IDEAL INDUSTRIES, INC.
TECHNICAL MANUAL
MODEL: 61-760

The Service Information provides the following information:

- Precautions and safety information
- Specifications
- Performance test procedure
- Calibration and calibration adjustment procedure
- Basic maintenance (replacing the battery)

Form Number: TM61760
Revision: 2. Date: July 2002

TABLE OF CONTENTS

Introduction

⚠ Warning

To avoid shock or injury, do not perform the verification tests or calibration procedures described in this manual unless you are qualified to do so.
The information provided in this document is for the use of qualified personnel only.

⚠ Caution

The 61-760 contains parts that can be damaged by static discharge.
Follow the standard practices for handling static sensitive devices.

For additional information about IDEAL INDUSTRIES, INC. and its products, and services, visit IDEAL INDUSTRIES, INC. web site at:
www.idealindustries.com

SAFETY

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use the product only as specified.

⚠CAUTION
These statements identify conditions or practices that could result in damage to the equipment or other property.

⚠WARNING
These statements identify conditions or practices that could result in personal injury or loss of life.

Specific precautions

Use proper fuse. To avoid fire hazard, use only the fuse type and rating specified for this product.

Do not operate without covers. To avoid personal injury, do not apply any voltage or current to the product without the covers in place.

Electric overload. Never apply a voltage to a connector on the product that is outside the range specified for that connector.

Avoid electric shock. To avoid injury or loss of life, do not connect or disconnect probes or test leads while they are connected to a voltage source.

Do not operate in wet/damp conditions. To avoid electric shock, do not operate this product in wet or damp conditions.

General specifications

Characteristics	Description
Display	3 $^{1}/_{2}$ Digit LCD display
Display Count	2000 count, maximum reading 1999
Over range Indication	"OL" or "-OL" is displayed.
Sampling Rate	3 times/second
Operating Environment:	0°C to 45°C (32°F to 113°F) 0 - 70% RH
Storage Environment:	-20°C to 60°C (-4°F to 140°F) at <80 relative humidity with battery removed
Power source:	9V Battery (NEDA 1604)
Battery Live:	200 hours typical (carbon-zinc)
Low Battery Indicator:	 symbol indicates low battery voltage
Dimensions	7.5" H X 3.2" W X 1.3" D 192mmH X 82mmW X 33mmD
Weight:	Approximately 9.4 oz. or 270g including battery

RANGES and ACCURACY SPECIFICATION
(Stated accuracy at 23 +/- 5°C (73.4 +/- 9°F) RH < 75%)

Function Setting	Ranges	Accuracy
AC Voltage	200/750 V	±(1.0% + 4 digits) @50 ~ 60 Hz ±(1.5% + 4 digits) @40 ~ 1k Hz
DC Voltage	2/20/1000	±(0.5% + 1 digits)
AC Current	20 A	±(1.5% + 4 digits) @50 ~ 60 Hz ±(3.0% + 5 digits) @40 ~ 1k Hz
	200/600 A	±(1.5% + 4 digits) @50 ~ 60 Hz ±(2.0% + 5 digits) @40 ~ 1k Hz
Resistance	200/200k Ω	±(1.0% + 3 digits)
Diode Check	DCV 3.4 V @ 1.0 mA ± 0.6 mA	
Continuity Beeper	< 100Ω	Audible indication

AC Converter: Average responding, RMS Calibrated to Sine Wave
Overload Protection: AC and DC Voltage: 1200 VDC or 800VAC rms
Resistance, Diode Test and Continuity: 500VDC or 350VAC

PERFORMANCE VERIFICATIONS

Perform the following analysis, if the meter conforms to the limits listed in Table 1 the meter is functioning correctly. If the meter does not conform to any of the listed limits the calibration procedure must be performed.

Performance Verification Preparation

1. Turn on the calibrator, allow calibrator to warm up. Temperature stabilization should be reached after 30 minutes.
2. Remove battery cover and using a calibrated meter to ensure the battery measures a minimum of 7.5V DC. If the battery measures under 7.5V DC, replace the battery before beginning the performance test.
3. Input the values listed in Table 1

Table 1 Performance Verification
(Stated accuracy at 23 +/- 5°C (73.4 +/- 9°F) RH < 75%)

Function Setting	**Input**	**Low Limit**	**High Limit**
VAC 200 VAC 750	190.0V AC @50 or 60 Hz 700 V AC @ 60 or 60 Hz	187.7 689	192.3 711
VDC 2 VDC 200 VDC 1000	1.900V DC 190.0V DC 900V DC	1.889 188.9 894	1.911 191.1 906
AAC 20 AAC 200 AAC 600	19.00 A AC @50 or 60 Hz 190.0 A AC @50 or 60 Hz 550 A AC @60Hz	18.67 186.7 538	19.33 193.3 562
Ω 200 Ω 200k	190.0 Ω 190.0 kΩ	187.8 187.8	192.2 192.2

CALIBRATION

Calibration Preparation

1. Turn on the calibrator, allow calibrator to warm up. Temperature stabilization should be reached after 30 minutes.
2. Disconnect the test leads and turn the range switch to "OFF".
3. Remove the battery (Refer the section "***Battery Replacement"***)
4. Remove the **screws 1 and 2** (refer Figure 2) holding the bottom case cover.
5. The case bottom is secured to the case top by two internal snaps at middle of both sides. Apply the inward force from both sides on bottom case at the snap position to un-snaps and open the top and bottom cases.
6. Using a calibrated meter ensure the battery measures a minimum of 7.5V DC. If the battery measures under 7.5V DC, replace the battery.
7. Snap the battery to the battery connector.

Calibration Procedure

It is recommended that all IDEAL meters undergo the following calibration procedure on an annual basis.

DC Voltage Calibration

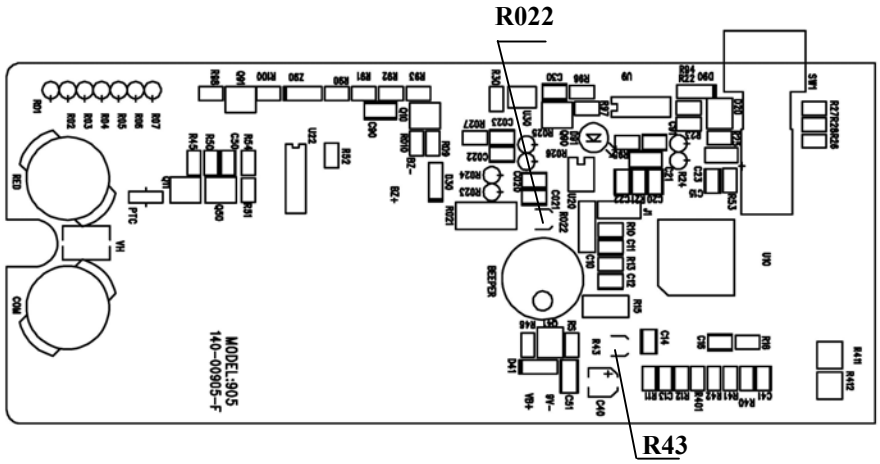
1. Set the function / range to 2V DC
2. Connect the calibrator to the V and COM inputs on the meter.
3. Output 1.900V DC.
   Adjust **R43** (refer Figure 1) until the display reads 1.900 +/- 0.001

AC Current Calibration

1. Set the function / range to 200A AC
2. Clamp the unit to 190 A/50 or 60Hz AC Source.
3. Adjust **R022** (refer Figure 1) until the display reads 190.0 +/-0.1

Calibration of the 61-760 is complete.

Figure 1 – Component location on the printed circuit board of 61-760



Battery Replacement (refer to Figure 2)

1. Disconnect the test leads from any circuit under test and turn off meter.
2. Remove the **screw 3** on the back case as shown in Figure 2 and slide off battery cover
3. Remove battery from compartment and unsnap the battery connector.
4. Install new 9V battery (NEDA #1604). An alkaline type is recommended.
5. Install new battery into compartment using care not to pinch or bind battery
6. Replace battery cover and fasten the screw on bottom of the case.

Figure 2 – Changing Battery and Open the Case