About this Manual

We've added this manual to the Agilent website in an effort to help you support your product. This manual is the best copy we could find; it may be incomplete or contain dated information. If we find a more recent copy in the future, we will add it to the Agilent website.

Support for Your Product

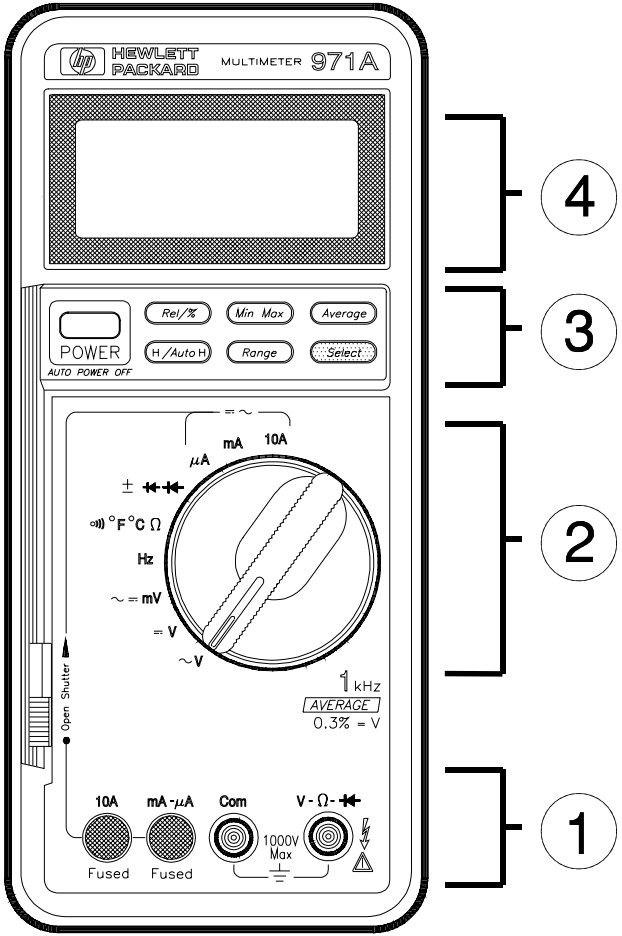
Agilent no longer sells this product. Our service centers may be able to perform calibration and repair if necessary, but no other support from Agilent is available. You will find any other available product information on the Agilent Test & Measurement website, www.tm.agilent.com.

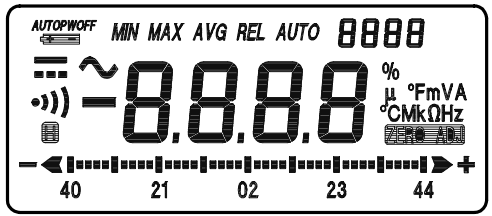
HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. In other documentation, to reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product number/name was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

HP 971A Multimeter
User's Guide

Part Number 00971-90002
March 1995


HEWLETT PACKARD
MULTIMETER 971A
POWER
AUTO POWER OFF
Rel/%
Min Max
Average
H /Auto H
Range
Select
mA
10A
µA
°F °C Ω
Hz
mV
V
V
1 kHz
AVERAGE
0.3% = V
Open Shutter
10A
mA-µA
Com
V - Ω -
Fused
Fused
1000V Max
4
3
2
1


AUTOPWOFF
MIN MAX AVG REL AUTO
8888
8.8.8.8
%
µ °FmVA
°CMkΩHz
ZERO ADJ
40
21
02
23
44

HP 971A Multimeter

Table of Contents

Safety Summary 1-4
- Safety Symbols 1-4
- Maximum Overvoltage Limitations . . . 1-5
- Probes and Test Leads 1-6

Operation 1-7
- Terminals, Shutter, & Test Leads . . . 1-7
- Function Switch 1-8
- Function Keys 1-9
- Function Keys/Function Switch Matrix . . 1-12
- Display 1-13
- Audio 1-13

Calibration and Adjustment 1-14
- Required Test Equipment 1-14
- Calibration Procedure 1-14

Maintenance 1-15
- Battery Replacement 1-15
- Fuse Replacement 1-15
- Troubleshooting 1-16
- Cleaning 1-16
- Replaceable Parts/Accessories 1-16

Specifications 1-17
- General 1-17
- DC Voltage 1-17
- AC Voltage 1-18
- DC Current 1-18
- AC Current 1-19
- Resistance 1-19
- Continuity 1-19
- Diode 1-20
- Temperature 1-20
- Frequency 1-20

Adjustments 6-1

Calibration Table 6-2

Replaceable Parts/Accessories 6-4
- Disassembly 6-5

Declaration of Conformity

Safety Summary

The CAUTIONS and WARNINGS which appear on the following pages must be followed to ensure operator safety and to retain the operating condition of the Multimeter.

1. Do not use this product beyond its specifications or for uses not intended for this product as identified by the product functions, ranges, and hazards as indicted below.

2. To minimize possible electric shock hazard condition, connect only two leads at any one time to any of the multimeter terminals.

3. To prevent possible electric shock hazard condition when using the current function, do not leave one probe connected to the circuit under test and the other probe disconnected, exposed, and readily accessible (touchable).

Safety Symbols

Indicates the operator must refer to an explanation in this manual.

Indicates terminals at which dangerous voltages may exist.

WARNING

TO AVOID ELECTRICAL SHOCK or damage to the multimeter, do not apply more than ±1000 Vdc or 1000 Vrms between any terminal and earth ground. Use caution when working with voltages above 60 Vdc or 42 Vpeak. Ensure test leads are in good condition.

WARNING

POSSIBLE ELECTRICAL SHOCK. Do not make measurements if the case is damaged or the rear cover is removed. Remove all electrical inputs before removing the rear cover.

WARNING

POSSIBLE ELECTRICAL SHOCK or FIRE HAZARD. Do not expose this multimeter to rain or moisture. Do not operate the multimeter in the presence of flammable gases or fumes.

WARNING

POSSIBLE ELECTRICAL SHOCK. Calibration and performance tests are to be performed by qualified personnel only. Do not attempt calibration or test procedures unless qualified to do so.

CAUTION

To avoid damage to the multimeter for inputs above 250 Vdc or Vac, disconnect the test leads before changing functions. Do not exceed the maximum input limits.

Maximum Overvoltage Limitations (AC and DC Voltage Functions)

1000V
MAX indicates the maximum voltage between input terminals and earth is ± 1000 V (dc or ac rms).

Do not use the multimeter on any ACV circuit where the maximum impulse overvoltage may be more than 4000Vpk or any DCV circuit where the maximum impulse overvoltage may be more than 2500Vpk between the COM and VOLT terminals. Excessive impulse overvoltage can damage the multimeter voltage functions. Do not measure branch circuits (CAT 11) over 600V to earth or service panel circuits (CAT III) over 300V to earth.

Function	Maximum Operating Input
⎓ ∿ 10 A	± 10 A (dc or ac rms) / 600 V
⎓ ∿ mA or µA	± 500 mA (dc or ac rms) / 250 V
Diode Test, Resistance Continuity, Temperature	660 Vrms (sinewave)
Frequency	660 Vrms (5 Hz to 10 kHz) 100 Vrms (10 kHz to 100 kHz)
⎓ ∿ V	± 1000 Vdc or Vrms (sinewave)

Probes and Test Leads

1. Always inspect probes before use. Do not use test leads whose insulation has cuts, cracks, or other damage that may result in reduced electric shock protection.

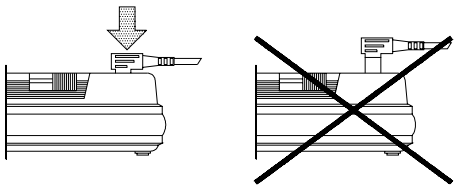
2. Keep insulation surface clean between the probe tip connector and the finger guards.

3. If probes other than the ones specified are to be used with the multimeter, be sure the probes and their leads are rated for the voltage and current to which they will be subjected. Do not exceed the voltage ratings for the multimeter.

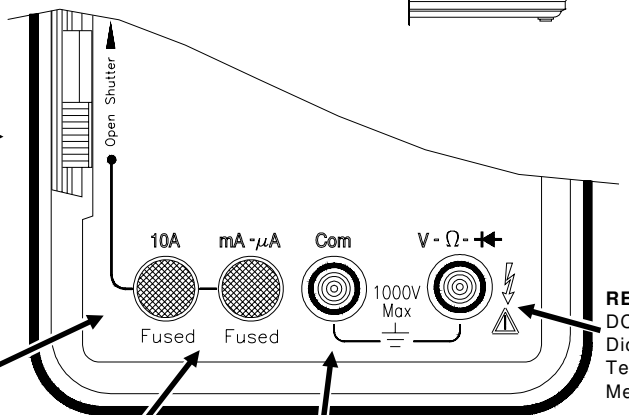
4. Probes supplied with this multimeter are rated for use up to 1000Vrms or Vdc.

Operation

Terminals, Shutter, & Test Leads



SAFETY SHUTTER
Slide up to **open** shutters for current measurement inputs. Must have the function switch in one of the Current Measurement positions to open shutter. **Close** shutter to change function switch to any other measurement function.



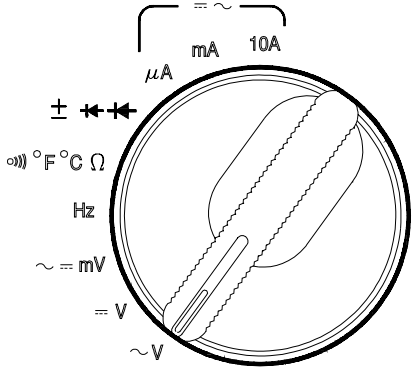
RED LEAD
Current Measurements
(0 A to 10 A)

RED LEAD
Current Measurements
(0 to 400 mA)

BLACK LEAD
COMMON
ALL Measurements

RED LEAD
DC & AC Voltage,
Diode, Resistance, Frequency, Temperature, and Continuity Measurements

2 Function Switch

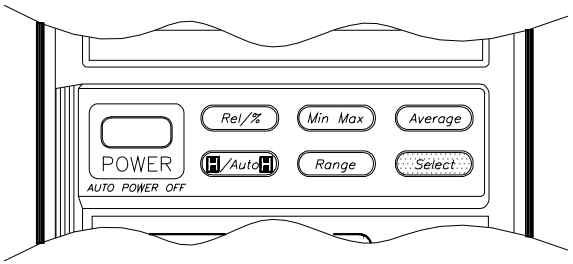


Switch Position	Display	Select →	Select →	Select
10A	DC Current (10 mA to 10 A)	AC Current (10 mA to 10 A)		
mA	DC Current (10 µA to 0.4 A)	AC Current (10 µA to 0.4 A)		
µA	DC Current (0.1 µA to 4 mA)	AC Current (0.1 µA to 4 mA)		
⊣◀	Diode Test (0 to 2 V)	Auto Diode Test (0 to ± 2 V)		
Ω	Resistance (0.1 Ω to 40 MΩ)	Continuity (alarm at < 20 Ω)	Temperature in °F (-112° F to 302° F)	Temperature in °C (-80° C to 150° C)
Hz	Frequency (5 Hz to 99.9 kHz)			
mV	DC volts (100 µV to 400 mV)	AC volts (100 µV to 400 mV)		
V	DC Volts (1 mV to 1000 V)			
V	AC volts (1 mV to 1000 V)			

Function Keys

Power

Automatic power off/power save after 30 minutes. Alarm sounds 30 seconds before power off. **Power off** if input < 80 V or < 400 mA. **Power save** if input > 80 V or > 400 mA, last measurement displayed, power consumption is reduced. Press any key or change any function to cancel. Defeat by holding the H/Auto H key for 2 seconds while applying power.



Relative/Percent

Press	Action	Main Display	Secondary Display
Rel/%	Makes the last displayed measurement the reference	Each measured value relative to the reference value (difference)	Range
Rel/%	Calculates the percentage change from the reference	Each measured value as a percent change of the reference value	Range
Rel/%	Cancels the Relative/% function	Measured value	Range

Perform a **zero adjust** on the 400 Ω range and displayed value is less than 99 by shorting the test leads and pressing this key. Cycle power to erase the stored zero adjustment.

Minimum/Maximum [1]

Press	Action	Main Display	Secondary Display [2]
MIN/MAX	Begin recording of minimum and maximum values	Each measured value	Elapsed time
MIN/MAX	Display recorded maximum	Maximum measurement	Time of maximum
MIN/MAX	Display recorded minimum	Minimum measurement	Time of Minimum
MIN/MAX	Display last recorded measurement	Latest measurement	Elapsed time
H/Auto H	Pause recording of minimum and maximum values [3]	Holds display	Total elapsed time
H/Auto H	Resume recording of minimum and maximum values	Each measured value	Elapsed time
MIN/MAX	Press and hold 1 second to cancel	—	—

[1] Automatic power off and auto ranging are disabled when Min/Max is selected. Bargraph will indicate and hold maximum values.

[2] Time is recorded and displayed in minutes up to the maximum recording time of 1999 minutes. Recording will stop at the maximum time.

[3] The H annunciator is displayed when Min/Max recording is paused.

Average

Press	Action	Main Display	Secondary Display
Average	Makes the displayed measurement the average of the last eight measurements	Average value of last eight measurements	Range
Average	Disables the averaging of measurements	Each measurement	Range

Hold/Auto-Hold

Press	Action	Main Display	Secondary Display
H/Auto H	Holds the measurement value in the display	Measurement value when hold pressed	Range
H/Auto H	Enters Auto-Hold function [1]	Input value	Range
H/Auto H	Cancels Hold function	Measurement value	Range

[1] Auto-Hold Operation. When measurement becomes stable, multimeter will beep and save the stable reading. Removing probe from measuring circuit will display and hold the last stable reading.

Range

Press	Action	Main Display	Secondary Display
Range	Changes from auto-ranging to manual ranging	Measurement value	Range
Range	Change manual range UP once with each keypress [1]	Measurement value	Range
Range	Returns to auto-ranging when key is held for 1 second	Measurement value	Range

[1] When upper range is reached, the sequence begins again at the lowest range.

Select

Press this key to use the functions indicated in blue on the multimeter. See table on page 1-8.
Hold this key to test display when turning meter on.

Function Keys and Function Switch Matrix

Function	Relative	% (Percent)	Min/Max [5]	Average	Data Hold[4]	Auto-Hold	Range
⎓ ∿ µA, mA	●	●	●	●	●	●	●
⎓ ∿ 10A	●	●	●	●	●	●	
⊣⊢	●	●			●	●	
± ⊣⊢					●		
Ω	● [1]	●	●	●	●	●	●
○)))					●		
°F, °C[2]	●		●		●		
Hz[2]					●		● 3
⎓ mV	●	●	●	●	●		●
∿ mV	●	●	●	●	●		●
⎓ V	●	●	●	●	●	●	●
∿ V	●	●	●	●	●	●	●

[1] Invokes zero adjust when display is less than 9.9 Ω.

[2] Bargraph not available.

[3] Changes input attenuator, frequency is always auto range.

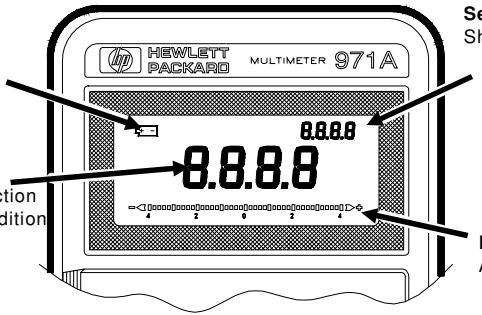
[4] Bargraph updates with input value.

[5] Secondary display shows elapsed time (in minutes).

Display

Low Battery indicator
Replace batteries when on.

Main Display
(Annunciators shown inside front cover)
Number of digits is set by range and function
Displays O.L to indicate an overload condition
Entire display flashes if:
Input overvoltage or
During Amps fuse check



Secondary Display
Shows:
Range (most functions)
Elapsed time (Min/Max)

Bargraph
Active for all functions except:
Temperature and Frequency

Audio

BEEP → BEEP	**Power on** First beep at power on. Second beep when beginning to make measurements.
BEEP	Single beep Indicates any valid function key press. Indicates a new High or Low value recorded when in Min/Max function.
BEEP	Steady repeating beep Indicates when measurement is steady when using Auto-Hold function.
BEEP	Rapid repeating beeps Indicates wrong input terminals used for function selected. Indicates an overload condition at the measurement terminals.
	Continuous tone Indicates a resistance of < 20 Ω when using the Continuity function.
BEEP BEEP	**Auto Power Off/Auto Power Save** Pairs of beeps for 30 seconds. Long beep just before power off. Cancel by changing function switch position or pressing any key.

Calibration and Adjustment

Required Test Equipment

The source used for the calibration should have an output accuracy as good or better than that listed in the specifications.

Calibration Procedure

Environmental range for calibration: 23° C ± 5° C, < 80% RH
Calibration interval: 1 Year

1 Disconnect all inputs from the multimeter and open the case as shown on page 6-5.

2 Install new batteries (described below) and close the cover. Turn the multimeter on and allow a 30 minute warm-up. Open the case.

3 Set the multimeter function and range and the source output to the values specified at each step in the calibration table on page 6-2.

4 When appropriate, make the adjustments indicated in the calibration table to bring the multimeter display within the limits.

CAUTION

Dangerous voltages are present during the calibration procedure. Calibration should only be performed by qualified service technicians. Use a non-conductive adjustment tool.

Maintenance

Operator protection from electric shock hazard is provided by a double insulated enclosure. Refer to pages 1-4 and 1-5 for maximum voltage specifications. When servicing, use only specified replacement parts.

Battery Replacement

Replace the battery when the symbol appears in the display or before calibration. Replace both batteries at the same time. Use high-quality type AA alkaline (IEC LR6) batteries. Remove the batteries if the multimeter is to be stored for extended periods of time. Refer to the disassembly drawing on page 6-5.

Fuse Replacement

Fuse locations are shown in the diagram on page 6-5. Fuses are listed in the replaceable part list on page 6-4. See fuse check procedure in Troubleshooting table below.

CAUTION

For continued protection use only the specified manufacturer part number or HP part number fuse for replacement purposes.

Troubleshooting

Problem	Possible Cause	Suggested Action
Unit won't turn on	Dead Batteries	Replace batteries
Unit won't turn off	Input limit exceeded	Remove test leads and press any key to reset.
Display flashes and Rapid beeps	Input limit exceeded	Remove test leads and press any key to reset.
	Test leads in wrong terminal for measurement function	Change test leads or function switch position
Battery Annunciator on	Low battery voltage	Replace batteries
Unable to measure current 10 A or mA - µA	Open input protection fuse	**Check fuse**. Connect test lead between V input terminal and 10A or 10 mA µA terminal. Select 10A or 10mA range, unit will rapidly beep if fuse is OK. Replace fuse if no beep.

Cleaning

Wipe instrument with a soft rag dampened with soap and water. Do not immerse in water. Do not use any chemical cleaner or solvents.

Replaceable Parts/Accessories

Refer to the table on page 6-4.

Specifications

Calibration period: one year minimum. Specifications apply at 23° C ± 5° C, < 80% RH
Accuracy = ± (% of reading + number of digits).
Temperature Coefficient = Accuracy X 0.1/° C (-10° C to 18° C; 28° C to 55° C)

General

Do not expose product to moisture or rain. Do not use product in flammable atmosphere.

Operating Temperature: -10° to 50°C.
Humidity: 0°C to 40°C / 80% RH max, 40°C to 50°C / 70% RH max (no condensation).
Storage Temperature: -25° to 60°C / 70% RH max (no condensation).

Display reading rate: Approximately 2.3 times/second (Frequency 1/second)
Bargraph reading rate: Approximately 23 times/second
Battery life: Approximately 1000 hours

DC Voltage

Range	Resolution	Accuracy	Input Resistance
400 mV	100 µV	± (0.3% + 1)	10 MΩ
4.0 V	1 mV		11 MΩ (nominal)
40 V	10 mV		10 MΩ (nominal)
400 V	100 mV		
1000 V	1 V		

Normal Mode Rejection Ratio (NMR): > 60 dB @ 50 or 60 Hz

Effective Common Mode Rejection Ratio (CMR) 1 k Ω imbalance: > 120 dB @ 50 or 60 Hz

AC Voltage (Average responding, calibrated to display rms)

Range	Resolution	Accuracy		Input Impedance (nominal)
		40 Hz to 500 Hz	500 Hz to 1 kHz	
400 mV	0.1 mV	± (1% + 2)	± (1.5% + 4)	10 MΩ < 50 pF
4 V	1 mV			11 MΩ < 50 pF
40 V	10 mV			10 MΩ < 50 pF
400 V	100 mV			
1000 V	1 V		Not Specified	

Common Mode Rejection Ratio (CMR)1 kΩ imbalance: > 60 dB @ DC to 60 Hz
Response time: 2 seconds maximum

DC Current

Range	Resolution	Accuracy	Input Resistance	Maximum Input
400 µA	100 nA	± (0.5% + 2)	< 550 Ω	± 0.5 A (fused)
4000 µA	1 µA	± (1% + 2)		
40 mA	10 µA		< 8 Ω	
400 mA	100 µA	± (1.2% + 2)		
10 A	10 mA		< 0.05 Ω	± 15 A (fused)

AC Current (Average responding, 40 Hz to 500 Hz, calibrated to display rms)

Range	Resolution	Accuracy	Input Resistance	Maximum Input
400 µA	100 nA	± (1.5% + 5)	< 550 Ω	0.5 Arms (fused)
4000 µA	1 µA			
40 mA	10 µA		< 8 Ω	
400 mA	100 µA			
10 A	10 mA		< 0.05 Ω	15 Arms (fused)

Resistance

Range	Resolution	Accuracy	Test Current	Maximum Open Circuit Voltage
400 Ω	100 mΩ	± (0.5% + 1) [1]	< 0.8 mA	< 3.2 V
4.0 kΩ	1 Ω	± (0.5% + 1)	< 80 µA	< 1.1 V
40 kΩ	10 Ω		< 10 µA	
400 kΩ	100 Ω		< 1.1 µA	
4.0 MΩ	1 kΩ		< 110 nA	
40 MΩ	10 kΩ	± (1.0% + 1)		

[1] After zero adjust of input leads. Zero adjust range up to 9.9 Ω.
Response time: 400 Ω to 400 kΩ — 2 seconds, 10 MΩ to 40 MΩ — 10 seconds.

Continuity

Measurement Current: 0.8 mA maximum
Displayed resistance: 0 Ω to 400 Ω
Alarm: Tone when input < 20 Ω

Open circuit voltage: < 3.2 Vpeak
Input protection: 660 Vrms (sinewave)
Resolution: 100 m Ω

Diode

Measurement current: +0.5 mA nominal @ 0.6 V
Displayed Voltage: 0 V to 2.000 V
Accuracy: ± (1% + 2)
Open circuit voltage: < 3.2 Vpeak
Input protection: 660 Vrms (sinewave)
Resolution: 1 mV

Temperature (5 k Ω @ 25° C Thermistor probe)

	° C	° F
Measurement Range	-80° to 150°	-112° to 302°
Resolution	0.1°	0.2°
Accuracy [1]	± 0.5°	± 1.0°

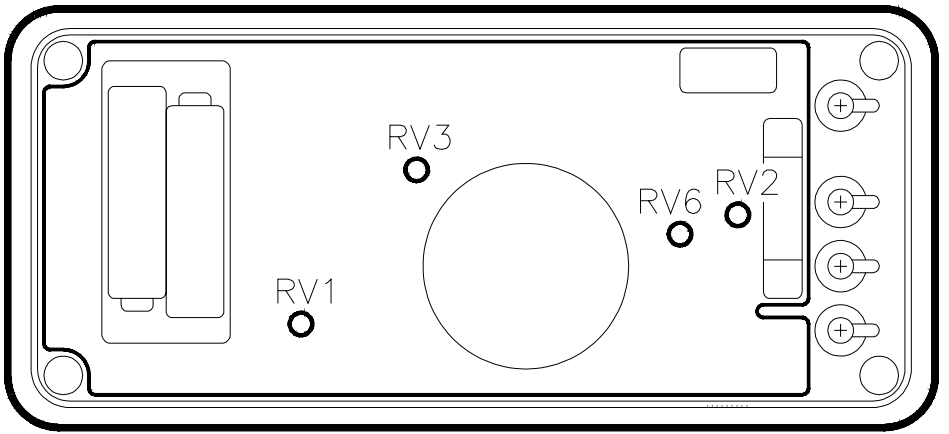
[1] Accuracy does not include 5 kΩ Thermistor error

Frequency (AC Coupled)

Frequency Range	Resolution	Accuracy	Maximum Input
5 Hz to 9999 Hz	1 Hz	± (0.02% + 1)	660 Vrms
9.0 kHz to 99.9 kHz	10 Hz		100 Vrms

Input Attenuator	Input Voltage		Input Impedance
	5 Hz to 10 kHz	10 kHz to 100 kHz	
4	100 mV to 4 V rms	800 mV to 4 V rms	2.3 MΩ < 50 pF
40	4 V to 40 V rms	4 V to 40 V rms	1.3 MΩ < 50 pF
400	40 V to 400 Vrms	40 V to 100 V rms	1.2 MΩ < 50 pF

Adjustments



Calibration Table

CAUTION

Dangerous voltages are present during the calibration procedure. Calibration should only be performed by qualified service technicians using a non-conductive tool.

Step	Function	Range	Input Signal	Adjustment (limits)	Tolerance (counts)
1	⎓ mV	400 mV	Short	—	±1
2			380.0 mV	RV1 (±1)	±12
3			-380.0 mV	—	±12
4	⎓ V	4 V	3.800 V	RV2 (±1)	±12
5		40 V	38.00 V	—	±12
6		400 V	380.0 V	—	±12
7		1000 V	1000 V	—	±4
8	~ V	400 V	380.0 V @ 100 Hz	RV3 (±1)	±40
9			380.0 V @ 1 kHz	—	±61
10	~ mV	400 mV	380.0 mV @ 100 Hz	—	±40
11			380.0 mV @ 1 kHz	—	±61
12	~ V	4 V	3 .800 V @ 100 Hz	—	±40
13			3.800 V @ 1 kHz	—	±61
14		40 V	38.00 V @ 100 Hz	—	±40
15			38.00 V @ 1 kHz	—	±61
16		1000 V	1000 V @ 100 Hz	—	±12
17	⎓ µA	400 µA	380.0 µA	—	±21
18		4000 µA	3800 µA	—	±40
19	⎓ mA	40 mA	38.00 mA	—	±40
20		400 mA	380.0 mA	—	±47

Step	Function	Range	Input Signal	Adjustment (limits)	Tolerance (counts)
21	⎓ 10 A	10 A	10.00 A	RV6 (±2)	±14
22	~ µA	400 µA	380.0 µA @ 100 Hz	—	±62
23		4000 µA	3800 µA @ 100 Hz	—	±62
24	~ mA	40 mA	38.00 mA @ 100 Hz	—	±62
25		400 mA	380.0 mA @ 100 Hz	—	±62
26	~ 10 A	10 A	10.00 A @ 100 Hz	—	±20
27	Ω	400 Ω	Short	zero adjust [1]	±1
28			380.0 Ω	—	±20
29		4 kΩ	3.800 kΩ	—	±20
30		40 kΩ	38.00 kΩ	—	±20
31		400 kΩ	380.0 kΩ	—	±20
32		4 MΩ	3.800 MΩ	—	±20
33		40 MΩ	38.00 MΩ	—	±40
34	○)))	400 Ω	0 Ω to 100 Ω	—	Tone < 20 Ω
35	⊣⊢	2 V	1.000 V	—	±12
36	Hz	4	9000 Hz @ 1 Vrms	—	±2

[1] Perform zero adjustment using Rel/% key.

Replaceable Parts/Accessories

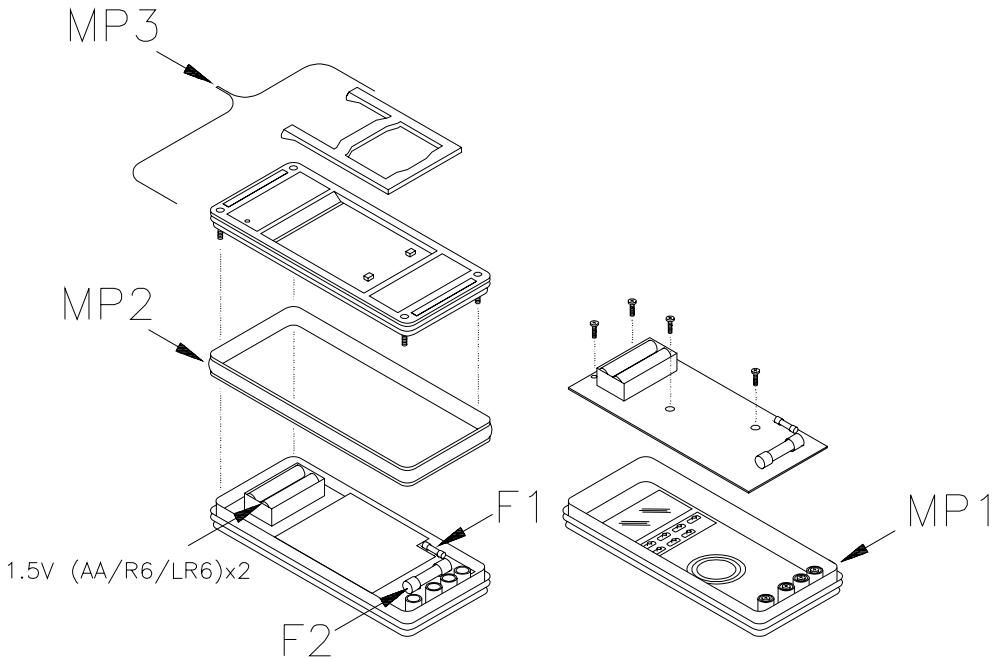
Refer to the disassembly diagram on page 6-5.

Call out	Description	HP Part Number
F1	Fuse, 500 mA, 250 V fast blow Littlefuse 216-500 **DO NOT SUBSTITUTE**	2110-0940
F2	Fuse, 15 A, 600 V fast blow Littlefuse KLK15 **DO NOT SUBSTITUTE**	2110-0941
MP1	Top case assembly	00971-64401
MP2	Dust/moisture seal	00971-64403
MP3	Bottom case assembly (includes stand)	00971-64402
	Rubber Boot	00971-86001
	Replacement Test Leads, 2 pair	E2305A
	Temperature probe, 5 KΩ @ 25° C Thermistor	E2308A
	Surface temperature sensor, Thermistor ±0.1°C 12" lead, requires dual banana plug	40653B
	Soft Case (fits meter with rubber boot)	E2304A

Operator protection from electric shock hazard is provided by a double insulated enclosure. refer to theSafety Summary for maximum voltage specifications. When servicing, use only specified replacement parts.

Disassembly

> **WARNING**
>
> Always disconnect the test leads before opening the case.



DECLARATION OF CONFORMITY

according to ISO / IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company, Personal Measurements Operation
Manufacturer's Address: 815 14th Street S.W., Loveland, Colorado 80537 U.S.A.

declares, that the products

Product Name: Handheld Multimeter
Model Number: HP 971A, HP 972A, HP 973A, HP 974A
Product Options: None

conforms to the following Product Specifications:

Safety: IEC 1010-01 (1990) Incl. Amend 1 (1992) / EN61010 (1993)
CSA C22.2 #1010.1 (1992)
UL 1244

EMC: CISPR 11:1990 / EN55011 (1991): Group 1, Class A
IEC801-2:1991 / EN50082-1 (1992): 4 kV CD, 8 kV AD
IEC 801-3:1984 / EN50082-1 (1992): 3 V/m
IEC 801-4:1988 / EN50082-1 (1992): 0.5 kV Signal Lines

Supplemental Information: The product herewith complies with the requirements of the Low Voltage Directive 73 / 23 / EEC and the EMC Directive 89 / 336 / EEC amended by 93 / 68 / EEC (inclusive 93 / 68 / EEC) and carries the CE mark accordingly.

Loveland, Colorado April 1, 1994

Jim White, QA Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ / Standards Europe, Herrenberger Straβe 130, D-71034 Böblingen (FAX: +49-7031-143143).

Warranty/Service

Limited 3 Year Warranty

What is Covered
The HP 971A Multimeter is warranted by Hewlett-Packard against defects in materials and workmanship for three years from the date of original purchase. If you sell your unit or give it as a gift, the warranty is automatically transferred to the new owner and remains in effect for the original three year period. During the warranty period, we will repair, or at our option, replace at no charge, a product that proves to be defective, provided you return the product, shipping prepaid, to a Hewlett-Packard service center.

What is Not Covered
This warranty does not apply if the product has been damaged by accident of misuse or as the result of service or modification by other than an authorized Hewlett-Packard service center.

No other express warranty is given. The repair or replacement of a product is your exclusive remedy. ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE THREE YEAR DURATION OF THIS WRITTEN WARRANTY. Some states, provinces, or countries do not allow the exclusion or limitation or incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The warranty gives you specific legal rights, and you may also have other rights which vary from state to state, province to province, or country to country.

Service

Hewlett-Packard maintains service centers in many countries throughout the world. You may have your unit repaired at a Hewlett-Packard service center any time it needs service, whether the unit is under warranty or not. There is a charge for repairs after the warranty period. Repair or replacement during the first 30 days after purchase will be provided by the sales channel. After 30 days, contact the nearest service office.

Hewlett-Packard products normally are repaired and reshipped within five (5) working days of receipt at any service center. This is an average time and could possibly vary depending upon the time of year and work load at the service center. The total time you are without your unit will depend largely on the shipping time.