.
B, C, D, E 3 A, B, A 5.	5	+50		2		Continuous train of pulses
	5	+150		10		For B 3, duration of gate depends on train switch. See note A.
	3	-75		2		For B 3, see note A; for C,D,E 3, one pulse only on either setting of odd—even sw.
B, C, D, E 5	G.C.	+40		20		Gate from Ring.
	5	+50		10		Gate from Binary Counter.
	3	-40		10		
A to K 7	5	-50		20		Output drivers of Ring.
	3	+50		20		
G 1	5	+50	---	---	---	100 KC Input tube
	3	-95	---	---	---	
F 1	2	-90		2		
	5	-50		2		
F 2	3	+50				
G 2	5	+50				
	3	-60				
G 5	5	+50		2		Continuous train of pulses
	3	-55		2		
F 5	2 & 5	+20				Continuous train of pulses
H 1	5 & 1	+94		2		
	2	-50		2		
	4	-55		2		
J 1	3	+50				
K 1 & 2	3.	+50				Odd, even bus drivers
	5	-50				
K 3	2	-50				
	5 & 1	+94				
	4	-55				
K 5	3	-60				
	5	+50				
J 3	2 & 5	-50		10		Binary Counter

Note A

Train Switch Positions	Duration of Gate, B 3, Pin 6	No. pulses of Odd-Even sw. positions. Tube A 1, B 1; Pin 5 or 3. B 3, Pin 3.	
		Odd	Even
0-1	20	None	None
2-3	40	1	2
4-5	60	3	4
6-7	80	5	6
8-9	100	7	8
10-11	12.	9	10
12-13	140	11	12
14-15	160	13	14
16-17	180	15	16
18-19	200	17	18

Dynamic Test on Ring: Tubes A to K 6

I. Voltage Tolerance Test
- a. Frequency held @ 100 KC.
- b. Scope on 9th stage of Ring—tube A 6, pin #5 or #2
- c. Voltage limits 135 to 360 Ratio 3

II. Frequency Tolerance Test
- a. Voltage across ring constant @ 195 V.
- b. Should count to 200 KC. or greater
- c. Scope on 9th stage of ring—tube A 6, pin #5 or #2