



IDEAL INDUSTRIES, INC.
TECHNICAL MANUAL
MODEL: 61-724

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)

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TABLE OF CONTENTS

Title	Page
Introduction	1
Precautions and Safety Information	1
Safety Information	1
Specifications	2
General Specification	2
Voltage Specifications	2
Current Specifications	2
Resistance Specifications	2
Frequency Specification	2
Diode Specifications	2
Continuity Specifications	2
Performance Verification	3
Calibration	4
Clamp Jaw Alignment Figures	5
Replacing the Battery	5

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 61-724 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	3½ Digit LCD display
Display Count	2000 count, maximum reading 1999
Overrange Indication	“OL” is displayed
Sampling Rate	2.5 time/second
Operating Environment: Relative Humidity	0°C to 50°C (32°F to 122°F) 0 ~ 75% RH
Storage Environment:	-20°C to 60°C (-4°F to 140°F) at <80% relative humidity
Power source:	9V Battery (NEDA 1604)
Battery Live:	150 hours typical (alkaline)
Low Battery Indicator:	 symbol indicates low battery voltage
Dimensions	9.7” H X 3.7” W X 1.8” D 247mm H X 94mm W X 46mm D
Maximum Cable Size	ACA 1.8” (46mm), DCA 1.9” (48mm)
Weight:	Approximately 13.4 oz. or 430g including battery

RANGES and ACCURACY SPECIFICATION

Accuracy: Accuracy specifications at 23°C ±5°C (73.4°F ±9°F) less than 75% RH.

Temperature Coefficient: 0.1 times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 50°C (32°F to 64°F and 82°F to 122°F)

Electrical Specification: Accuracy are ±(reading plus number of digits) at 23°C ±5°C <75% RH

Function Setting	Ranges	Accuracy
AC Voltage	200.0/600V at 50-60 Hz	1.2% ± 4digits
AC Voltage	200.0/600V at 40-500 Hz	2.0% ± 4 digits
DC Voltage	600V	0.5% ± 1 digit
AC Current	200.0/1000A at 50-60 Hz	1.75% ± 4 digit
AC Current	200.0/1000A at 40- 500 Hz	3.50% ± 5 digit
DC Current	200/1200A	1.5% ± 5 digits
Frequency	2K ~ 20KHz (Auto-ranging only)	0.1% ± 3 digits
Resistance	2.000K/200.0K	1.2% ± 1 digit
Diode Check	1mA ± 0.6mA	6.0% ± 3 digits
Continuity	Approximately < 30Ω on 2KΩ, <100Ω on  Diode,  Continuity	6.0% ± 3 digits

AC Converter: True RMS Responding, RMS Calibrated to Sine Wave

Overload Protection: AC and DC Voltage: 600 VDC or VAC rms for no more than one minute.
Resistance, Diode check, Continuity.: 600 VDC or VAC rms
Current: Not to exceed 1200 amp DC or 1000 amp AC for no more than one minute.

PERFORMANCE VERIFICATION

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

Function Setting/Range	Input	Low Limit	High Limit
ACV 200	190V AC @ 50Hz	187.3	192.7
ACV 200	190V AC @ 500Hz	185.8	194.2
ACV 600	500V AC @ 60Hz	490	510
ACV 600	500V AC @ 500Hz	486	514
DCV 600	500V DC	496	503
ACA 200A	100A @ 50Hz	97.9	102.1
ACA 200A	100A @ 500Hz	96.0	104.0
ACA 1000A	1000A @ 50Hz	979	1021
DCA 200A	100A	98.0	102.0
DCA 1000A	1000A	980	1020
Hz	2.0 KHz @ 80V rms	.996	1.004
Hz	20 KHz @ 80V rms	9.96	10.04
Ω 2K	1.000K	.987	1.013
Ω 200K	100.0K	98.7	101.3
Diode Test 	.500V DC	.467	.533
Continuity Test 	20 Ω , Beep on 40 Ω , Beep off.		

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 screws holding the battery cover and one at the jaw.
4. Remove the case bottom using care not to damage the battery connector and leads to the continuity beeper. (Beeper is attached to the bottom case cover.)
5. 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.

Calibration Procedure

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

The class of calibrator or equipment should have an accuracy that exceeds, by an expectable ratio the accuracy of this instrument.

Volts DC Calibration

1. Set the function / range to 600V DC
2. Connect the calibrator to the **V** and **COM** inputs on the meter.
3. Output 1000V DC.
Adjust R43 until unit display reads 1000V
De-energize source and remove test leads

DCA Zero Calibration:

1. Remove the Jumper
2. Set the function / range to the 200A DC
3. Without any signal applied (keeping Jaw away from other devices)
adjust R54 for a display reading of 0.0 ± 1 digit
4. Replace the Jumper, then press the "ZERO" button
adjust R506 for a display reading of 0.0 ± 1 digit

DCA Balance Calibration

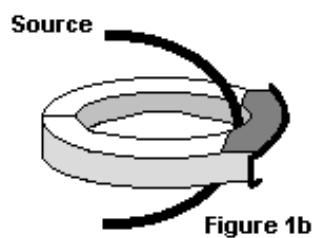
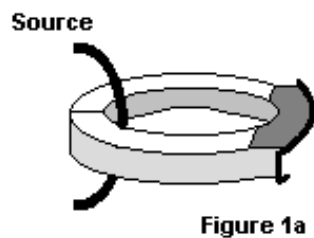
1. Set the function / range to the 200A DC.
2. Clamp the unit to a 100A DC source.
 - 2.a Move the jaw to the top of the clamp {see figure 1a} and note reading
 - 2.b Move the jaw to the bottom of the clamp {see figure 1b} and note reading
 - 2.c Repeating steps 2a and 2b, Adjust R581 until the difference of measured readings in step 2a and 2b is within 5 digits

DCA Calibration

- 1 Set the function / range to 200A DC
2. Clamp the unit to a 100A DC Source
Note: Use care to keep the Jaw (CT) of the unit properly centered to the Source
3. Adjust R62 until the display reads 100.0 ± 2 digit

Calibration of the 61-724 is complete.
Remove all leads from the calibrator and equipment.
Return unit to proper operating condition.

Placement of source for DC Balance Calibration



Battery Replacement (refer to Figure 2)

1. Disconnect the test leads from any circuit under test and turn off meter.
2. Use a Philips head screwdriver to remove the two screws on 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 leads
6. Reinstall battery cover.

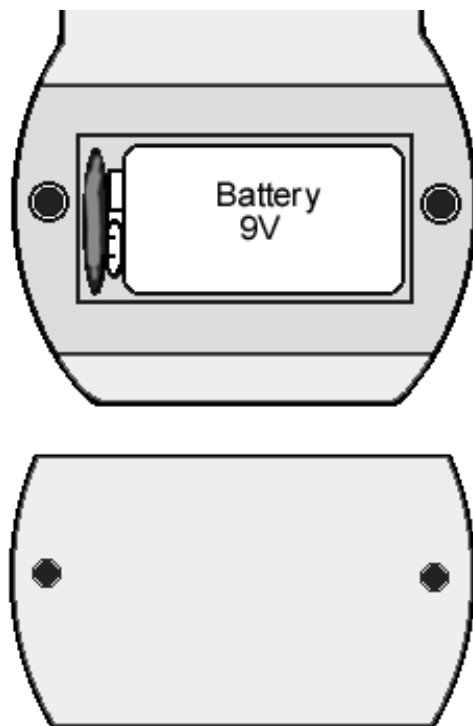


Figure 2