POCKET MULTI-TESTER

Item Number W2979C

OWNER'S MANUAL

Performance Tool®

⚠WARNING: *READ, UNDERSTAND AND FOLLOW ALL INSTRUCTIONS AND WARNINGS BEFORE OPERATING THIS TOOL. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE AND WILL VOID WARRANTY.*

PT Performance Tool

INTRODUCTION & GENERAL WARNINGS

INTRODUCTION

Congratulations. You have purchased an Analog Multimeter manufactured to the highest quality standards. A minimum amount of maintenance and an understanding of these operating instructions is all that is needed to keep this instrument in excellent working condition.

Please take the time to read these operating instructions thoroughly and completely. Failure to follow these instructions may result in electrical shock, instrument damage and/or damage to the equipment under test. Always use extreme caution when working on or around electrically operated equipment.

SAFETY PRECAUTIONS

Always inspect the instrument. Test leads and other accessories for damage prior to every use. Always consider electrical and electronic equipment to be energized (live). Never assume any equipment is de-energized.

Never ground yourself when taking electrical measurements. Isolate yourself from the ground by using dry rubber insulating mats to cover all exposed grounded metal. Stand on rubber mats and wear dry clothing.

Never take resistance measurements on energized (live) electrical or electronic equipment.

Use one hand, instead of two, whenever possible to take measurements. If two hands must be used, use extreme caution not to contact any energized conductors with your hands. Be certain test lead probes are dry and clean.

Do not hold the instrument when taking measurements. Place the instrument on a clean, insulating surface prior to taking any measurement.

Don't become part of the circuit. Think Safety, act Safely.

INSTRUMENT DATA, FEATURES, SPECIFICATIONS

INSTRUMENT DATA:

This is an Analog Multimeter capable of measuring 4 functions on 12 ranges. A mirror scale is provided to reduce the possibility of parallax error. The meter was designed for the homeowner, hobbyist and professional needing to make electrical and electronic equipment measurements.

FEATURES:

1) 4 Functions – 12 Ranges
2) High Impact Thermoplastic Case
3) Diode Protected Meter Movement
4) Mirrored Scale
5) Small Pocket Size
6) Safety Recessed Test Lead Connection
7) 2 in. Scale Plate
8) dB Scale

SPECIFICATIONS:

Sensitivity:	1KΩ/V AC/DC
Fuse:	One (1) 0.25 Amp, 250V, 5 x 20 mm
Power Source:	One (1) 1.5V AA size battery
Size:	1-3/16 in. D x 2-3/8 in. W x 3 in. H
Weight:	3.7 oz. (including battery)

RANGES AND ACCURACY:

DC Voltage:	0-10/50/250/500 VDC. + 4% F.S.
AC Voltage:	0-10/50/250/500 VAC. + 5% F.S.
DC Current:	0-0.5/50/250 mA DC. + 4% F.S.
Resistance:	0-1 MΩ (5Ω mid scale) + 4% Arc length
Decibels:	-20 to + 56 dB (on ACV ranges)

FRONT PANEL IDENTIFICATION

FRONT PANEL IDENTIFICATION DIAGRAM

CONTENTS:

Comes complete with one set Test Leads, one "AA" type Battery (installed in the instrument), one Fuse (installed) and Operating Instructions.

PREPARATIONS FOR USE

NOTE: This procedure should be followed before each and every use.

⚠ CAUTION: Before attempting to use this meter, be certain to read these operating instructions thoroughly and completely. Failure to follow these instructions may result in electrical shock, instrument damage and/or damage to equipment under test.

VOLTAGE MEASUREMENTS

⚠ CAUTION: 500 VAC/DC is the maximum voltage that can be measured using this meter. Attempting to measure higher voltages may result in electrical shock, instrument damage and / or damage to equipment under test.

1) Select an AC or DC voltage range using the selector switch that is higher than the maximum voltage to be measured. If the maximum voltage may be higher than 500 VAC/DC, do not attempt to take a measurement.
2) Apply the test leads to the two points in the circuit at which the voltage is to be measured. When measuring DC voltage the black lead should be connected to the more negative point of measurement. When measuring AC voltage the polarity does not matter.
3) Read the AC or DC voltage using the V-mA scale directly below the mirror scale. Use the numbers whose full scale reading matches the range selected by the "Selector Switch". When using the 10 VAC range, the readings must be taken from the red marked AC10V.
4) The dB scales can be used to measure the milliwatt power dissipation in a 600 load by measuring the AC voltage across a 600 OHM load. An AC voltage of 0.775 Vrms across 600 OHMS is equal to 1mW or "0" dB. When converting an AC voltage measurement to dB readings from the lowest arc on the scale plate and then add the appropriate dB correction as listed in the chart printed in the lower right corner of the instrument scale plate.

DC CURRENT MEASUREMENTS

⚠ CAUTION: 250 mA DC is the maximum current that can be measured using this meter. The instrument must be connected in series with the circuit to be measured. Do not impress voltages across the "+" and "-" terminals when set to the mA DC ranges. Doing so may result in electric shock, instrument damage and/or damage to equipment under test.

1) Inspect the Analog Multimeter for any signs of damage to the thermoplastic case. Do not use if cracked, distorted, excessively dirty or any other abnormal condition exists.
2) Rotate the selector switch one full turn. Check that the switch clicks into each of the 13 positions and has no excessive play in each position. Do not use if the switch is loose.
3) Inspect the test leads for any signs of damage. Check for cracks in the insulation, broken or damaged probes, loose probe pins or bent probe pins. Do not use if any abnormal conditions exist.
4) Place the Analog Multimeter on a flat horizontal surface. Using a small screw driver adjust the "zero adjust" screw until the meter movement pointer lines up with the "0" reading on the left side of the scale plate.
5) Insert the black test lead into the "-" terminal of the instrument and the red test lead into the "+" terminal. Make certain that the leads seated all the way into the instrument and fit snuggly. If the fit feels loose do not use instrument or the test leads.
6) Place the selector switch on the instrument into the "X1K" position, hold the tips of the Red and Black test leads together and adjust the "OHMS adjust knob" until the meter movement pointer reads "0" on the OHMS scale located at the extreme right side of the scale plate. If a "0" reading cannot be obtained a weak battery is the most probable cause. Follow the battery replacement procedure in BATTERY REPLACEMENT.

NOTE: The battery is only used for resistance measurements with the selector switch in the "X1K" position. The instrument can be used in all other ranges with a weak, dead or missing battery.

7) The instrument is now ready for use. Follow the operating Precautions in this manual for all measurements. Read all Safety Precautions in SAFETY PRECAUTIONS before proceeding.

OPERATING INSTRUCTIONS

1) Select the mA DC range that is higher than the maximum current to be measured. If the maximum current is unknown do not attempt to take a measurement.
2) Remove power from circuit to be test and discharge any capacitors and indicators.
3) Connect the test leads into the circuit so that the meter is in series with the circuit where current is to be measured. The current should enter through the red lead and leave through the black lead in order for the meter to indicate in an up scale direction.
4) Turn on power to the circuit under test. Read the current on the V-mA scale and use the full scale numbers which correspond to the range selected. The 50 full scale numbers must be divided by 100 when using the 0.5 mA DC range.
5) Turn off the power to the circuit under test. Discharge all capacitors and inductors. Remove the test leads from the circuit under test.

RESISTANCE MEASUREMENTS

⚠ CAUTION:
Resistance measurements must be made on de-energized (dead) circuits only. Impressing a voltage across the instrument terminals while set to any resistance range, may result in electric shock, instrument damage and/or damage to equipment under test. Be certain equipment is completely de-energized.

1) Set the selector switch to "X1K" position. Hold the test lead tips together and adjust for a "0" OHM reading using the "OHM Zero Adjust" knob. If a zero reading cannot be obtained, a weak battery is the most probable cause. See BATTERY REPLACEMENT.
2) Connect the instrument to the two points between which the resistance is to be measured. Read the resistance on the uppermost "Ω" scale Multiply the reading by 1K (1000).
3) When reading resistors in circuit there may exist more than one conductive path and the reading taken is a combination of circuit paths. When trying to read one resistor in circuit it is advisable to remove that resistor before measurement to avoid reading multiple conductive paths.

MAINTENANCE

BATTERY REPLACEMENT:

1) Disconnect test leads from any circuit and then disconnect test leads from the instrument.
2) Turn instrument upside down and lay on a soft flat surface which will not scratch the scale window.
3) Remove the Phillips head screw and lift off the back case.
4) Remove the battery by prying up near the center of the battery using a coin.
5) Replace the battery with a new 1.5 VDC, AA size battery. When installing the battery make sure the polarity matches that indicated in the battery compartment.
6) Replace the back cover by sliding the end with the small tab in first. Then replace the Phillips head screw and tighten to a snug fit. Do not over tighten screw.

FUSE REPLACEMENT:

1) Follow Battery Replacement steps from above.
2) Remove the fuse and replace with a miniature glass type fuse, 0.25 Amp, 250V, 5 mm x 20 mm. Replace back cover and screw.

⚠ CAUTION:
Do not short fuse out of the circuit, or use with higher rating than 0.25 Amp, or alter circuit to eliminate the fuse. These actions negate the safety purpose of the fuse, and can cause extensive damage to the instrument and/or injury to the user.

CLEANING:

The exterior of the instrument can be cleaned with a soft dry cloth to remove any oil, grease or grime. Never use any liquid solvents or detergents. Do not polish the instrument. If the instrument gets wet for any reason, dry the inside and outside of the instrument using low pressure air, less than 25 PSI.

ALSO FROM PERFORMANCE TOOL

285 pc. MULTI-USE ELECTRICAL REPAIR KIT: W5207

BATTERY & ALTERNATOR VOLTAGE TESTER W2980

12 Volt CIRCUIT TESTER: W2975C

7 WAY CRIMPING TOOL: W86500

ELECTRICAL TAPE: W501: 30 Ft. W502: 60 Ft.

Always wear eye protection when using tools.
Performance Tool part number: W1024

1 YEAR WARRANTY

PERFORMANCE TOOL® extends only the following warranties, and only to original retail purchasers. These warranties give specific legal rights. Except where prohibited by local law, the law of the State of Washington governs all warranties and all exclusions and limitations of warranties and remedies. There may be other rights which vary from state to state.

PERFORMANCE TOOL® warrants the product to be free from defects in materials and workmanship under normal use and service. A defective product may be returned for a free replacement within 90 days from the date of purchase, provided that product is returned to place of purchase immediately after discovery of defect. After 90 days and up to one year from date of purchase, PERFORMANCE TOOL® will replace at no charge any parts which our examination shall disclose to be defective and under warranty. These warranties shall be valid only when a sales receipt showing the date of purchase accompanies the defective product or defective part (s) being returned. For part (s) after 90 days, please remit your request, postage prepaid to:

PERFORMANCE TOOL, P.O. Box 88259 Tukwila, WA 98138

These warranties exclude blades, bits, punches, dies, bulbs, fuses, hoses, and other consumables which must be replaced under normal use and service. These warranties shall not apply to any product or part which is used for a purpose for which it is not designed, or which has been repaired or altered in any way so as to affect adversely its performance or reliability, nor shall these warranties apply to any product or part which has been subject to misuse, neglect, accident or wear and tear incident to normal use and service.

PERFORMANCE TOOL® does not authorize any other person to make any warranty or to assume any liability in connection with its products.

Except for warranties of title and the limited express warranties set forth above, PERFORMANCE TOOL® makes no express or implied warranties of any kind with respect to its products. In particular, PERFORMANCE TOOL® makes no implied warranty of merchantability and no implied warranty of fitness for any particular purpose, except that for goods purchased primarily for personal, family or household use and not for commercial or business use, PERFORMANCE TOOL® makes an implied warranty of merchantability (and, if otherwise applicable, an implied warranty of fitness for a particular purpose), but only for the particular qualities or characteristics, and for the duration, expressly warranted above.
The laws on limitation of implied warranties may differ from state to state, so the above limitations may not apply in all cases.

PERFORMANCE TOOL® shall not be liable for consequential, incidental or special damages resulting from or in any manner related to any product, or to the design, use, or any inability to use the product. The sole and exclusive remedy for a defective product or part shall be the repair, or replacement thereof as provided above. The laws on limitation of remedies or on consequential, incidental or special damages may vary from state to state, so the above limitations may not apply in all cases.

P.O. Box 88259 • Tukwila, WA 98138 • 1-800-497-0552
Made in China • www.wilmarcorp.com