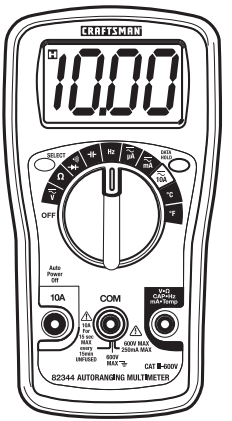
Owner's Manual

CRAFTSMAN

Auto-Ranging MultiMeter

Model 82344



CAUTION: Read, understand and follow Safety Rules and Operating Instructions in this manual before using this product.

- Safety
- Operation
- Maintenance
- Español

www.craftsman.com **080806**

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ONE YEAR FULL WARRANTY

ONE YEAR FULL WARRANTY ON CRAFTSMAN MULTIMETER
If this CRAFTSMAN Multimeter fails to give complete satisfaction within one year from the date of purchase, RETURN IT TO THE NEAREST SEARS STORE OR OTHER CRAFTSMAN OUTLET IN THE UNITED STATES, and Sears will replace it, free of charge.
This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
Sears, Roebuck and Co., Dept. 817WA, Hoffman Estates, IL 60179

For Customer Assistance Call 9am - 5pm (ET)
Monday through Friday 1-888-326-1006

WARNING: USE EXTREME CAUTION IN THE USE OF THIS DEVICE. Improper use of this device can result in injury or death. Follow all safeguards suggested in this manual in addition to the normal safety precautions used in working with electrical circuits. DO NOT service this device if you are not qualified to do so.

SAFETY INSTRUCTIONS

This meter has been designed for safe use, but must be operated with caution. The rules listed below must be carefully followed for safe operation.

1. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:

Input Protection Limits	
Function	**Maximum Input**
V DC, V AC	600V DC and 600V AC
mA AC/DC	200mA AC/DC
A AC/DC	10A AC/DC (for 15 seconds max. every 15 minutes)
Resistance, Diode Test, Continuity	500V AC/DC
Frequency	250V AC/DC

2. **USE EXTREME CAUTION** when working with high voltages.
3. **DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 600V above earth ground.
4. **NEVER** connect the meter leads across a voltage source while the function switch is in the current, resistance, or diode mode. Doing so can damage the meter.
5. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
6. **ALWAYS** turn off power and disconnect test leads before opening the covers to replace the fuse or battery.
7. **NEVER** operate the meter unless the back cover is in place and fastened securely.
8. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

SAFETY SYMBOLS

This symbol adjacent to another symbol, terminal or operating device indicates that the operator must refer to an explanation in the Operating Instructions to avoid personal injury or damage to the meter.

WARNING

This **WARNING** symbol indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

CAUTION

This **CAUTION** symbol indicates a potentially hazardous situation, which if not avoided, may result damage to the product.

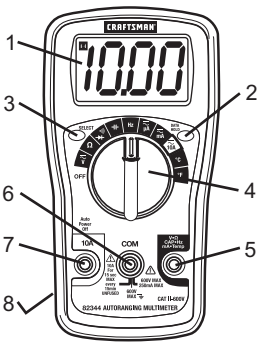
This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage with respect to earth ground exceeds 600V.

This symbol adjacent to one or more terminals identifies them as being associated with ranges that may, in normal use, be subjected to particularly hazardous voltages. For maximum safety, the meter and its test leads should not be handled when these terminals are energized.

This symbol indicates that a device is protected throughout by double insulation or reinforced insulation.

CONTROLS AND JACKS

1. LCD Display
2. DATA HOLD button
3. SELECT button
4. Function switch
5. Positive input jack
6. COM jack
7. 10A jack
8. Rubber boot



Note: Tilt stand and battery access is on the rear of unit.

SYMBOLS AND ANNUNCIATORS

~	AC (voltage)
⎓	DC (direct current or voltage)
•))) ⏚	Continuity and Diode test
mV, V	millivolt, volt (voltage)
Ω, kΩ, MΩ	ohm, kilohm, megohm (resistance)
mA, A	milliamp, Amp (current)
nF, uF	nanofarads, microfarads (capacitance)
Hz	Hertz (frequency)
°F, °C	Degrees Fahrenheit, Centigrade (temperature)
	Low battery
H	Display hold
AUTO	Autoranging

SPECIFICATIONS

Function	Range	Accuracy	
DC Voltage (V DC)	400.0mV	±(0.5% reading + 4 digits)	
	4.000V	±(0.8% reading + 4 digits)	
	40.00V		
	400.0V		
	600V		
AC Voltage (V AC)		50-60Hz	40-400Hz
	4.000V	±(0.8% rdg + 4 d)	±(2% rdg + 5 d)
	40.00V	±(1.2% rdg + 5 d)	
	400.0V		
	600V		
DC Current	400.0µA	±(1.2% reading + 4 digits)	
	4000µA		
	40.00mA		
	200.0mA		
	10A	±(2.5% reading + 4 digits)	
AC Current (40 to 400Hz)	400.0µA	±(1.5% reading + 5 digits)	
	4000µA		
	40.00mA		
	200.0mA		
	10A	±(3% reading + 5 digits)	
Resistance	400.0Ω	±(1.2% reading + 4 digits)	
	4.000kΩ		
	40.00kΩ		
	400.0kΩ		
	4.000MΩ		
	20.00MΩ	±(3.0% reading + 5 digits)	

SPECIFICATIONS

Function	Range	Accuracy
Capacitance	4.000nF	Not specified
	40.00nF	±(3.0% reading + 10 digits)
	400.0nF	
	4.000µF	
	40.00µF	Not Specified
	100µF	
Frequency	10.00Hz	±(1.0% reading + 4 digits) 10Hz to 1MHz Sensitivity: 5.0Vrms
	100Hz	
	1.000kHz	
	10.00kHz	
	100.0kHz	
	1.000MHz	
	5.000MHz	Not specified
Temp °F Temp °C	-40 to 1400°F -20 to 750°C	-40 to 650°F; ±(1.0% rdg + 10 digits) 651 to 1400°F; ±(3% rdg + 10 digits) -20 to 400°C; ±(1.0% rdg + 10 digits) 400 to 750°C; ±(3% rdg + 10 digits) (probe accuracy not included)

NOTES:

Accuracy specifications consist of two elements:

- (% reading) – This is the accuracy of the measurement circuit.
- (+ digits) – This is the accuracy of the analog to digital converter.

Accuracy is stated at 65°F to 83°F (18°C to 28°C) and less than 75% RH.

SPECIFICATIONS

Diode Test	Test current of 0.6mA maximum, open circuit voltage 1.5V DC typical
Continuity Check	Audible signal will sound if the resistance is less than approximately <30Ω
Temperature sensor	Requires type K thermocouple
Input Impedance	10MΩ (V AC/DC)
Display	3999 count LCD
Overrange	"OL" is displayed
Polarity	Automatic (no indication for positive polarity); Minus (-) sign for negative polarity.
Measurement Rate	3 times per second, nominal
Low Battery	**"**  **"** is displayed if battery voltage drops below operating voltage
Batteries	Requires (2) AAA batteries
Fuses	mA range; 250mA/250V fast blow 10A range, no protection
Operating Temp	32°F to 104°F (0°C to 40°C)
Storage Temp	-4°F to 140°F (-20°C to 60°C)
Relative Humidity	Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
Operating Altitude	7000ft (2000 meters) maximum
Weight	5.4 oz. (153g).
Size	5.43" x 2.83" x 1.5" (138mm x 72mm x 38mm)
Approvals	UL, CE
Safety	This meter is intended for indoor use and protected, against the users, by double insulation per EN61010-1 and IEC61010-1 2nd Edition (2001) to CAT II 600V; Pollution Degree 2. The meter also meets UL 61010-1, Second Edition (2004), CAN/CSA C22.2 No. 61010-1, Second Edition (2004), and UL 61010B-2-031, First Edition (2003)

BATTERY INSTALLATION

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery/fuse cover.

1. Disconnect the test leads from the meter.
2. Remove the rubber holster (if in place).
3. Remove the two screws securing the rear cover using a Phillips head screwdriver.
4. Lift the cover off and replace the batteries observing the correct polarity.
5. Insert the new batteries into the battery holder.
6. Replace the rear cover and secure with the screws.

WARNING: To avoid electric shock, do not operate the meter until the battery cover is in place and fastened securely.

NOTE: If your meter does not work properly, check the fuses and batteries to make sure that they are still good and that they are properly inserted.

OPERATING INSTRUCTIONS

WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

1. ALWAYS turn the function switch to the OFF position when the meter is not in use.
2. Press the HOLD button to freeze a displayed reading

NOTE: On some low AC and DC voltage ranges, with the test leads not connected to a device, the display may show a random, changing reading. This is normal and is caused by the high-input sensitivity. The reading will stabilize and give a proper measurement when connected to a circuit.

DC VOLTAGE MEASUREMENTS

CAUTION: Do not measure DC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

1. Set the function switch to the V position.
2. Press the SELECT button to select DC in the display
3. Insert the black test lead banana plug into the negative **COM** jack.
   Insert the red test lead banana plug into the positive **V** jack.
4. Touch the black test probe tip to the negative side of the circuit.
   Touch the red test probe tip to the positive side of the circuit.
5. Read the voltage in the display.

AC VOLTAGE MEASUREMENTS

WARNING: Risk of Electrocution. The probe tips may not be long enough to contact the live parts inside some 240V outlets for appliances because the contacts are recessed deep in the outlets. As a result, the reading may show 0 volts when the outlet actually has voltage on it. Make sure the probe tips are touching the metal contacts inside the outlet before assuming that no voltage is present.

CAUTION: Do not measure AC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

1. Set the function switch to the V position.
2. Press the SELECT button to select AC in the display
3. Insert the black test lead banana plug into the negative **COM** jack.
   Insert red test lead banana plug into the positive **V** jack.
4. Touch the black test probe tip to the neutral side of the circuit.
5. Touch the red test probe tip to the “hot” side of circuit.
6. Read the voltage in the display.

AC/DC CURRENT MEASUREMENTS

CAUTION: Do not make high current measurements on the 10A scale for longer than 15 seconds followed by a 15 minute cool down period. Exceeding 15 seconds may cause damage to the meter and/or the test leads.

1. Insert the black test lead banana plug into the negative **COM** jack.
2. For current measurements up to 4000µA, set the function switch to the **µA** position and insert the red test lead banana plug into the **mA** jack.
3. For current measurements up to 200mA, set the function switch to the **mA** position and insert the red test lead banana plug into the **mA** jack.

4. For current measurements up to 10A, set the function switch to the **10A** range and insert the red test lead banana plug into the **10A** jack.
5. Press the SELECT button to select AC or DC in the display
6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
7. Touch the black test probe tip to the negative side of the circuit.
   Touch the red test probe tip to the positive side of the circuit.
8. Apply power to the circuit.
9. Read the current in the display.

RESISTANCE MEASUREMENTS

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **Ω** jack.
2. Set the function switch to the **Ω** position.
3. Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
4. Read the resistance in the display.

CAPACITANCE MEASUREMENTS

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **CAP** jack.
2. Turn the rotary switch to the ⊣⊢ position.
3. Touch the test probes to the circuit or device under test and read the capacitance on the display.

FREQUENCY MEASUREMENTS

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **HZ** jack.
2. Turn the rotary switch to the **Hz** position.
3. Touch the test probes to the circuit or under test and read the frequency or duty cycle on the display.

TEMPERATURE MEASUREMENTS

WARNING: To avoid electric shock, disconnect test leads from any source of voltage before making a temperature measurement. Be sure that the thermocouple has been removed before changing to any other measurement function.

1. Insert the type K thermocouple probe into the **Temp** and **COM** jacks.
2. Turn the rotary switch to the **°F** or **°C** position.
3. Read the temperature on the display.

CONTINUITY MEASUREMENTS

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **V/Ω/mA** jack. Observe polarity.
2. Turn the rotary switch to the **•)))** position.
3. Touch the test probes to the circuit or device under test. If the resistance is less than approximately 30Ω the buzzer will sound.

DIODE MEASUREMENTS

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **V/Ω/mA** jack.
2. Turn the rotary switch to the ▶| •))) position.
3. Touch the test probes to the diode under test. Forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "**OL**". Shorted devices will indicate near 0mV and an open device will indicate "**OL**" in both polarities.

DATA HOLD

Press the **Hold** button to freeze the reading in the display. "**H**" will appear in the LCD. Press the key again to release the display.

LOW BATTERY

If the ▬ low battery icon appears in the display, replace the batteries to maintain proper operation.

AUTO-RANGING

The meter will auto range to the optimum range to provide the best resolution and accuracy for the input signal.

Note: When in the autoranging mode the meter will up-range to the next higher range when the measured value is above 90% of full scale. This guard band prevents autorange oscillation. If maximum counts are required in this band, use manual ranging.

AUTO POWER OFF

1. This meter will automatically shut off after approximately 15 minutes of operation. If the meter shuts off, rotate the function switch to OFF and on again (or press the HOLD button) to resume operation.
2. To disable the auto power off, hold the SELECT button while turning power on or press the SELECT button after auto power off has turned the meter off.

MAINTENANCE

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery/fuse cover.

WARNING: To avoid electric shock, do not operate your meter until the battery/fuse cover is in place and fastened securely.

This Multimeter is designed to provide years of dependable service, if the following care instructions are performed.

1. Keep the meter dry.
2. Use and store the meter in mild ambient conditions. Temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
3. Handle the meter gently. Dropping it can damage the electronic parts or the case.
4. Keep the meter clean. Wipe the case occasionally with a damp cloth. DO NOT use chemicals, cleaning solvents or detergents.
5. Use only fresh batteries of the recommended size and type. Remove old or weak batteries so they do not leak and damage the unit.
6. If the meter is to be stored for a long period of time, the batteries should be removed to prevent damage to the unit.

UL LISTED

The UL mark does not indicate that this product has been evaluated for the accuracy of its readings.

REPLACING THE BATTERIES

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery cover.

1. When the batteries become exhausted or drop below the operating voltage, "▄" will appear in the LCD display. The batteries should be replaced.
2. Follow instructions for installing batteries. See the Battery Installation section of this manual.
3. Dispose of the old batteries properly.

WARNING: To avoid electric shock, do not operate your meter until the battery cover is in place and fastened securely.

REPLACING THE FUSE

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the fuse cover.

1. Disconnect the test leads from the meter and any item under test.
2. Remove the protective rubber holster.
3. Remove the two screws securing the rear cover using a Phillips head screwdriver.
4. Remove the old fuse from its holder by gently pulling it out.
5. Install the new fuse into the holder.
6. Always use a fuse of the proper size and value (250mA/250V fast blow.
7. Replace the rear cover and secure with the screws.

WARNING: To avoid electric shock, do not operate your meter until the fuse cover is in place and fastened securely.

UL LISTED

The UL mark does not indicate that this product has been evaluated for the accuracy of its readings.

TROUBLESHOOTING

There may be times when your meter does not operate properly. Here are some common problems that you may have and some easy solutions to them.

Meter Does Not Operate:

1. Always read all the instructions in this manual before use.
2. Check to be sure the batteries are properly installed.
3. Check to be sure the battery is good.
4. If the battery is good and the meter still does not operate, check to be sure that both ends of the fuse are properly installed.

If You Do Not Understand How the Meter Works:

1. Purchase the instructional book *Multitesters and Their Use for Electrical Testing* (Item No. 82303) at your local Sears store.
2. Call our Customer Service Line **1-888-326-1006**.

SERVICE AND PARTS

Item Number	Description
82374	Fuse kit
93891	AAA battery
82378	Set of black and red Test Leads
82344-CS	Rear cover screws
82377	Replacement Temperature Probe