Power-Line Monitor WV-120A
100 TO 140 VOLTS, 25 TO 400 CYCLES

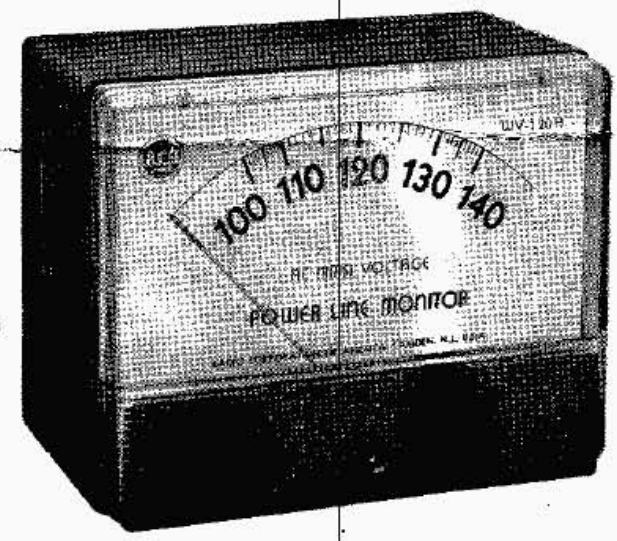
GENERAL

The RCA WV-120A Power-Line Monitor is designed for use by radio-TV repair shops, laboratories, and industries where it is important to know the power-line voltage at all times. This instrument provides a continuous, accurate indication of the AC line voltage at a glance, without the inconvenience of handling probes and switches or the necessity of selecting one of several scales to determine the proper meter reading.

Used in conjunction with the RCA WP-25A Isotap isolation transformer on a 50-60 cycle power line, the WV-120A is a valuable aid in selecting line voltages for such applications as TV servicing, test instrument calibration, and the operation of electronic equipment that requires a known line voltage supply.

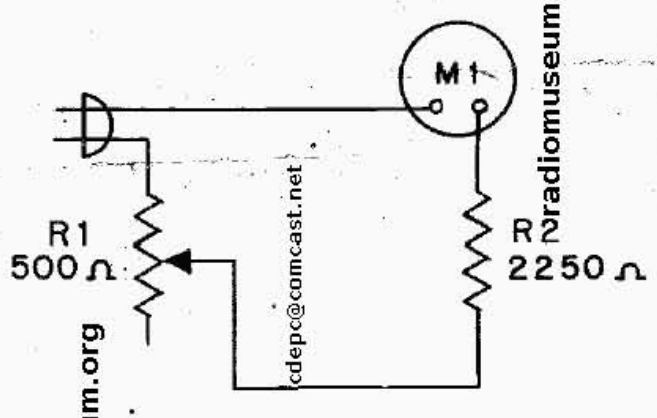
The WV-120A can be used on 120 volt AC power-line sources with frequencies of 25 cps, 50 cps, 60 cps, or 400 cps. The instrument features accuracy of ±2% at 120 volts and ±3% at 100 volts and 140 volts.* The meter has a special expanded scale with large, easy-to-read voltage designations. Also, the tip of the meter pointer is made wide enough to be seen clearly at a considerable distance from the instrument. As a convenient means of reference, the nominal AC line-voltage standard of 120 volts is printed in red.

The meter movement in the WV-120A is a **moving-vane** type. *This type of meter indicates RMS values even when the waveform of the power-supply voltage is distorted.* (Peak reading and peak-to-peak reading AC voltage measuring circuits, such as used in conventional VTVM's, are calibrated on the basis of pure sine-wave voltages, and such meters do NOT indicate the true RMS value of distorted waveforms.) The meter movement is only slightly damped and therefore has fast response. This feature is highly desirable because it permits the meter to indicate the presence of line-voltage "bounce" or fluctuations.



Mounting holes are provided on the rear of the WV-120A so that the meter can be hung in a location that offers the best visibility throughout the area.

* At normal room temperature, approx. 50° to 75° F.



WV-120A — Schematic Diagram

OPERATION

To use the WV-120A, simply plug the line cord into the AC outlet and **allow at least 5 minutes for warm-up.** The meter pointer will indicate the RMS voltage of the AC power line. The instrument may be left on permanently, providing a continuous indication of the power-line voltage.

Since the WV-120A utilizes a moving-vane type meter, it is necessary that the instrument be kept away from strong magnetic fields, such as those developed by power transformers. To prevent static charges from forming on the meter case which would affect the operation of the meter, the clear plastic meter case front has been treated with anti-static solution. Care should be taken to avoid mechanical shocks which might damage the meter movement.

TMK ®, Marca Registrada

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NOTE: The WV-120A is factory-calibrated in its normal upright position (meter scale vertical), and is intended for use in this position. The accuracy of the meter readings may be affected to some extent if the meter is used in a horizontal or tilted position.

CALIBRATION

The WV-120A is carefully calibrated at the factory in comparison with dynamometer-type laboratory standard reference meters. If recalibration is required, the WV-120A should be sent to the nearest authorized RCA Test Equipment Repair Depot. These depots are equipped with the necessary precision reference standards.

Calibration Procedure:

NOTE: As a safety precaution, it is recommended that an isolation transformer such as the RCA WP-25A Isotap be used during this calibration procedure.

1. Remove the two screws on the rear of the instrument, then lift off the back cover by pulling it downward from the case.

2. Connect the WV-120A, together with a secondary standard reference meter with an accuracy of ±0.25%, to a variable AC power source. Allow at least five minutes for the WV-120A to warm up.

3. Set the voltage source at exactly 120 volts as indicated on the reference meter. Loosen the screw on the slider of the 500-ohm adjustable resistor. Reset the slider so that the meter pointer on the WV-120A indicates 120 volts. Be sure the slider is making proper contact with the resistor turns, then tighten carefully so as not to damage the resistor.

CAUTION: In the next step, extreme care must be taken to prevent insertion of the adjustment tool to a depth which will injure the pointer spring. The meter warranty does not cover such damage.

4. Set the voltage source at 100 volts as indicated on the reference meter. Carefully insert a soldering tool or similar pointed device through the small hole in the front of the meter. Engage the slotted adjustment lever, then move the lever slightly sideways as required to bring the WV-120A meter pointer to 100 volts.

5. Again set the voltage source at 120 volts, as in step #3 above. If necessary, re-set the adjustable 500 ohm resistor so that the WV-120A meter reads exactly 120 volts.

6. Repeat steps 3, 4 and 5 if necessary and check accuracy at 140 volts. Slight compromises may be required at either end of the scale, or at the center, to obtain maximum accuracy throughout the range of 100-140 volts. Before reassembling the case, make certain that the terminals of the resistor are not shorting against the metal case of the instrument.

REPLACEMENT PARTS LIST

When ordering replacement parts, include the stock number and description of the part, as well as the type number of the instrument. Parts should be ordered through a local RCA tube and parts distributor.

SYMBOL NO.	DESCRIPTION	STOCK NO.
R-1	Resistor, adjustable, 500 ohm, 10W	59688
R-2	Resistor, wire-wound, 2250 ohm, 10W, 5%	
M-1	Meter	223971
	Case, with rear cover	