

Shallcross

The Milliohmmeters and Microhmmeters described here are instruments for measuring low resistance from 0.0001 Ω to 100 Ω on a linear scale. They are recommended for applications where a Kelvin Bridge is too slow and impractical and an ordinary non-linear ohmmeter is too inaccurate and limited in range. Shallcross Low Resistance Test Sets are especially suited for production line testing of welds, bonds or other low resistance paths by a non-destructive "GO-NO GO" method.

The group of test sets listed below shows the wide selection of FULL SCALE ranges -from 0.001 Ω to 100 Ω .

Method of Measurement—The unknown resistance is connected between two pairs of binding posts, preferably using accessory probe 657-B and clamp 676-B. One wire in each cable is utilized to pass a metered and adjustable current through the resistance. When the "TEST" knob is depressed the resistance under test is read directly in milliohms or microhms on a large easy-to-read scale. By checking this resistance against the pre-determined standard, defective bonds or welds are detected immediately. Separate current and potential terminals are used to minimize error due to lead resistance.

APPLICATIONS

Testing of Welds and Bonds—In production line set-ups, good or bad bonds or welds are easily, and accurately detected.

Contact Resistance Measurement—Contact resistance can be measured quickly on all types of switches, relays, and circuit breakers.

Preventive Maintenance of Welding Machines—Periodic checking of the resistance of welding cables minimizes down-time. Through constant flexure, strands of welding machine cable break, altering the current flow from the machine and resulting in unsatisfactory welds. Shallcross Low Resistance Test

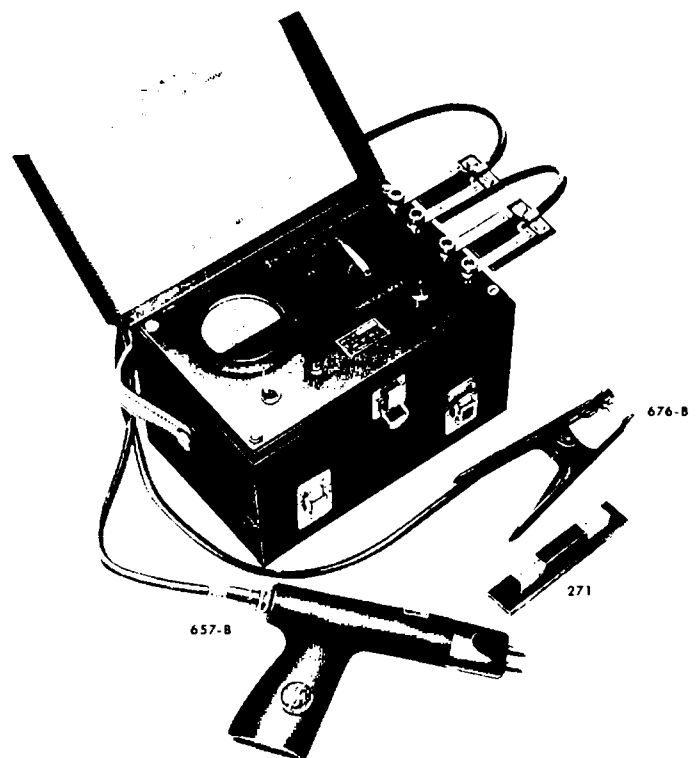
LOW RESISTANCE TEST SETS

Sets indicate the change in resistance, enabling readjustment or replacement of cable to be made at convenient, planned intervals.

Commutator Measurements—Bar-to-bar measuring of resistance in motor and generator commutators is possible with the use of special jigs.

Miscellaneous Applications—Resistance of incandescent lamp filaments and heavy conductors of regular or irregular shapes are readily measured. By recording the change in resistance versus time the corrosion rate on metal surfaces is quickly determined.

No. 670 SERIES TEST SETS



Shallcross Type	Number of Ranges	Ranges in Ohms					
		Reading from 0 to FULL SCALE value indicated					
670-A	6	0.001	0.005	0.01	0.05	0.10	0.50
671	2	0.003	0.30				
673	2	0.005	0.50				
673-A	3	0.05	0.5	5.0			
673-D	5	0.005	0.01	0.50	1.0	5.0	
673-E	2	0.005	0.01				
673-F	6	0.50	1.0	5.0	10	50	100

These instruments maintain an accuracy of $\pm 5\%$ of the FULL SCALE value. They are encased in a sturdy metal case with a hinged cover, a hinged battery compartment, and have a leather carrying strap. Two No. 6 dry cell batteries (not furnished) supply the power. Accessories, the 657-B Probe and the 676-B Clamp, described below are easily connected to the binding posts. These are available as extras.

SIZE: 10" x 8 $\frac{3}{8}$ " x 6 $\frac{1}{2}$ ". WEIGHT: 10 lbs.

Our Engineering Department will design special jigs and fixtures or adapt above instruments to meet specific production testing requirements.

ACCESSORIES

No. 657-B Pistol Grip Probe—This cast aluminum unit consists of two hardened steel, spring loaded points. One point is a current terminal the other is a potential terminal. Together they complete the necessary connections of one side of the unknown resistance. The probe is supplied with a 6-foot length of flexible cable and a terminal block to match one pair of binding posts.

No. 676-B Fixed Clamp—Each clamp has a pair of contact points, one for the current terminal the other for the potential terminal. These points complete the necessary connections for one side of the unknown resistance. Clamp is supplied with a 15-foot length of flexible cable and a terminal block to match one pair of the four binding posts.

No. 271 Test Standard—This is a fixed resistor of manganin terminated in brass blocks encased and mounted on black phenolic. The terminal blocks are machined and indented on 3 sides to match the points on the necessary probe and clamp. Resistance is 0.0025 Ω $\pm 2\%$. The standard is recommended for use in calibrating or checking all Low Resistance Test Sets.

No. 668 Microhmmeter

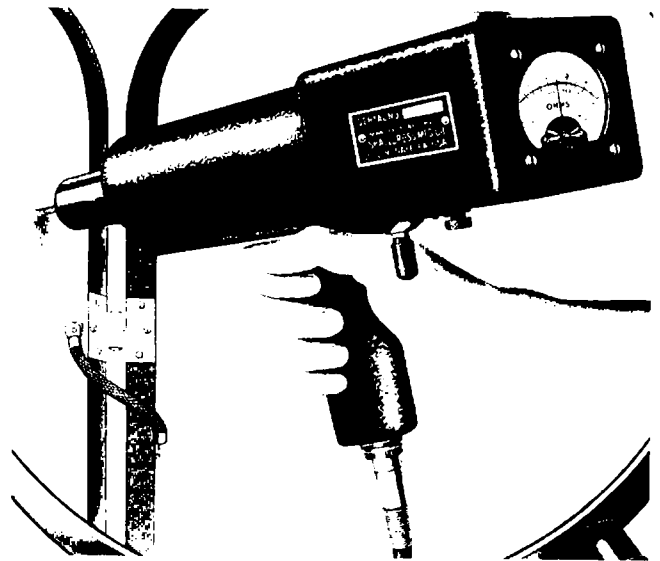
This high precision instrument for measuring lower ranges of resistance has an accuracy of $\pm 2\%$ of the FULL SCALE value. It is supplied in a

walnut case with a detachable cover and carrying strap. The adjustable, built-in power supply is connected to the 110V., 60 cycle power source with a heavy duty detachable cord. Special fixtures, probes, and clamps will be designed and supplied on separate order to meet your special needs.

Shallcross Type	Number of Ranges	Ranges in Ohms				
		Reading from 0 to FULL SCALE value indicated				
668	8	0.0002	0.0008	0.002	0.008	0.02
		0.08	0.20	0.80		

SIZE: 18 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ " x 9 $\frac{1}{2}$ ". WEIGHT: 30 lbs.

No. 663 and No. 665 MILLIOHMMETERS



These unique "Aerogun" units are completely self-contained for maximum portability. No accessories are needed since they are supplied complete with a clamp, built-in probe, and a 15-foot extension cord. A suitable case with a cover is provided for storage purposes. The instrument requires a No. 6 dry cell battery (not supplied).

Shallcross Type	Number of Ranges	Ranges in Ohms	
		Reading from 0 to FULL SCALE value indicated	
663	2	0.003	0.30
665	2	0.005	0.50

OVERALL LENGTH: Approx. 15". WEIGHT: 6 lbs.