

SHIP THIS INSTRUMENT

VIA EXPRESS ONLY

VOLTAGE 103-130

CYCLES 60

CONFIDENCE

Reg. U. S. Pat. Office

"MASTER" TUBE TESTER

HOW TO OPERATE

LINE ADJUSTMENT. TURN toggle to "NORMAL." Press button. Adjust line knob.

FIRST TEST.

TURN toggle to "SHORTS and LEAKAGE." Place tube in socket.

MOVE knob No. 3 over "SHORTS and LEAKAGE." section.

SECOND TEST.

SET knobs 1-2-3 according to following chart.

TURN toggle to "NORMAL." Efficiency of tube is automatically indicated. BAD or GOOD.

FOLLOW ABOVE PROCEDURE

SLIDE LINE KNOB TO EITHER END TO TURN CURRENT OFF

Tubes having three prongs for heater should give a full left scale leakage or short reading for the third prong, otherwise the common or third prong is open. These tubes are indicated by an (*) on the tube chart.

6Z5—should give full reading at P
12A5—should give full reading at K
12Z5—should give full reading at G1

Press "Rectifiers 2nd Plate" Button to Test 2nd Plate of Tubes listed on following as FW (full wave) under heading "TESTS."



COMPREHENSIVE INSTRUCTIONS

LINE ADJUSTMENT must be made without tube in socket (no load). Turn toggle switch to "NORMAL." Press "LINE ADJUST" button and slide "LINE" knob until meter needle is at "LINE" mark. It is not necessary to adjust the line for every tube unless the line supply voltage is very jumpy and erratic. Slide "LINE" knob to either end to turn current off of instrument. This is the same as pulling plug out of light socket.

LEAKAGE (1st test). Always test a tube first for its leakage. No damage occurs if the tube is tested for normal condition first and then leakage, but the emitting cathode will be in series with the leakage test at some point and a deceptive reading will be obtained.

TURN TOGGLE SWITCH TO LEAKAGE. The regular normal testing apparatus is then completely out of circuit. A tube may be placed in its socket irrespective of where the knobs 1-2-3 are located. Then move the Knob 3 down over the "Leakage" section and if there is a leak or short between any elements the meter needle will move backwards from zero and indicate such leakage or short. A very high leak of 1,000,000 ohms will cause the needle to deflect about one-eighth of inch. A short circuit (which is extreme leakage) will cause the needle to go completely to the left and wiggle.

The markings P-G3-K-G2-G1 in Leakage section merely designate what the terminals are of the so-called standard tube. Many tubes have other elements terminating at these terminals and if it is desired to determine which elements are leaking consult a tube characteristic sheet.

Leaks or shorts between any element and heater will give but one reading. Leaks or shorts between other elements gives two readings. One on each element.

Tubes showing any leakage should be discarded.

NORMAL TEST (2nd test). The tube is now in the socket and has been tested for possible leakage.

Sets the Knobs 1-2-3 to numbered positions indicated on chart in columns opposite the type tube number.

All voltages, shunts and element terminals are now prop-

erly set to give the tube a dynamic test for efficiency which includes plate current, mutual conductance and space charge effect. Every element of the tube is tested in its proper relation to other elements.

Emission testing is not a true indication of tube efficiency or change in characteristics.

TURN THE TOGGLE SWITCH TO NORMAL. The test is then automatic as it is not necessary to press buttons, except when testing the 2nd plate of full wave rectifiers. Column headed "Tests" has FW opposite all two plate (full wave) rectifiers. It is essential that both plates of rectifiers be tested due to the oxide emitting sometimes becoming impaired on one-half of the filament.

Gaseous or mercury vapor rectifiers receive protection from abuse in testing while in this instrument and ionize properly without bombardment or other injurious effects.

FUTURE TUBES. Information will be available from time to time on new tubes produced and will be furnished upon writing to the factory. This instrument is very flexible for including tube tests for possible new and peculiar element terminating tubes. Always advise the serial number which is stamped on the edge of case.

TO REMOVE INSTRUMENT from case, remove the two screws in back of case which anchor transformer rigidly. Remove screws around edge of panel and lift instrument up.

NEW CHARTS. Additional copies of the chart will be furnished upon receipt of 10 cents each for mailing.

GUARANTEE. This instrument is guaranteed against defective material and workmanship for a period of six months from date of sale. Repairs will be made at the factory or its authorized service stations under this guarantee without charge when instrument is shipped via express prepaid. Instrument will be returned via express collect. No verbal or other agreement will alter this guarantee. Repairs to instruments not coming under this guarantee will be charged for. Communicate with factory before shipping instrument.

Manufactured by
APPARATUS DESIGN CO., Inc.
LITTLE ROCK, ARK.

PRINTED IN U.S.A.

TUBE CHART

KNOBS				TEST	KNOBS				TEST	KNOBS				TEST
TUBE	1	2	3		TUBE	1	2	3		TUBE	1	2	3	
00A	-14-14-	1			31	- 9-11-	1			401	-15-13-	1		*
01A	-14-14-	1			32	-17-11-	10			403	- 8-13-	1		*
01AA	-13-14-	1			33	-10-11-	8			445	- 7-12-	1		
KR1	- 2-16-	1			34	-16-11-	10			481	- 4-17-	1		
1V	- 4-16-	1			35	-15-12-	10			482A	- 7-14-	1		
	(17-11-	8	DET		36	-16-16-	10			482B	- 7-14-	1		
1A6	(21-11-	22	OSC		36X	-15-16-	10			483	- 7-14-	1		
	(REMOVE	CAP			37	-12-16-	1			484A	-12-13-	1		
	(17-11-	8	DET		38	-12-16-	10			485	-12-13-	1		
1C6	(17-11-	22	OSC		39	-16-16-	10			486	-19-13-	1		
	(REMOVE	CAP			40	-23-14-	1			686	-19-13-	1		
G2	-23-12-	7			41	-11-16-	1			841	-21-17-	1		
2A3	- 6-12-	1			42	-10-16-	1			842	- 9-17-	1		
2A3H	- 6-12-	1			43	- 7-21-	1			864	-15- 9-	1		
2A5	-10-12-	1			44	-15-16-	10			866	- 2-13-	1		**
	(20-12-	17	TRI		45	- 7-12-	1			871	- 2-13-	1		**
2A6	(23-12-	16	DIO		46	- 9-12-	8			950	-11-11-	8		
2B6	(13-13-	5	OUT		47	-12-12-	8			951	-17-11-	10		
	(14-13-	9	IN		48	- 6-22-	1			985	- 2-15-	1	F-W	
	(17-12-	15	DET		49	-10-11-	8			986	- 2-15-	1	F-W	
2A7	(19-12-	18	OSC		50	- 7-17-	1			AD	- 3-16-	1		
	(REMOVE	CAP			51	-15-12-	10			AF	- 2-13-	1	F-W	
	(16-12-	15	DET		G51	-15-12-	10			AG	- 2-15-	1	F-W	
G2A7	(17-12-	18	OSC		52	- 8-16-	8			GA	-12-14-	8		
	(REMOVE	CAP			53	(15-12-	3	TRI		LA	-10-16-	8		
2B7	(16-12-	15	PEN			(16-12-	4	TRI		PZ	-11-12-	8		
	(23-12-	21	DIO		G53	(15-12-	3	TRI		PZH	- 9-12-	1		
G4	-23-12-	7				(16-12-	4	TRI		WUNDERLICH				
5Z3	- 4-15-	1	F-W		55	(11-12-	17	TRI		2.5v	-14-12-	5		
6A4	-10-16-	8				(23-12-	16	DIO		6.3v	-14-16-	5		
6Z4	- 4-16-	1	F-W		56	-10-12-	1			ARCTURUS 15V TUBES				
6Y5	- 2-16-	9	F-W		57	-16-12-	6			22	-17-20-	10		
6Z5	- 4-16-	9	F-W		G57A	-15-16-	6			26	-13-20-	1		
6C6	-15-16-	6			59	-11-12-	1			28	-13-20-	1		
6D6	-14-16-	6			G59B	-12-12-	1			30	- 9-20-	1		
	(17-16-	15	DET		64	-17-16-	10			32	-17-20-	1		
6A7	(19-16-	18	OSC		65	-15-16-	10			40	- 7-20-	1		
	(REMOVE	CAP			67	-11-16-	1			48	-13-20-	1		
	(16-16-	15	DET		68	-10-16-	10			SPACE FOR ADDITIONAL TUBES				
G6A7	(17-16-	18	OSC		69	-15-16-	5			58	-13-12-	6		
	(REMOVE	CAP			70	-19-16-	5			G58A	-13-16-	6		
6B7	(16-16-	15	PEN		71A	- 7-14-	1							
	(23-16-	21	DIO		75	(20-16-	17	TRI						
6C7	(14-16-	15	PEN			(23-16-	16	DIO						
	(23-16-	21	DIO		G75	(17-16-	17	TRI						
6D7	-14-16-	6				(23-16-	16	DIO						
6E7	-14-16-	6			76	-10-16-	1							
6F7	(14-16-	15	PEN		77	-16-16-	6							
	(17-16-	14	TRI		78	-14-16-	6							
10	-11-17-	1			79	(19-16-	3	TRI						
12A	- 9-14-	1				(19-16-	4	TRI						
	(11-19-	1	PEN		80	- 5-15-	1	F-W						
12A7	(3-19-	20	REC		80M	- 2-15-	1	F-W						
12Z3	- 3-19-	1			81	- 5-17-	1							
12A5	- 8-19-	19			81M	- 2-17-	1							
12Z5	- 3-19-	13	F-W		82	- 2-13-	1	F-W						
14	-16-20-	10			83	- 2-15-	1	F-W						
15	-19-11-	10			84	- 4-16-	1	F-W						
17	-12-20-	1			G84	- 6-12-	1							
18	-10-20-	1				(11-16-	17	TRI						
19	(17-11-	2	TRI		85	(23-16-	16	DIO						
	(17-11-	3	TRI			(15-16-	17	TRI						
20	-15-13-	1			G85A	(23-16-	16	DIO						
NX20	-12-13-	1			89	- 9-16-	6							
KR20	-11-12-	5			G89B	- 9-16-	6							
KR22	-10-16-	5			89RS	(10-16-	19	PEN						
22	-17-13-	10				(7-16-	2	REC						
24A	-16-12-	10			90	-11-12-	5							
KR25	-10-12-	1			92	-10-16-	5							
25	(20-11-	13	TRI		95	-10-12-	1							
	(23-11-	16	DIO		96	- 2-18-	1							
25S	(20-11-	13	TRI		98	- 2-16-	1	F-W						
	(23-11-	16	DIO		99	-20-13-	1							
25Z5	- 3-21-	11	F-W		NU99	-17-13-	1							
26	-11-10-	1			182A	- 7-14-	1							
27	-12-12-	1			182B	- 7-14-	1							
KR28	- 2-16-	1	F-W		183	- 7-14-	1							
29	-15-12-	5			205D	-12-14-	1							
30	-14-11-	1			257	- 8-14-	8							

**866-871-USE A JUMPER WITH CLIP FROM TOP CAP TO PLATE HOLE IN ANY SOCKET



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