STEINDORFF®

CX50 SERIES

INSTRUCTION MANUAL

CONTENTS

B. UNPACKING & PREPARATION

Your The microscope is supplied with an expanded two-part Styrofoam/polystyrene case. This case should be used for storage, transport, and shipping. Microscopes that are not properly packed are usually damaged during transport and shipping. KEEP STYROFOAM BOX FOR FUTURE USE FOR SHIPPING AND/OR REPAIR.

Unpack the microscope and its parts carefully. Do not throw away any boxes or packing materials until the contents of the shipping container have been checked against the packing list of your order. In an area that is clean, dry and dust free, place the microscope and parts on a sturdy desk or table for initial use and/or assembly.

DO NOT TOUCH ANY LENS SURFACES WHILE HANDLING THE MICROSCOPE; THIS MAY ADVERSLEY AFFECT IMAGE QUALITY.

C. FEATURES AND DEFINITIONS

EYEPEICE:

10X wide field eyepiece with built in calibrated pointer for measurement.

HEAD:

monocular head: 360° rotatable monocular head.
Binocular head: Dual view head allows 2 people to observe the microscope simultaneously.

OBJECTIVES:

The lower functional component of the optical system. Available in 4X, 10X and 40XR, 100XR.

COAXIAL FOCUSING KNOBS:

The microscope is equipped with coaxial coarse (larger control) and fine focus (smaller control) knobs. Coaxial fine and coarse adjustment enable you to perform two functions without having to move your hands to a different position. The reduction system allows for movement on a single ball bearing dove-way for smooth and accurate focusing control. One complete turn of the fine focus control is equal to a 1.8mm vertical displacement of the stage.

CONDENSER:

The microscope is equipped with a 1.25 N.A. Abbe condenser that has rack & pinion focusing, Iris Diaphragm, filter holder.

DIAPHRAGM:

The microscope is equipped with Iris Diaphragm. Its function is to limit the amount of light transmitted to the objective for preventing oversaturation, for which allows the amount of ambient light reaching the objective to be controlled to ensure the high image effect.

ILLUMINATOR:

LED illumination with intensity control, guarantees a clear and

crisp, cool-to-touch white light that lasts up to 60x longer than traditional tungsten bulbs.

STAGE:
The stage of the microscope is equipped with built-in double layer mechanical stage.

SAFETY RACK STOP:
Controls the maximum upward movement of the stage.

SPECIFICATIONS (With 10x Eyepiece)

Objective	Total Magnification	Field of View	N.A.
4X	40X	4.5mm	0.10
10X	100X	1.8mm	0.25
40X	400X	0.45mm	0.65
100X Oil	1000X	0.18mm	1.25

D. OPERATING PROCEDURES

I. Microscope without an 1.25 Abbe-condenser
1. Select a position to work where little direct light falls on the instrument. Avoiding placing the microscope near or facing a large window as direct light may fall directly on the microscope and adversely affect the contrast and resolution.
2. Plug it into any grounded receptacle.
3. Adjust the Iris diaphragm to control the amount of light align with the in-stage condenser.

4. Place a low powered objective into position.
5. Place the micro-slide specimen to be observed under the spring stage clips. If using a mechanical stage, pull back the lever on the left side of the stage, insert the slide, then bring the crescent shaped holder into contact with the slide. Be certain that the cover slip of the slide is facing towards the objective; otherwise you will not be able to focus your specimen at high magnifications.
6. Position the specimen so that it is centered over the in-stage condenser.
7. Focus the objective on your specimen by turning the LARGE COARSE ADJUSTMENT KNOBS until the image of your specimen is bright and clear. Microscopists will always lower the objective to a point that they know is beneath the focal plane and focus upwards. Now you can bring the specimen into sharp focus by turning the SMALLER FINE FOCUS KNOBS.
8. With the specimen now in sharp focus, rotate the nosepiece to the other objectives and focus using only the fine focus knobs. Since the optics on the Microscopes are Par-focal and Par-centered only a slight turn of the fine focus knobs with be necessary.

NOTE: It is important to note that because of our built – in stop the 4X and 10X objectives can never come into contact with your microscope slides. The 40XR and 100XR may occasionally touch the micro-slide but because these objectives have retractable mounts your slide will not be damaged.

9. Adjust the Iris diaphragm until proper specimen contrast is achieved.
10. You are now ready for microscope observation.

II. Microscope equipped with an 1.25 Abbe-condenser with or without the 100XR oil immersion objective.

1. Follow steps 1 through 6 and then:
2. FOCUSING THE CONDENSER. The sub-stage Abbe condenser is mounted beneath the stage in a rack & pinion focusing mount. Adjust the Abbe condenser by turning the knob until the illumination of the field is uniform.
3. Adjust the condenser iris diaphragm to match the N.A. of the objective. This is done by first closing the iris and opening it slowly until the entire filed is evenly and brightly lit and in good focus. If the objective is changed to a higher power, the iris must be adjusted to the new objective.
4. THE USE OF THE 100XR, OIL IMMERSION IS REQUIRED FOR 100xR OBJECTIVES. Here is how to do it:
5. Lower the stage and spring out the objective to give yourself room to work with. Place one or two drops of quality immersion oil over the slide cover slip, which is needed to gather enough light for viewing with 100xR. Spring the 100xR objective back in place again, and proceed by moving the stage up until the lens makes contact with the oil. Continue (slowly) to focus down with coarse adjustment until the color or a blurred outline of the specimen appears. Now complete the focusing with the fine adjustment so that your image details come into sharper focus.
6. When you are finished using the slides, ensure to clean the oil off of the slides and microscope lens by using lens paper and cleaning solution.
7. In using the 100xR DIN objective, the most favourable resolution is obtained with the Abbe condenser nearly touching the slide specimen. Ideally, a drop of immersion oil is placed between the condenser and the slide, as well as between the slide and the 100xR DIN objective. Although this practice is not always followed in routine study, it is the only way to take full advantage of the inherent resolution of the 1.25 NA Abbe condenser.

E. MAINTENANCE & CARE

Cleaning of the optical surfaces

Never take objectives or eyepieces apart. They should be cleaned on the instrument since they are not easily removed. To clean lens surfaces, first remove dust using a soft brush or blow off with a small syringe. Use a cotton-tip applicator and a small amount of xylene. Clean only the front lens element of the objective and the top lens of the eyepiece. Wipe again with a clean cotton-tip and, finally, blow or brush off the lens surfaces. The mirror or illuminator lens surfaces may be cleaned in the same manner, but better results may be obtained by wiping with a soft lint free cloth.

Cleaning and Lubricating of Mechanical parts

This type of maintenance should be done by an authorized technician and will help insure many years of trouble free use of your microscope.

Stage Elevation Caution - The stage is set at a standard position for this particular optical system. Please exercise caution if you need to elevate the stage. If the stage is raised too high, the objective lens and the slide can easily be damaged due to unintended contact, which could result in abrasions to each surface.

Empty Magnification

Keep in mind that there is a limit to meaningful magnification. When you magnify an object beyond 1000x, it will continue to get larger, but the resolution will stay the same. This will actually make the image blurry and unclear, and it is called empty magnification.

This is why it is not professionally recommended to change the WF 10x eyepiece to a higher magnification eyepiece such as the (WF 15x, 20x, or 25x), because 1000x magnification is the maximum limit of clear magnification achieved with a microscope.

F. ELECTRICAL MAINTANENCE

WARNING

DISCONNECT POWER SUPPLY CORD FROM WALL RECEPTACLE BEFORE REPLACING LAMP OR FUSE

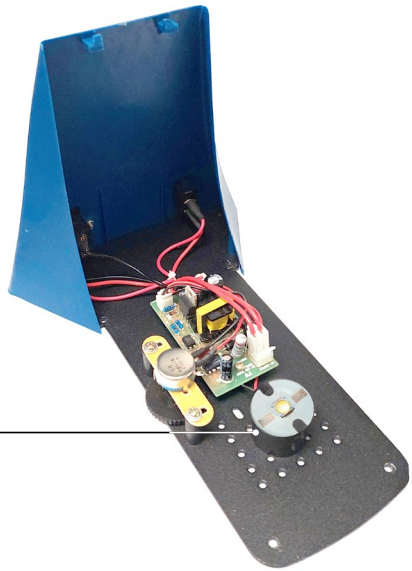
Charging/Re-charging NiMH rechargeable batteries. (Rechargeable models only)

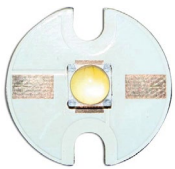
Your microscope is equipped with rechargeable Nickel Metal Hydride (NiMH) batteries. Batteries should be charged prior to first use. Fully charge batteries, approximately 8 hours, by plugging the supplied charger into a standard 110v outlet, and attaching to the power inlet on the microscope.

You may also use the microscope while charging. Each complete charge should give between 50-70 hours of use. Rechargeable batteries should give up to 500 recharge cycles, depending on conditions. LED lamps will last a minimum of 10,000 hours under normal conditions.

If for any reason the light on your microscope does not appear to be working, check the following:

1. Adjust the light intensity switch to ensure that it is not turned all the way down.
2. Check the Fuse – check to ensure the fuse is not broken or burnt out.





Part No. LBB13

Rechargeable Battery Replacement (Rechargeable models only)

1. Lay the microscope on its side on a flat surface, and unscrew the four rubber feet
2. Remove the base and lay on a flat surface
3. Unscrew the two screws on both ends of the rectangular plastic box
4. Remove the cover and replace the NiMH rechargeable batteries

LED or Tungsten Halogen Lighting Replacement (LED Models)

1. Lay the microscope on its side on a flat surface
2. Ensure your microscope has been unplugged
3. Loosen the thumbscrew on the lamp housing cover and open
4. Remove the plastic pins on each side of the disc shaped bulb with small pliers. Carefully remove the bulb by sliding it out from under the metal tabs

CAUTION:

- Avoid contact with fingers as oils from skin can lead to breakage or shorten the life of the lamp

- Do not look directly into the operating lamp for any period of time; this may cause eye injury

- Halogen lamps operate at high temperatures that can cause serious physical injuries

FUSE REPLACEMENT

The fuse holder is located on the back of the microscope base. Unscrew the fuse holder cap, remove fuse, and replace with a new fuse rated 1.0 amp

Part No. FU102

G. TROUBLE SHOOTING

Objectives

If you are using any type of liquid on the slides and then view through the microscope, make sure that you clean the objectives immediately after you are done. You can clean with paper towel and xylene. If you do not clean after contact with liquid the objective lens will become very dirty. This will greatly affect the viewing quality of the objective.

The eyepiece

If view is hindered, check for fingerprints or scratches on the eyepiece. Do not scratch eyepiece with your fingernail, as this will remove the optic coating. Only clean the outer lens and do not attempt to take eyepiece apart. Clean by using a can of compressed air meant for dusting, or breathe on lens and wipe with lens paper.

Rack Stop Screw

This screw sets how far up the stage will move. Students have a tendency to screw this all the way down. This limits the upper movement of the stage, preventing objects from coming into focus. Turn the screw back up. The more the screw comes up the higher the stage is able to move upwards. Do not turn the screw to far as the stage may hit the 40x and 100x objectives. When properly adjusted, the safety rack stop prevents the objective lens from hitting the microscope which can result in damage to the specimen slide.

Slide and Cover slip

If the slide does not come into focus check to see that the slide is not upside down. Make sure the cover slide is facing up. Also make sure the slide is not dirty; spots will show up if it is. Also make sure that the cover slip over the specimen is not too thick, use a 0.17mm thick cover slip over your specimen

H. OPTIONAL DIGITAL CAMERAS

Three digital cameras to choose from:

DG 0.35 / DG 1.3 / DG 3.0

The digital cameras are specifically designed for use with any standard biological or stereo microscope. It acts as a converter by converting your analog microscope into a digital microscope enabling you to capture, analyze or share the digital images. DG Series digital cameras use the UVC design.

The 0.35, 1.3, or 3.0 mega pixel digital eyepiece cameras offer USB 2.0 plug-and-play compatibility, and comes with a user-friendly imaging software. Windows compatible

Our software is free and easy-to-use. Additional processing functions provide strong support for your scientific research. Furthermore, this DG series digital camera allows 3rd party applications to setup and control, giving you more options.

Includes:

- Digital Eyepiece Camera
- USB 2.0 Cable (1.5m long)
- User Manual
- CD with Software (ISCapture)

Camera Specifications

	DG 0.35	DG 1.3	DG 3.0
Effective pixels	0.35MP	1.3MP	3.0MP
Max. resolution (H x V)	640 x 480	1280 x 1024	2048 x 1536
Image Sensor	¼ “ COMS	1/3” COMS	½” COMS
Pixel size	2.8 x 2.8	3.6 x 3.6	3.18 x 3.18
Frame Rate	40 fps (640 x 480)	30 fps (640 x 480)	30 fps (640 x 480)
White Balance	Manual/Auto		
Sensitivity	1.0V/Lux-sec		
Image Format	JPG/BMP		
Data Interface	USB 2.0		
Compatibility	Win XP, Win Vista, Win 7, Win 8, Mac		

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