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657 Electronic Stethoscope User's Manual



A SPECIAL THANK YOU...

Thank you for choosing the ADC® 657 Electronic Stethoscope. We're proud of the care and quality that goes into the manufacture of each and every item that bears our name.

Only the finest materials are used to assure you of a timeless instrument designed for optimum performance.

You'll quickly appreciate the results, for you now own one of the finest electronic stethoscopes that money can buy.

With proper care and maintenance, your ADC® 657 Electronic Stethoscope is sure to provide you with many years of dependable service. Please read the following instructions and general information which will prove helpful in allowing you to enjoy your ADC® product.

Thank you for your patronage.
It is indeed our pleasure to serve you.

Sincerely,
American Diagnostic Corp.

6. Parts, Service, and Warranty

- Replacement parts Item Number
- Battery AAABAT
- Eartips 602-07BK

LIMITED WARRANTY

American Diagnostic Corporation (ADC®) warrants its products against defects in materials and workmanship under normal use and service as follows:

1. Warranty service extends to the original purchaser for 2 years from the date of purchase.
2. The entire stethoscope is warranted. This warranty is only valid if the product is registered online at www.adctoday.com.

What is Covered: Repair, or replacement of parts, and labor.

What is not covered: Transportation charges to and from ADC®. Damages caused by abuse, misuse, accident, or negligence. Incidental, special, or consequential damages. Batteries or damage from old batteries is not covered by the warranty. Some states do not allow the exclusion or limitation of incidental, special, or consequential damages, so this limitation may not apply to you.

To Obtain Warranty Service: Send item(s) postage paid to ADC®, Attn: Service Dept., 55 Commerce Dr., Hauppauge, NY 11788. Please include your name and address, daytime phone no., proof of purchase, a brief note explaining the problem, and \$2.00 to cover the cost of return shipping and handling.

Implied Warranty: Any implied warranty shall be limited in duration to the terms of this warranty and in no case beyond the original selling price (except where prohibited by law). This warranty gives you specific legal rights and you may have other rights which vary from state to state.

American Diagnostic Corporation
Attn: Service Department
55 Commerce Drive
Hauppauge, NY 11788

5. Specifications

Power supply:	1.5V (AAA Battery)
Electric current supply:	20mA (max)
Battery life:	150 hours under continuous power on (approximately 3000 measurements at 3min/per.)
Weight:	6.17 oz. (175 grams)
Length:	29.1 in (74cm)
Frequency:	Bell (15-200Hz) Diaphragm (100-500Hz) Wide/Extended Range (15-1000Hz)

Operating environment

- Temperature: -4°F to 140°F (-20°C ~ 60°C)
- Humidity: 20 to 90% Relative humidity

Storage environment

- Temperature: -4°F to 158°F (-20°C ~ 70°C)
- Humidity: 15 to 95% Relative humidity

Regulatory standards

EN 60601-1 (1988) Medical electrical equipment, Part 1: General requirements of safety
 EN 60601-1-2 (1993) Medical electrical equipment, Part 1: General requirements Section 1.2
 Collateral Standard: Electromagnetic Compatibility





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1. Introduction

Intended Use

- The ADC® 657BK is an electronic stethoscope which transmits lung/heart sounds from a patient through auscultation. It amplifies sounds and removes noise by using a contact microphone and electronic circuits.

Explanation of Symbols:  Attention, see instructions for use.  Indicates type BF equipment  Stand-by mode
 This product and package do not contain natural rubber latex

Warning

- Do not tap or scratch the chestpiece diaphragm while wearing the ear set while the power is on. It may cause damage to your hearing.
- Do not bend harshly or apply excessive force to the stethoscope, this may cause it to break.
- Do not disassemble, repair, or modify the device. When repair is needed, refer to page 8 of this booklet for warranty and service center details.
- Avoid high humidity and wet environment usage, such as bathrooms. Pressing the power button while the stethoscope is wet could damage the device.
- Never immerse instrument in any liquid.
- Check the polarity (+, -) of the battery.
- Check the low battery level before use ('D' LED: flashing in Red). The sounds might be distorted if the battery level is low.
- This product is intended to be used only by a medical specialist.

Caution

- Avoid direct exposure to sunlight, heating vents, or heating appliances.
- When the stethoscope is left unused for a long period of time, the battery should be removed from the device. Otherwise, the battery might be completely discharged, and liquid from the battery could damage the device.
- Avoid strong magnetic fields beside the stethoscope. It could cause malfunction.
- Do not use the stethoscope for any purpose other than medical examination.
- Do not pull the tubing connecting the main unit and the battery compartment.

Caution

- Federal law restricts this device to sale by or on the order of a physician or licensed healthcare practitioner.

Caution

- Always check security of eartip before inserting in ears.

Mode selection



After the Green LED light confirms that the power is on, the power button can then be used for mode selection. As you press the power button, the LED will cycle to the next mode. Continue pressing the power button until your selected mode is illuminated. **B - Bell** (Low Frequency 15-200Hz), **D - Diaphragm** (High Frequency 100-500Hz).

W - Extended (Wide Frequency 15-1000Hz). **Bell** provides excellent detection of low & medium heart sounds and murmurs. **Diaphragm** is designed for the detection of pulmonary sounds and high pitched murmurs, clicks, and ejection sounds. **Extended Range** allows the practitioner a wide frequency response.

Replacing the battery



The low battery level indicator lamp is used with the middle LED (during 'D' mode). A Yellow light on the LED indicates the battery is weak. A Red light on the LED indicates the battery needs immediate replacement. Open the battery compartment cover by pulling down the notch on the cover, and remove the old battery by carefully lifting it. Replace with new battery. Be sure to insert battery polarity in correct direction, then replace battery compartment cover. Use only a AAA 1.5v battery (not compatible with different types of batteries), and dispose of or recycle the depleted battery in accordance with your local regulations.



Replacing the eartips



Adsoft™ eartips are threaded for a secure fit. To remove for cleaning or replacement, turn counterclockwise. To reattach, turn clockwise.

Caution - Always check security of eartip before inserting in ears.

Cleaning

It is unnecessary to disassemble the unit for cleaning. Use a slightly moistened cotton cloth with alcohol to clean chestpiece diaphragm, binaurals, and eartips. Be careful to prevent alcohol seepage under the diaphragm. It may cause significant damage to the microphone and electronic circuits. **Caution** - Never immerse instrument in any liquid.

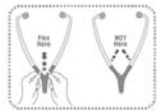
4. Operation

Binaural positioning



The ADC® 657 electronic stethoscope is designed to provide comfortable ear fittings and the best sound transmission, considering morphology of the outer ear canal. The binaurals (ear tubes) are angled at 15° to permit a comfortable, acoustically sealed aural fit. Eartips should point forward, towards the bridge of the nose to fit properly. The ADC® logo on the battery compartment should be visible by the patient.

Adjusting spring tension



To reduce the tension, grip the binaurals firmly using both hands with fingers at the center of the “Y” in the tubing, thumbs at each side where the tubing branches out. Flex binaurals gradually until the desired tension is obtained. To increase the tension, grip the binaurals in the hand and squeeze the binaural tubes together gradually. *Excessive adjustment of the spring tension could weaken the spring.*

Power ON/OFF



Press the one-touch soft power button lightly to turn the ADC® 657 stethoscope on. A Green LED will light. Holding down the the power button for 1.5 seconds turns off the ADC® 657, and the Green LED will go out. The ADC® 657 turns off automatically after 3 minutes of last activation. Depressing any button extends “power on” time by 3 minutes.

Volume control



During auscultation, press the volume button “▲” to increase the sound level, and press the volume button “▼” to decrease the volume. The volume level is divided into eight levels.

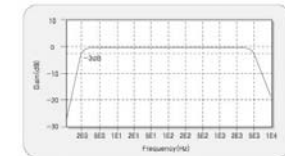
2. Features

Main features of the ADC® 657 electronic stethoscope

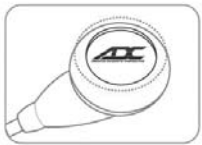
- Improves low frequency sound transmission characteristics with the use of a piezopolymer film contact microphone.
- MPU controlled automatic power-off.
- Mode selection (Bell, Diaphragm, Wide).
- 8-level digital volume control.
- Memorizes the mode and volume of the previous operation.
- Ergonomic design for comfort.

An acoustic microphone used in most electronic stethoscopes may have frequency characteristics not suitable for body sounds, especially for the low frequency heart sounds. Other stethoscopes provide the internal body sounds not directly from the body surface, but through the air layer between the body surface and the microphone.

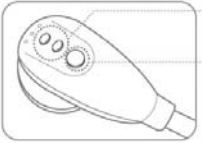
The ADC® 657 solves those problems with the use of its piezopolymer film contact microphone, which is at the heart of the ADC® 657. The ADC® 657 has wide frequency characteristics, enabling you to detect the heart and lung sounds more precisely.



3. Name and function of each part



Piezopolymer film contact microphone beneath diaphragm



Soft touch volume control button to increase/decrease volume

Power ON/OFF and mode selection

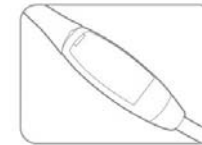


LED: Indication of selected mode and low battery warning

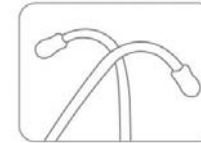
B - Bell

D - Diaphragm (*also battery indication light*)

W - Wide (extended range)



Battery compartment



Binaurals and eartips