

SUPREME MODEL 504-B

ELECTRICAL SPECIFICATIONS

POWER SUPPLY REQUIREMENTS: (unless otherwise specified on plate attached to instrument).

Voltage.....100/133 volts A-C
Frequency.....50/60 cycles
Power Consumption.....25 watts maximum

MECHANICAL SPECIFICATIONS

OVER-ALL DIMENSIONS: PANEL CASE
Length.....11-1/2 in.....14-1/4 in.
Width.....11-3/4 in.....12-3/8 in.
Depth.....6 inches

WEIGHT:

Net.....15-1/2 pounds
Shipping.....19 pounds

STANDARD EQUIPMENT SUPPLIED WITH THE SUPREME MODEL 504-B

QUANTITY INCLUDED	STOCK NUMBER	DESCRIPTION	PACKER'S CHECK
1	8899	Booklet, Operating Data	
1	6725	Card, Return Registration	

The above list has been checked by the undersigned who is responsible for the completion of this package.

(Signed).....
Shipping Department

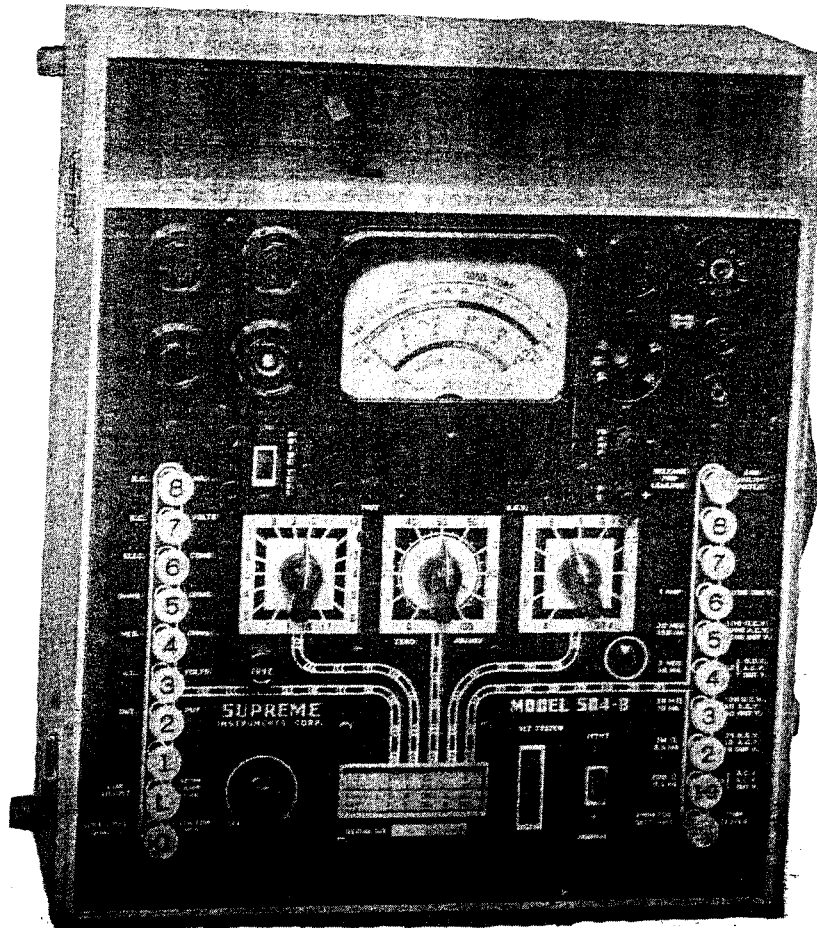
SERIAL #.....

MENTION ABOVE NUMBERS IN ALL CORRESPONDENCE.

IMPORTANT

See enclosed colored page for information concerning Registration, Transportation Damages, Warranty, Replacement Parts, Etc.

The instructions listed on this colored sheet *must* be complied with before the warranty policy is applicable. The Model and Serial numbers should be mentioned in *all* correspondence regarding this tester.



#8899
INSTRUCTION MANUAL
FOR
SUPREME MODEL 504-B TUBE TESTER

GENERAL DESCRIPTION

The SUPREME Model 504-B is a complete tube, battery and set tester for checking the static condition of radio receivers and parts as well as many other types of electronic apparatus.

The tube testing circuit of the Model 504-B is designed to classify receiving type tubes by the emission principle. This type of tester has long been recognized to be the most accurate for making a simplified test of tubes. By checking the cathode or filament, as the case may be, for its ability to emit electrons or current to the other elements of the tube, the quality of the tube may be accurately classified. In setting the limits on the tubes as shown on the roll chart, SUPREME engineers worked closely with tube manufacturers. Recommended loads and voltages are used throughout this tester.

The battery testing function provides a load upon the battery under test which represents the average current drain on that particular type of battery. The discard points used in this section of the Model 504-B are those recommended by the battery manufacturers.

The multimeter section of the Model 504-B incorporates seven choice functions built around a meter with a sensitivity of 500 microamperes. This section includes a total of twenty-nine carefully selected ranges and also provisions for electrolytic and electrostatic capacitor checks. Twenty-seven multimeter functions are operated from only one pair of pin jacks by means of two sets of push button switches which

make it a completely automatic unit.

POWER SUPPLY REQUIREMENTS

Unless otherwise specified, the instrument is designed to operate from 100 to 133 volts at 50/60 cycles. Power consumption is 25 watts. The rectifier tube is a 6X5GT.

This instrument is protected from damage in case an overload is applied to it by a fuse having a rating of 1 *Ampere*. If your instrument fails to operate remove the fuse from its fuse-holder and check it with an ohmmeter to see if it is burned out. If it is, replace it with a fuse of the same length having a rating of 1 *Ampere*. If the second fuse burns out the instructions listed under SERVICE AND MAINTENANCE should be followed. *CAUTION! The 90-day Warranty on the instrument is valid only if it is protected by a fuse having the specified rating! Do not substitute one of higher rating!*

PANEL MARKINGS AND COMPONENTS

METER:

Four-inch, SUPREME full-vision type.

SCALES: BAD TUBE-?-GOOD TUBE, red sector, orange sector, and green sector. English reading scale for checking the condition of tubes and batteries.

DIODES: O.K. (Arrow scale) for checking tubes containing diodes such as 6H6, 75, 6Q7, etc.

OHMS: '2M' non-linear to '0' with '35' mark at center scale - for resistance and continuity measurements.

VOLTS MA: 0/5/10/25 basic linear scale for all current and voltage measurements except 0-5 volts A-C and 0-5 volts output.

5 VOLTS A.C.: Used only for 0-5 volts A-C

and 0-5 volts output ranges.

GOOD CAPACITOR-BAD CAPACITOR: Green and red sector for indicating conditions of electrolytic capacitors.

SOCKETS:

4 hole, 5 hole, 6 hole, 7 hole, and pilot on left side of meter; octal, loctal, miniature, bantam, and acorn on the right side of meter.

PUSH-BUTTONS:

Right edge of panel - 10 buttons: Blank locking, 1-9, 2, 3, 4, 5, 6, 7, 8, and blank momentary release. Range selector for multi-meter section and element controls for tube testing sections. This is also used for electrolytic condenser test shunts.

PUSH-BUTTONS:

Left edge of panel - 10 buttons: 'Q' momentary, 1 momentary, 2, 3, 4, 5, 6, 7, and 8. Function selector switch for multimeter section, quality test and the famous *SUPREME DOUBLE FILAMENT RETURN SELECTOR* for the tube testing section.

PIN JACKS:

Directly under 7 hole socket. Allows phones to be placed in series with shorts test circuit for checking noise, when switch is moved to momentary position.

PIN JACKS:

Directly below meter: 'BATT-TEST' for checking portable radio batteries. '2500 D.C.V.' for extremely high D-C voltage measurement.

PIN JACKS:

Directly below roll chart. '+' and '-' common multimeter terminals for automatic operation of all multimeter functions except 10 ampere and 2500 volt D-C range.

ROTARY SWITCH:

Directly below left hand corner of meter. Number 1 to 18 on panel - for selecting proper filament voltages in tube and pilot light testing section.

ROTARY SWITCH:

Directly below right hand corner of meter. Positions: A, B, C, D, E, F, and G for applying proper load and anode voltage to tube under test. Position 1.5 V, 4.5 V, 6.0 V, 45 V, and 90 V for inserting proper load and shunts in battery testing section.

POTENTIOMETER (ZERO ADJUST):

Directly below meter - for ohmmeter adjustment in multimeter section and quality control in tube testing section.

POTENTIOMETER:

Directly to left of roll chart with encircling arrow - line adjustment control and power switch. Power is off when this control is in the extreme counter-clockwise position.

NEON LAMP (SHORT):

Directly to upper right of roll chart - for visual indication of shorted, leaky or dislocated elements in vacuum tubes. Filament continuity tests.

FUSEHOLDER:

Directly to upper left of roll chart - holds one ampere fuse for protection of instrument.

SLIDE SWITCH:

Directly to right of roll chart - for special test on 117N7 tube. Leave in DOWN (N) position for tests on all other tubes.

BINDING POSTS:

Directly under acorn socket. Used for checking 10 ampere D-C.

MODEL NUMBER:

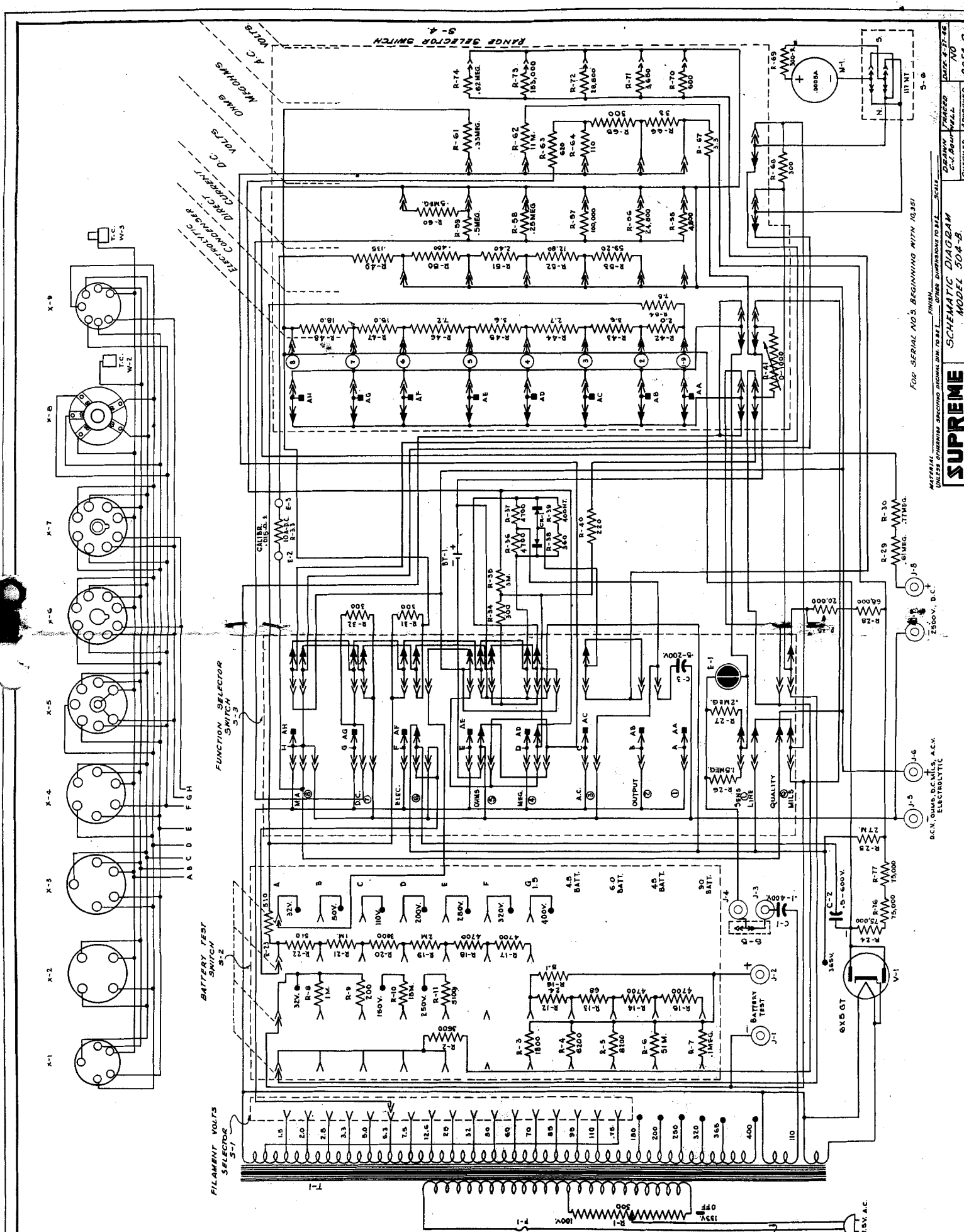
504-B - indicated directly below neon lamp.

SERIAL NUMBER:

Stamped in panel directly below roll chart.

OPERATION

1. Connect power supply cable to a convenient A-C supply socket after you have made certain that it is the proper voltage and frequency. (See POWER SUPPLY REQUIREMENTS).
2. Depress locking type button 'PRESS FOR BATT AND TUBE TESTER' located below button '1-9'.
3. On the chart locate the tube type to be tested and set the controls as indicated by the red 'arrow-ways'. *THE RIGHT HAND COLUMN ON THE TUBE CHART INDICATES THE BUTTONS IN THE RIGHT HAND ROW OF PUSH-BUTTONS WHICH ARE TO BE PRESSED.* Press these buttons down.
4. Place the tube in the correct socket. Press and hold down 'LINE ADJUST' push button on left hand side of panel. Turn line adjustment potentiometer, and after allowing approximately 30 seconds for the rectifier tube in the instrument to warm up, adjust it until the meter needle points directly to the '?' which lies in the orange section of the tube tester scale. The meter will read in all positions of the potentiometer except in the extreme counterclockwise or 'OFF' position. Recheck this adjustment in case of line voltage fluctuation.
5. Press momentary 'RELEASE FOR LEAKAGE' button to release any previously depressed buttons in same row. Then press successively buttons '1-9'



FOR SERIAL NO. 5, BEGINNING WITH 10,351

UNLESS OTHERWISE SPECIFIED DIMENSIONS TO BE FINISH OTHER DIMENSIONS TO BE 1/16" INCHES

DESIGNED BY C. J. BURRILL

APPROVED BY [Signature]

DATE 2-27-48

NO. 2854-C

SUPREME
INDEPENDENCE CORPORATION

D.C.V. DUMPS, D.C.M.S., A.C.V.
ELECTROLYTIC

250V., D.C.

60.000

20.000

1.0MEG.

.2MEG.

5-200V.

BT-1

117.5V. A.C.

to '8' in right hand row. Neon lamp should light when one of the buttons is pressed but when more than one switch causes the lamp to glow, some element other than the filament is shorted. In all cases where this is normal a letter follows the tube number and refers to the proper footnote which indicates the buttons on which shorts will be shown.

When testing tubes for leakage and inter-electrode shorts, the sensitivity of the neon lamp may be increased by holding down the button marked 'NEON LAMP SENS.' throughout the test. However, under these conditions, good tubes may show a slight amount of leakage between heater and cathode.

6. If the tube has no internal shorts, press 'PRESS FOR TUBE TESTER' button and then numbered button or buttons as shown on chart and as explained above in Paragraph 3. Allow approximately 30 seconds for tube to heat and then press lower left hand button marked 'Q' and note condition of tube on 'BAD TUBE-GOOD TUBE' meter scale.

MULTI-PURPOSE TUBES

Some tubes require more than one test as indicated on the roller chart. The separate sections are checked as outlined above for single tube as listed on chart.

CHART FOOTNOTES

Exceptions to rules of operation are sometimes necessary, in these cases a letter follows the listing of the tubes on the chart. Example: 35Z5(F). Explanation is found at the end of the chart. Tubes not listed on the chart will be found in Supplement to this Instruction Manual.

CAUTION!

Be sure proper settings are made as out-

lined before tube is inserted into socket. At the end of tests, turn line adjusting potentiometer to "OFF" and leave until next test is to be made.

BALLAST TUBES

Ballast tubes are checked for opens, loose connections, and bad welds. Press momentary 'RELEASE FOR LEAKAGE' button to release any previously depressed buttons in same row. The ballast tube is inserted in the proper socket. The neon lamp should light when the indicated buttons are pressed. Any flickering of the neon lamp when the tube is tapped indicates a poorly welded joint.

PILOT LAMPS

Set controls as shown in chart below and lamp should light with normal brilliance when inserted in special socket in center of 7 hole tube socket.

VOLTAGE		CONTROL		SETTINGS	
1.5	1	1	0	90V	47
2.0	1	2	0	90V	47
2.5	1	3	0	90V	47
3.3	1	4	0	90V	47
5.0	1	5	0	90V	47
6.3	1	6	0	90V	47
7.5	1	7	0	90V	47
12.6	1	8	0	90V	47
25.0	1	9	0	90V	47
32.0	1	10	0	90V	47
50.0	1	11	0	90V	47
60.0	1	12	0	90V	47

BATTERY TESTS

Press 'RELEASE FOR LEAKAGE AND MULTIMETER' button, then press 'PRESS FOR BATT' button in right hand row. Set right hand selector switch to voltage of battery being tested. Connect

battery to pin jacks marked 'BATT TEST' observing proper polarity. Press 'QUALITY FOR BATT' button and read battery condition on 'BAD TUBE?-GOOD TUBE' scale. For good batteries the meter needle will come to rest in the green 'GOOD TUBE' sector.

MULTIMETER OPERATION

Press 'RELEASE FOR LEAKAGE AND MULTIMETER' button to release any previously depressed buttons. For each multimeter range of this instrument, two buttons must be pressed. First, press the button in the left hand row corresponding to the desired function, then press the button in the right hand row corresponding to the required range. For all direct current ranges, the button labelled 'PRESS FOR MILS' must be pressed. All ranges except the 10 ampere and 2500 D-C volt are accessible from the pin jacks on the lower edge of the panel. The 10 ampere range is connected to the upper right hand binding posts by pressing the 'D.C. MA.', the '1 AMP' and the 'PRESS FOR MILS' buttons. The 2500 D-C volt range is accessible from a separate set of pin jacks directly below the meter by pressing the 'D.C. VOLTS' and '1,000 D.C.V.' buttons.

When using the ohms and megohms ranges, first adjust the potentiometer controlling the line adjustment as explained in paragraph 4 under 'OPERATION'. Then connect the two pin jacks at the lower edge of the panel together and adjust the potentiometer labelled 'ZERO OHMS' until the meter reads full scale (zero ohms). The pin jacks can be connected by touching together the two test leads which are being used for resistance measurements. The meter should be readjusted for zero ohms each time the operator changes the instrument range. When the test leads are touched, a 'tingling' will be noted which is caused by the voltage

TYPE MEASUREMENT	RANGE OF MEASUREMENT	BUTTONS PUSHED		READ ON METER SCALE	TO INTERPRET READING
		LEFT	RIGHT		
DIRECT CURRENT	0 to 0.5 MA. 0.5 to 2.5 MA. 2.5 to 10 MA. 10 to 50 MA. 50 to 250 MA. 0.25 to 1.0 AMP 1.0 to 10 AMP	D. C. MA.	0.5 MA.	VOLTS MA 0-5	Divide by 10
		D. C. MA.	2.5 MA.	VOLTS MA 0-25	Divide by 10
		D. C. MA.	10 MA.	VOLTS MA 0-10	Read Direct
		D. C. MA.	50 MA.	VOLTS MA 0-5	Multiply by 10
		D. C. MA.	250 MA.	VOLTS MA 0-25	Multiply by 10
		D. C. MA.	1 AMP.	VOLTS MA 0-10	Divide by 10
		D. C. MA.	1 AMP.	VOLTS MA 0-10	Read Direct
		D. C. MA.	10 AMP.	VOLTS MA 0-10	Read Direct
NOTE: For 10 AMP. range, use binding posts marked "10 AMP. D. C." PRESS "0" BUTTON IN LEFT HAND ROW FOR ALL MILLIAMPERE (MA.) AND AMPERE (AMP.) READINGS.					
D-C VOLTAGE	0 to 5 volts 5 to 25 volts 25 to 100 volts 100 to 250 volts 250 to 500 volts 500 to 1000 volts 1000 to 2500 volts	D. C. VOLTS	5 D. C. V.	VOLTS MA 0-5	Read Direct
		D. C. VOLTS	25 D. C. V.	VOLTS MA 0-25	Read Direct
		D. C. VOLTS	100 D. C. V.	VOLTS MA 0-10	Multiply by 10
		D. C. VOLTS	250 D. C. V.	VOLTS MA 0-25	Multiply by 10
		D. C. VOLTS	500 D. C. V.	VOLTS MA 0-5	Multiply by 100
		D. C. VOLTS	1000 D. C. V.	VOLTS MA 0-10	Multiply by 100
NOTE: For 2500 volt range, use pin jacks marked "2500 D. C. V."					
RESISTANCE	0 to 20 Ω 20 to 200 Ω 200 to 2000 Ω 2000 to 200K Ω 200K Ω to 20 megohms	OHMS-OHMS	200	OHMS 0-0	Divide by 10
		OHMS-OHMS	2M	OHMS 0-0	Read Direct
		OHMS-OHMS MEG OHMS	20M 2MEG	OHMS 0-0 OHMS 0-0	Multiply by 10 Multiply by 1000
A-C VOLTAGE	0 to 5 volts 5 to 10 volts 10 to 50 volts 50 to 250 volts 250 to 1000 volts	A. C. VOLTS	5 A. C. V.	5VOLTS A.C. 0-5	Read Direct
		A. C. VOLTS	10 A. C. V.	VOLTS MA 0-10	Read Direct
		A. C. VOLTS	50 A. C. V.	VOLTS MA 0-5	Multiply by 10
OUTPUT VOLTAGE (approximate at 400 cycles)	0 to 5 volts 5 to 10 volts 10 to 50 volts 50 to 250 volts 250 to 1000 volts	OUTPUT	5 OUT. V.	5VOLTS A.C. 0-5	Read Direct
		OUTPUT	10 OUT. V.	VOLTS MA 0-10	Read Direct
		OUTPUT	250 OUT. V. 1000 OUT. V.	VOLTS MA 0-5 VOLTS MA 0-25	Multiply by 10 Multiply by 100

used to operate the megohm ranges. This will not cause injury and does not indicate a defect in the instrument. It is suggested that for the greatest degree of accuracy that when using the 200 ohm range, the pin jacks be shorted with as short a lead as possible.

CAPACITOR TESTER

Electrostatic capacitors are tested using the 20 megohm range of the multimeter. The amount of leakage permitted depends upon the application. When the capacitor is used for coupling purposes, there should be no noticeable deflection of the meter except momentary charge or discharge. To test electrolytic capacitors, press 'RELEASE FOR LEAKAGE AND MULTIMETER' button; then press 'ELEC COND' button in left hand row. Set right hand selector switch to letter indicated in chart on page 15. (Listings are given according to capacity working voltage.) Press '1-9' button in right hand row. Connect capacitor to pin jacks on lower edge of panel, observing proper polarity, and allow approximately fifteen seconds for the capacitor to charge. Note position of meter needle. If needle drops back slowly, allow capacitor to form until needle comes to rest. (This will take at least ten minutes for capacitors that have been idle for a period of time.)

If right hand setting in chart is greater than '1', press button '2', then button '3', etc. until the number indicated on the chart is reached. Read capacitor leakage condition on 'GOOD CAPACITOR-BAD CAPACITOR' meter scale. If needle rests in red portion or goes off scale, capacitor should be rejected. If needle rests in green portion, capacitor is satisfactory for use.

TYPE MEASUREMENT	RANGE OF MEASUREMENT	BUTTONS PUSHED LEFT	PUSHED RIGHT	READ ON METER SCALE	TO INTERPRET READING
CAPACITOR LEAKAGE	All Capacitors Electrostatic 25 to 50 MFD. 25 to 450 w.v. Electrolytic	MEGOHMS ELEC COND	20 MEG See Chart Below	OHMS ∞ - 0 GOOD CAPACITOR BAD CAPACITOR	See Instructions above.

SETTINGS FOR "DRY" ELECTROLYTICS

MFD/WV	CONTROL			SETTINGS
2/450	6	1	0	G 7
4/200	6	1	0	D 8
4/250	6	1	0	E 7
4/350	6	1	0	F 7
4/450	6	1	0	G 5
5/25	6	1	0	A 8
5/50	6	1	0	B 8
5/100	6	1	0	G 8
8/200	6	1	0	D 6
8/250	6	1	0	E 5
8/350	6	1	0	F 5
8/450	6	1	0	G 2
10/25	6	1	0	A 6
10/50	6	1	0	B 6
10/100	6	1	0	C 6
10/200	6	1	0	D 6
10/250	6	1	0	E 4
10/350	6	1	0	F 4
10/450	6	1	0	G 2
12/200	6	1	0	D 5
12/250	6	1	0	E 3
12/350	6	1	0	F 3
12/450	6	1	0	G 1
16/200	6	1	0	C 4
16/250	6	1	0	E 2
16/350	6	1	0	F 2
16/450	6	1	0	G 1
20/25	6	1	0	A 5
20/50	6	1	0	B 5
20/100	6	1	0	C 5
20/200	6	1	0	D 3
20/350	6	1	0	F 1
20/450	6	1	0	G 1
25/25	6	1	0	A 4
25/50	6	1	0	B 4
25/100	6	1	0	C 3
25/200	6	1	0	D 2
30/200	6	1	0	D 1
30/450	6	1	0	G 1
50/25	6	1	0	A 4
50/50	6	1	0	B 4

SETTING FOR "WET" ELECTROLYTICS

MFD/WV	CONTROL			SETTINGS
4/250	6	1	0	E 7
4/350	6	1	0	F 7
4/450	6	1	0	G 7
8/250	6	1	0	E 5
8/350	6	1	0	F 5
8/450	6	1	0	G 5
10/250	6	1	0	E 4
10/350	6	1	0	F 4
10/450	6	1	0	G 4
12/200	6	1	0	D 3
12/350	6	1	0	F 3
12/450	6	1	0	G 3
16/200	6	1	0	D 2
16/350	6	1	0	F 2
16/450	6	1	0	G 2
20/200	6	1	0	E 1
20/350	6	1	0	F 1
20/450	6	1	0	G 1
24/350	6	1	0	F 1
24/450	6	1	0	G 1
25/50	6	1	0	B 1
50/50	6	1	0	B 1

PILOT LAMPS

VOLTAGE	CONTROL			SETTINGS
1.5	1	1	0	90V 47
2.0	1	2	0	90V 47
2.5	1	3	0	90V 47
3.3	1	4	0	90V 47
5.0	1	5	0	90V 47
6.3	1	6	0	90V 47
7.5	1	7	0	90V 47
12.6	1	8	0	90V 47
25.0	1	9	0	90V 47
32.0	1	10	0	90V 47
50.0	1	11	0	90V 47
62.0	1	12	0	90V 47

SERVICE AND MAINTENANCE

All functions and ranges of the SUPREME Model 504-B were carefully tested and calibrated before shipment from the factory. Under normal operating conditions this instrument should give a long and trouble-free service. However, if for any reason this instrument should fail to operate properly, write the Service Engineer at the factory. Submit complete information regarding the difficulty and full instructions will be forwarded in detail. The Model and Serial numbers, position of controls, inoperative section, and any other information should be given in your *first* letter.

REPLACEMENT PARTS

The parts used in the SUPREME Model 504-B were carefully inspected for mechanical and electrical defects at the factory. Under normal conditions and average use the life of the tube will be equal to those in radio receivers (approximately 1500 hours). Any special parts which are not available from regular dealers stocks may be ordered from your nearest SUPREME distributor by describing the item and giving the Model and Serial numbers of your unit.

SUPREME INSTRUMENTS CORPORATION
GREENWOOD, MISSISSIPPI
U.S.A.