



## Operating Instructions MA 25

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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

The MA 25 meets all appropriate sections of ANSI S3.6-1989, ISO 389-1975, IEC 645/1 Group 4 and IEC 601-1.

### Audiometric

Test frequencies: 250, 500, 750, 1000, 1500, 2000, 3000, 4000, 6000, 8000  $\pm$  2%

Attenuator range: -10 to 90 dbHL  $\pm$  3 dB, 5 dB steps

Attenuator linearity:  $\pm$  0.5 dB

Stimulus: Continuous or pulsed, 2.5 pulses/second, 200 msec on, 200 msec off

Modulation:  $\pm$  5% frequency modulation at 5 Hz

Rise/fall time: 35 msec typical

Distortion: 0.5% THD typical, 3% THD maximum

Stim on/off ratio: 100 dB or -10 HL minimum

### Controls

Front panel: Intensity-power, right/left phone, FM (warble), pulse, frequency, stimulus

### Mechanical

Dimensions: 9.5" (24.1 cm) wide  
3.7" (9.4 cm) high  
6.75" (17.1 cm) deep

Case: ABS vacuum formed with off-white suede texture

Weight: 3.6 lbs with accessories

## 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: 9 volt alkaline battery (Eveready #522) or optional 120V AC adapter  
Battery Life: 150 hours under typical operating conditions.  
LED indicator for low battery condition.  
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-50P receivers

***NOTE:** An automatic power shutoff occurs after 5 minutes of inactivity with the audiometer to conserve battery life. To turn the audiometer back on, the Power/Intensity switch must be turned to the OFF position and then back to any desired intensity level.*

### 3.0 INTRODUCTION

The MA25 Ultra Portable Screening Audiometer is the perfect choice for on-the-go hearing professionals. This precision instrument is designed to permit rapid and reliable hearing tests in multiple testing environments. The front controls are easy to understand and simple to operate. The light weight of the MA25 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

A suggested order in which to present the frequencies is: 1000 Hz, 500, 250, repeat 1K, 2K, 3K, 4K, 6K, 8K. An alternative order is: 250, 500, 1K, 1K again, 2K, 3K, 4K, 6K, 8K.

The intermediate frequencies may be tested if there is a large difference between two frequencies. The 1000 Hz retest is to verify the results of the test to be sure the subject understands what is expected of him/her.

Present the first tone at 50dB in the patient's better ear, or if no preference, the right ear. Decrease the intensity control in 10dB steps until the patient no longer responds. Increase the level in 5dB steps until the patient responds.

Several crossings of the threshold are recommended to verify the lowest level at which the patient consistently responds to the tone. Record the lowest level on the audiogram card under the correct frequency.

***NOTE:** An automatic power shutoff occurs after 5 minutes of inactivity with the audiometer to conserve battery life. To turn the audiometer back on, the Power/Intensity switch must be turned to the OFF position and then back to any desired intensity level.*

## 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, typewriters, 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 TDH50 earphones and provide supplementary attenuation to noise. These can be used instead of, or in addition to, a sound room.

Etymotic Tubephones(TM) insert earphones can be used instead of TDH50 headphones. These provide an approximate 30dB exclusion of external noise, as well as decreasing the need for masking. Consult your Maico Special Instruments Distributor for the type of testing environment you will need.

## 4.0 INSPECTION AND ACCESSORIES

### 4.1 External Inspection

Your MA25 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 MA25 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. Standard Double Headset	4713
2. Carrying Bag	1035-483
3. Operating Manual	1162-9301
4. Audiogram Cards	1162-417
5. 9V Battery	1145-2001

<u>Optional Accessories</u>	<u>Maico Part#</u>
1. Audiocup Headset	4695
2. 120V AC Adapter	5502
3. Patch Cords	1025-352

## 8.0 AUDIOMETRIC TESTING

### 8.1 Pretest Preparation for the Subject

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 MA25 REAR PANEL CONNECTIONS



Figure 3

1. Right earphone jack (red plug)
2. Left earphone jack (blue plug)
3. AC adapter jack

### 7.1 Phone Cord Installation

The earphones are color-coded to guarantee correct positioning. The red plug identifies the right earphone and attaches to the right earphone jack (#1 in figure 3). The blue plug attaches to the left earphone jack (#2 in figure 3).

### 7.2 AC Adapter Installation

Insert plug in AC adapter jack (#3 in figure 3) and plug the adapter into an AC outlet.

## 5.0 BATTERY OPERATION

### 5.1 Battery Installation

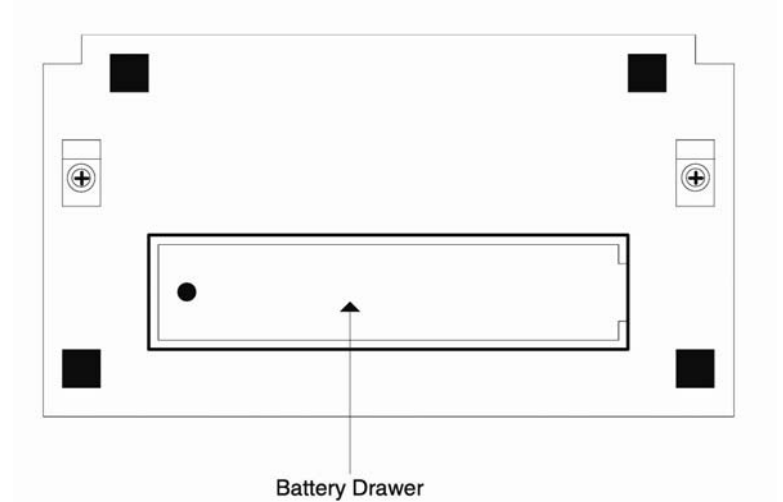


Figure 1

Battery compartment – bottom view

To install the battery:

1. Power/Intensity switch must be in the "OFF" position.
2. Pull the knob on the battery compartment and remove panel.
3. Connect a 9V battery to the snap-on battery connection.
4. Insert the battery in the compartment. (NOTE: Battery compartment has a space for one spare battery.)
5. Reposition panel and snap the knob back into place.

## 5.2 Battery Life

Maico recommends using an Alkaline 9 volt battery. Under typical operating conditions, the battery life will be 150 hours. The low battery indicator (#3 in Figure 2) will illuminate when the tone is presented if less than 10% (15 hours) of battery life remains.

## 5.3 Optional AC Adapter

The MA25 can also operate from an AC outlet by using the optional AC adapter. (The AC adapter does not charge the battery when in use.)

Part Number 5502  
(See 7.2 for operation)

## 6.0 FRONT PANEL CONTROLS AND DISPLAYS

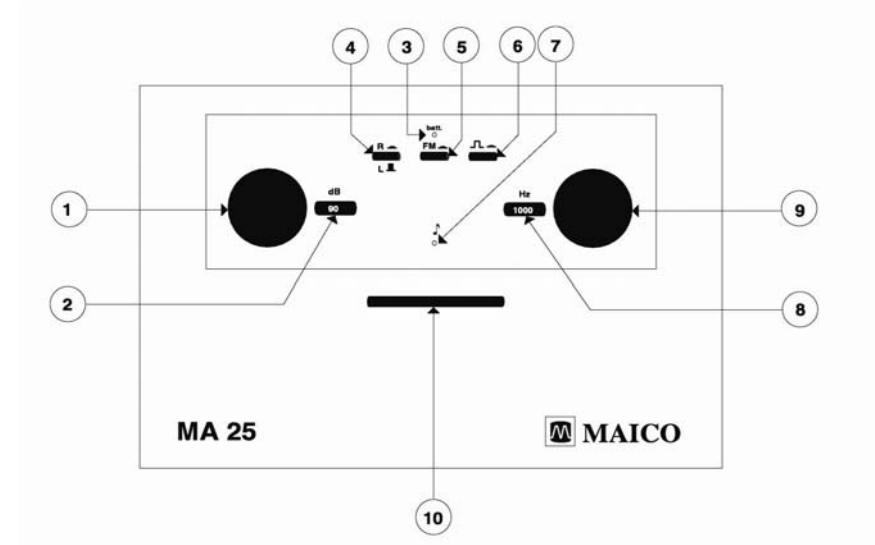


Figure 2

1. Power switch – intensity control knob
2. Display readout of intensity selected
3. L.E.D. indicator for low battery
4. Left or right phone pushbutton switch
5. FM on or off pushbutton switch
6. Pulse on or off pushbutton switch
7. L.E.D. indicator for stimulus
8. Display readout of frequency selected
9. Frequency control knob
10. Stimulus present switch