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## 1. Installing and changing the rechargeable batteries

**Note:** Your LED illuminating microscope comes with 3 “AA” size 1.2V Nickel Metal Hydride (NiMH) batteries. The batteries are not charged, but there may be enough power to turn the LED light on. We recommend that you charge the batteries for 12 hours before you use this microscope for the first time. For use, the batteries shall be placed in the battery chamber which may be fixed on the bottom plate or inside the base of the microscope.

To load in or remove the batteries :

- 1.1 Unplug the charger.
- 1.2 Remove the screws from the bottom plate of the microscope base , and move away the bottom plate carefully, (as referred to Fig.1). Some models may have only 1 screw.
- 1.3 Release the screw from the battery chamber (as referred to Fig.2), then slide off the lid.
- 1.4 Insert the batteries to the battery chamber according to the indications on the chamber (as referred to Fig.3).
- 1.5 Slide back in the lid carefully and tighten firmly with the original screw (as referred to Fig.3)
- 1.6 Replace back the bottom plate of the microscope and tighten it with the screws as shown in Figure 1.

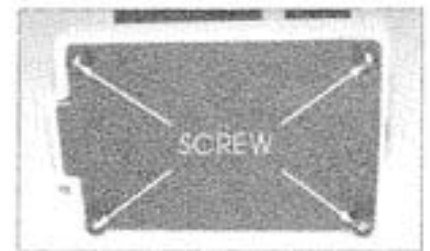


Figure 1



Figure 2



Figure 3

## 2. Charging the rechargeable batteries

- 2.1 Make sure that the rechargeable batteries are in the battery chamber.
- 2.2 Connect the charger to the mains.
- 2.3 Connect the other end of the cable to the charging jack on the microscope base (as referred to Fig.5)

**Note :**

- Before connecting the charger to the power source, please make sure the input voltage of the charger is the same as the power source.
- The batteries must be charged at least 12 hours for the first time.
- Please use the charger provided.

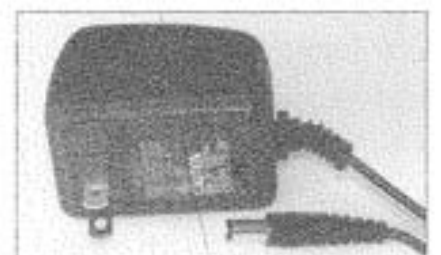


Figure 4

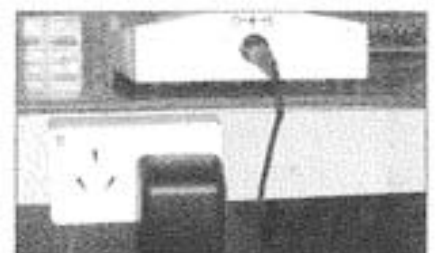


Figure 5

## 2. Charging the rechargeable batteries(continued)

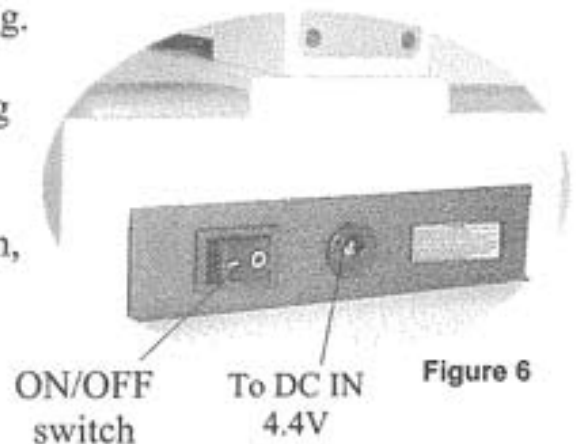
- When the batteries are not in the charging process, please detach the charger from the microscope to avoid reflux of current from the batteries.

### Warning :

No metal should be inserted into the charging jack(as referred to Fig.6), otherwise the LED Illuminator will be short-circuited and the electrical parts damaged.

## 3. Using LED Illuminating microscope

- 3.1 Charge the rechargeable batteries before using. Even if the rechargeable batteries are not charged, you can use the microscopes as long as the charger is connected and turned on.
- 3.2 In some models, there is a main switch built at the base. When using the LED illumination, switch it on, or switch it off otherwise.
- 3.3 In some models, the switch is built in the intensity control dial. When using the LED illumination, switch it on, or switch it off otherwise.



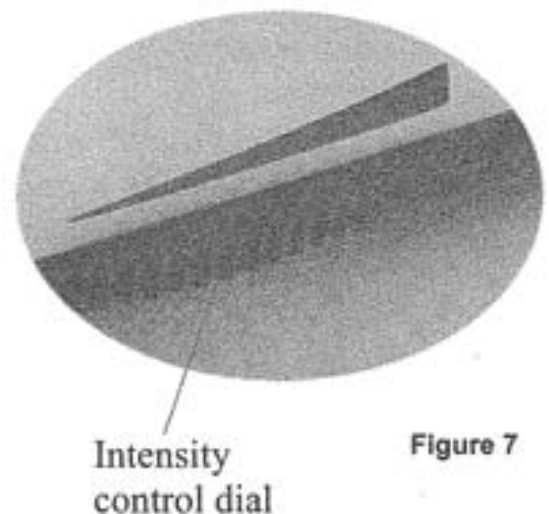
The switch on/off actions required in 3.2 & 3.3 are to protect the chargeable batteries for longer life and to save energy.

## 4. Intensity control

Some LED illuminating microscopes have an intensity control dial on the microscope base as shown in Figure 7. Turning the dial controls the light intensity of the illuminator.

### Note:

This item is only applicable to models with intensity control dial.





## 5. Change of LED lamp

### 5.1 Open the LED lamp housing

To open the LED lamp housing, please use the Allen key provided as shown in Figure 8 to loosen the screw on the side of the lamp housing and pull the housing up.

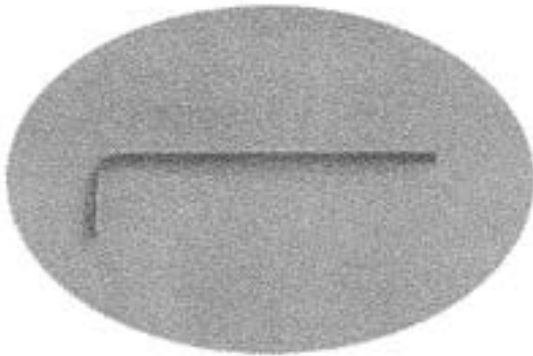


Figure 8



Figure 9

### 5.2 LED lamp

The LED lamp comes with its holder, as shown in Figure 10, which should be plugged onto the electrical connector, as shown in Figure 11.

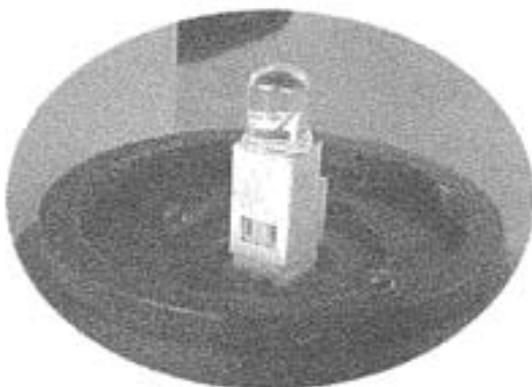


Figure 10

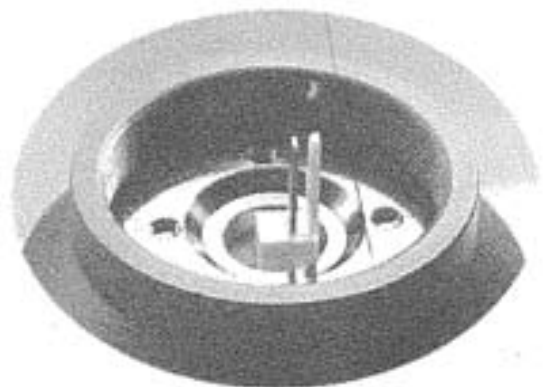


Figure 11

## 5. Change of LED lamp(continued)

### 5.3 Change the LED lamp

After opening the lamp housing, pull out the LED lamp with its socket, replace with a new one, as shown in Figure 12.

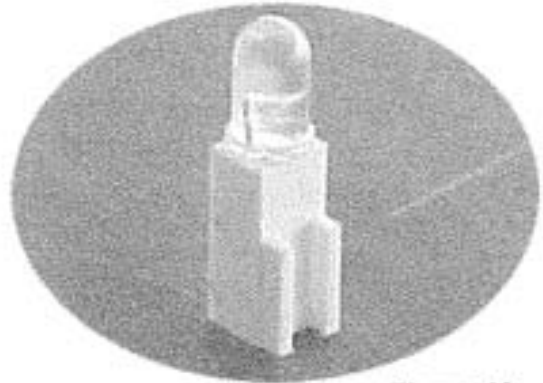


Figure 12

### 5.4 Replace the lamp housing

Put back the lamp housing on its holder and secure it with the original Allen screw and Allen key provided.

## 6. Use of the frosted glass

All LED models equipped with 1.25 Abbe condenser will have a frosted glass installed on the filter holder under the iris diaphragm, as shown in Figure 13. When observing with low power objectives (4x, 10x), please make sure this frosted glass is swung into the optical path to get the best illuminating effect, as shown in Figure 14.

When observing with high power objectives (40x, 100x), this frosted glass is better swung out of the optical path, as shown in Figure 13.

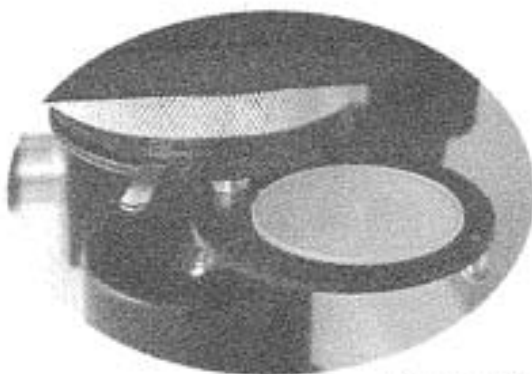


Figure 13

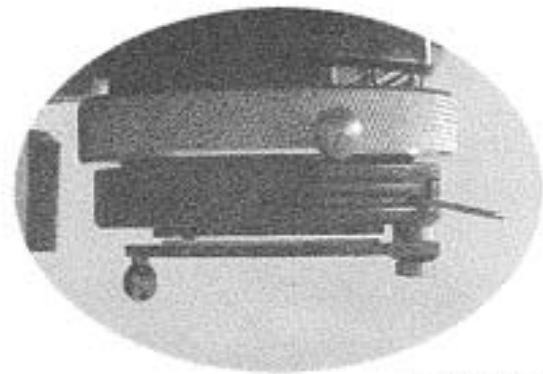


Figure 14

**Note :** This item will not apply to models without 1.25 Abbe condenser.

## 7. SM Connectors

These connectors are at the middle of the cable linking between the LED lamp and the related printed circuit board as shown in Fig.15 & 16 inside the base of the microscope.

To change batteries or conduct maintenance work to the inside of the base of the LED illuminating microscope, please carefully unscrew to release the bottom plate and disconnect the SM connectors before carrying out any work. Re-connect the SM connectors after required work is done.

For models with flipping out bottom plates where the battery chamber is fixed, there is no need to disconnect the SM connectors when loading or unloading batteries.

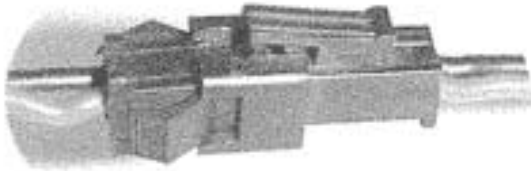


Figure 15

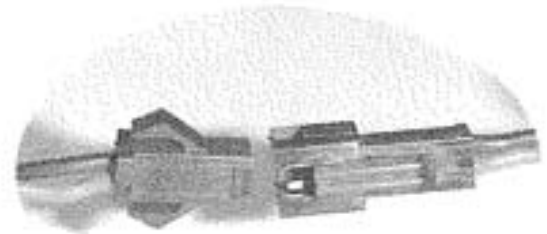


Figure 16

## 8. LED microscope standard accessories

8.1 Charger (3 types, 9.1.1 , 9.1.2 or 9.1.3).

Type 1, input 120V. Type 2, input 230V. Type 3, input 100V-240V switching power supply with auto cut off. Type 1 or type 2, as shown in Fig4. Type 3, as shown in Fig17. For type 3, the indicator light appears red while charging, and it becomes green after battery is fully charged.

Please choose one of the three types according to the local voltage and requirement.

8.2 Allen key M2 (order #TL0042), as shown in Fig 8. 1 piece.

8.3 AA size rechargeable batteries 3 pieces.



Figure 17