



Operating Instructions Pilot® Audiometer Pilot® Bilingual Audiometer





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WARRANTY

This warranty is extended to the original purchaser of the Pilot® Audiometer, through the authorized Special Instrument Distributor from whom it was purchased. This warranty covers defects in material and workmanship for a period of one year from date of delivery of the Pilot®.

Should the Pilot® Audiometer require service due to 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 Pilot® Audiometer to the Maico Special Instrument Distributor from whom it was purchased or directly to Maico after receiving a return authorization.

This warranty does not cover breakage or failure caused by tampering, misuse, carelessness, accident or modification. The warranty is void if the instrument is serviced by other than an authorized Maico Special Instrument Service Center.

NOTE:

Specifications in this manual are in effect at the time of printing. Maico reserves the right to modify or change specifications or design at any time without notice or incurring obligation.

WARNING:

The Pilot® Audiometer is designed to be used only with the supplied 12 VAC adapter. Injury to personnel or damage to equipment can result if this adapter is modified or replaced with an incorrect adapter.



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1.0 SPECIFICATIONS

MECHANICAL

Dimensions 12" X 9" x 2" (30.5 X 23 X 5 CM)
Weight 2.59 lbs. (1169.80 grams)
Power consumption 108 volt – 132 volt AC, 50-60 Hz, 10 watts

ENVIRONMENTAL

Operational temperature 15 to +40 C
Storage temperature 0 to +60 C
Relative humidity 5% to 90%

AUDIOMETRIC

Frequencies (pure tone) 500, 1000, 2000, 4000 Hz
Decibel ranges *Voice* – 50, 45, 40, 35, 30, 25, 20, 15 dB HL level ranges
Pure tone – 40, 30, 20 dB HL
Frequency accuracy +/- 3%
Noise level 10 dB HL or 70 dB below the test tone, whichever is greater
Distortion Less than 3% THD
Level accuracy +/- 3 dB of levels specified in ANSI S3.6-1996

-tone PRESENTATION

Rise/Fall time 35 +/- 15 milliseconds
On/Off ratio Greater than 70 dB at all frequencies

OUTPUT

Earphones Telephonics TDH-39 with 100 ohm coils
Crosstalk -70 dB or less than -5 dB HL, whichever is greater

CALIBRATION

In order to ensure a safe and accurate measure for all your hearing exams, it is strongly recommended that units be calibrated on a yearly basis.



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2.0 INTRODUCTION

2.1 Instrument Description

The Pilot® Audiometer will revolutionize the way you interact with your young patients. Our products are designed to put children at ease, allowing you to make a diagnosis quickly, easily and accurately.

Due to the possibilities of future language and speech development delays, it is imperative to screen children at the youngest possible age. In 1962, the Mayo Clinic developed the first “speech reception audiometer” to evaluate preschool children. The rationale was that very young children have short attention spans and exhibit problems with comprehending the abstract directions associated with traditional pure tone audiometry. Anyone who has tried to administer pure tone audiometry screening to young children is very aware of the problems and inefficiencies.

In comparison, speech recognition screening incorporates simple, non-threatening directions. The child is asked to listen to a series of two syllable “spondee” words at different decibel levels. The levels decrease in 5 dB increments from 50 dB to 15 dB. The child responds by pointing to the appropriate picture on the picture board. The operator records each response on the score sheet. A complete screening of both ears can take less than four minutes—significant savings in time and money. The Pilot® also features a built-in pure tone audiometer for other age groups, and is available with a bilingual Spanish/English option.



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3.0 UNPACKING AND INSPECTION

3.1 External Inspection

Your Pilot® audiometer was carefully inspected and packed 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, please notify the carrier immediately.

3.2 Unpacking

Remove the upper layer of packing material from the top of the instrument. Carefully lift the instrument from the shipping carton and remove the plastic bag. Inspect the case for sign of any damage. Notify the carrier immediately if any signs of mechanical or physical damage are noted. This will ensure that a proper claim is made. Save all packing materials so that the claim adjuster can inspect them as well. When the adjuster has completed the inspection, notify the Maico Special Instrument Distributor you purchased this unit from.

Save all the original packing materials and the shipping carton so the instrument can be properly packaged if it needs to be returned for service or calibration.

Open the box containing the Pilot® Audiometer and check to see that you have the following items:

- Pilot® Audiometer
- Large picture board
- Small picture review sheet
- Operator score pad
- Power supply module
- Headset
- Operator earphone
- Operating manual with warranty card
- Calibration certificate

If you have ordered the Pilot® Bilingual Audiometer, your unit will also contain:

- Large Spanish picture board
- Small Spanish picture review sheet
- Operator Spanish score pad

A carrying case is also available for your Pilot®. If you haven't purchased a carrying case, be sure to save the box your unit came in. It has been specially designed to protect it during transportation.

Your unit is equipped with two headset jacks to handle testing two children at one time. If you wish to purchase an additional headset and picture board, contact the Maico Special Instrument Distributor you purchased this unit from.

Please check that all items listed above are received in good condition. If any items are missing or damaged, immediately notify your Maico Special Instrument Distributor.



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4.0 INSTALLATION AND SETUP

4.1 Where to Set Up

A quiet room furnished with a desk or table is ideal for using the Pilot® Audiometer. If a separate room is not available, try to locate an area with minimal noise and distractions.

Remember: background or ambient noise can distract the child and affect the results of the test.

When placing the picture board on the table, make sure the child being screened can comfortably point to the pictures on the picture board. The board has been specially designed with panels on both sides to decrease visual distractions for the child.

4.2 How to Set Up

Setup is accomplished in four easy steps:

Step 1 Locate the headset jacks on the far left or far right on the rear panel of the Pilot®. When only using one headset, you may use either Headset 1 or Headset 2 jack.

NOTE: The Pilot® is equipped to handle testing for two children simultaneously. If you have purchased an extra headset and picture board, plug one headset into Headset 1 and the other headset into Headset 2.

Step 2 Plug the Operator earphone into the Operator earphone jack. The operator's earphone volume can be adjusted by "sliding" the control (next to the jack) to the left or right. All phrases heard through the operator earphone will be presented at the same volume. Only phrases in the headset are presented at descending decibel levels.

Step 3 Plug the electrical cord into the rear panel.

Step 4 Plug the AC adapter into a nearby wall outlet.

Simply turn the unit on and you are ready to operate the Pilot® Audiometer.



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5.0 DISPLAY AND MENU DESCRIPTIONS

5.1 Keys for the Pilot® Audiometer

Five keys and nine visual displays guide you through the operation of the Pilot® Audiometer. When the unit is first “powered up” (turned on), the following lights will be illuminated: bird’s right eye and #1 on the airplane’s tail. The unit is now ready for screening.

5.1.1 START

Press this key to begin. The indicator light on the kite will illuminate. The indicator light will go out when the series is completed.

NOTE: If a series is in progress when this key is pressed, this series will end.

5.1.2 TEST EAR

Press the TEST EAR to choose the ear being screened. The right or left bird will light up to tell you which ear you are testing. Press the TEST EAR key again to switch to the other ear.

5.1.3 PAUSE

The PAUSE key will interrupt or continue the current series. The butterfly indicator LIGHT WILL ILLUMINATE WHEN THE SERIES IS PAUSED. Press the key again to resume the test.

NOTE: In order to pause during a test, wait until a phrase is completed, then press the pause key. The last phrase or tone will be repeated when the series is restarted.

5.1.4 SERIES

Each time you press the SERIES key, the Pilot® will advance to the next section of the test. The light on the tail of the airplane will show your progress. Just as the indicator lights on the airplane tail range from 1 to 4, the operator scorepad is also identified by the four series to assist you.

5.1.5 PURE TONE

To test older children using the Pure Tone feature, press the PURE TONE key. Press the START key to begin the automatic sequence. You will not need the picture board during this test. Instruct the child to raise her/his hand every time they hear a tone. The child will hear tones at 40 dB, 30 dB and 20 dB and at 500, 1000, 2000, and 4000 Hz.



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6.0 SET UP MODE / CUSTOMIZING YOUR TEST

The operation of your Pilot® Audiometer is easily customized:

6.1 **Blinking light while series is in progress.**

Depressing the TEST EAR key for three seconds while turning on your unit will allow you to change the series or pure tone indicator light to blink while a test is in progress. The factory has set the lights to remain steady. To return to steady light, repeat these steps.

6.2 **Shorten series from 10 phrases to 5.**

Depressing the SERIES key for three seconds while turning on your unit will allow you to shorten the series test to five phrases instead of the factory installed 10 phrases. The five series sequence will begin at 25 dB instead of 50 dB. To return to factory installed 10 phrases, repeat these steps.

6.3 **Eliminating repeat of last phrase after PAUSE key has been pressed.**

Depressing the PAUSE key for three seconds while turning on your unit will eliminate the repeat of the last phrase or tone when the series has been paused. The factory has set the unit to repeat the last phrase or tone when the PAUSE key has been depressed during a test. To return to repeat of last phrase, repeat these steps.

6.4 **Changing pause between phrases or tones from 4 seconds to 6 seconds.**

Depressing the START key for three seconds while turning on your unit will change the four-second pause between phrases or tones to six seconds. To return to factory installed four seconds, repeat these steps.

6.5 **Returning unit to factory default settings.**

Depressing the PURE TONE key for three seconds while turning on your unit will reset the Pilot® to all factory defaults:

- A ten phrase sequence
- Steady light during test
- Repeat of last tone or phrase after a test has been paused
- Four second pause between phrases or tones

6.6 **Changing language (Pilot® Bilingual Audiometer only)**

If you have purchased the Spanish/English Pilot® Bilingual Audiometer, hold the START and TEST EAR keys down while turning on your unit. This will allow you to choose an alternate language (English/Spanish). To change back to other language, repeat these steps.

Contact your Maico special instrument distributor if you wish to add the bilingual Spanish/English option.



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7.0 GETTING STARTED

7.1 Preparing the Child

The child will first need to learn the correct names for the pictures. This can often be accomplished by having a parent help the child in the waiting room while they are waiting for the health care professional to administer the test. Instruct the child to point to each picture and identify them. To be sure the child understands, ask the child to identify the pictures in the same manner as in the screening: “point to the bathtub, show me the airplane, etc.” (A small laminated picture sheet with words is provided with the unit to assist in the process of identifying the pictures.)

Once you are confident that the child understands, tell the child that the pilot needs his/her help and will ask some questions. The best way to prepare a child is to pretend that he/she is going to play “The Pilot® game.” This will reduce the anxiety associated with the screening. (Now would be a good time to introduce the headset.) Tell the child that in order to help the pilot, he/she needs to put on some headphones “just like the pilot wears” so that they will be able to hear each other.

NOTE: Place red earphone on right ear.

The headset needs to fit snugly (make sure the child’s hair is away from the ear.) Explain that the pilot will now be asking where a picture is and he/she should point to it. The child should be told that the voice will start out loud and get softer and that he/she needs to listen very carefully.

You are ready to begin.

7.2 How the Screening Works

Place the operator earphone over your ear. You will hear all of the questions at the same volume during the test—they will not become softer. You can adjust your volume level by moving the volume control on the rear of the Pilot®.

When you first turn on the Pilot®, the unit will automatically be set to screen the “right ear” (bird’s right eye illuminated) using “series one.” (Light #1 on the tail of the plane is illuminated.) Press the START key to begin series #1. The key will remain illuminated until the series is complete. You and the child will hear a voice say, “Okay, let’s look at the pictures” followed by “Show me the highchair.” The first phrase will be heard by the child at 50 dB and the following phrases will decrease by 5 dB until the final three phrases, which will be heard at 15 dB. There will be 10 phrases in each series.

NOTE: Most states define a normal hearing level for speech recognition at 25 dB. Check with your state or the American Speech-Language Hearing Association for requirements.

When the commands are completed, the unit automatically switches to the next series, (series two). Proceed immediately to the left ear by pressing the TEST EAR key. The bird’s left eye will illuminate. Then press START to initiate the screening process.



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NOTE: In testing most children, it is only necessary to complete the first two series (series 1 for the right ear and series 2 for the left ear). Series 3 and 4 is generally used if there is a need for a retest.

7.3 Screening with the Pure Tone Audiometer

After turning on the unit, push the PURE TONE key. The light in the cloud will illuminate. Then press start to begin the automatic sequence. Instruct the child to raise his/her hand every time they hear a beep (you may listen to the tones by using the operator earphone). The child will be presented with the tones at 40 dB, 30 dB and 20 dB at 500, 1000, 2000 and 4000 Hz. To return to speech reception, press the SERIES key.

7.4 Scoring the Results

Mark a √ for correct answers, an "X" for incorrect answers, or an NR for no response on the score pad. A "refer" decision is generally indicated after the child has missed two consecutive words, although a retest should be considered before referral. A number of factors can influence your results. The child may have a cold, or an ear infection. You may want to test the child a second time before referral.



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8.0 MAINTENANCE

8.1 Preventive Maintenance

To maximize the service life of your audiometer and accessory equipment, we suggest the following:

1. Turn off the instrument overnight.
2. Wipe the headset cords, ear cushions and casing occasionally with a cloth dampened (not dripping wet) with warm water. Dry with a soft cloth.
3. Leave the accessories such as the headset, power supply module, and operator earphone permanently connected to the audiometer to minimize strain on the connections. It is not necessary to disconnect accessories not in use while performing other tests. Should it be necessary to disconnect cords, always grasp the barrel of the plug — never pull the cords. Never drop or snap the headphones together. Mechanical shock may change the earphone's electrical and operational characteristics and require recalibration of the Pilot.
4. Cover the audiometer at the end of each day to minimize dust collection.
5. Avoid sharply bending or twisting any of the cords. Although they are designed to be highly flexible, rough treatment may cause damage. Broken or defective cords can cause crackling noise and intermittent or weak operation in the headset. Headset cords may be replaced without recalibrating the audiometer.

8.2 Cleaning the Pilot Audiometer

First, disconnect the power cord **before** cleaning. Clean the instrument, headphones, and other accessories with a soft cloth dampened with a little warm, soapy water. Do not use alcohol to clean.

The ear cushions of the headphones can be detached for cleaning. To remove, gently pull the cushion away from the headphone. To re-assemble, press it back onto the headphone. Make sure that the sound outlet hole sits exactly in the middle of the earphone.



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8.3 Calibration

The optimum length of time between calibrations for audiometers varies, depending upon the treatment given the instrument and the headphones. It is recommended that the instrument have a laboratory calibration at least once every year. Since rough handling, such as dropping the headphones, can easily cause calibration errors it is advisable to establish a biological calibration check as soon as you receive the instrument.

Should you feel at a later date that the audiometer's calibration might be in error, perform a biological check on a known ear. If all re-tests show major changes, calibration is probably in error.

All repairs and calibrations should be done at an authorized Maico Special Instruments Distributor service center. This assures the use of quality materials by trained and experienced technicians using the proper, accurate equipment.

Maico Special Instruments Distributors are located in major cities throughout the world. To minimize costs and time delays, contact the Distributor that you purchased the instrument from. If you don't know who that is, or need to find the Distributor closest to you, contact the factory at:

Maico Diagnostics
7625 Golden Triangle Drive
Eden Prairie, MN 55344
Toll free 888-941-4201
Phone 952-941-4200
Fax 952-903-4200

Customers outside of North America and South America may contact:

Maico Diagnostic GmbH
Salzufer 13/14
10587 Berlin, Germany
phone ++030 70 71 46 50
fax ++030 70 71 46 99

8.4 Shipping Instructions for Calibration and Repair



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In the event it becomes necessary to return the instrument for calibration or repair, please follow these instructions:

1. Place the instrument in the original shipping carton, using the packaging provided. Be sure to include all accessories, as they are required for proper calibration.
2. Enclose an explanatory letter describing the service you require, carefully detailing any operational problems. Be sure to include your name, phone number, the serial number and your full return address for return shipping.
3. Ship, prepaid, to your Maico Special Instrument service center.

NOTE: Warranty service is provided by your authorized Maico Special Instruments Distributor.

**DO NOT ATTEMPT TO REMOVE THE INSTRUMENT CASE YOURSELF.
THIS SHOULD BE DONE ONLY BY AN AUTHORIZED MAICO SERVICE
TECHNICIAN.**

