
LUNCH BOX



Micro & Milli Ohm Meter



The COMPANY:

Flex-Cable is a leader in the Resistance Welding Technology field. Flex-Cable is a major supplier of high current air and water-cooled cables, laminated shunts, robotic dress out stems and accessories. Our newest products include Time Savings / Down Time Eliminating Products such as the Robotic Tip Changer & Tip Dresser. Flex-Cable specializes in commercial cable systems, Custom Molded Cable Assemblies such as Prime-Link Primary Cables, Servo Cables, and Communication Cables (rectangular and circular).

SCOPE:

This manual covers the specifications and operations of both the Micro Ohm Cable Tester (Part # MOCT-7550) and the Milli Ohm Cable Tester (Part # MOCT-7600).

By Description:

Micro Ohm Meter:

The **Micro Ohm** Cable Tester (MOCT7550) measures from 3 to 2000 micro ohms and can be used to measure the resistance of secondary weld circuit components. These include kickless cables, water cooled jumpers, laminated shunts, air cooled jumpers, weld gun castings, weld tips joints, weld transformers, oxidation in joints, connectors, or any component that can increase in resistance. This Meter is a tool that can be used for both preventive maintenance and for troubleshooting the secondary welding circuit.

WARNING: ALL PRIMARY POWER MUST BE TURNED OFF AND DISCONNECTED BEFORE USING THIS METER ON SECONDARY COMPONENTS!

Description:

Milli Ohm Meter:

The **Milli Ohm** Cable Tester (MOCT7600) measures from 0.3 to 200 milli ohms and can be used to measure the resistance of primary (440 volt) weld circuit components. These include the primary supply cable, circuit breakers, crimped lugs, bolted joints or any component that can increase in resistance.

WARNING: ALL PRIMARY POWER MUST BE TURNED OFF AND DISCONNECTED BEFORE USING THIS METER ON PRIMARY COMPONENTS! ADDUITIONALLY, ANY CAPACTORS OR POWER STORAGE DEVICES MUST BE DISCONNECTED OR DISCHANRDE BEFORE USING THIS METER!

Description:

Common:

Both meters use a 4 wire Kelvin probe system. Each probe passes test current through the outer points of the probe and the voltage is sensed by the center pin. With this method, errors caused by the resistance of the leads and the contact resistance is eliminated. A stable 2.5 Amp Current source is incorporated into the meter providing high accuracy measurements to be displayed on a large 3 ½ digit LCD display.

An automatic power On/Off is incorporated in the meter to provide optimum battery life. Indicators on the LCD display warn of low battery voltage levels.

Specifications:

Measuring range:

MOCT7550	3 - 1999 $\mu\Omega$
MOCT7600	0.3 - 199 mΩ

Accuracy:

Relative accuracy:	< 1% of F.S.
Absolute accuracy:	< 2% of F.S.

Measuring current:

2.5 Amps

Power Supply:

Measuring Current and Display:	1) ea. 12 Volt
---------------------------------------	-----------------------

Display:

Type:	LCD
Digits:	3 ½
Height:	0.7" (18mm)

Est. Battery Life:

Current on:	1.25 hour
Number of Checks (10 sec.):	450

Dimensions:

Length	8 ¼"
Width	7"
Depth	3 ¾"

Operation:

Connect both meter cables to the connectors on the right side of the box. Press one probe to each end of the component being tested. The meter senses the component being tested and turns itself on. If the sample under test is totally open the meter will not turn itself.

After the meter is turned on the current source circuit is activated to maintain 2.5 amps. When the current is stable at 2.5 amps the "Display Hold" indicator goes off and resistance readings are displayed. If the sample under test has a resistance greater than the capacity of the meter, the "Display Hold" indicator will stay on and no numbers will be displayed.

When a stable reading is displayed the probes can be removed. (Note: Holding the probes tightly against the component being tested will aid in stabilizing the reading). Remove the probes quickly so as not to bounce the probes. The display hold indicator will come on and the display will hold the last reading momentarily.

After the hold period, the meter will automatically turn off and the display will go blank.

NOTE: DO NOT PLACE THE PROBES ON A CIRCUIT THAT HAS VOLTAGE ON IT. THIS COULD CAUSE PERMANT DAMAGE TO THE INPUT CIRCUITRY.

BATTERY MAINTENANCE:

12 Volt Rechargeable battery

When the word “**BAT**” is displayed this indicates that the “12 Volt” battery voltage is running low and will soon need to be recharged.

To recharge the “12Volt” battery, plug the 18 Volt power supply into the battery connector. The LED will come on and stay on until battery is charged, about 6 hours. When the LED light goes off the charging unit goes to a lower voltage to maintain the charge.

Replacement Battery

When the word “**BAT**” is displayed this indicates that the battery voltage is running low and will soon need to be replaced.

Replace old batteries with new “C” size batteries using the alignment stickers as a guide.

USINGYOUR METER:

The Flex-Cable Micro Ohm Meter may be used to measure the resistance of very high conductivity conductors such as copper cables, laminated shunts and copper buss bars.

Because of its capability of detecting increases in resistance of these items, the meter may be used for trouble-shooting problems with secondary welding circuits. Procedures for these two uses are outlined as follows 50% increase in resistance is one criteria that has been used effectively to eliminate downtime attributed to cables.

NOTE: FOR MORE INFORMATION ON TROUBLE-SHOOTING AND PREVENTIVE MAINTENANCE PROGRAM PLEASE CONTACT YOUR SALES REPRESENTATIVE.

A publication is also available titled:
“Reducing & Eliminating Downtime in Resistance Welding Systems”

USINGYOUR METER:

PREVENTIVE MAINTENANCE PROGRAMS:

- 1) Monitor cable resistance in the secondary weld circuit on a periodic basis.
- 2) When the resistance has reached a level that would result in a defective weld, the cable should be changed. The resistance level at which you change the cable should be determined on a case by case or plant by plant basis because of the multitude of factors effecting cable life, weld schedules, inspection intervals, etc.

USINGYOUR METER:

TROUBLE-SHOOTING PROBLEMS IN SECONDARY CIRCUITS:

- 1) Take a ‘base’ resistance reading when all components are known to be good. I.e.; new, clean, well tightened connections. The complete secondary circuit can be measured at the gun from tip to tip, separate components can be measured without removing them from the secondary circuit. This resistance reading should be recorded and stored for when a problem arises.
 - 2) When a problem arises, take another resistance reading and compare this reading with a ‘base’ reading. If it is significantly high enough to have caused the problem you may then proceed to the next step, if it is not high enough than the problem may not line in the secondary weld loop.
 - 3) If you get a high resistance reading from the complete loop, you must then take resistance reading for each component that could be causing the problem. The components do not need to be taken out of the circuit and indeed should not be taken out of the circuit as the problem may be a loose bolt and this would not be found if components are removed. Note: More sable readings will be obtained if the area where the probe is placed is cleaned with Scotch-Brite prior to the readings being taken.
 - 4) Once the problem causing component is found, take the appropriate actions to remedy the problem.
-

Replacement Parts & Optional Accessories:

<u>Description</u>	<u>Part Number</u>
Micro Ohm Meter	MOCT7550
Milli Ohm Meter	MOCT7600
Carrying Strap	250-7878-36
Lead & Probe Assemblies (Pair 4ft.)	250-7253-48
Probe Leads (Pair 4ft.)	600-8023-48
Probe Leads (Pair 6ft.)	600-8023-72
Probe Leads (Custom Length)	Call 1-800-245-3539
Probes (Pair)	250-7702-00
Shrink Tube (Pair for Leads)	250-0301-00

<u>Description</u>	<u>Part Number</u>
Clamping Probe & Lead (Single 6ft.)	250-2519-72
Pistol Probes & Leads (Pair 4ft.)	250-7478-48
Pistol Probe Leads (Pair 4ft.)	250-7783-48
Pistol Probe Leads (Custom Length)	Call 1-800-245-3539
Rechargeable 12 Volt battery and charger.	250-7274-12
Replacement Charger	250-7324-18

For Further Information

**CALL
FLEX-CABLE**

1-800-245-3539 www.flexcable.com
