



15052 REDHILL AVENUE, SUITE D, TUSTIN, CA 92780 (714) 259-7930

Model 650A & 650 AB AUDIOMETER

(650A SUPPLIED WITH AC POWER ONLY OR 650AB WITH BOTH AC AND BATTERY)

OPERATION INSTRUCTIONS & TEST PROCEDURES

The Model 650A, AB meets or exceeds all specifications and requirements for screening and threshold testing conducted by physicians, clinics, hospitals, schools, and industry to meet requirements such as ANSI 3:6 1989, O.S.H.A., C.H.D.P., E.P.S.D.T., F.A.A., Police and insurance physicals.

*TO MEET THE ABOVE REQUIREMENTS, ALL AUDIOMETERS MUST BE
CALIBRATED AND CERTIFIED AT LEAST ONCE A YEAR.*

AC POWER – For electrical power operation, make certain AC adapter is plugged in back of unit, then plug AC power supply to power outlet.

MAKE CERTAIN EARPHONE CORDS ARE PLUGGED IN BACK OF AUDIOMETER, RIGHT TO RED, BLUE TO LEFT, BLACK FOR PATIENT RESPONSE.

BATTERY POWER – Unplug AC adapter from power outlet and from the back of unit. Press **TONE**, red TONE light indicates battery power is on. A LOW BATT light as well as TONE light, indicates unit is usable but battery is low. When pressing **TONE** and LOW BATT lights only, the battery is unusable. If no light at all, battery is dead. Change battery in back of unit using a 9 Volt battery such as Energizer 9 V #522 battery.

SCREENING – CPT CODE #92551

Screening requires testing at a set hearing level and specified frequencies. Common screening requires subjects to hear 25dB at frequencies of 500, 1000, 2000, 4000 Hz. Set the frequency at 1000 Hz and HTL at 40dB. Select the right ear to be tested first. Present the tone by pressing **TONE** for 1 to 2 seconds, if the subject responds, lower the hearing level to 25dB. Present the tone, record a yes or no at each frequency tested. The subject either hears or does not hear the 25dB tone at the specified frequency. Repeat the same procedure for the frequencies 500, 2000, and 4000 Hz with the threshold kept at 25dB. Switch to Left ear and repeat the screening.

THRESHOLD TESTING – CPT CODE #92552

Most hearing tests require a threshold or establishing the exact level hearing of a subject. Threshold is the lowest sound level intensity responded to at a specific frequency. Commonly specified frequencies for threshold testing are 500, 1000, 2000, 3000, 4000, 6000 Hz.

TEST PROCEDURE

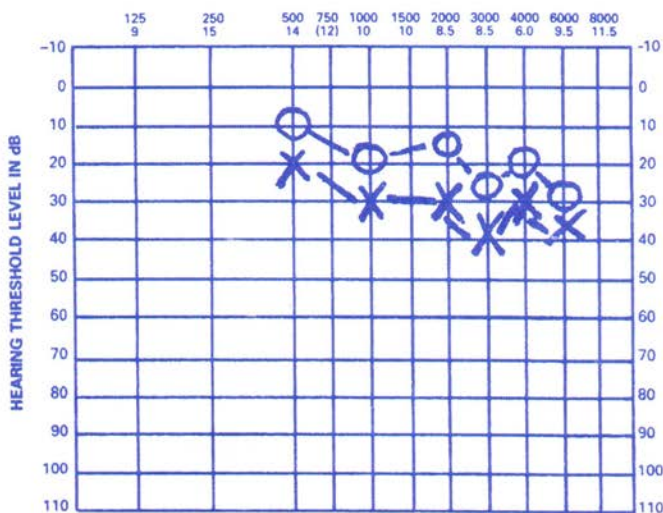
1. Turn the audiometer on. Press **TONE**, red TONE light indicates power is on.
2. Select the RIGHT EAR to be tested first. Select Steady or pulsed tone.
3. Set frequency to 1000 Hz and the HTL (intensity) to 40db.
4. Explain to the patient the procedure you will use. You will present tones to the left or right ear and he/she will respond when the tone is heard by pushing the patient response switch every time a tone is heard.
5. Place the head band and receivers on the patient. Place the RED receiver over the right ear and the BLUE receiver over the left ear. Make certain the headband and receivers are tight but comfortable.

- Press the **TONE** for approximately 1-2 seconds. A display above the **TONE**, ON, lights when tone is presented. As the patient responds lower the intensity in 5dB increments. When the patient response switch is pressed by the patient the green light under RESPONSE, indicates the tone was heard.
 - Repeat Step Six until the patient does not respond. Record the lowest intensity heard by the patient. For example at 1000 Hz the Patient responds to 20dB, but not 15dB, you would record 20dB at 1000Hz. The patient heard a frequency of 1000 Hz at 20dB. When using the audiogram such as Figure 1, record as shown.
- The audiogram shows the frequency in Hz on the upper part and the intensity in dB on the left side. Place O designating RIGHT ear under 1000 Hz and 20dB. When recording the LEFT ear results use X.
- Follow the above procedure for all frequencies to be tested i.e., 500, 1000, 2000, 3000, 4000, 6000, 8000 then back to 500 Hz.
 - Switch the selector switch to the other ear and repeat the exact procedure. (It is best to test one ear then switch to the other ear.)

AMBCO
 15052 Redhill Avenue
 Suite D, Tustin, CA 92780
 (714) 259-7930

Name _____ Age _____
 Address _____ Date _____
 City _____ Zip _____ By _____

AUDIOGRAM



TEST	Right Ear (Red)	Left Ear (Blue)
Air	0-0	X-X
Air Opp. Ear Masked	Δ-Δ	□-□
No Response	↓	X
Bone	>	<
No Response	↓	↓

Frequency Hz	R Intensity	L Intensity
1000	20db	30db
2000	15db	30db
3000	25db	40db
4000	20db	30db
6000	30db	35db
500	10db	20db

(Shown on audiogram)

Ear Right Left
 | 125 | 250 | 500 | 750 | 1000 | 1500 | 2000 | 3000 | 4000 | 6000 | 8000 |

WHAT IS NORMAL HEARING?

Numerous factors affect hearing, such as age and background noise. This list below may be used as a general guideline to compare hearing test results:

AVERAGE THRESHOLD LEVEL (dB)*

00 – 15 dB	Normal hearing
16 – 25 dB	Slight hearing loss
26 – 40 dB	Mild hearing loss
41 – 55 dB	Moderate hearing loss
56 – 70 dB	Moderately severe hearing loss
71 – 90 dB	Severe hearing loss
91 – NR dB	Profound hearing loss

SPECIFICATIONS

Operating Temperature	15° to 30°C (59°F to 86°F)
Product Type	Pure Tone, Type 4 Audiometer
Test frequencies	250, 500, 1000, 2000, 3000, 4000, 6000, 8000 ± 3%
Line Voltage	AC-DC adapter input voltage range of 90 - 264 V at 47 - 63 Hz
AC Adapter Output	12VDC nominal at 0.5A
Battery	9V alkaline
Attenuator range	0 to 90 dB HTL ± 3 dB, 5 dB steps
Attenuator linearity	± 1 dB
Stimulus	Continuous or pulsed
Rise/fall time	20 - 50 ms
Distortion	3% THD maximum

* Generally, if a person can hear as low as 25 dB at the test frequencies, his/her hearing is considered acceptable.