

# DIRECT OPHTHALMOSCOPE USER'S MANUAL

## *EQ-6750*

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## **DISCLAIMER**

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**NOTE:** *Neither Manufacturer nor distributor assumes any responsibility or liability for any damages caused by negligence or ignorance of precautions in this manual.*

## **GENERAL SAFETY REQUIREMENTS**

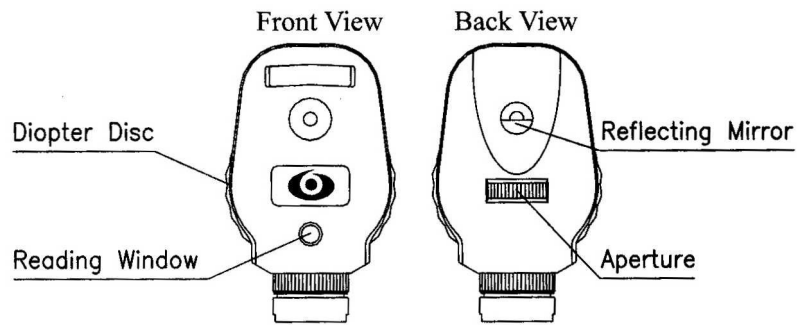
Follow the proceeding Warnings to avoid injury and damage to the ophthalmoscope.

### **WARNINGS:**

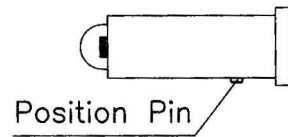
1. Do not use this instrument around heat or open flame. Keep away from dust and moisture.
2. Use only the fuse specified in this manual.
3. Use only the power cable supplied with this instrument.
4. Turn off the main power before changing the fuse and bulb.
5. Turn off the power when not in use.
6. In case of trouble with this instrument, first consult the trouble shooting guide. If the instrument is still not working properly, contact Amcon Laboratories or a professional instrument repair company.

# 1. PARTS OF THE OPHTHALMOSCOPE

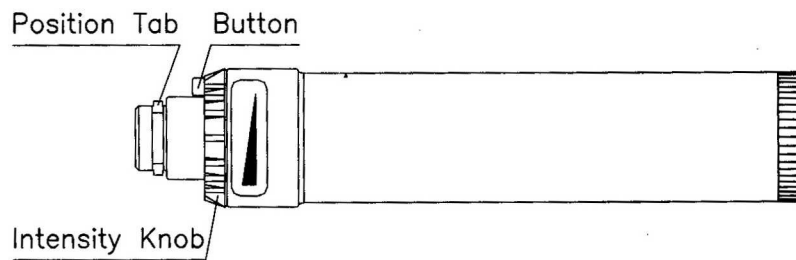
## A. Head



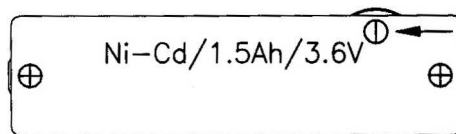
## B. Bulb (Replacement: BT-3000 from Amcon Laboratories)



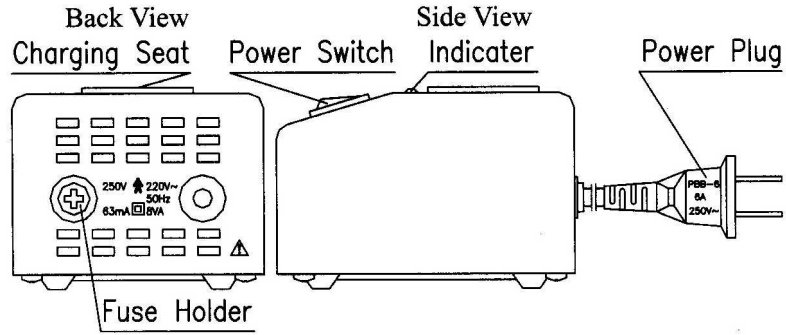
## C. Handle



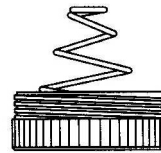
## D. Rechargeable Battery (Replacement: BA-224G from Amcon Laboratories)



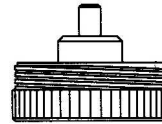
E. Charging Unit



F. Battery Cap for Dry Cell Batteries (Blue)



G. Battery Cap for Rechargeable Battery (Red)



**2. ASSEMBLY PROCEDURE**

All parts should be handled with great care before and during assembly. Align the position tab on the handle with the groove in the head. Push the handle into the head and rotate clockwise.

### 3. OPERATION PROCEDURES

#### 3.1 Selection of Viewing Lenses

Turn the diopter disc counterclockwise for convex (plus) lenses, which are printed in black: 0, +1, +2, +3, +4, +5, +6, +8, +10, +12, +16, +20D. Turn the diopters disc clockwise for concave (minus) lenses, which are printed in red: 0, -1, -2, -3, -4, -5, -6, -8, -10, -16, -20, -25, -35D. The power display is illuminated for ease of reading in a dim room.

#### 3.2 Selection of Aperture Type

There are five aperture choices which are changed by turning the Aperture Wheel. Select the aperture based on what aspect of the eye is to be examined.

**Large Spot:** used for checking the fundus with opaque media, such as cataracts; in a mydriatic examination, this large spot aperture is useful

**Small Spot:** used for general undilated fundus examination

**Slit:** used for examining the pathological changes in the optic nerve head and retinal edema

**Central Net:** used for measuring the position of a foreign body and to examine eye alignment

**Red-free Filter:** used to examine blood vessels and bleeding in the retina

Filter		Aperture Diameter (mm)	Image Diameter on Fundus (mm)
Large Spot		2	3.2
Small Spot		1	1.6
Red Free		1.6	2.56
Central Net	Between Notches	0.2	0.32
	Inner Circle	0.4	0.64
	Outer Circle	1.6	2.56
Slit	Length	2	3.2
	Width	0.2	0.32

### 3.3 Power Button and Brightness Control

To turn the ophthalmoscope on, press the green button on the handle and rotate the intensity knob clockwise to the maximum brightness. To turn the ophthalmoscope off, rotate the intensity knob counterclockwise until the green button pops up.

**Attention:**

- *Ensure that the ophthalmoscope is off when not in use.*
- *To prolong the life of the bulb, do not use at full intensity on a freshly charged battery.*

### 3.4 Charging the Battery

Insert the battery into the handle with the plus (+) end up. Cover with the red cap and screw in until secure. Insert the handle into the charging unit and connect the power source. Turn on the power switch, and the green indicator light will be illuminated. The yellow indicator light signals that the unit is charging. When the battery is fully charged, the yellow light will turn off. Turn off the charging unit when not in use.

**Attention:**

- *The ophthalmoscope may be charged between each use, even if the battery is not yet dead. This will not harm the ophthalmoscope or the battery.*
- *For extended use without charging, continuously charge the battery at least two times to obtain maximum capacity. If the illumination is not bright enough, charge the battery fully to prolong its life. If the battery is completely dead, charge and use the power completely two or three times to recover its maximum charge capacity.*
- *Before initial use, fully charge the battery overnight.*
- *Normal recharging time is 3 hours. If the charger stops charging and the illumination is not bright, remove the battery and clean the inside of the handle with a soft cloth.*
- *If the ophthalmoscope is not to be used for an extended amount of time, remove the battery and store it in a cool, dry environment.*
- *Ensure that the ophthalmoscope on/off button is in the 'off' position while charging.*

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## 4. MAINTENANCE

### 4.1 Replacing the Illumination Bulb

- After the bulb is cool, remove the ophthalmoscope head by snapping the head with one hand and holding the handle with the other hand. Rotate the handle counterclockwise and pull the head off of the handle.
- Pull out the used bulb, and then insert the new bulb with the groove and pin aligned.
- To reassemble, align the position tab on the handle with the groove in the head. Push the handle into the head and rotate clockwise.

### 4.2 Replacing the Battery

- Unscrew the battery cap. Insert the rechargeable battery into the handle with the plus (+) end up. Cover with the red cap and screw in until secure. Replacement rechargeable batteries (BT-3000) are available from Amcon Laboratories.
- When using dry cell batteries, cover with the blue batter cap and screw in until secure.

**Attention:**

- *Ensure that the plus (+) pole is up and the minus (-) is down, and is in contact with the battery cap.*
- *Remove batteries when the ophthalmoscope is not used for a prolonged time period.*
- *Remove the plastic isolation sleeve from handle when changing from dry cell batteries to rechargeable batteries.*

### 4.3 Replacing the Fuse

Turn off the power and unplug the charging unit. Unscrew the fuse holder cap and replace with a new 250V 63mA fuse, then screw the cap on.

**Attention:** *Please select the fuse of the same types, specification, and rating.*



#### 4.4 Cleaning

If dust settles onto the reflecting mirrors, brush with a soft brush. If any dust still remains, wipe it off with a soft cloth dipped in alcohol. If the surface of the ophthalmoscope is dirty, wipe it with a soft cloth.

***Attention:*** Never scratch the reflecting mirror with fingers or any hard material. Do not wipe with any corrosive detergent to prevent damage.

#### 4.5 Protecting the Ophthalmoscope

- The ophthalmoscope should remain in a clean environment. If not to be used for a prolonged period of time, it is recommended to be stored in the protective case.
- The handle bottom should remain clean at all times to ensure normal charging.
- Do not place anything over the heat exhaust hole on the charging unit.

## 5. TROUBLE SHOOTING GUIDE

In case of trouble with the performance of the ophthalmoscope, please refer to this guide. If the problem is not corrected, please contact Amcon Laboratories or an ophthalmic instrument repairperson.

Problem	Possible Cause	Solution
No Illumination.	Button is not pressed or not rotated.	Press the button and rotate clockwise.
	Bulb is burnt out.	Replace the bulb.
Illumination is too dim.	Battery is not fully charged.	Charge or replace batteries.
	Bulb is almost burnt out.	Replace the bulb.
Green indication light on but charging unit is not on.	Switch of charging unit is turned off.	Turn charging unit switch on.
	Fuse is blown.	Replace the fuse.
Fuse is blown.	Using fuse of incorrect specification.	Replace with the correct fuse.

## 6. TRANSPORTATION AND STORAGE

- The ophthalmoscope has been carefully assembled and adjusted to meet certain quality standards. Do not disassemble the ophthalmoscope.
- During transportation, protect the ophthalmoscope from moisture and vibration.
- Store in a well ventilated room without corrosive gas, with a relative humidity of 10% to 80% at a temperature of -40 °C to 50 °C.

## 7. SPECIFICATIONS

Illumination: 3.5V, 2.8W Mini Halogen Bulb, BT-3000 from Amcon Laboratories

Recharging unit: Input Voltage: 220V  $\pm$  10%V

Input Frequency: 50 Hz  $\pm$  1Hz

Input Power: 8VA

Battery: Rechargeable BT224G from Amcon Laboratories

Viewing Lenses: 0,  $\pm$ 1,  $\pm$ 2,  $\pm$ 3,  $\pm$ 4,  $\pm$ 5,  $\pm$ 6,  $\pm$ 8,  $\pm$ 10,  $\pm$ 12,  $\pm$ 16,  $\pm$ 20, -25, -35

Apertures: Large Spot, Small Spot, Slit, Central Net, and Red-free

New Weight: 118g (excluding battery)

Total Weight: 340g

Dimensions: 42mm x 32mm x 210mm

This instrument complies with Medical Electrical Equipment Part I General Safety Standard. Class Two, Type B.