



# MODEL 3413 TUBE TESTER

## OPERATING INSTRUCTIONS

(Follow in Order Listed)

### LINE ADJUSTMENT

- (1) Insert power cord into a 110 volt 60 cycle supply.
- (2) Set "A-CIRCUIT" knob as shown in column "A-CIR."
- (3) Set "B-FILAMENT" knob as shown in column "B-FIL."
- (4) Set "C-LOAD" knob as shown in column "C-LOAD."
- (5) Set levers as shown in column "U-UP" and "D-DOWN."
- (6) Insert tube in socket.
- (7) Turn "LINE" knob until meter pointer reads at "LINE TEST" mark.

### SHORT TEST

- (8) Move each lever referred to in light face type on chart (one at a time) two positions and back. For example, type 01-A move levers 2 and 3 to "D" position. A shorted tube is indicated by a bright red glow of the "SHORT TEST" neon lamp.

### VALUE TEST

- (9) Hold "TEST" knob in "VALUE" position and read tube condition on meter.
- (10) Release "TEST" knob. Return all levers to center position.

## SPECIAL TESTS

### OPEN ELEMENT TEST

- (1a) Follow operations (1) through (9).
- (2a) With "Test" knob in "VALUE" position, move each lever in "U" position (only those shown on chart in light face type) to "D" position (one at a time) and return. Continuity between tube pin and the element being tested is indicated by a change in pointer deflection. A small change denotes a satisfactory plate or screen connection. A large change denotes a satisfactory grid connection. When there is only one lever in "U" position, no open element test need be made.
- (3a) Release "TEST" knob.

### FILAMENT AND TAP CONTINUITY TEST

- (1b) Follow operations (1) through (7).
- (2b) Set "B-FILAMENT" knob back to .75 position.
- (3b) Move each lever referred to in **dark face** type on chart (one at a time) two positions and back. For example, type 01-A move lever 4 to "U" position. "Good" filament or other internal pin connection is indicated by a bright red glow of the "SHORT TEST" neon lamp.

### CONTINUITY TEST (pilot lamps and other miniature base bulbs)

- (1c) Follow operations (1) and (7) under "LINE ADJUSTMENT."
- (2c) Set "B-FILAMENT" knob to voltage of lamp under test.
- (3c) Place lamp in center of 7 prong socket.
- (4c) A "good" lamp is indicated by normal lighting of its filament.

### CONTINUITY TEST (ballast tubes and electrical appliances)

- (1d) Follow operations (1) and (7) under "LINE ADJUSTMENT."
- (2d) Place jumper lead in No. 1 position (marked) of octal base.
- (3d) Set "B-FILAMENT" knob to "OFF" position.
- (4d) Set lever "1" in "U" position.
- (5d) Set lever "0" in "D" position.
- (6d) Short grid cap lead and jumper lead together and note that the neon lamp glows. Connect grid cap clip and jumper lead to pins of ballast tube or to terminals of appliance being tested. A bright glow of the neon lamp indicates continuity.

**CAUTION:** Do not handle the metal parts of the test leads during the test.

- (7d) Refer to the ballast tube or appliance manufacturer's data for internal connections.

### TUBE CHART NOTES

#### TEST 2 and TEST 3

When more than one test is given on the chart for the same tube type, proceed as noted below:

- (1e) Follow operation (1) through (10)—(first test).
- (2e) Reset all knobs and levers as noted on the chart for Test 2.
- (3e) Hold "TEST" knob in "VALUE" position and read tube condition on meter.
- (4e) Repeat operations (1e), (2e), and (3e) for Test 3.
- (5e) Release "TEST" knob. Return all levers to center position and turn "LINE" knob to "OFF."

Special note on chart refers to the tube directly preceding note.

Lever markings 1 through 9 designate RMA tube pin numbers 1 through 9 respectively.

Lever "0" designates the Top Cap Connection.

"Good tube reads 5," etc., indicates tubes reading 5 and higher are good.

"Tapped Fil. See Oper. Inst. (1b) to (3b)" is added after the more common tubes with tapped filaments. It is a reminder that filament tap continuity must be checked. For the most accurate check, the FILAMENT AND TAP CONTINUITY TEST should be made on all tubes.

"Use Adapter BN," etc., indicates the use of a plug-in adapter to make tests on these tubes. Adapter BN is not supplied with tester but may be obtained from your distributor on special order. (Part No. 10234).

### GENERAL NOTES

Pointer indication above full scale indicates tube is extremely good or more than 130%. To make element continuity check on these tubes, turn load control "C" so that pointer falls within end scale markings and proceed with continuity tests.

The jumper lead referred to in "CONTINUITY TEST" is not supplied with tester but may be obtained from your distributor on special order (Part No. T-2566-2, with clip T-79-29.)

The seven pin sub-miniature socket is used for 5, 6 and 7 prong tubes. Place the red dot on the tube to the extreme right to match the dot on the socket.

Cathode to heater leakage is indicated by a faint glow of the "SHORT TEST" neon lamp when making short test operation (8).

A space for additional tubes is provided in this instruction book and additional data may be obtained as new tubes come out.

## TUBE SUFFIX LETTER SYMBOLS

In general, tubes with suffixes as noted below can be checked by using the set up for the tube without that suffix.

The letter G indicates a glass tube with an octal base.

GT Indicates use of a T-9 bulb. Y Indicates an "Intermediate loss" base.

The letters A, B, C, D, E, and F used in sequence indicate improved versions unilaterally interchangeable with the prototype or its subsequent versions.

W Indicates a military type and is assigned only on behalf of the armed forces.

CK is the prefix letters for some Raytheon subminiature tubes.

## INSTRUCTIONS FOR MAKING CHART LISTINGS

### NEW TUBE TYPES

From time to time, supplementary tube data will be available to cover new tube types. Until this data is set up, the following may be used to obtain preliminary chart settings.

Use 3 or more new tubes and proceed as follows:

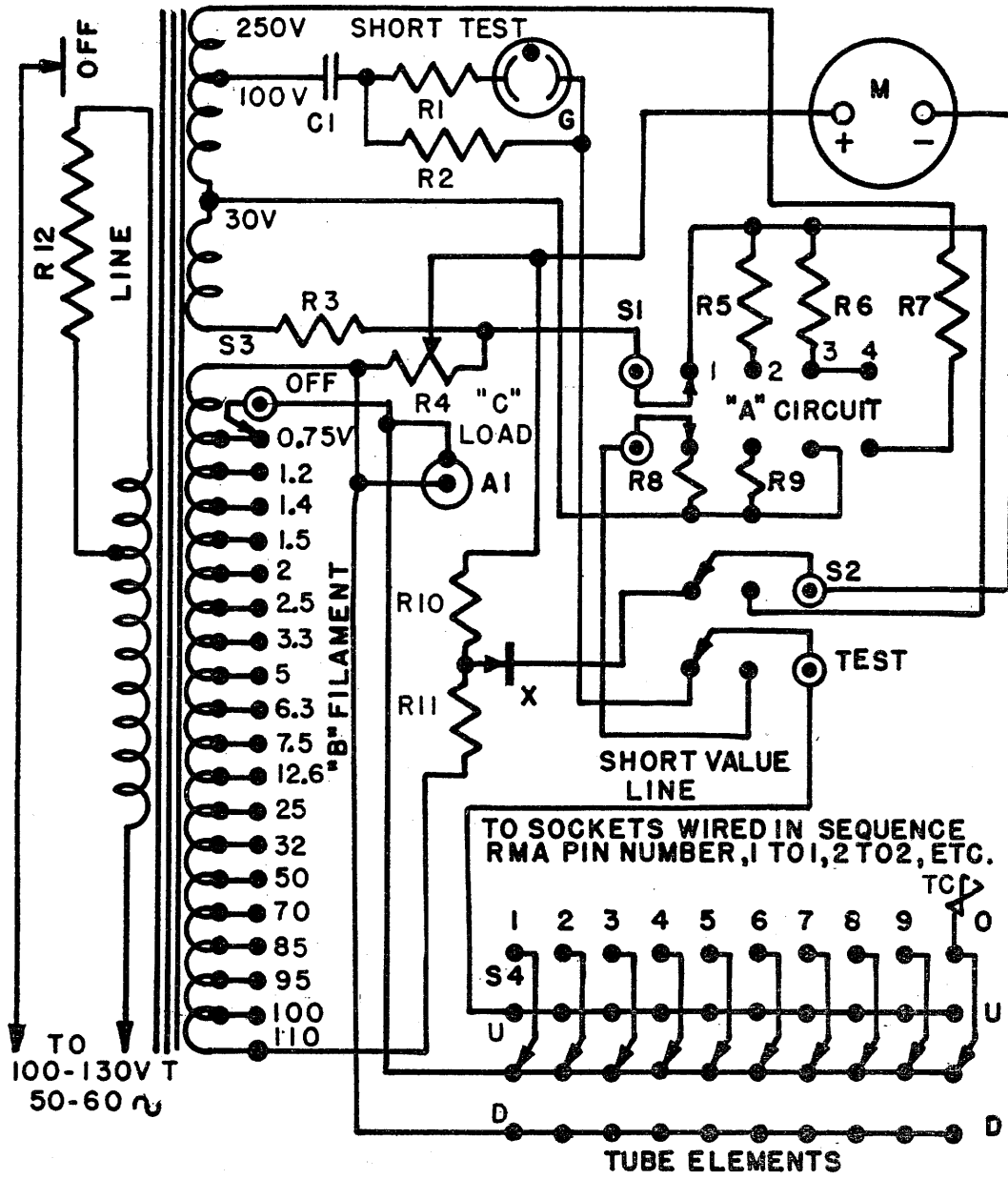
- (1f) Refer to manufacturer's handbook under the particular tube type for filament voltage and pin connections.
- (2f) Set "A-CIRCUIT" switch as follows:
  - "1" for tubes with cathode current below 4 Ma, generally diode types.
  - "2" for tubes with cathode current from 3 to 15 Ma, generally filament types excluding diodes.
  - "3" for tubes with cathode current above 8 Ma, generally indirectly heated (cathode) types excluding diodes.
  - "4" for target or eye tubes, gaseous rectifiers and gaseous control tubes.
- (3f) Set "B-FILAMENT" switch to filament voltage.
- (4f) Refer to base drawing in "Manufacturer's Handbook" on tubes for the type being set up. Levers "1234, etc." compare to RMA pin numbers.
- (5f) Set all levers in normal or center position. This is one of the "FILAMENT" positions and all elements in this position are tied together.
- (6f) Find the first filament connection pin on tube base and leave corresponding lever in center position. This connects one side of filament to the filament transformer.
- (7f) Find the second filament connection pin on tube base and move corresponding lever to "D" position. This connects the opposite side of the filament to the filament transformer. If filament is tapped at center, move corresponding filament pins to connect the two sections of filament in parallel. If filament has a panel lamp section, move the levers corresponding to this section to "D" position.
- (8f) Find the cathode connection pin on tube base and move corresponding lever to "D" position. This connects the cathode to one side of the filament transformer.
- (9f) If the tube is of the multi-section type such as duodiodes, duotriodes, etc., find the elements not under test and move corresponding levers to "D" position.
- (10f) Move all levers corresponding to the other active elements under test to "U" position.
- (11f) Insert tube into proper socket.
- (12f) Turn on "LINE" control and adjust so that meter reads at "LINE TEST" mark.
- (13f) Hold "TEST" switch in "VALUE" position. Adjust "C-LOAD" control for each tube so that the majority of the new tubes read 70 on the meter scale.
- (14f) List settings in the book for further reference.

# ADDITIONAL TUBES

TUBE TYPE	KNOBS			LEVER POSITION		TUBE TYPE	KNOBS			LEVER POSITION	
	A Cir	B Fil	C Load	U Up	D Down		A Cir	B Fil	C Load	U Up	D Down
90A	2	5	30	23	<b>4</b>	2E26	3	6.3	21	350	<b>1246</b>
01A	2	5	45	23	<b>4</b>	2E30	3	3.3	12	<b>1256</b>	<b>34</b>
0A2	4	Off	40	<b>15</b>	<b>247</b>	2E31	1	1.2	25	124	<b>5</b>
	(Good tube reads 10)					2E32	1	1.2	25	124	<b>5</b>
0Y4	4	Off	22	5	378	2E35	1	1.2	27	124	<b>5</b>
1A4	1	2	28	230	<b>4</b>	2E36	1	1.2	27	124	<b>5</b>
1A6	2	2	50	34	<b>6</b>	2E41	1	1.2	56	125	<b>6</b>
1A6 Test 2	1	2	95	250	<b>6</b>	2E41 Test 2	1	1.2	95	3	<b>6</b>
1B4P	2	2	35	230	<b>4</b>		(Good tube reads 10)				
1C21	4	Off	45	5	27	2E42	1	1.2	56	125	<b>6</b>
1D5GP	2	2	33	340	<b>7</b>	2E42 Test 2	1	1.2	95	3	<b>6</b>
1D7	1	2	31	56	<b>7</b>		(Good tube reads 10)				
1D7 Test 2	1	2	95	340	<b>7</b>	2G21	1	1.2	26	1256	<b>37</b>
1F6	1	2	37	230	<b>6</b>	2G22	1	1.2	26	1256	<b>37</b>
1F6 Test 2	1	2	95	4	<b>6</b>	2S/4S	1	2.5	45	3	<b>45</b>
1F6 Test 3	1	2	95	5	<b>6</b>	2S/4S Test 2	1	2.5	45	2	<b>45</b>
1F7	1	2	35	360	<b>7</b>	2V3	1	2.5	96	0	<b>7</b>
1F7 Test 2	1	2	95	5	<b>7</b>		(Good Tube Reads 20)				
1F7 Test 3	1	2	95	4	<b>7</b>	2W3	2	2.5	36	4	<b>8</b>
1F7-GV	1	2	35	360	<b>7</b>	4A6	2	2	35	34	<b>8</b>
1F7-GV Test 2	1	2	95	4	<b>7</b>	4A6 Test 2	3	2	46	56	<b>8</b>
1F7-GV Test 3	1	2	95	4	<b>7</b>	5A24	3	5	57	6	<b>8</b>
1G4	1	1.4	30	35	<b>7</b>	5A24 Test 2	3	5	57	4	<b>8</b>
1G5	2	2	39	345	<b>7</b>	6A6	3	6.3	36	23	<b>47</b>
1J5	2	2	38	345	<b>7</b>	6A6 Test 2	3	6.3	36	56	<b>47</b>
1LG5	2	1.4	35	236	<b>458</b>	6A7	2	6.3	30	45	<b>67</b>
1V2	4	0.75	95	9	<b>5</b>	6A7 Test 2	2	6.3	38	230	<b>67</b>
2A4	3	2.5	25	5	<b>7</b>	6AB5	2	6.3	95	23	<b>56</b>
2A4 Test 2	3	2.5	25	3	<b>57</b>	6AB5 Eye CL	4	6.3	0	24	<b>356</b>
	(No Short Test)					6AB5 Eye OP	4	6.3	0	4	<b>2356</b>
2A6	3	2.5	26	20	<b>56</b>	6AC5	3	6.3	34	35	<b>78</b>
2A6 Test 2	1	2.5	40	4	<b>56</b>	6AC7	3	6.3	21	468	<b>357</b>
2A6 Test 3	1	2.5	40	3	<b>56</b>	6AD6	2	6.3	95	345	<b>78</b>
2A7	2	2.5	32	5	<b>67</b>		(Good Tube Reads 15)				
2A7 Test 2	2	2.5	64	2340	<b>67</b>	6AD6 Eye CL	4	6.3	0	346	<b>78</b>
2B6	2	2.5	95	2	<b>67</b>	6AD6 Eye OP	4	6.3	0	5	<b>3478</b>
2B6 Test 2	3	2.5	50	34	<b>57</b>	6AE5	3	6.3	29	35	<b>78</b>
2B7	3	2.5	47	230	<b>67</b>	6AE6	2	6.3	33	35	<b>78</b>
2B7 Test 2	1	2.5	40	5	<b>67</b>	6AE6 Test 2	2	6.3	33	45	<b>78</b>
2B7 Test 3	1	2.5	40	4	<b>67</b>	6AF6	2	6.3	95	345	<b>78</b>
2C22	3	6.3	22	0	<b>78</b>		(Good Tube Reads 15)				
	(Short Top Caps Together)					6AF6 Eye CL	4	6.3	0	345	<b>78</b>
2C26	3	6.3	35	0	78	6AF6 Eye OP	4	6.3	0	5	<b>3478</b>
2C51	2	6.3	23	34	<b>26789</b>	6B4	3	6.3	28	35	<b>7</b>
2C51 Test 2	2	6.3	23	67	<b>23489</b>	6B5	3	6.3	45	24	<b>356</b>
2C52	2	12.6	26	45	<b>67</b>	6B5 Test 2	3	6.3	63	34	<b>256</b>
2C52 Test 2	2	12.6	26	12	<b>37</b>	6B7	3	6.3	50	230	<b>67</b>
2D21	3	6.3	18	<b>1567</b>	<b>24</b>	6B7 Test 2	1	6.3	40	4	<b>67</b>
2E22	3	6.3	25	2340	<b>5</b>	6B7 Test 3	1	6.3	40	5	<b>67</b>
2E24	3	3.3	22	350	<b>27</b>	6B8	3	6.3	45	360	<b>78</b>
	(In Short Test, levers 1, 4 and 6 should show short when moved to "U" position)					6B8 Test 2	1	6.3	40	4	<b>78</b>
						6B8 Test 3	1	6.3	40	5	<b>78</b>

## ADDITIONAL TUBES

TUBE TYPE	KNOBS			LEVER POSITION		TUBE TYPE	KNOBS			LEVER POSITION	
	A Cir	B Fil	C Load	U Up	D Down		A Cir	B Fil	C Load	U Up	D Down
6C5	2	6.3	30	35	<b>78</b>	608CX	3	6.3	20	15	<b>46</b>
6C6	1	6.3	21	230	<b>456</b>	615HY	3	6.3	30	0	<b>78</b>
6C7	1	6.3	21	20	<b>67</b>	(Short Top Caps Together)					
6C7 Test 2	1	6.3	40	4	<b>67</b>	619CX	2	6.3	25	14	<b>35</b>
6C7 Test 3	1	6.3	40	5	<b>67</b>	713-A	2	6.3	25	468	<b>357</b>
6C8	2	6.3	27	30	<b>47</b>	717-A	1	6.3	23	468	<b>357</b>
6C8 Test 2	2	6.3	27	56	<b>78</b>	800	3	7.5	54	0	<b>4</b>
6CB6	2	6.3	22	1567	<b>23</b>	(Short Top Caps Together)					
(No Open Element Test on Pin 5)						AF	3	2.5	24	2	<b>4</b>
6CD6	3	6.3	17	580	<b>23</b>	AF Test 2	3	2.5	24	3	<b>4</b>
6D6	3	6.3	28	2340	<b>56</b>	AG	3	5	26	2	<b>4</b>
15	2	2	36	230	<b>45</b>	AG Test 2	3	5	26	3	<b>4</b>
17	3	12.6	40	23	<b>45</b>	G-2	1	2.5	45	3	<b>45</b>
18	3	12.6	31	234	<b>56</b>	G-2 Test 2	1	2.5	45	2	<b>45</b>
19	3	2	37	23	<b>6</b>	G-4	1	2.5	45	3	<b>45</b>
19 Test 2	3	2	39	45	<b>6</b>	G-4 Test 2	1	2.5	45	2	<b>45</b>
88	3	5	26	2	<b>4</b>	G-84	3	2.5	56	2	<b>4</b>
88 Test 2	3	5	26	3	<b>4</b>	GA	3	5	32	234	<b>5</b>
88M	3	6.3	31	340	<b>578</b>	KR-1	3	6.3	24	2	<b>34</b>
88S	3	6.3	32	230	<b>456</b>	KR-5	3	6.3	36	234	<b>5</b>
89	3	6.3	32	230	<b>56</b>	KR-25	3	2.5	36	234	<b>56</b>
89RS	3	6.3	36	20	<b>357</b>	KR-98	3	6.3	26	2	<b>45</b>
89RS Test 2	1	6.3	24	4	<b>37</b>	KR-98 Test 2	3	6.3	26	3	<b>45</b>
89RS Test 3	1	6.3	24	6	<b>37</b>	PZ	3	2.5	41	234	<b>5</b>
95	3	2.5	36	234	<b>56</b>	PZH	3	2.5	36	234	<b>56</b>
98	3	6.3	26	2	<b>45</b>	R-30	2	2	35	23	<b>4</b>
98 Test 2	3	6.3	26	3	<b>45</b>	R-100	3	7.5	43	0	<b>4</b>
99	2	3.3	55	23	<b>4</b>	(Short Top Caps Together)					
99V/V99	2	3.3	55	13	<b>4</b>	R-200	3	7.5	40	0	<b>4</b>
128A/2523NI	4	2.5	20	23	<b>45</b>	(Filament Connected from 1 & 4 on 4 Pin Tester Socket to 2 & 4 Pin of Tube—Short Top Caps Together and Connect to Top Cap Lead.)					
210-T	3	7.5	56	23	<b>4</b>	RK-33	3	6.3	27	45	<b>67</b>
230-S	2	2	35	23	<b>4</b>	RK-33 Test 2	3	6.3	27	30	<b>27</b>
233-S	3	2	39	234	<b>5</b>	RK-34	3	6.3	27	50	<b>47</b>
234-S	2	2	40	230	<b>4</b>	(Top Cap Lead on Left Top Cap)					
257-A	2	3.3	41	20	<b>4</b>	RK-34 Test 2	3	6.3	27	30	<b>47</b>
262-B	3	7.5	42	20	<b>34</b>	(Top Cap Lead on Right Top Cap)					
274A	4	5.0	21	2	<b>1</b>	RK-61	1	1.4	26	13	<b>4</b>
274A Test 2	4	5.0	21	3	<b>1</b>	WX-12	1	1.4	55	23	<b>4</b>
300-B	3	5	21	23	<b>4</b>	WND. A	3	6.3	35	23	<b>456</b>
313-CB	4	Off	53	2	<b>14</b>	WND. C	3	2.5	35	23	<b>456</b>
313-CD	4	Off	44	2	<b>14</b>	X99	2	3.3	55	23	<b>4</b>
376-B	4	Off	37	5	<b>27</b>	XXB	2	1.4	40	34	<b>18</b>
393-A	4	2.5	20	40	<b>12</b>	XXB Test 2	2	1.4	40	56	<b>18</b>
WL-481	4	2.5	59	0	<b>4</b>	XXD	3	12.6	25	34	<b>25678</b>
507-AX	1	1.2	26	124	<b>5</b>	XXD Test 2	3	12.6	25	56	<b>23478</b>
523AX	1	1.2	25	124	<b>5</b>	XXFM	1	6.3	20	23	<b>478</b>
525AX	1	1.2	26	124	<b>5</b>	XXFM Test 2	1	6.3	27	5	<b>48</b>
526AX	1	1.2	26	124	<b>5</b>	XXFM Test 3	1	6.3	27	6	<b>78</b>
553AXA	1	1.2	25	124	<b>5</b>	XXL	2	6.3	24	26	<b>78</b>
605CX	2	6.3	22	1257	<b>46</b>						
606BX	2	6.3	23	1	<b>34</b>						



WIRING DIAGRAM

## REPLACEABLE PARTS, 3413

Ref. No.	Quan.	Part Name	Description	Function	Triplet Part No.
C1	1	Capacitor	0.1 Mfd. 400 DC WV	Series Capacitor	T-2631-P27
G	1	Lamp	Neon, 1/25W, GE	Short Test	T-3024-2
M	1	Instrument	1 Ma. 100 Mv. 626	Short Test	T-52-450
R1	1	Resistor	Composition, 100000 Ohm, $\pm 10\%$ , 1/10W	Indication	T-2602-1/10-100K
R2	1	Resistor	Composition, 250000 Ohm, $\pm 10\%$ , 1/2W	Current Limiting Neon	T-2601-1/2-250K
R3	1	Resistor	Wirewound, 50 Ohm, $\pm 1\%$	Shunt, Neon, Calib.	T-2603-1-50
R4	1	Resistor	Variable, 200 Ohm	Cathode Return Coupling	T-16-7
R5	1	Resistor	Wirewound, 450* Ohm, $\pm 1\%$	Load Control	T-2603-C-450
R6	1	Resistor	Wirewound, 1800* Ohm, $\pm 1\%$	Tube Test Shunt Res.	T-2603-C-1800
R7	1	Resistor	Composition, 2500 Ohm, $\pm 5\%$ , 10W	Tube Test Shunt Res.	T-15-873
R8	1	Resistor	Composition, 5000 Ohm, $\pm 1\%$ , 1/2W	Current Limiting	T-15-1009
R9	1	Resistor	Composition, 1000 Ohm, $\pm 1\%$ , 1/2W	Current Limiting	T-15-1011
R10	1	Resistor	Wirewound, 1200* Ohm, $\pm 1\%$	Current Limiting	T-2603-C-1200
R11	1	Resistor	Composition, 75000 Ohm, $\pm 1\%$ , 1W	Line Meter Calib.	T-15-1106
R12	1	Resistor	Variable, 175 Ohm, Model H, Ohmite with off position	Line Meter Series	T-2472-2C
S1	1	Switch	14 Pos., 2 Deck, 4 Active Pos.	Line Control	T-22-81
S2	1	Switch	3 Pos., 1 Deck	Circuit Switch	T-22-43
S3	1	Switch	20 Pos., 1 Deck	Test Switch	T-22-35
S4	10	Switch	3 Pos., Lever, 1 Deck	Filament Switch	T-22-56
T	1	Transformer	110. V, Pri., 22 Sec. taps	Element Switch	T-23-10
X	1	Rectifier	Copper oxide, 1/2 Wave, 2 Lead	Filament and Plate	T-2248-1
	1	Case	With Hardware	Voltage Supply	T-10-659
	1	Cord	Line 7 ft., Brown	Tester Housing	8971
	10	Knob	9/16D Round, Brown	Connector	T-34-9
	3	Knob	1 1/4" bar, Brown	Element Switch Knob	T-34-11
	2	Knob	2" bar, Brown	Switch Knob	T-34-10
A1	1	Socket	7 prong with pilot socket, brown, Amphenol S-7C	Switch Knob	T-2455-73
	1	Socket	Bantam, 6 prong, Brown, Amphenol 78-6H	Tube Socket	T-2455-77
	1	Socket	9 prong, Amphenol brown	Tube Socket	T-2455-93
	1	Socket	4 prong, Brown, Amphenol S-4	Tube Socket	T-2455-70
	1	Socket	5 prong, Brown, Amphenol S-5	Tube Socket	T-2455-71
	1	Socket	6 prong, Brown, Amphenol S-6	Tube Socket	T-2455-72
	1	Socket	Loctal, 8 hole, Brown, Amphenol 78-8L	Tube Socket	T-2455-75
	1	Socket	Miniature, 7 prong, Brown, Amphenol 78-7P	Tube Socket	T-2455-76
	1	Socket	Octal, 8 hole, Brown, Amphenol S-8	Tube Socket	T-2455-74
	1	Socket	Subminiature 7 prong	Tube Socket	T-2455-79

\* Approx. value calibration resistor

## **RMA STANDARD WARRANTY—APPROVED OCTOBER 15, 1947**

1. We warrant all products manufactured or sold by us to be free from defects in materials and workmanship. This warranty is limited to repairing or replacing any of said products which prove to be defective upon our inspection, and which are within the warranty period of twelve months from the date of our delivery.
2. Products claimed to be defective may be returned to us after written permission is given by us. When material is returned, it must be properly packed and shipped with transportation prepaid. If upon inspection the equipment is found defective, credit will be given to offset the prepaid transportation.
3. This warranty does not extend to any products which have been subjected to abuse, accident, improper installation or application, alteration or negligence in use, storage, transportation or handling.
4. The failure to return the merchandise within the period specified in Paragraph One shall constitute a final acceptance of the merchandise and conclusively operate as a fulfillment of all warranties, expressed or implied.
5. This warranty excludes all oral or other and implied warranties, and the manufacturer shall in no event be liable for damages for a breach of warranty in an amount exceeding the purchase price of the alleged defective equipment.

## **RMA STANDARD WARRANTY FOR MAINTAINING PARTS OF DISCONTINUED MODELS**

Standard Warranty adopted by the Instrument and Test Equipment Section of the RMA Parts Division for maintaining parts of discontinued models.

The Triplett Electrical Instrument Company warrants this equipment under the Standard Warranty of the Instrument Section of the RMA Parts Division. Parts will be made available for a minimum period of five (5) years after the manufacture of this equipment has been discontinued.

Parts includes all materials, charts, instructions, diagrams, accessories, etc., which have been furnished in the Standard Model.

# **The Triplett Electrical Instrument Co.**

**Bluffton, Ohio**