



Operating Instructions MA 1



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11.0 SHIPPING INSTRUCTIONS

Should it be necessary for you to return the audiometer for repair or calibration, be sure to return the headset as well. This is essential – the audiometer cannot be calibrated without it.

If more than one audiometer is in use at your facility, verify that the serial number on the back panel of the audiometer and the serial number of the headset are identical.

Enclose an explanatory letter with the instrument. Describe the service you require and carefully detail any operational problems. Be sure to state the serial number and your complete return address.

Place the audiometer in the original shipping carton using the foam supports supplied. Insure properly and return it to your Maico distributor.

Note: Warranty services will be provided by the authorized distributor from whom you purchased the audiometer.

Maico distributors are located in major cities throughout the world. To minimize shipping charges and delay, contact Maico for the location of the distributor nearest to you. You can contact Maico at:

7625 Golden Triangle Drive
Eden Prairie, MN 55344
(888) 941-4201 toll free
(952) 903-4100 fax

1.0 WARRANTY

Maico Limited One Year Warranty

This warranty is extended to the original purchaser of the audiometer by Maico and through the authorized distributor from whom it was purchased, and covers defects in material and workmanship for a period of one year from the date of delivery of the audiometer to the original purchaser.

If the audiometer contains a defect in material or workmanship, Maico, at its option, will repair or replace the instrument at no charge except for transportation to and from the point of service. It is the purchaser's responsibility to return the audiometer to the Maico distributor from whom it was purchased or directly to Maico after receiving authorization to return.

This warranty does not cover breakage or failure occasioned by tampering, misuse, carelessness, accidents or modification. The warranty is void if the audiometer is repaired by anyone other than an authorized Maico service center.

NOTE: Specifications in this manual were in effect at the time of printing. Maico, whose policy is one of continuing progress, reserves the right to discontinue or change specification or design and any time without notice or incurring obligation.

2.0 SPECIFICATIONS

Audiometric

Test frequencies:	500, 1000, 2000, 4000 Hz
Attenuator range:	15 to 50 dbHL 5 dB steps
Stimulus:	Continuous
Rise/fall time:	35 msec typical
Distortion:	0.5% THD typical, 3% THD maximum

Controls

Front panel:	Intensity, right/left phone, frequency/stimulus
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Mechanical

Dimensions:	2.5" (6.35 cm) wide 6" (15.24 cm) long 7/8" (2.222 cm) deep
Case:	ABS injection molded with light gray finish
Weight:	2.1lbs with accessories and carry case
Calibration:	Calibrated to ANSI S3.6-1996

10.0 RECALIBRATION

The length of time that an audiometer should be operated before recalibration varies depending upon the treatment given the instrument and its headset. Generally speaking, however, it is recommended that the instrument have a laboratory recalibration at least once a year. Since rough handling can easily cause calibration errors, it is advisable to establish a biological calibration check as soon as you receive the instrument.

This can be done as follows:

1. Make several careful tests of your own hearing, recording the results properly on the audiogram cards provided with the instrument.
2. Conduct similar tests with several young adults on whom you will be able to make subsequent retests, recording these on audiogram cards also.
3. File these audiogram cards where they will be readily available for comparison with subsequent retests.

Should you feel at any later date that the audiometer's calibration may be in error, proceed to make retests on yourself and the same young adults on whom you made audiograms previously. If all retests show changes of 10 dB or more in the same direction at the same frequencies, calibration is probably in error. If repair and recalibration is needed, be sure the work is done by a Maico Special Instrument Service Center. This assures the use of quality materials by trained and experienced technicians using accurate and reliable test equipment.

9.0 PREVENTATIVE MAINTENANCE

To maximize the service life of your audiometer and headset we suggest the following:

1. Dust the audiometer occasionally with a soft, dry cloth.
2. Wipe the headset cords and ear cushions occasionally with a warm, slightly damp cloth. Ear cushions should be removed from receivers when cleaning. Dry with a soft cloth.
3. Leave the headset connected to the audiometer permanently to minimize straining the connections. Should it be necessary to unplug the headset, always grasp the barrel of the connecting plugs and pull straight out- never pull on the cords.
4. Avoid dropping the earphones or snapping them together. This could affect the calibration accuracy.
5. Store the audiometer and headset in the carrying case at the end of each day to minimize dust collection.

Electrical

Power Requirements: 2 AA Alkaline batteries

Battery Life: Stand by: ~6 months
Tone presentations: 30,000 for 2 sec duration & 1:3 on/off ratio

Operating Temp.: 59°F to 95°F (15°C to 35°C)
30-90% rel. humidity

Storage Temp.: 32°F to 95°F (0°C to 35°C)
30-90% rel. humidity

Test headset: TDH-39 receivers

NOTE: An automatic power shutoff occurs after 30 seconds of inactivity with the audiometer to conserve battery life. To turn the audiometer back on, press the black right/left button.

3.0 INTRODUCTION

The MA1 Ultra Portable Audiometer is the perfect choice for on-the-go hearing professionals. This precision instrument is designed to permit rapid and reliable hearing screenings in multiple testing environments. The front controls are easy to understand and simple to operate. The light weight of the MA1 and the convenient carrying case make transportation effortless.

Maico audiometers have been designed to meet the most thorough of electrical safety standards and to provide years of reliable operation with the rugged durability that has become the trademark of Maico portable audiometers.

8.3 Conducting the Test

Press the black right/left button to turn on the MA1. Use this same button to select the right (red LED) or left (blue LED) ear. Press the up or down arrow keys to select 20dBHL. Next press the 1 kHz button to present the tone at 1kHz to the patient. The tone will be presented as long as the corresponding frequency key (i.e .5, 1, 2, or 4 kHz) is held down. If the patient does not respond to the tone, increase the tone by 5dB using the up arrow key and present again. Continue to increase the tone by 5dB until the patient responds. Once the patient responds, lower the tone by 10dB until he/she does not respond. Continue in this “down 10dB/up 5dB” pattern until a threshold is established, or screening protocol has been met. Continue the same procedure for the other frequencies. Record all results on the audiogram card provided.

Note: Most states define a normal hearing level for a pure-tone screening as 20dBHL. However, it is highly recommended that you check with your state health department, the American –Speech-Language-Hearing Association (ASHA), or the American Academy of Audiology (AAA) for specific guidelines.

NOTE: An automatic power shutoff occurs after 30 seconds of inactivity with the audiometer to conserve battery life. To turn the audiometer back on, press the black Right/Left button located toward the top of the MA1.

8.2 Test Environment: Ambient Noise

Excessive sounds or noises in the chosen test environment can produce a masking effect and therefore affect test results. The selected site should be away from conversations, hallway traffic, outside auto traffic, and other noise producing environments.

The lower test frequencies are most affected by these types of noise. In some instances it may be necessary to treat the test site acoustically to achieve the necessary quietness for testing purposes.

Commercially available sound rooms, which are designed to provide an acoustically treated testing environment, are recommended where baseline or threshold audiometry is required. These rooms are available in a variety of sizes and isolation capabilities. Audiocup(TM) earphone enclosures fit over the TDH39 earphones and provide supplementary attenuation to noise. These can be used instead of, or in addition to, a sound room.

4.0 INSPECTION AND ACCESSORIES

4.1 External Inspection

Your MA1 was currently inspected and packaged for shipping; however, it is good practice to thoroughly inspect the outside of the shipping container for signs of damage. If any damage is noted after unpacking, notify your carrier immediately.

4.2 Unpacking

Open the top of the shipping carton and pull the foam packing from the top of the instrument. Carefully remove your MA1 from the shipping carton. Remove the plastic bag from the instrument and inspect the case for any damage. Notify the carrier immediately if any visual damage is noted. This will assure that a proper claim can be made. Save all packing material so the claim adjuster can inspect it as well. Notify Maico as soon as the adjuster has completed the inspection.

SAVE ALL THE ORIGINAL PACKING MATERIAL AND THE SHIPPING CONTAINER SO THE INSTRUMENT CAN BE WELL PACKED IF IT NEEDS TO BE RETURNED FOR SERVICING OR CALIBRATION.

4.3 Accessories

Please check to verify that all standard accessories listed below are received in good condition. If any accessories are missing or damaged, immediately notify your Maico Special Instrument Distributor, from whom the instrument was purchased.

<u>Standard Accessories</u>	<u>Maico Part#</u>
1. TDH 39 Headset	4687
2. Carrying Bag	1035-483
3. Operating Manual	1162-0705
4. Audiogram Cards	1162-417
5. 2x AA Batteries	1145-2002
6. MA1 Stand	714-3

<u>Optional Accessories</u>	<u>Maico Part#</u>
1. Audiocup Headset	4695

8.0 AUDIOMETRIC TESTING

8.1 Instructing the Patient

Place the subject at ease concerning the test. Explain the purpose of the test and what kind of sound or sounds will be heard. An unvarying and uniform explanation to the person being tested will help provide test results that are consistently high in reliability. Instructions might be expressed as follows: "I am going to place these headphones on your ears. You will hear a tone or beeping sound which may be loud or soft. Whenever you hear or think you hear one of these tones, raise your hand. Lower your hand when you no longer hear the tone. Remember, raise your hand when you hear the tone and lower your hand when you do not."

Proper placement of the earphones on the ears is essential to achieving good test results. Check the following before placing the earphones on the person to be tested.

- a. Eliminate any obstructions which will interfere with placement of the earphone cushion on the ear (i.e. hair, earrings, eyeglasses, hearing aids, etc.)
- b. Adjust the headband so the earphone cushions are centered over the ears and the head. The earphone cushions will put firm pressure on both ears.

7.0 MA1 CONNECTIONS

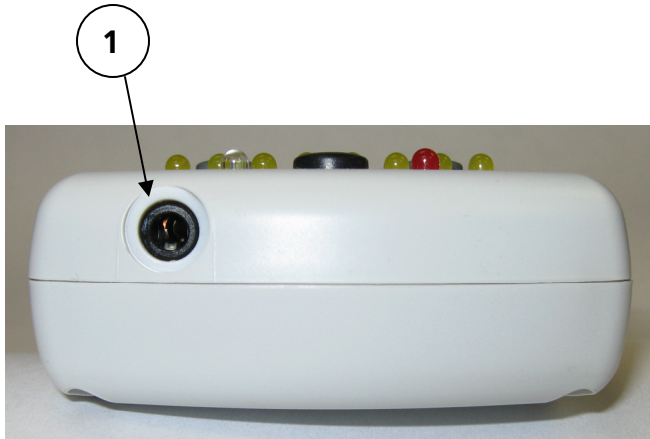


Figure 3

1. Earphone Jack Plug

5.0 BATTERY OPERATION

5.1 Battery Installation

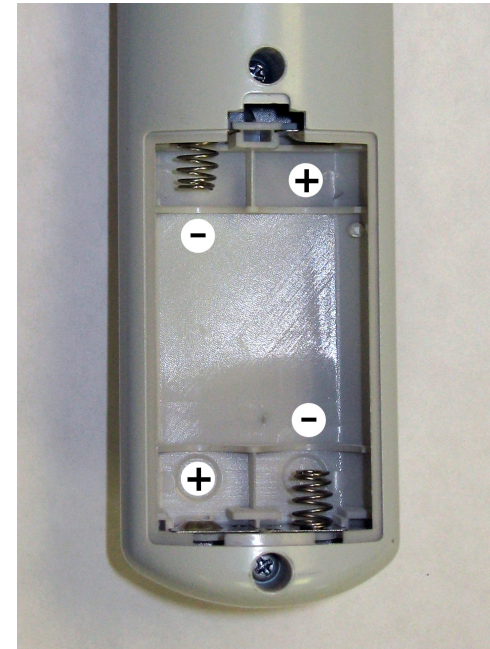


Figure 1

Battery compartment – back view

To install the batteries:

1. Pull the tab on the battery compartment and remove panel.
2. Insert 2 AA batteries in the compartment
3. Reposition panel and snap the tab back into place.

5.2 Battery Life

Maico recommends using 2 AA **Alkaline** batteries.

Batteries will last approximately 30,000 tone presentations. The MA 1 has an automatic shut-off feature to prolong battery life when unit is not in use. When batteries get too low to produce the proper signal, the unit will shut off and will not turn back on until batteries are replaced.

6.0 FRONT PANEL CONTROLS AND DISPLAYS

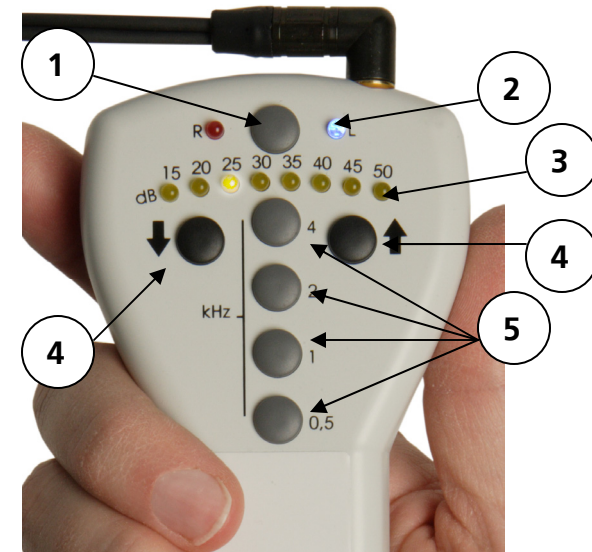


Figure 2

1. Power button and R/L Ear Selector
2. LED Ear Indicator
3. LED Level Indicator
4. dB Level selector buttons
5. Frequency selector buttons/stimulus presentation buttons.