

The "Simpson" trade name has been synonymous with quality instrumentation in North America for over fifty years. The association implied by its inclusion in our Company name is a valued one. Bach-Simpson Limited, however, is a completely autonomous Canadian Company producing Simpson instruments and a wide variety of other products in Canada for British Commonwealth markets.

Simpson
INSTRUMENTS THAT STAY ACCURATE



**OPERATOR'S
MANUAL
MODEL 635
MODEL 635HV
VOLT-OHM-MILLIAMMETER**


Bach-Simpson
LIMITED

LONDON

CANADA

IN U.S.A. SIMPSON ELECTRIC COMPANY
5200 W. Kenzie St. Chicago 44, Ill.

FOREWORD

The Model 635 is a rugged, reliable instrument capable of making a wide variety of electrical measurements simply and accurately. Its design is based on the experience of many years of multimeter manufacture, but incorporates a number of proven innovations.

Most significant are its enhanced accuracy, its provision for low insertion loss A.C. current measurements, and its convenience of operation.

Intrinsic ruggedness, supplemented by effective protective features, minimizes the effects of the frequent handling and occasional accidental misuse to which such a versatile instrument is inevitably subjected. There is no substitute, however, for the care and proper operation of your multimeter described in the following pages. Given these, your Model 635 will provide you with many years of accurate, dependable service.

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PHYSICAL DESCRIPTION

The Model 635 is of essentially two-piece construction. A front panel assembly carries all components, and a rear cover is fastened to it by four screws. Both are molded of durable black phenolic, ribbed for additional strength.

Overall dimensions assembled are 5-1/4" x 7" x 3-1/8" (133 x 178 x 79 mm); weight is 3-1/2 lbs. (1.6 kg.).

The completely enclosed meter movement is self-shielding, and virtually immune to external field influence. Its resultingly low leakage field produces negligible disturbance of sensitive instruments in its vicinity, and the correspondingly efficient use of available magnetic flux pays dividends in performance.

Special precautions have been taken to produce the best possible basic movement calibration. Combined with 0.5% circuit components and fine trim adjustments, these produce a high degree of overall accuracy which is maintained by temperature compensation over the full range of normal operating ambients.

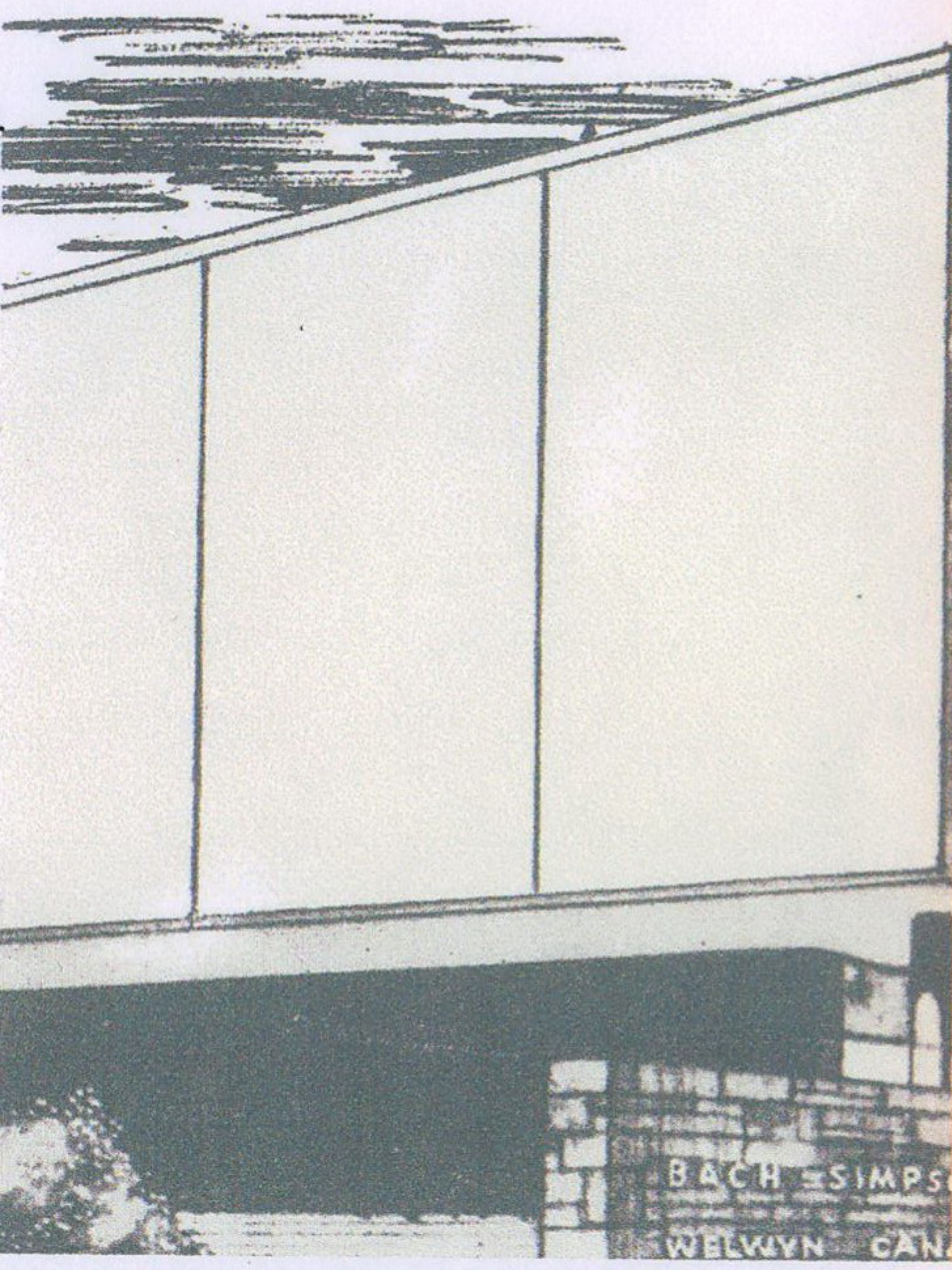
Spring-backed jewels assist in the preservation of original instrument accuracy in every-day use. The movement is safeguarded by a shunt diode, limiting the otherwise damaging acceleration which accidental overload may produce.

On the following pages, referenced to front and rear views of the panel assembly, are descriptions of the major components and their functions.

ABOUT BACH-SIMPSON

From its origin during the World War II, Bach-Simpson steadily expanded its facilities to accommodate many different operations involving a completed product, are now used by our sister company Welwyn Canada. Our new Factory covering 75,000 sq. ft., and dedicated employees.

Recognising the growing requirements for products of high quality, the range has become more diverse ranging from precision Measurement and Electronic Components to an enviable international reputation to maintain and enhance.



in a foam suspension and sleeving of the recessed terminal jacks are additional safety measures.

Equally safe and durable are the flexible heavily-insulated test leads provided.

Simple and safe external connections are made to the common (-) terminal on the main panel, and to the six High Voltage jacks on the upper end of the Multiplier.

Mechanically, the Multiplier is attached to the 635 rear cover by four internal screws. One of these carries a spring contact, which makes the low-voltage connection to the multimeter proper.

The rear cover retaining screws remain accessible, and the cover/multiplier assembly can be removed as a unit without unsoldering connections. Batteries and fuse are still easily accessible.

OPERATOR'S MANUAL

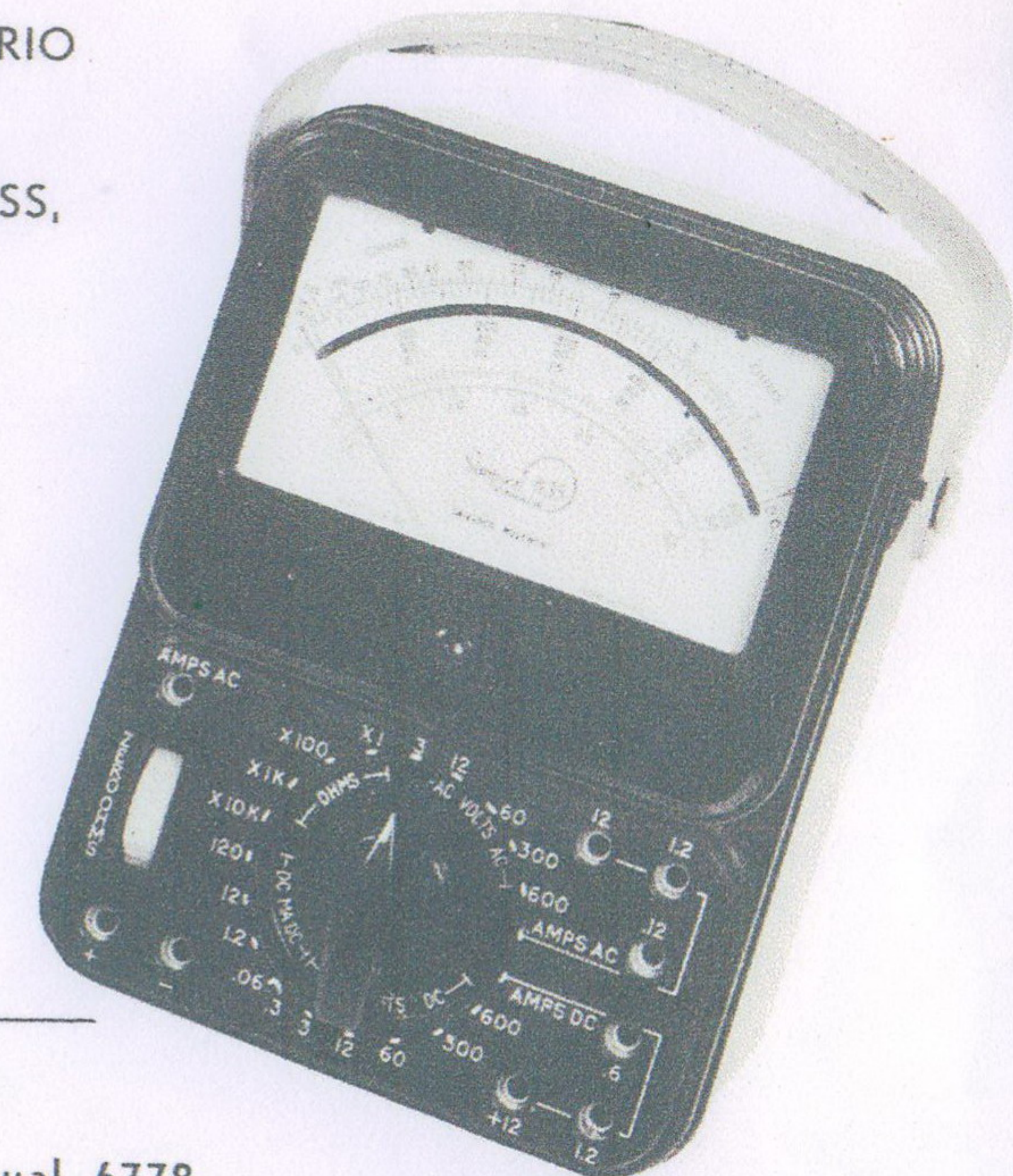
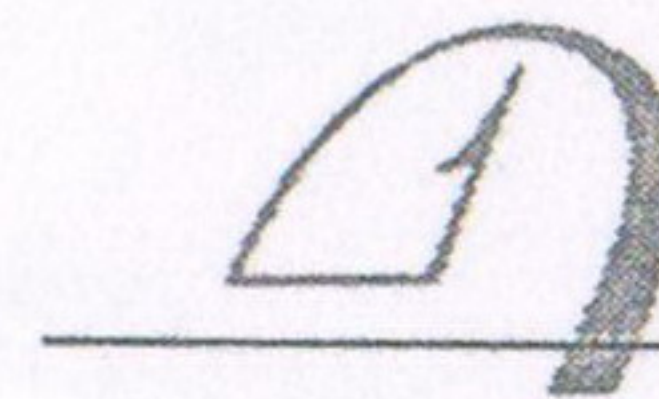
MODEL 635

VOLT-OHM-MILLIAMMETER

DESIGNED AND MANUFACTURED IN CANADA BY
BACH-SIMPSON LIMITED

1255 BRYDGES ST.,
LONDON, ONTARIO

MAILING ADDRESS,
P.O. BOX 2484

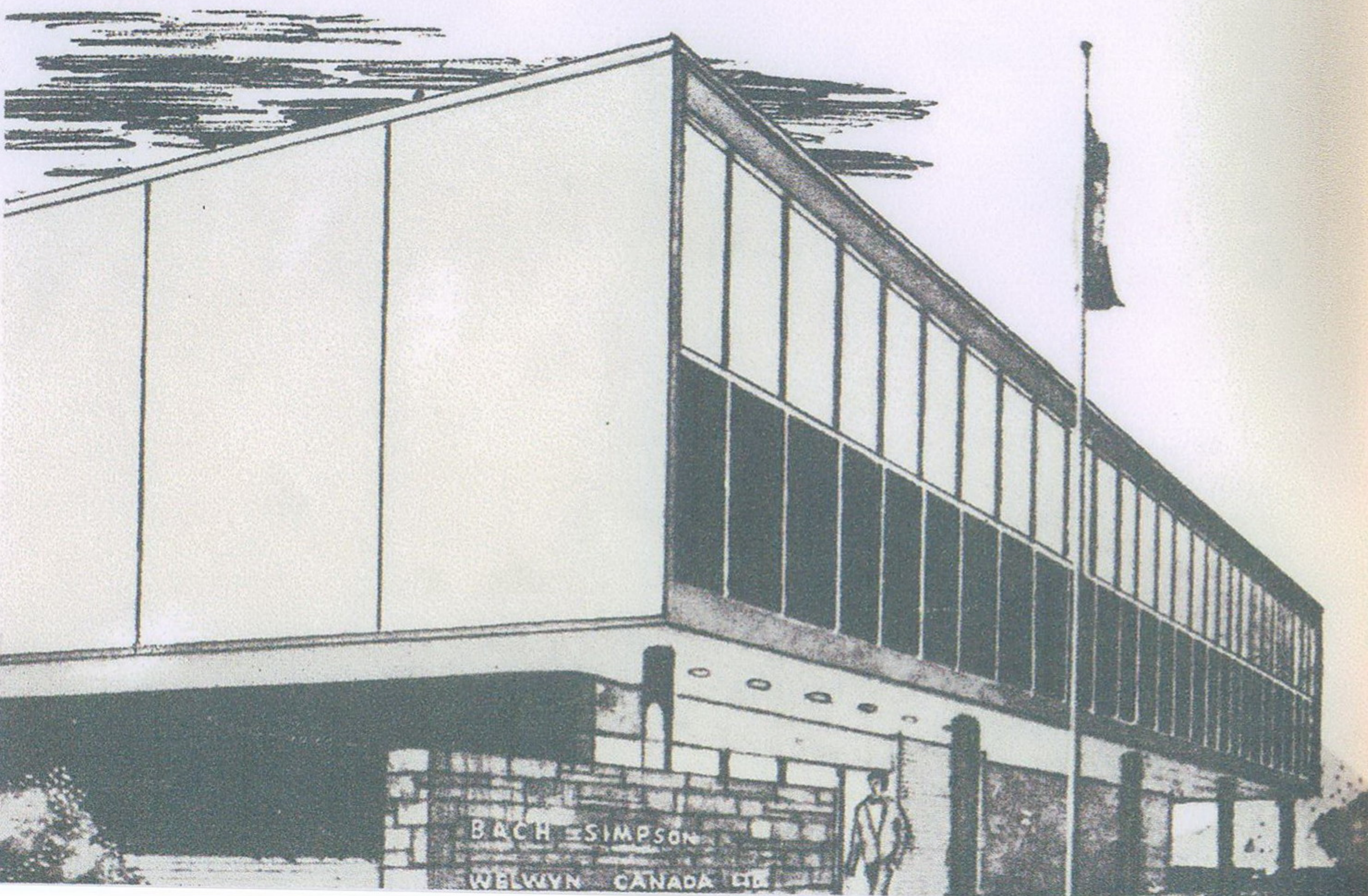


Part No. of this Manual, 6778

ABOUT BACH-SIMPSON

From its origin during the World War II, Bach-Simpson Ltd. has steadily expanded its facilities so that practically all, of the many different operations involved in transforming an idea into a completed product, are now undertaken under one roof. With sister company Welwyn Canada Limited, it occupies a modern Factory covering 75,000 sq. ft., housing over 300, highly skilled and dedicated employees.

Recognising the growing requirement for precision electrical products of high quality, the range of items has constantly become more diverse ranging from Panel Meters, to complex Measurement and Electronic Control systems. These have gained an enviable international reputation, that is our constant concern to maintain and enhance.



Manual Part No. 6778

MODEL 635HV

The Model 635HV is a standard Model 635 with a permanently attached High Voltage Multiplier. The Model 635 Manual applies equally to the 635HV and the necessary additional information covering the High Voltage ranges appears on this inserted sheet.

Conservative design and care in production make possible exceptionally accurate and stable measurements to 6000 Volts AC and DC.

Isolation of the High Voltage Unit in its own rugged molded case affords an unusual degree of protection to both instrument and user, since 600 Volts is the maximum potential present in the tester proper.

Sealing of the individual resistors (over)

OPEN THE FOLD-OUT
INSIDE BACK COVER FOR

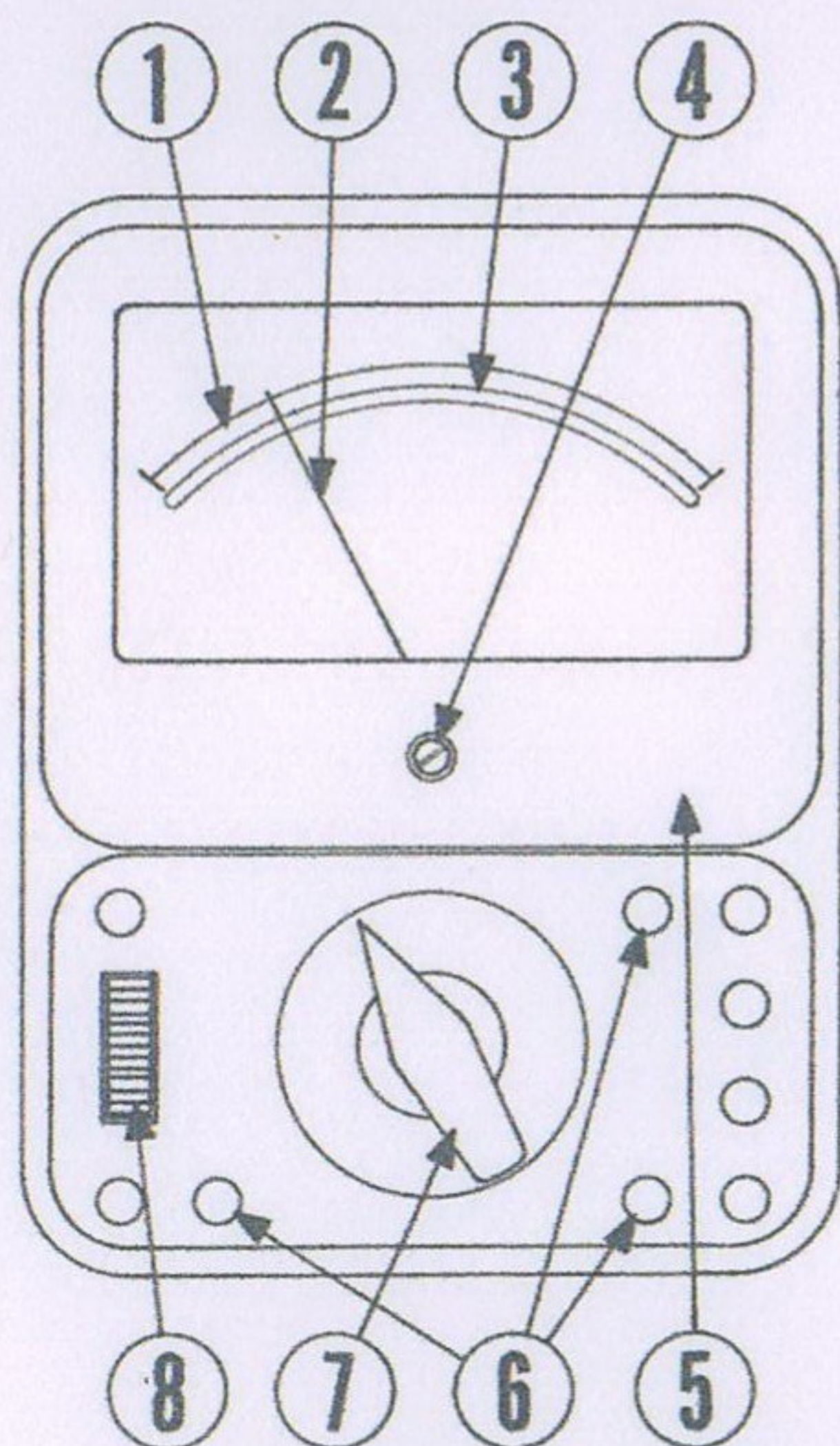
S MANUAL L 635 MILLIAMMETER

TURED IN CANADA BY



PHYSICAL DESCRIPTION (CONT'D)

The Model 635's buff-tinted scale background and highly legible markings are designed for easy, accurate reading with reduced operator fatigue. The 4-1/4" scale (1), knife-edge pointer (2), and scale mirror (3), permit improved resolution of readings and elimination of parallax errors.



The slotted zero adjuster (4) located in the lower center of the meter cover (5) can be freely rotated through 360° to set the pointer precisely to scale zero.

A total of nine jacks (6) provide connections for all of the Model 635's twenty-five direct reading ranges, and accept standard Simpson test lead plugs. Nineteen of these ranges are served by the (+) and (-) connections in the lower left corner of the panel.

The two-inch semi-recessed knob (7) rotates the combined function/range switch smoothly through a full 360°.

Permanent markings, white-filled and spaced for legibility, permit easy and accurate selection of any of its twenty positions.

Precise, gradual adjustment of the ohms zero is made possible by the large knurled knob (8), set edgewise and almost flush with the panel for thumb operation.

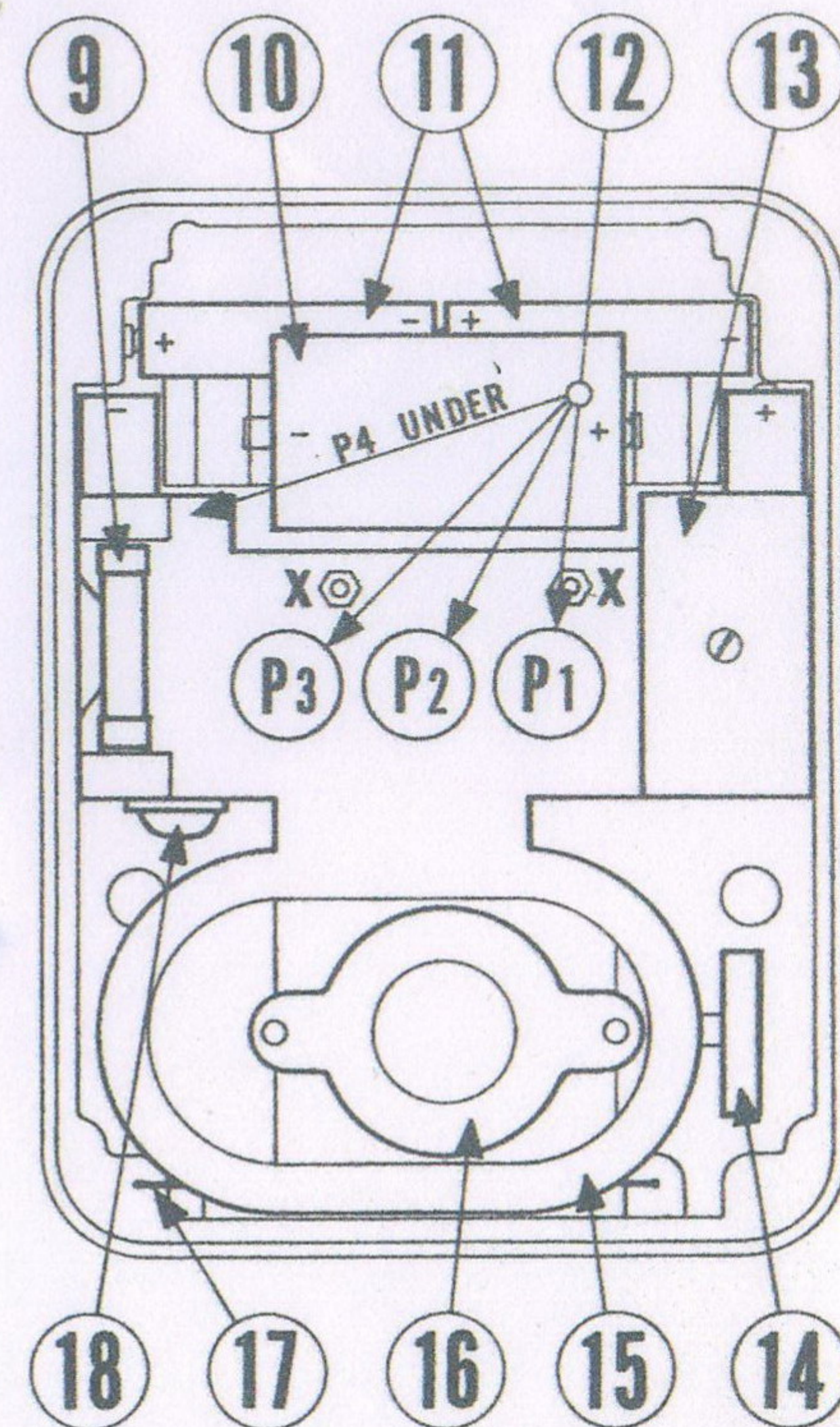
PHYSICAL DESCRIPTION (CONT'D)

On the rear of the front panel assembly, retaining contacts hold a 1/2 A, 250 V miniature fuse (9) which provides protection for the most vulnerable circuit components.

A single 1.5 V, size D battery (10) powers all resistance measuring ranges, with the exception of R x 10K, where it is supplemented by four 1.5 V, size AA batteries (11). Battery retention is provided by the contacts, and ensured in use by the specially shaped inner surface of the rear cover.

Four trim potentiometers, (12) permit precise final adjustment of the A C Voltage (P1, P2) and Current (P3) ranges and of the meter movement resistance (P4). As well, they facilitate the re-adjustment of the instrument to original factory tolerance in the event of major component replacement.

The rectifier unit (13) is completely enclosed and self-contained and incorporates germanium diodes in a full-wave bridge circuit.



PHYSICAL DESCRIPTION (CONT'D)

A miniature potentiometer (14) of conventional design is used to correct for variations in the internal resistance of the batteries.

A molded phenolic component "nest" (15) surrounds and incorporates the function/range switch (16). This assembly can be removed, complete, and laid to one side with the tester fully operative. Remove the two retaining nuts (x) and the switch knob and nut to lift out the assembly. Access may then be gained to lower and inner switch decks.

The D.C. heavy current shunts (17) and the three-range A.C. current transformer (18) are mounted on the rear of the panel, and connected direct to their respective panel jacks.

ACCESSORIES FOR COMMERCIAL MODEL 635

(AN/URM505 and 635 HV Military and Commercial Accessories are shown on Page 22.)

STANDARD

Lead Set part #3686: Length 4 ft., one red, one black lead, with test prods.

OPTIONAL EXTRA

Lead Set part #3838: Length 4 ft., one red, one black lead, with rubber sleeved alligator clips.

Carrying Case part #7030-1: Brown leather "Eveready" style, with front flap which lifts to expose the entire front of the instrument.

Carrying Case part #7237: Black leather pouch.

Flexible Probe part #17526: Spring loaded with retractable tip. (Attaches to #3686)

ELECTRICAL SPECIFICATIONS

D.C. VOLTAGE and D.C. CURRENT RANGES

0 - .3 Volts	0 - .060 Milliamps
0 - 3 "	0 - 1.2 "
0 - 12 "	0 - 12 "
0 - 60 "	0 - 120 "
0 - 300 "	0 - .6 Amperes
0 - 600 "	0 - 1.2 "
	0 - 12 "

SENSITIVITY : 20,000 ohms/volt
INSERTION LOSS (MV DROP) : 250 MV all ranges

ACCURACY : $\pm 1.25\%$ of full scale deflection for effective range of 10 - 100% of FSD all ranges.

A.C. VOLTAGE and A.C. CURRENT RANGES

0 - 3 Volts	0 - .12 Amperes
0 - 12 "	0 - 1.2 "
0 - 60 "	0 - 12 "
0 - 300 "	
0 - 600 "	

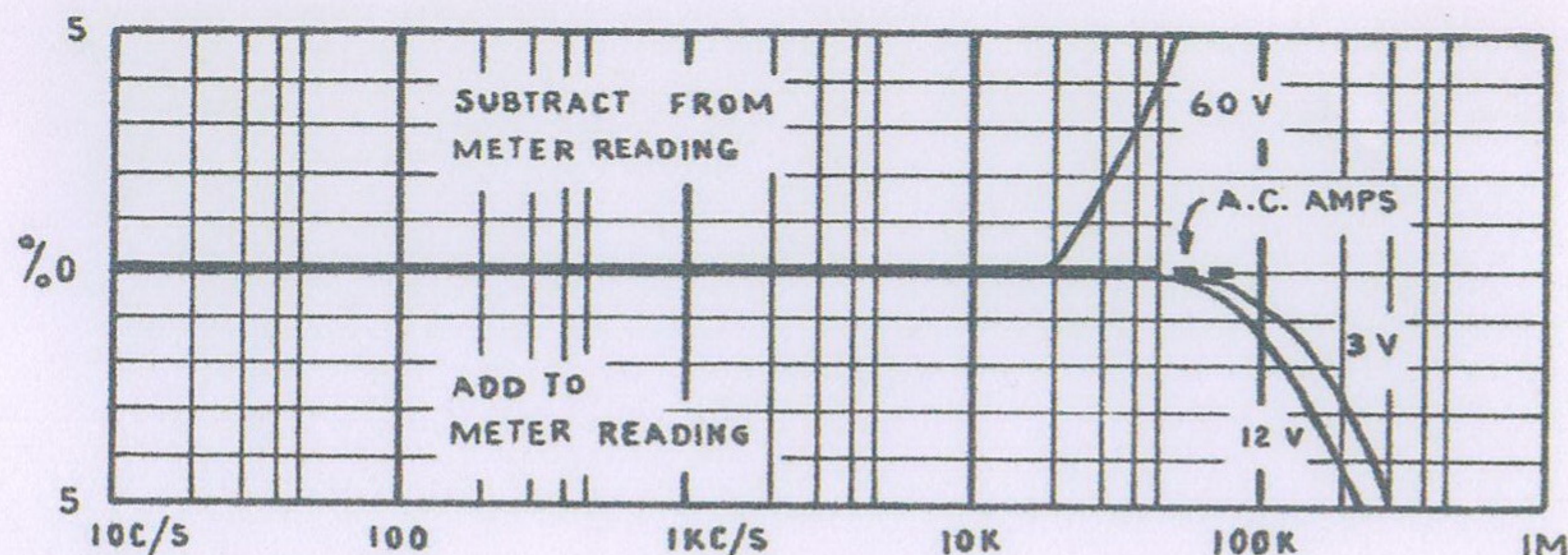
INSERTION LOSS (MV) for
.12A 1.2A 12A at
SENSITIVITY :
3000 ohms/volt 420 MV 50 MV 50 MV 60 C/S
425 75 100 20 KC/S

ACCURACY : $\pm 2.25\%$ of full scale deflection for effective range of 20 - 100% of FSD all ranges.

FREQUENCY RESPONSE : The instrument is effectively flat in response from 20 C/S to 50 KC/S

ELECTRICAL SPECIFICATIONS (CONT'D)

for all Current ranges and for the Voltage ranges for which correction curves are shown below. Higher Voltage ranges exhibit increased frequency errors above 10 KC/S.



RESISTANCE RANGES

R X 1	0 - 200 ohms	(12 ohm center)
R X 100	0 - 20,000 ohms	(1200 ohm center)
R X 1K	0 - 200,000 ohms	(12K center)
R X 10K	0 - 2 megohms	(120K center)

with visible indication to 20 megohms.

ACCURACY : At center scale, better than 5% of reading. At the limits of the effective range (10 - 90% of full scale, angular), better than 10% of reading.

TEMPERATURE CHARACTERISTICS

The Model 635 is temperature compensated to assure the maintenance of rated accuracy on all ranges for variations of $\pm 5^{\circ}\text{C}$. from normal 25° operating ambient.

CORRECT OPERATION - GENERAL

Position of Use: Where feasible, it is good instrument practice to lay the tester on its back, scale horizontal, to eliminate the danger of tipping it over.

Checking Zero Setting: With the instrument in the position in which it is to be used, observe whether the pointer is centered on the scale zero mark when no power is applied. If necessary, use the slotted adjuster screw to correct its setting.

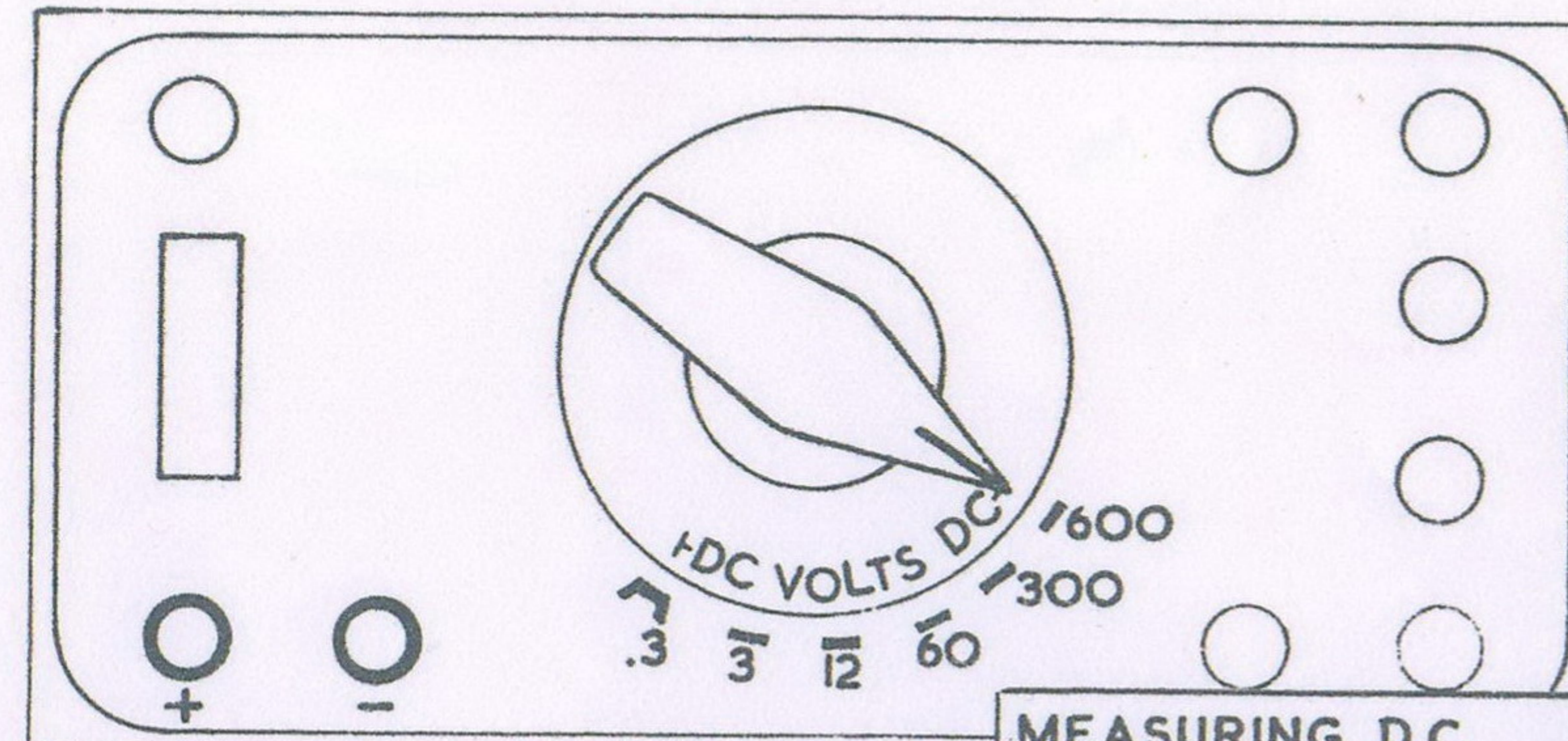
Function/Range Selection: Observe the individual instructions which follow. When in doubt as to the value of voltage or current to be measured, always select initially the highest meter range available. Then reselect the lowest safe range to obtain an accurate reading.

Connecting the Instrument: Observe the individual range instructions which follow. Before connecting the instrument to the equipment, make sure power is off. NOTE THAT VOLTAGE READINGS ARE MADE ACROSS THE LOAD. FOR CURRENT READINGS OPEN THE CIRCUIT AND CONNECT THE INSTRUMENT IN SERIES WITH THE LOAD.

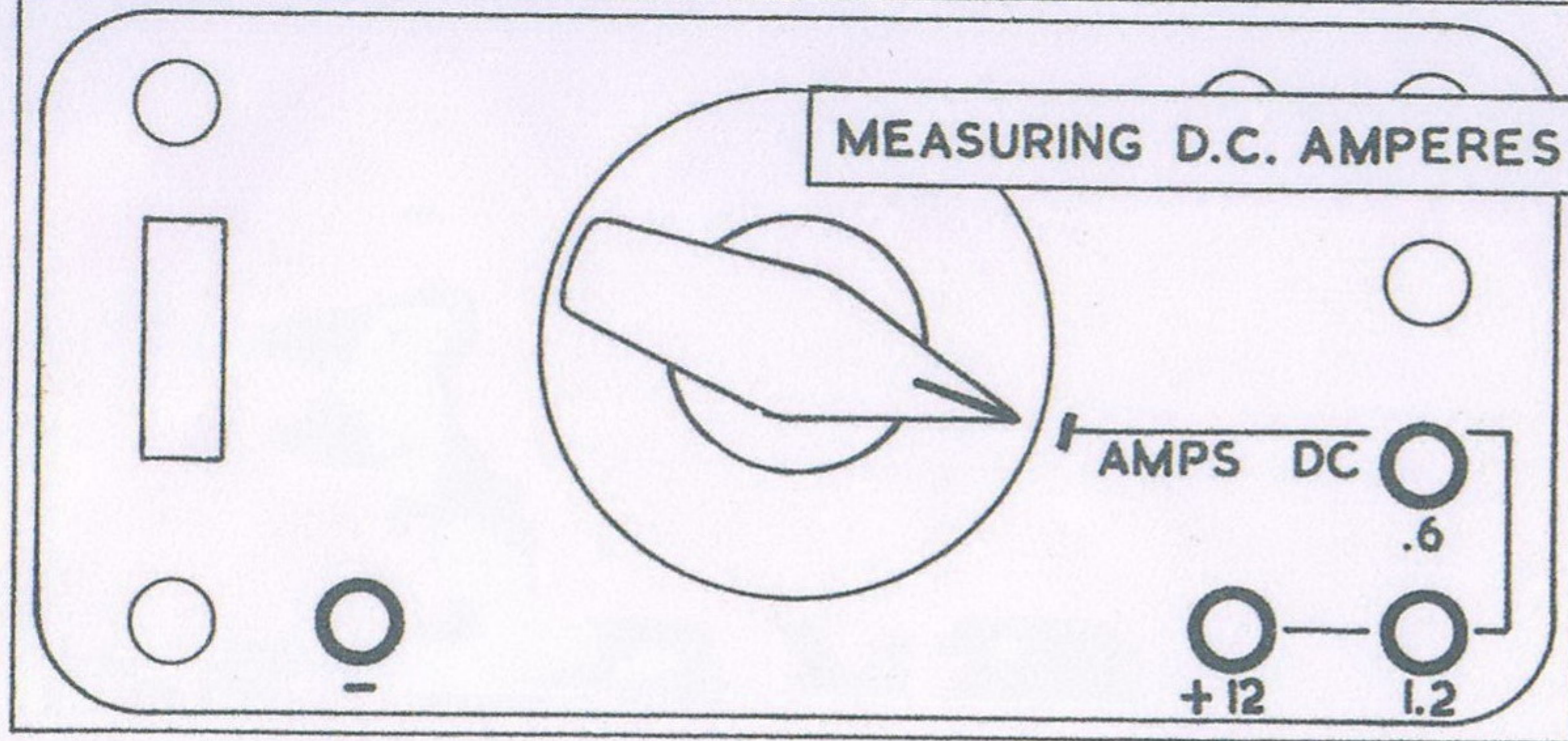
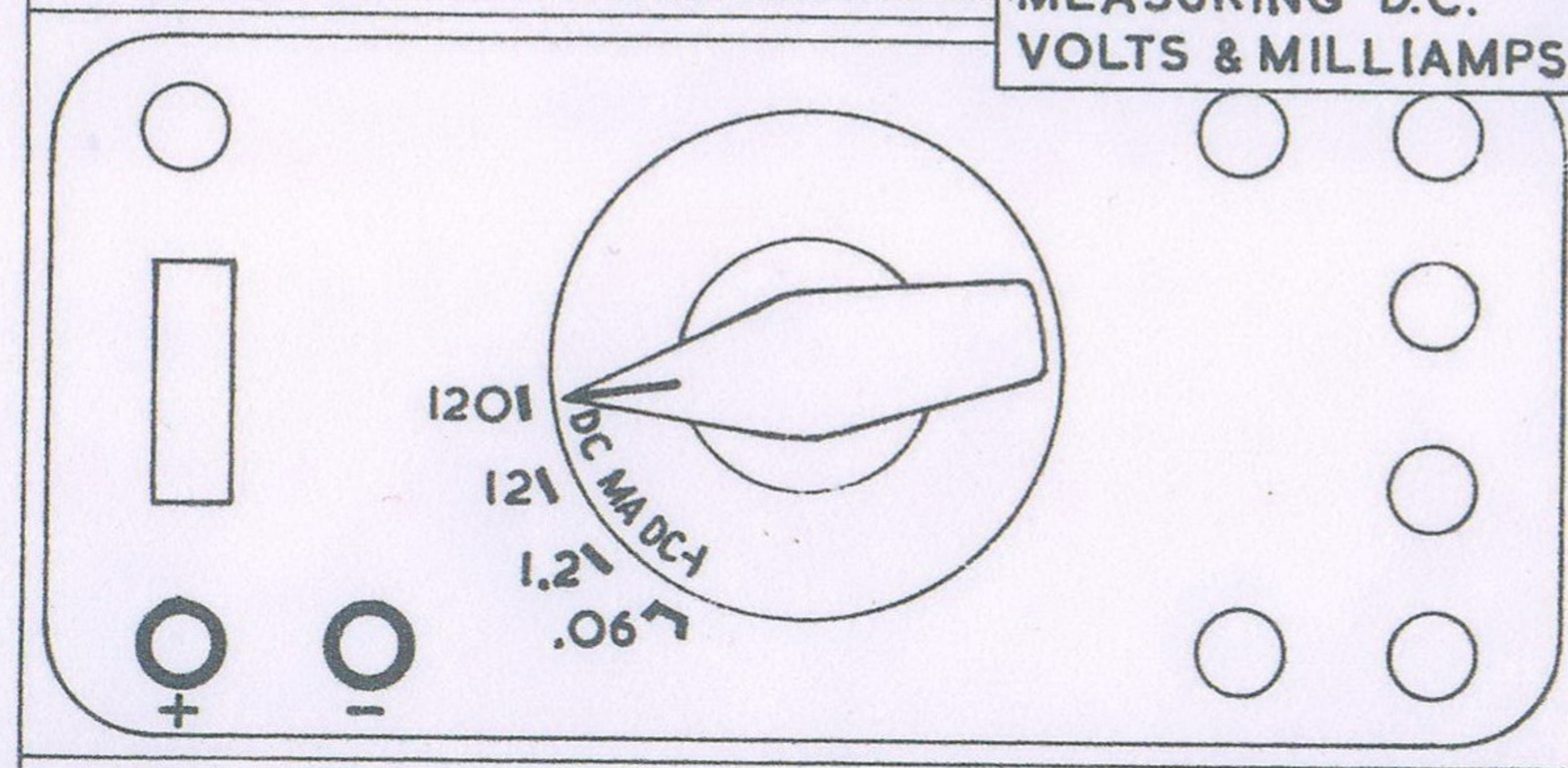
Reversed Readings: In the case of reversed indication on D.C., switch off power in the circuit under test and reverse the lead connections.

FOR YOUR PERSONAL PROTECTION - Turn off power to the circuit under test before connecting or disconnecting the Test Leads. When working with high Voltages, do not touch leads while power is on.

FOR THE PROTECTION OF YOUR INSTRUMENT - Check lead connections and switch settings before applying power. Select the highest range.



MEASURING D.C. VOLTS & MILLIAMPS



MEASURING D.C. AMPERES

- Set the function/range switch initially to the highest available Volt or Milliampere range as required.

- Plug the red (Positive) lead into the (+) jack and the black (Negative) lead into the (-) jack. With power off make the appropriate connections to the circuit.

- Turn on the power. Reselect the lowest safe range on the basis of your preliminary reading to obtain a more accurate indication.

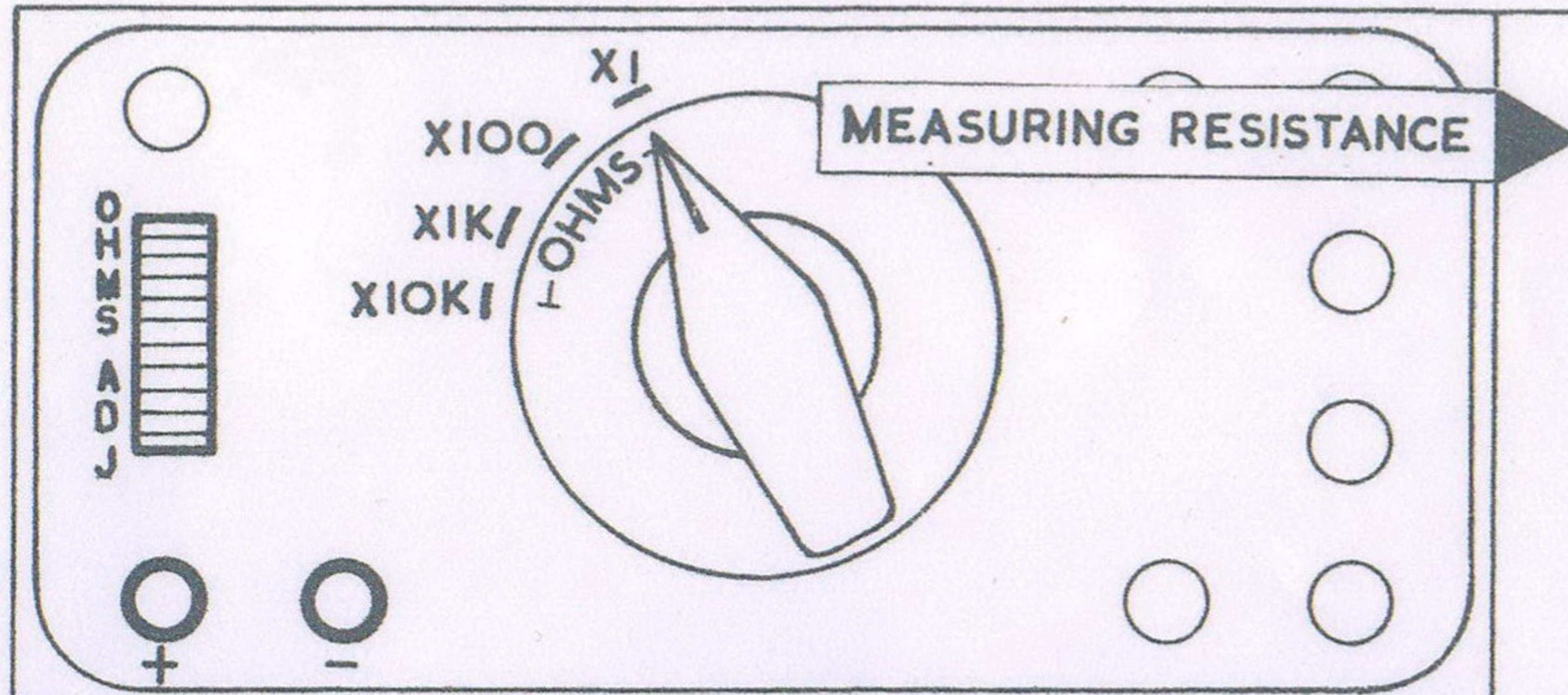
- Read the indicated voltage on the black scale marked "D.C." The black figures below the mirror give direct readings for most ranges. Others are readily obtained by multiplying or dividing the appropriate set of figures by 10 or 100. The .3 V range is most conveniently read from the 0 to 300 scale as 300 millivolts, and the .060 MA. range similarly is read on the 0 to 60 scale as microamperes.

- Set the function/range switch to AMPS DC.
 - Plug the black (Negative) lead into the (-) jack and the red lead into the (+12) jack. With power off make connections to the circuit.

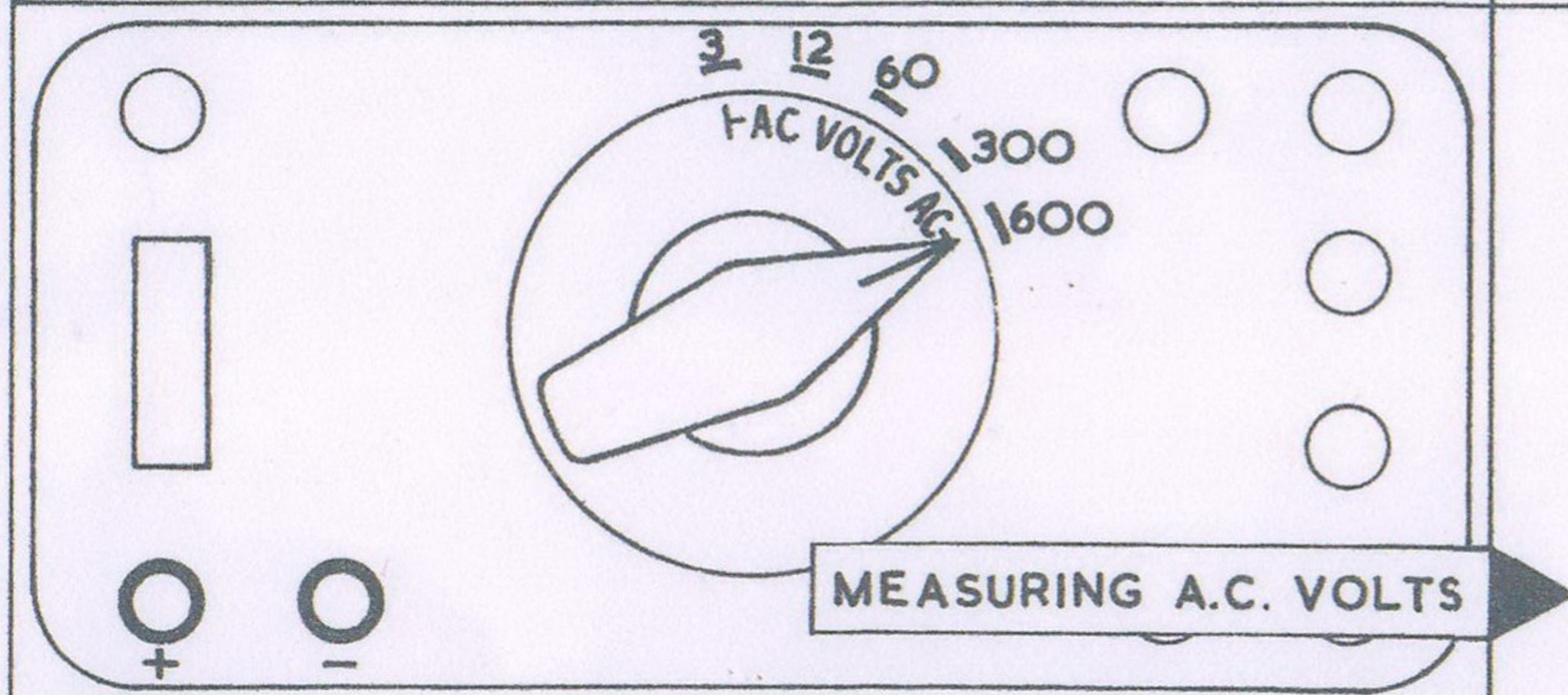
- Turn power on and take a preliminary reading. Turn power off and move the red lead to the lowest safe range. If the current is less than 120 MA proceed as above for D.C. Milliamps.

- Read D.C. Amperes on the black D.C. scale.

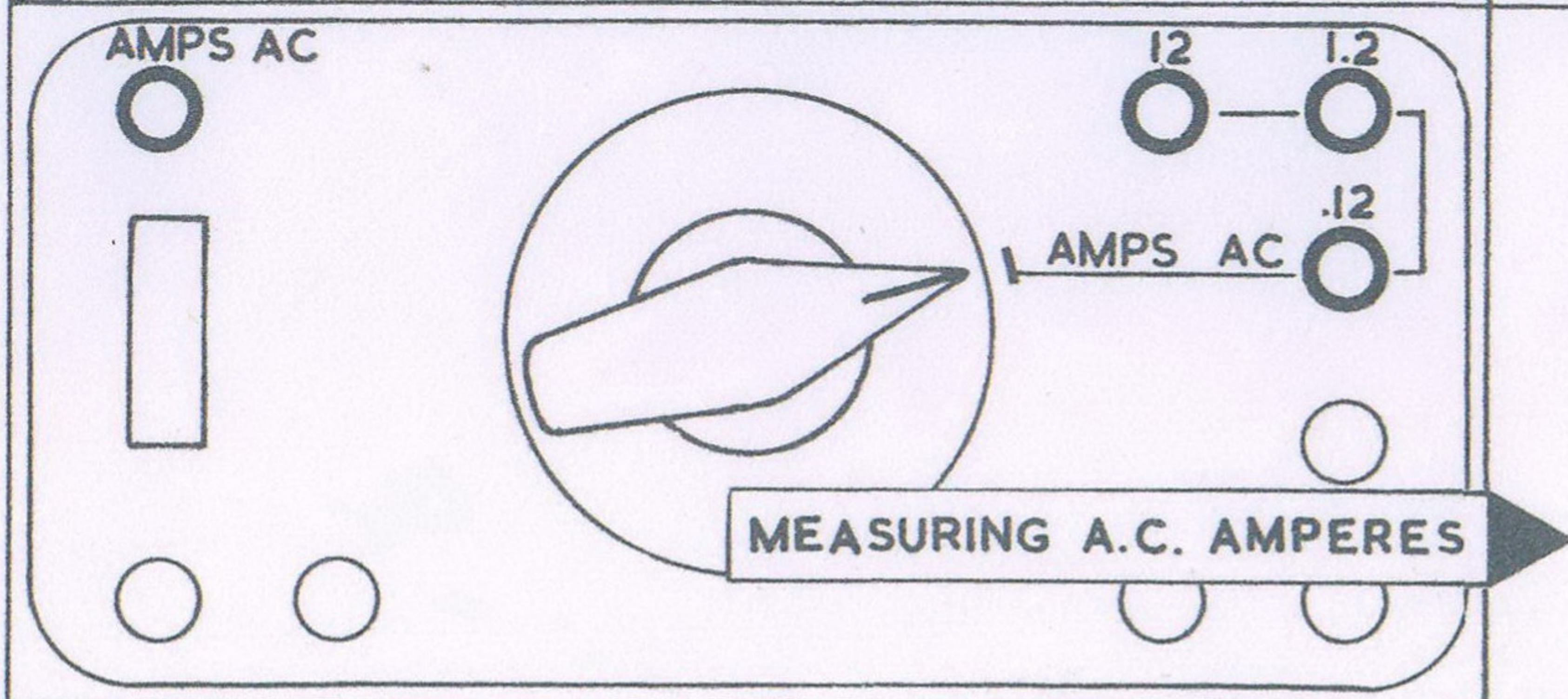
OPERATING INSTRUCTIONS



- Set the switch to the desired range.
- Plug black lead into (-)jack, red into (+). Short lead clips together. Adjust pointer if necessary to Zero (right hand end) on the OHMS scale, using OHMS ADJ control. Separate leads.
- Connect the lead clips to the resistance under test. Ensure that no voltage is present.
- Resistance value will be the figure read from the ohms scale multiplied by the factor shown at the switch setting. "K" represents 1000.



- Set the function/range switch initially to the highest available A.C. Volts range position.
- Connect the black lead to the (-) jack and the red lead to the (+) jack. With power off, connect to the circuit under test.
- Turn power on. Select lowest safe range.
- Read the voltage on the red scale marked A.C. using the black figures above it. For the 3 V. range only use the lowest (red) arc and the red figures below it.



- Set the function/range switch to AMPS AC.
- Plug the black lead into the AMPS AC jack in the upper left corner of the panel, and the red lead into desired range jack at upper right. With power off make connections to the circuit.
- Turn power on and read. Turn power off and move the red lead to the lowest safe range as indicated by the preliminary reading.
- Read A.C. Amperes on the red scale marked AC using the black figures above it.

ADDITIONAL APPLICATIONS

In addition to measuring A.C. and D.C. voltage and current and D.C. resistance over a wide range, the Model 635 can perform a number of other useful functions.

RECTIFIER CHECKS can be performed on copper oxide, selenium, and crystal rectifiers, using the ohms ranges. Proceed as for normal resistance measurements. Read the rectifier resistance in both directions. The "Forward" resistance should be low, and the "Reverse" resistance very high.

CAPACITOR CHECKS provide a guide to good, open, and short conditions. Use the R x 10K range as for normal resistance measurement. Results should always be confirmed.

A good capacitor will produce a deflection to the right, the pointer gradually returning to the left end of the scale (infinite resistance) as the capacitor becomes charged by the multimeter batteries and current ceases to flow. Small capacitors produce a small deflection which disappears quickly.

An open capacitor has, by definition, infinite resistance; no current will flow and no deflection will be produced.

A shorted capacitor will produce a deflection which persists, indicating a permanent and finite resistance value.

ADDITIONAL APPLICATIONS

A.C. CURRENT-VOLTAGE RELATIONS can be simply determined, using two sets of leads. One set is connected as for A.C. Amps measurement and the other is connected to the (+) and (-) jacks as for A.C. Volts determination. The instrument can then be switched back and forth from A.C. Amps to the desired A.C. Volts position for comparison readings.

The voltage range progression is downward from the A.C. Amps position so that no damage to the instrument will result. The current transformer primary remains connected, completely isolated from the other measuring circuits.

Particularly valuable in this application is the extremely low insertion loss of the transformer primary (see p. 7) which in addition shows a very low order of change with frequency.

With the virtually flat frequency response of the A.C. Current and Voltage ranges (see p. 8) this makes the Model 635 very useful for measurements in the low impedance circuits typical, for example, of high-fidelity amplifier output stages.

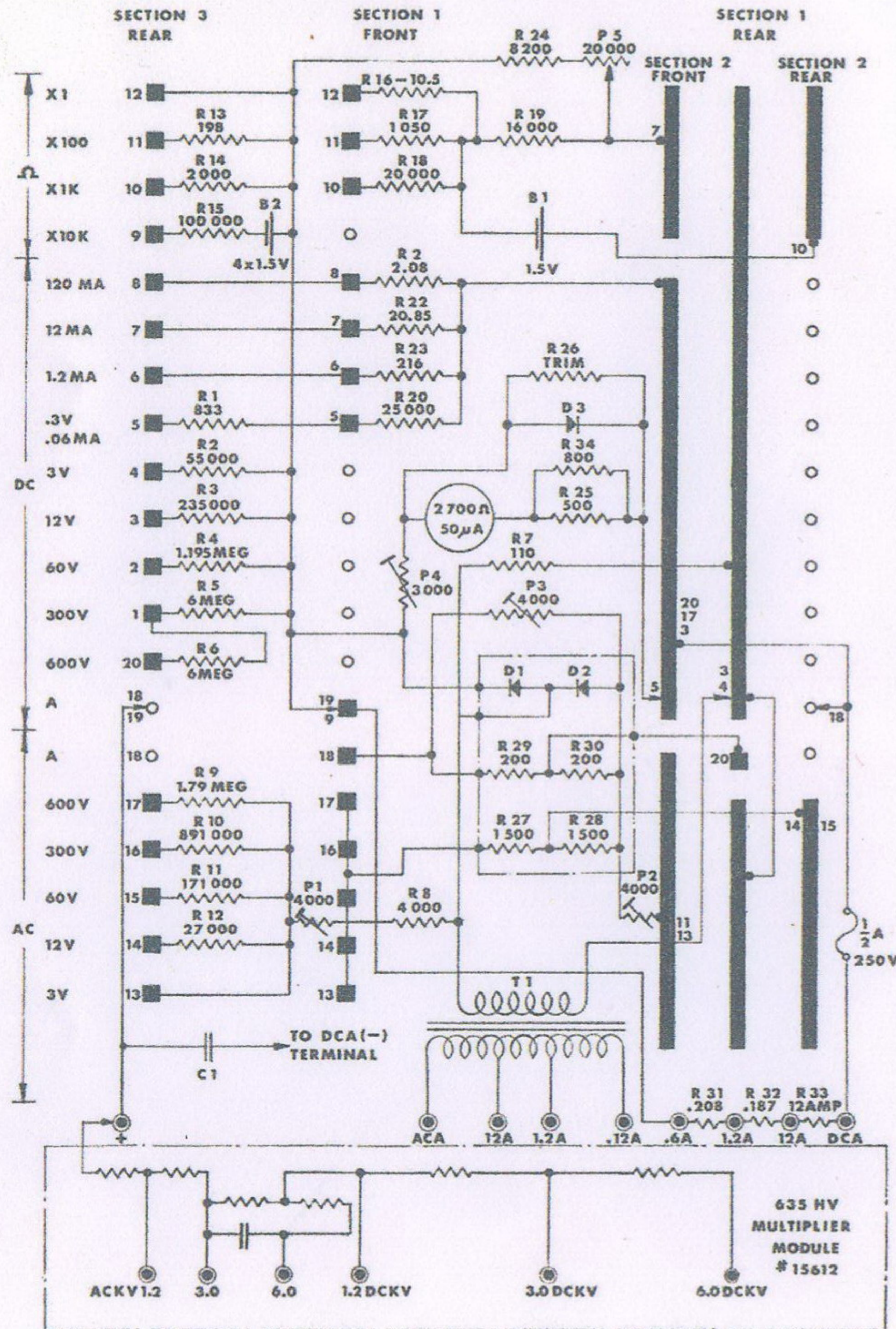
The Model 635 performs, accurately and in a single instrument, a function formerly reserved for two special single purpose meters.

YOU WILL UNDOUBTEDLY DISCOVER MANY MORE USES FOR YOUR MODEL 635 THAN IT HAS BEEN POSSIBLE TO DESCRIBE. USED WITH CARE AND COMMON SENSE, IT'S VERSATILITY WILL SERVE YOU WELL.

SCHEMATIC DIAGRAM

MODEL 635 WITH MODEL 635 HV MULTIPLIER

PARTS LIST



SYMBOL	DESCRIPTION	PART NUMBER
R1	Resistor	833 ohms 17359 - 833
R2	Resistor	55,000 ohms 17359 - 55K
R3	Resistor	235,000 ohms 17359 - 235K
R4	Resistor	1.195 megohms 17359 - 1.195M
R5,6	Resistor	6.0 megohms 17362 - 6M
R7	Resistor	110 ohms 17363 - 110
R8	Resistor	4000 ohms 17359 - 4K
R9	Resistor	1.79 megohms 17359 - 1.79M
R10	Resistor	891,000 ohms 17359 - 891K
R11	Resistor	171,000 ohms 17359 - 171K
R12	Resistor	27,000 ohms 17359 - 27K
R13	Resistor	198 ohms 37200 - 198
R14	Resistor	2000 ohms 37200 - 2K
R15	Resistor	100,000 ohms 37200 - 100K
R16	Resistor	10.5 ohms 37400 - 10.5
R17	Resistor	1050 ohms 37400 - 1050
R18	Resistor	20,000 ohms 37400 - 20K
R19	Resistor	16,000 ohms 37400 - 16K
R20	Resistor	25,000 ohms 37364 - 25K
R21	Bobbin	2.08 ohms 3666 - 2.08
R22	Resistor	20.85 ohms 17359 - 20.85
R23	Resistor	216 ohms 17359 - 216
R24	Resistor	8,200 ohms 17360 - 8.2K
R25	Resistor, NTC	500 ohms 3597 - 500
R26	Resistor, trim shunt	matched to meter
R27,28	Resistor	1500 ohms 37400 - 1.5K
R29,30	Resistor	200 ohms 37400 - 200
R31	Bobbin	0.208 ohms 3666 - .208
R32	Bobbin	0.187 ohms 3666 - .187
R33	Shunt Assembly 12A	6775
R34	Resistor	800 ohms 17363 - 800
D1	Diode, Germanium, 0A47	1510 - 22
D2	Diode, Germanium, 0A47	1510 - 22
D3	Varistor	1510 - 31
P1,2,3	Potentiometer	4000 ohms 1759 - 13
P4	Potentiometer	3000 ohms 1759 - 15
P5	Control, ohms adjust	20,000 ohms 1542 - 59
B1	Fuse, clip-in, 1/2A. 250 V.	4684 - 8
B2	Battery, size D, Eveready # 950 or equal	7177
	Batteries, size AA, Eveready # 915 or equal	7165
	Knob, function/range switch c/w set screw	41457
	Case (back), molded phenolic	1736 - 1
	Carrying Strap, leather	7426 - 1
	Meter Cover Assembly Complete	3664
	Knob, Ohms Adjust	3975 - 2
	Set-Screw for knob #3975-2	3993
T1	Current Transformer	6767
C1	3.3 pf Input Capacitor (635 HV serial no. 1-1000)	(AN/URM 505 serial no. 1-1400) 1663 - 11
	8.0 pf Input Capacitor (635 HV serial no. over 1000)	(AN/URM 505 serial no. over 1400) 1663 - 18

MAINTENANCE

Certain maintenance operations are routine, and require only removal of the case (back). Take out the four recessed screws in the back of the case and the front panel assembly will lift straight out in its entirety.

Fault - complete lack of indication on D.C., resistance, and A.C. Volt ranges. Indication on A.C. current.

Corrective Action - replace the fuse (Symbol 9, p. 5) with one of the specified rating only.

Fault - inability to zero with the ohms adjust control (at right end of scale, lead clips shorted) on R x 1, R x 100, or R x 1K ranges, or a necessity for frequent readjustment of zero.

Corrective Action - replace the large 1.5 V battery (Symbol 10, p. 5) observing the correct polarity as marked.

Fault - inability to zero on the R x 10K range with the ohms adjust control as above.

Corrective Action - replace all four small 1.5 V batteries (Symbol 11, p.5), and, preferably, the large battery as well, again observing correct polarity.

The following maintenance or repair operations should not be attempted unless you have access to precision standard meters, to ensure that your Model 635 has been restored to factory tolerance. It is strongly recommended that your instrument be returned to the factory or an authorized repair depot in these circumstances.

MAINTENANCE (CONT'D)

Fault - unsatisfactory meter operation or inaccuracy, all ranges.

Corrective Action - meter movement repair or replacement is indicated. This can be confirmed by applying D.C. current (0-50 UA) to the nest retaining nuts (Symbol X, p. 5) with the function switch in the 600 V. D.C. position. All circuit elements, with the exception of the trim shunt (R26) which is across the meter terminals external to the housing, the protective diode (D3), and the compensating network (R25, R34) which are internal, are eliminated as possible sources of the difficulty.

Fault - Individual range unserviceable.

Corrective Action - replacement of individual resistor(s) involved. Circuit design of the Model 635 generally is such that most components affect only one range. Study the circuit diagram and obtain the correct component (See Parts List) from factory or authorized repair depot.

Fault - general unserviceability, A.C. voltage and current ranges.

Corrective Action - replace rectifier assembly (Symbol 14, p. 5). Recalibrate as follows:

1. Set function switch to 300 V.A.C. with test leads connected to (+) and (-) jacks. Apply 300 V. to leads and adjust meter to full scale with P2 (Symbol 12, p. 5).
2. Set function switch to 3 V. A.C., apply 3 V. and adjust meter to full scale with P1.
3. Repeat steps 1 and 2 until no further adjustment is required.
4. Apply the correct value of A.C. Current to

MAINTENANCE (CONT'D)

any of the A.C. Amps ranges, and adjust P3 to provide correct calibration.

It is manifestly impossible to pre-diagnose all possible malfunctions which may result from misuse or accident. The above are the most obvious.

Component failure will be rare, and when it does occur, will normally require no further dismantling of the tester than that so far described.

For trouble location, however, it may be desirable to demount the resistor nest. This can be done as follows, without disconnecting any leads:

1. Set the selector switch to the 3V. A.C. position, and remove the knob and the switch retaining nut beneath it.
2. Remove the nest retaining nuts (x). Lift the potentiometer panel and remove the second set of nuts thus exposed.
3. Pull the nest straight away from the panel, withdrawing the switch shaft from its hole. Lay the nest over to the left, so that the switch shaft faces up, and replace the knob in its original orientation.
4. To reassemble, reverse the procedure.

SWITCH REPLACEMENT

Because the switch is assembled as an integral part of the nest, individual switch sections, or the shaft and detent plate assembly can be replaced with a minimum of disturbance. Detailed instructions are available from the factory

ELECTRICAL SPECIFICATIONS - MODEL 635HV supplementing pages 7 and 8.

RANGES, ACCURACY AND SENSITIVITIES :

DC VOLTS	ACCURACY \pm 1.5% of Full Scale Deflection over the Effective Range of
0 - 1200	10 to 100% of Full Scale Deflection.
0 - 3000	SENSITIVITY 20,000 ohms per volt.
0 - 6000	
AC VOLTS	ACCURACY \pm 2.25% of Full Scale Deflection over the Effective Range of
0 - 1200	20 to 100% of FSD for 60 cycle sine wave.
0 - 3000	SENSITIVITY 3000 ohms per volt.
0 - 6000	

FREQUENCY RESPONSE : See pages 7 and 8. Additionally, the eight AC Volt ranges are accurate to \pm 2.25% of FSD for input frequencies up to 2000 cycles/sec., with the exception of the 6000 Volt range, where errors may approach \pm 5%. Applicable for Sine wave input having less than 1% total harmonic distortion. IMPORTANT : the accuracy of the 1200, 3000 and 6000 Volt ranges may be degraded at frequencies other than 60 cycles/sec. if the Model 635HV is placed on a metal surface. This effect generally increases with frequency and range, or if either tester connection is grounded to the metal surface, and is due to the effect of stray capacitance on the multiplier.

CAUTION: High-Voltage/High-Frequency measurement should be performed with the Model 635HV resting on a non-metallic surface, and separated by at least 12" from any metallic surface.

OPERATING INSTRUCTIONS - MODEL 635HV

See General Instructions on page 9.

USING 1200, 3000, 6000 V. DC RANGES

Open Manual to pages 10-11.

- Set Switch to 600 Volts DC as shown in the top illustration.
- Plug red lead into the desired DC KV terminal. Use 6KV if in doubt as to voltage present. Plug black lead into (-) jack on front panel.
- Turn on power and read. Turn off power and select lowest safe range.
- Read Voltage on black DC scale.

USING 1200, 3000, 6000 V. AC RANGES

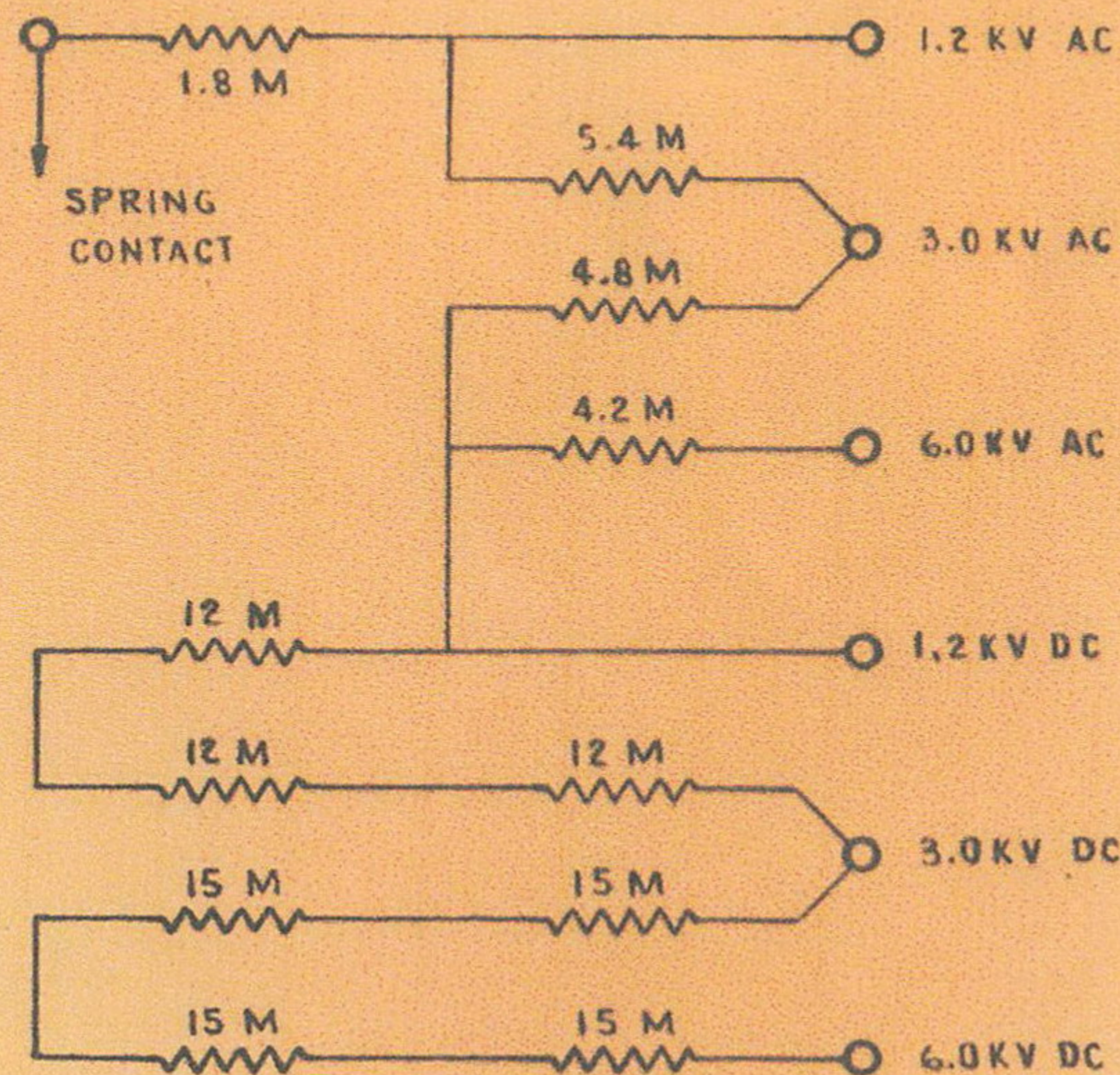
Open Manual to pages 12-13.

- Set switch to 600 Volts AC as shown in the center illustration.
- Plug red lead into the desired AC KV terminal. Use 6KV if in doubt as to voltage present. Plug black lead into (-) jack on front panel.
- Turn on power and read. Turn off power and select lowest safe range.
- Read Voltage on red AC scale using the black figures above it.

CAUTION: USE ONLY THE AC OR DC KV CONNECTIONS ON UPPER END OF THE INSTRUMENT FOR VOLTAGES ABOVE 600. SWITCH SETTING MUST BE CORRECT.

WARNING: TURN OFF POWER BEFORE CONNECTING INSTRUMENT TO CIRCUIT.

MULTIPLIER SCHEMATIC - MODEL 635HV



PARTS LIST

The following parts are specific to the 635H.V. (military and commercial) and the AN/URM505. They are additional to the list of parts shown on page 17 for a standard model 635.

H.V. Multiplier assembly complete, less hardware	#15612
Case (back), molded phenolic. Drilled to accept #15612	#1736-5
Complete hardware kit to assemble #15612 to #1736-5	#15747

ACCESSORIES FOR COMMERCIAL MODEL 635 H.V.

STANDARD

Lead Set part #15736: This all purpose lead set consists of one red and one black 4' lead, rated at 10,000 volts. The tester connectors are bunch plugs with 1 5/8" butyrate handles. The other end has a 3" butyrate handle fitted with a threaded test prod. Removable insulated clips are fitted to these prods.

N.B. The use of any of the lead sets listed on page 6 is not recommended with the 635 H.V.

OPTIONAL EXTRA

Carrying Case part #15750: Brown leather "Eveready" style with a front flap which lifts to expose the meter panel and the high voltage jacks. (Note the 635 case, #7030-1, will not fit the 635 H.V.)

Accessories for Military 635HV (S/N6625-21-805-7868) and Multimeter AN/URM 505 (S/N6625-21-116-7551)

STANDARD

Lead Set part #15736: All purpose 4' lead set, one red one black, insulated to 10,000 volts, with removable insulated alligator clips.
NOTE: A pair of clips is available as a service spare under part #16818-2.

Flexible Probe part #17526, (one supplied):

A spring loaded probe which attaches to lead set #15736 after removing an alligator clip.

Carrying Case part #40721: A leather case with a removable lid and extendable carrying strap. This case has an instruction plate (part #17524) attached to the inside of the lid.

Case Mounting Studs part #15742 (two supplied).
Operators Manual Part #6778.

WARRANTY

BACH - SIMPSON LIMITED warrant this instrument to be free from defects in material and workmanship in normal service. Their obligation under this warranty is limited to making good at their factory any instrument which shall be returned intact to them, or to their authorized representative, with transportation charges prepaid, and which examination shall disclose to their satisfaction to have been thus defective. Any unauthorized prior repair or adjustment may invalidate this warranty.

This warranty is not subject to a fixed time limit. However, at their discretion, Bach-Simpson Limited may request evidence of purchase during the 90 day period preceding return.

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