

OPERATING DATA
FOR
SUPREME CAPACITOR TESTER
MODEL 88

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

THE SUPREME CAPACITOR TESTER
MODEL 88
OPERATING DATA

While the Model 88 Capacitor Tester is designed primarily for the proper tests of polarized electrolytic capacitors, it is equally useful for tests of the ordinary paper capacitors.

This tester is, essentially, a compact "power pack," for converting an ordinary alternating power supply into a direct potential of 300 volts, and includes (1) a power transformer with a center tapped winding for applying alternating potentials to the two plates of (2) a full-wave type '80, '82, or '83 rectifier tube, with a (3) 4-mfd. input capacitor followed by a (4) filter choke which completes filter circuits.

An "AC-Test" momentary tumbler switch is provided for shifting the 4-mfd. capacitor from the filter circuits to a connection in series with an alternating potential of 100 volts which is applied to an unknown capacitor simultaneously with the applied 300-volt D.C. potential, and so as to effectively "block" the direct current from the 100-volt transformer winding.

A 1,000-ohm resistor is connected in the direct current circuit between the "D.C. LEAKAGE, VOLTMETER" pin jacks, so that a suitable high resistance D.C. voltmeter properly connected between these pin jacks will indicate the potential drop across the resistor produced by the leakage current, if any, passing through an unknown capacitor properly connected to the "UNKNOWN CAPACITOR" pin jacks. Since the value of the resistor is 1,000 ohms, the voltmeter indications can be read directly in milliamperes. Practically all leading manufacturers of wet and dry electrolytic capacitors are of the opinion that such capacitors should be discarded when the leakage current exceeds one half milliampere per rated microfarad, after having been tested five minutes at approximately the rated D.C. operating potential. On this basis an 8-mfd. electrolytic capacitor should be discarded when the D.C. voltmeter indication of leakage exceeds 4 volts.

A 1,000-ohm resistor is connected in the 100-volt A.C. circuit between the "A.C. CAPACITY, VOLTMETER" pin jacks, so that an A.C. voltmeter can be used for indicating the capacity of unknown capacitors. The "CAPACITOR CF ART" included herein is compiled from readings obtained from a rectifier meter of

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1-milliampere sensitivity, and allowances must be made for errors introduced by the use of A.C. voltmeters of less sensitivity.

It should be noted that electrolytic capacitors are polarized, and must be so connected to the "UNKNOWN CAPACITOR" pin jacks. The wet electrolytic capacitors are so constructed that the metal containers are negative. Dry electrolytic capacitors are usually provided with polarity markings at the terminals. Paper capacitors are not polarized. An electrolytic capacitor should never be "reversed" when connected for test, and the "AC-TEST" must not be applied until after the D.C. potential has been applied five minutes, and the "AC-TEST" must be applied only while the D.C. potential is being applied. It is not necessary to connect a voltmeter to apply either potential, although it usually is advisable to connect the D.C. voltmeter at the beginning of the test so that a shorted unknown capacitor would be detected by an excessive reading which might approximate 200 volts. If a rectifier type voltmeter is used the meter may be used for the D.C. leakage reading as well as for the A.C. capacity reading.

Since all present types of radio receiver rectifier tubes are designed for 2.5-volt or 5.0-volt filament operation, a socket is provided on the tester panel for the use of rectifier tubes of either filament rating.

The plate winding of the power transformer terminates through a 10,000-ohm resistor at the two "425 V.--A.C." pin jacks. Caution must be exercised to prevent bodily harm from an electrical shock when using this potential for break-down tests of any electrical device. The 425-volt alternating potential has a "peak" value of about 600 volts which can effect a very severe electrical shock. The 10,000-ohm resistor is provided as a current-limiting device to protect the transformer windings against burn-out in the event a break-down test results in a short circuit within the device under test.

If desired, a sensitive voltmeter, having a range up to 300 volts, may be connected in series with an unknown paper capacitor for leakage indications. Paper capacitors should be discarded when there is any discernible indication of the voltmeter. For A.C. capacity measurements of unknown paper (not electrolytic) capacitors, it is not necessary to use a rectifier tube, but a rectifier tube must always be used when making such tests of electrolytic capacitors.

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The 300-volt direct potential available at the "UNKNOWN CAPACITOR" pin jacks may be used for any other purpose where it is desired to use such a potential with or without a meter in series. However, the electrical load imposed upon the output of these pin jacks should be limited to 90 milliamperes so as not to overload the Tester.

MODEL 88 CAPACITOR CHART

<u>AC CAPACITY</u> <u>VOLTMETER</u> <u>Readings</u>	<u>UNKNOWN</u> <u>CAPACITOR</u> <u>Values</u>
1.5 - - - - -	0.05
3.5 - - - - -	0.1
8.0 - - - - -	0.25
12.5 - - - - -	0.4
17.0 - - - - -	0.5
28.0 - - - - -	1.0
43.5 - - - - -	2.0
53.5 - - - - -	3.0
61.0 - - - - -	4.0
64.0 - - - - -	5.0
66.5 - - - - -	6.0
69.0 - - - - -	7.0
71.0 - - - - -	8.0
72.0 - - - - -	9.0
73.0 - - - - -	10.0
75.0 - - - - -	12.0
77.0 - - - - -	15.0
77.5 - - - - -	16.0
78.0 - - - - -	18.0
78.5 - - - - -	20.0

GUARANTEE. All products of the Supreme Instruments Corporation are guaranteed to be free from defects in workmanship or material for a period of 90 days after delivery to the original user by an authorized agency of the Supreme Instruments Corporation; and the Corporation agrees to repair any such defects in material or workmanship without charge when the instrument or defective part is delivered, transportation charges prepaid to the factory at Greenwood, Mississippi.

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CAPACITOR TESTER
MODEL 88
OWNER'S REGISTRATION

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Registration Department,
Supreme Instruments Corporation,
Greenwood, Mississippi, U. S. A.

Gentlemen:

Please register the present ownership of the Supreme
Capacitor Tester, Model 88

Serial No.

Purchased

From

.....

.....

We will mention the serial number in all future corres-
pondence relating to this tester.

Owner's Name (Printed)

User's Name (Printed)

Local Address (Printed)

P.O. & State (Printed)



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