

Model 630-A

Observe the jacks and note carefully the marking for each. You will use the COM and V- $\Omega$ -A jacks for most measurements.

### Accuracy

Your 630-A is accurate to within  $1\frac{1}{2}\%$  of full scale reading on all DC ranges except the 6000 volt range which is within 3%. AC ranges, except 6000 V, are accurate to within 3% when used at 77° F on 60 cycle sine wave voltages. The 6000 ACV range is accurate to within  $3\frac{1}{2}\%$ . The resistance ranges are accurate to within  $1\frac{1}{2}\%$  of the scale length. Precision non-aging resistors insure lasting accuracy. All units are calibrated at 77° F. AC ranges are calibrated on a 60 cycle sine wave. In choosing ranges always endeavor to have the readings fall in the upper (or right hand) half of the scale for greatest accuracy. Also for greatest accuracy, the instrument should be used in the horizontal position.

### Ranges

The following ranges are self contained in your 630-A:	
DC Volts	0-3-12-60-300-1200-6000 at 20,000 Ohms per Volt
AC Volts	0-3-12-60-300-1200-6000 at 5,000 Ohms per Volt
DC Microamperes	0-60 at 250 Mv.
DC Milliamperes	0-1-2-12-120 at 250 Mv.
DC Amperes	0-12 at 250 Mv.
Ohms	0-1000-10,000.....(4.4-44 at center scale)
Megohms	0-1-100.....(4400-440,000 at center scale)
Output Volts	0-3-12-60-300-1200 AC at 5,000 Ohms per Volt
Decibels	-20 to +11, 23, 37, 51, 63, 77 on 600 Ohm line

Your 630-A is well constructed but like any instrument should be handled carefully. You will also want to keep the panel clean as cleanliness and carefulness go hand in hand.

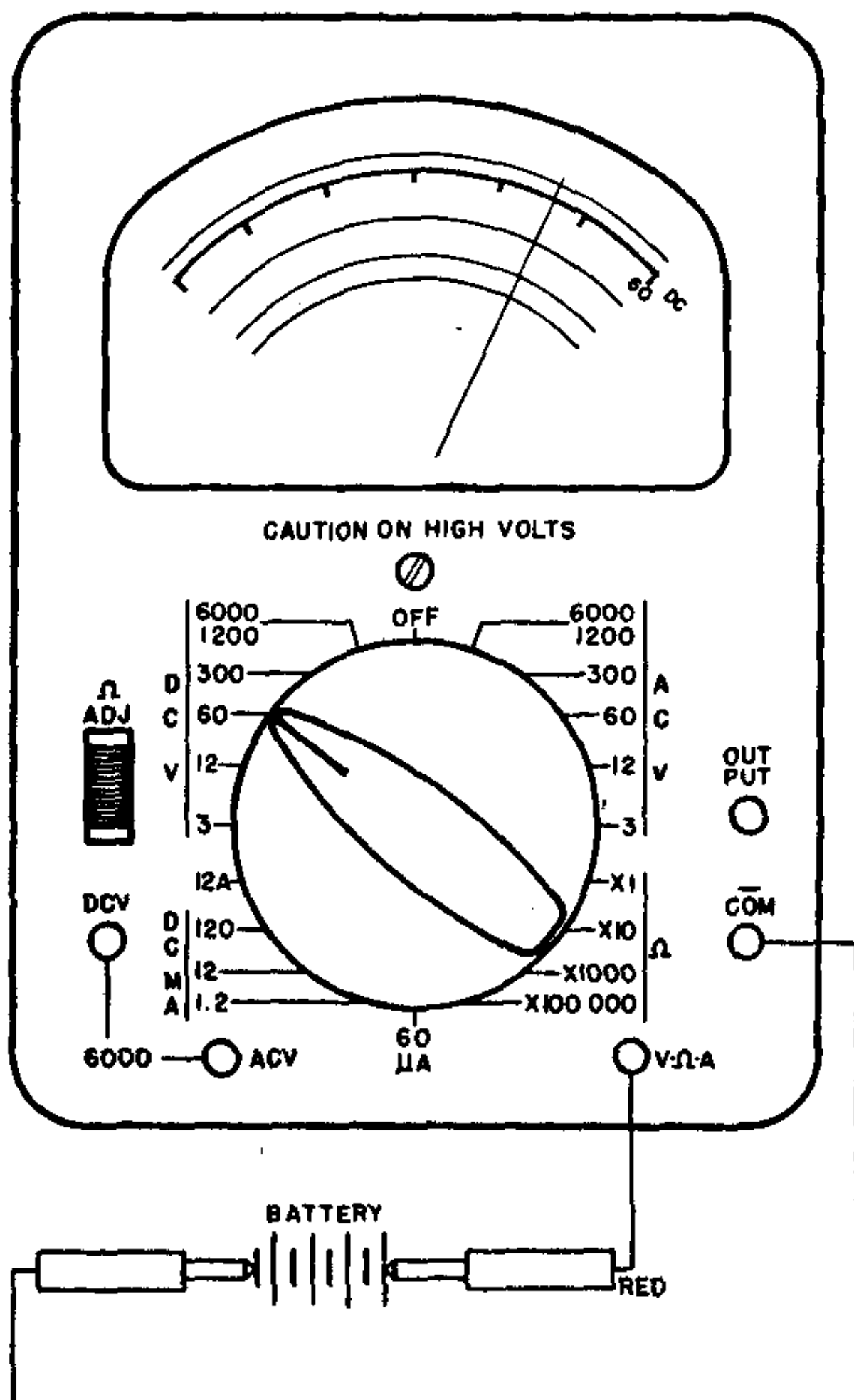


Figure 1—Measuring DC Volts

## OPERATION

### Measuring Capacity

Your 630-A can be used to measure capacity by the arrangement shown in Figure 6. It is set up as an AC voltmeter. See page 8.

Use the following chart to determine the AC voltage range to use. ALWAYS start with the selector switch on the 300 volt range since, if the condenser is shorted, serious damage may result to the meter when on a low range.

To Measure MFD	Set Selector Switch to	Deflection in AC Volts
.002	3 ACV	.45
.004		.83
.006		1.25
.008		1.65
.010		2.10
.020	12 ACV	4.3
.04		7.7
.05		9.7
.08	60 ACV	14.5
.10		17.5
.2		30.0
.4		45.0
.6		57.0
.8	300 ACV	65.0
1.0		75.0
2.0		85.0
5.0		95.0
10.0		100.0

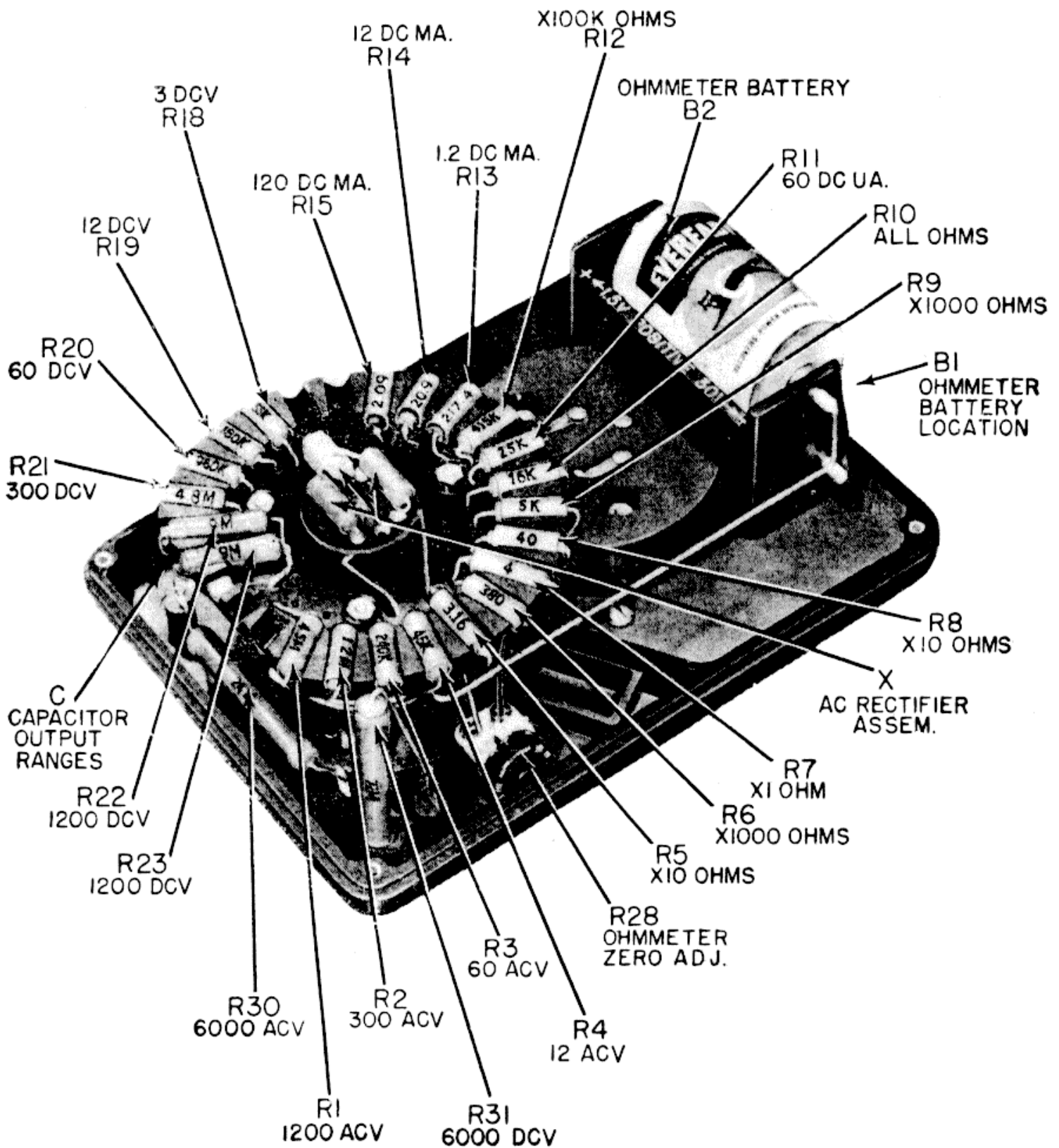
**CAUTION:** Do not attempt to use this test on electrolytic condensers.

# O P E R A T I O N   C H A R T

To Measure	Set Selector Switch To	Plug Red* Test Lead In Jack Marked	Read On	Each Scale Div. Equals																																			
DC VOLTS 0-3 0-12 0-60 0-300 0-1200 0-6000	3 DCV 12 DCV 60 DCV 300 DCV 1200/6000 DCV 1200/6000 DCV	V-Ω-A V-Ω-A V-Ω-A V-Ω-A V-Ω-A 600Ω DCV	BLACK SCALE 0-300 DC÷100 0-12 DC×1 0-60 DC×1 0-300 DC×1 0-12 DC×100 0-60 DC×100	0.05 Volt 0.2 Volt 1.0 Volt 5.0 Volt 20.0 Volts 100.0 Volts																																			
AC VOLTS 0-3 0-12 0-60 0-300 0-1200 0-6000	3 ACV 12 ACV 60 ACV 300 ACV 1200/6000 ACV 1200/6000 ACV	V-Ω-A V-Ω-A V-Ω-A V-Ω-A V-Ω-A 6000 ACV	RED SCALE 0-3V AC×1 0-12 AC×1 0-60 AC×1 0-300 AC×1 0-12 AC×100 0-60 AC×100	0.05 Volt 0.2 Volt 1.0 Volt 5.0 Volt 20.0 Volts 100.0 Volts																																			
DC CURRENT 0-60 Uα DC 0-1.2 Ma DC 0-12 Ma DC 0-120 Ma DC 0-12 AMPS DC	60 μα 1.2 DCMA 12 DCMA 120 DCMA 12 AMP	V-Ω-A V-Ω-A V-Ω-A V-Ω-A V-Ω-A	BLACK SCALE 0-60 DC×1 0-12 DC÷10 0-12 DC×1 0-12 DC×10 0-12 DC×1	1.0 μα 0.02 Ma 0.2 Ma 2.0 Ma 0.2 Amp																																			
OHMS 0-1000 0-10,000 0-1 Meg 0-100 Meg	Ω×1 Ω×10 Ω×1000 Ω×100,000	V-Ω-A V-Ω-A V-Ω-A V-Ω-A	Each Scale Division Equals (in ohms) <table><tr><td>RED SCALE</td><td>0-4</td><td>4-5</td><td>5-10</td><td>10-20</td><td>20-50</td><td>50-200</td></tr><tr><td>Ω×1</td><td>1</td><td>2</td><td>5</td><td>10</td><td>5</td><td>50</td></tr><tr><td>Ω×10</td><td>1</td><td>2</td><td>5</td><td>10</td><td>50</td><td>500</td></tr><tr><td>Ω×1000</td><td>100</td><td>200</td><td>500</td><td>1K</td><td>5K</td><td>50K</td></tr><tr><td>Ω×100,000</td><td>10K</td><td>20K</td><td>50K</td><td>100K</td><td>500K</td><td>5 Meg</td></tr></table>		RED SCALE	0-4	4-5	5-10	10-20	20-50	50-200	Ω×1	1	2	5	10	5	50	Ω×10	1	2	5	10	50	500	Ω×1000	100	200	500	1K	5K	50K	Ω×100,000	10K	20K	50K	100K	500K	5 Meg
RED SCALE	0-4	4-5	5-10	10-20	20-50	50-200																																	
Ω×1	1	2	5	10	5	50																																	
Ω×10	1	2	5	10	50	500																																	
Ω×1000	100	200	500	1K	5K	50K																																	
Ω×100,000	10K	20K	50K	100K	500K	5 Meg																																	
DECIBELS -20 to +11 -8 to +23 +6 to +37 +20 to +51 +32 to +63 +46 to +77	3 ACV 12 ACV 60 ACV 300 ACV 1200/6000 ACV 1200/6000 ACV	Output Output Output Output Output 6000 ACV	BLACK SCALE DB plus 0 DB plus 12 DB plus 26 DB plus 40 DB plus 52 DB plus 66	* Black test lead plugged in "COM" jack for all measurements																																			

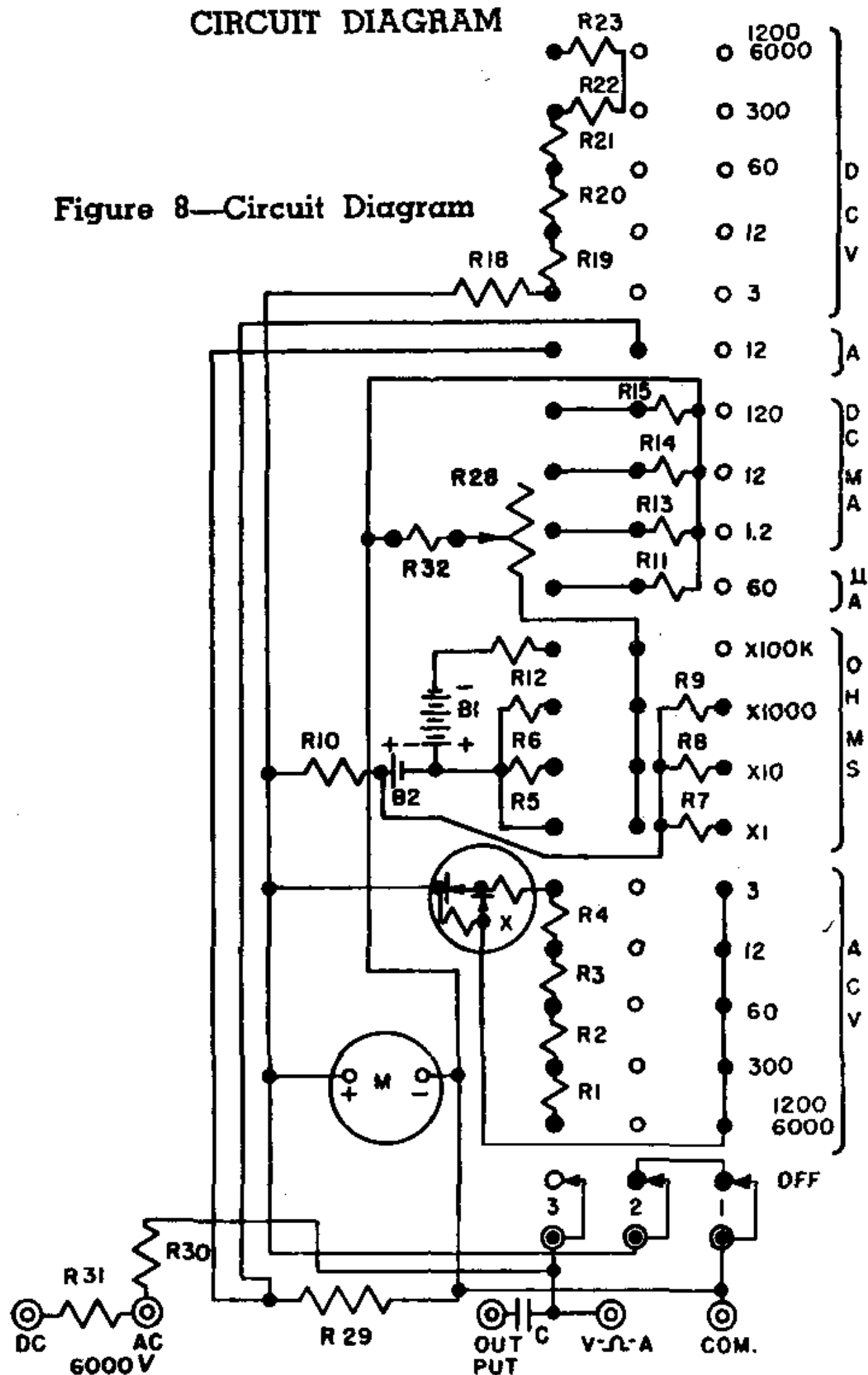
# INTERIOR VIEW

## PARTS LOCATION



# CIRCUIT DIAGRAM

Figure 8—Circuit Diagram



# REPLACEABLE PARTS 630-A

REF. NO.	DESCRIPTION					TRIPLETT PART NO.
B1	Battery	30V Eveready 413, or equivalent }				available
B2	Battery	1.5V Burgess No. 2, or equivalent }				locally
C	Capacitor	.1 Mfd. 400 DCWV				T-43-69
M	Instrument	50 $\mu$ a, 250 Mv with panel				T-52-919
R1	Resistor	4.5 Megohm $\pm 1/2\%$ Film $1/2$ W				T-15-1554
R2	Resistor	1.2 Megohm $\pm 1/2\%$ Film $1/2$ W				T-15-1553
R3	Resistor	240K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1552
R4	Resistor	45K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1551
R5	Resistor	3.16 Ohm Wirewound $\pm 1/2\%$				T-15-1559
R6	Resistor	380 Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1548
R7	Resistor	4.0 Ohm Wirewound $\pm 1/4\%$				T-15-1560
R8	Resistor	40 Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-2815
R9	Resistor	5K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1550
R10	Resistor	16K Ohm $\pm 1\%$ Film $1/2$ W				T-15-1169
R11	Resistor	25K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1546
R12	Resistor	415K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1547
R13	Resistor	217.4 Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-2288
R14	Resistor	20.9 Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-2813
R15	Resistor	2.09 Ohm Wirewound $\pm 1/2\%$				T-15-1553
R18	Resistor	55K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1545
R19	Resistor	180K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1544
R20	Resistor	960K Ohm $\pm 1/2\%$ Film $1/2$ W				T-15-1543
R21	Resistor	4.8 Megohm $\pm 1/2\%$ Film $1/2$ W				T-15-1542
R22)	Resistor	9 Megohm $\pm 1/2\%$ Film $1/2$ W				T-15-1541
R23)						
R28	Resistor	20K Ohm Variable				T-16-31
R29	Shunt	12 Amp. 250 Mv Strip Type				T-90-212
R30	Resistor	24 Megohm $\pm 1\%$ Film 2W				T-15-1226
R31	Resistor	72 Megohm $\pm 1\%$ Film 2W				T-15-1227
R32	Resistor	5100 Ohm $\pm 5\%$ IRC $1/2$ W				T-15-1411
X	Rectifier Assem.	Copper Oxide, Conant BHS-160, 3 Lead				T-2250-13
	Case	Phenolic with Strap Handle				T-10-784
	Knob	2-15/32" long, molded (clip T-2451-5)				T-34-57
	Leads	Banana, plug-type, with alligator clips				T-79-127
	Switch	20-pos., 3 deck without resistors				T-22B-224
	Rubber Feet					T-3236-10
		Front Assem. (panel)				T-28-495

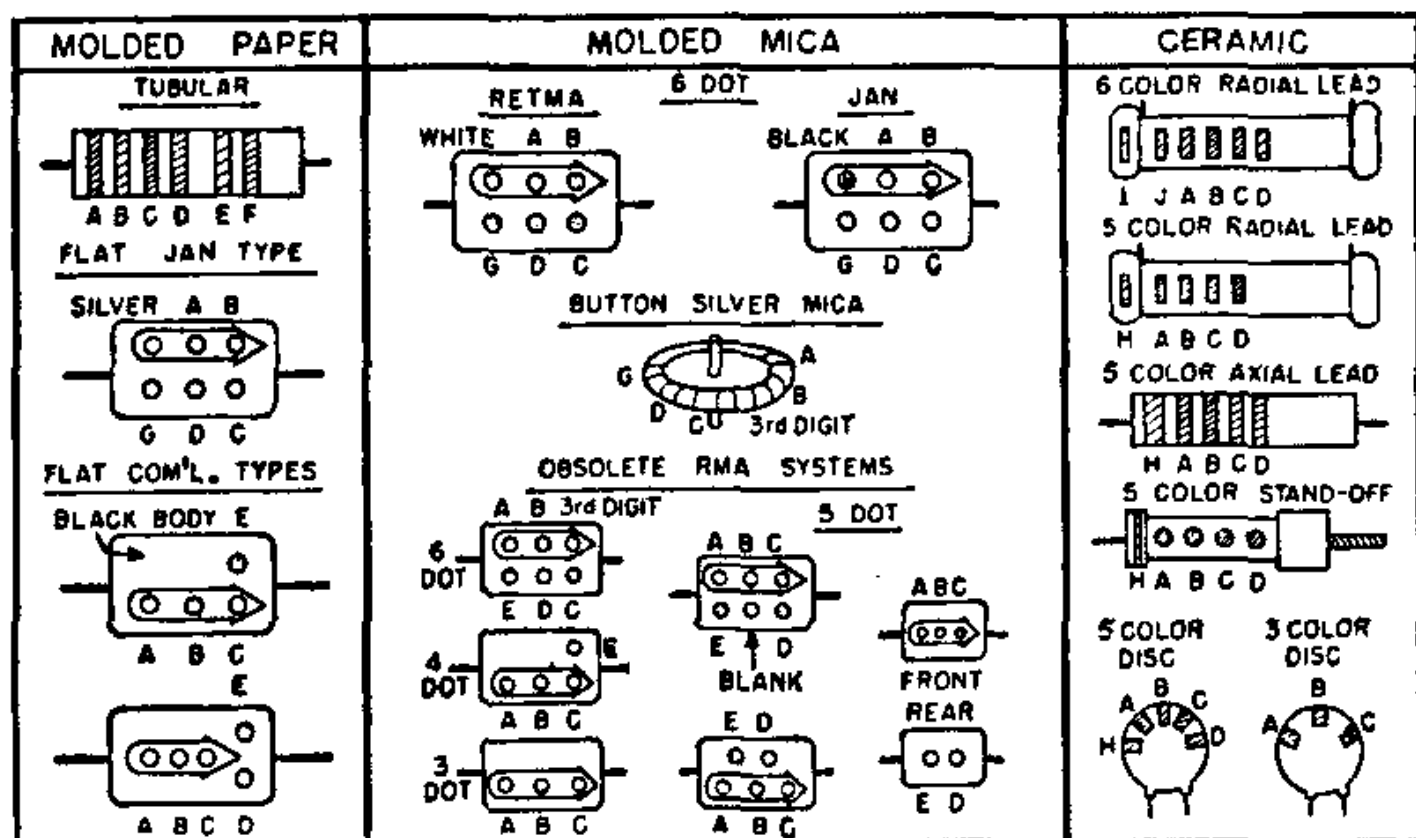


# D A T A

## RETMA MICA CONDENSER COLOR CODE

MOLDED PAPER			MOLDED MICA		CERAMIC	
Color	Multiplier	Tolerance	Multiplier	Tolerance	Multiplier	Tolerance
Black	1	20%	1	20%	1	20% or 2.0 $\mu$ fd.*
Brown	10		10		10	1%
Red	100		100	20%	100	2%
Orange	1000		1000	3% (RETMA)	1000	2.5% (RETMA)
Yellow	10,000	5%	10,000		10,000	
Green				5% (RETMA)		5% or 0.5 $\mu$ fd.*
Blue						
Violet						
Gray					0.01	0.25 $\mu$ fd.*
White		10%			0.1	10% or 1.0 $\mu$ fd.*
Gold	0.1	5%	0.1	5% (JAN)*		
Silver		10%	0.01	10%		
None		20%				

\* Capacitance less than 10 $\mu$ fd.



(Courtesy Popular Electronics)

Capacitance is given in  $\mu$ fd.

Colors—Same value as on resistors except as indicated in tables.

### COLORS

A  
B  
C  
D  
E & F

### INDICATES

First digit  
Second digit  
Multiplier  
Tolerance  
Voltage Rating in hundreds of volts

[(E) Ratings less than 1000 volts. (E) & (F) First two digits of ratings 1000 volts or more. Values of colors for (E) & (F) are same as in resistance values. (G) is class or characteristic of capacitor. (H), (I) & (J) give temperature coefficient. (G), (H), (I) & (J) are not listed in the tables.]