Nikon

Microscope

ECLIPSE
E200 MV Series
E200LED MV Series

Instructions

Introduction

Thank you for purchasing a Nikon product.

This instruction manual is written for users of the Nikon ECLIPSE E200 MV Series and E200LED MV Series Microscopes.

To ensure correct usage, read this manual carefully before operating the product.

- No part of this manual may be reproduced or transmitted in any form without prior written permission from Nikon.
- The contents of this manual are subject to change without notice.
- The equipment described in this manual may differ from the actual product in its appearance.
- Although every effort has been made to ensure the accuracy of this manual, errors or inconsistencies may remain. If you note any points that are unclear or incorrect, please contact your nearest Nikon representative.
- Some of the equipment described in this manual may not be included in the set you have purchased.
- If you intend to use any other equipment with this product, read the manual for that equipment too.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Training

You can use this product without the need of special training sessions by reading this manual thoroughly before use. Please contact your nearest Nikon representative if you have any questions or find any errors and anything you are aware of.

Contents

Safety Precautions

To ensure correct and safe operation, read this manual before using the product.

WARNING and CAUTION Symbols Used in This Manual

Although this product is designed and manufactured to be completely safe during use, incorrect usage or failure to follow the safety instructions provided may cause personal injury or property damage. To ensure correct usage, read this manual carefully before using the product. Do not discard this manual and keep it handy for easy reference.

Safety instructions in this manual are marked with the following symbols to highlight their importance. For your safety, always follow the instructions marked with these symbols.

Symbol	Description
 **WARNING**	Disregarding instructions marked with this symbol may lead to serious injury or death.
 **CAUTION**	Disregarding instructions marked with this symbol may lead to injury or property damage.

Symbols on the Product

The symbols on the product indicate the need for caution at all times during use. Before operating a part labeled with the following symbols, refer to the instruction manual and read the relevant instructions.

Symbol	Meaning
	**Biohazard** This symbol can be found on the microscope body, and cautions the following: • WARNING: The product may become biohazardous if a specimen is spilled onto the product. • To avoid exposure to biohazard, do not touch contaminated parts with your bare hands. • Decontaminate the contaminated parts according to the standard procedures for your facility.
	**CAUTION and CAUTION: HOT (for E200 MV series only)** This symbol can be found on the field lens unit (the lamp is set underneath the field lens unit), and cautions the following: • The lamp and its surrounding areas (including the field lens unit, field diaphragm centering screws, and bottom of the microscope unit) will be extremely hot while and immediately after using the lamp. • To avoid the risk of burns, do not touch the lamp and its surrounding areas while or immediately after using the lamp. • When replacing the lamp, wait approximately 30 minutes after turning off the lamp, and make sure that the lamp and its surrounding areas have cooled sufficiently before working. • When replacing the lamp, see “WARNING: 5. Cautions on lamp replacement (for E200 MV series only)” on P. vi to follow what is described there.
	**CAUTION: HOT (for E200 MV series only)** This symbol can be found when the field lens unit is removed from the microscope body, and cautions the following: • To avoid the risk of burns, do not touch the lamp and its surrounding areas immediately after using the lamp. • When replacing the lamp, wait approximately 30 minutes after turning off the lamp, and make sure that the lamp and its surrounding areas have cooled sufficiently before working. • When replacing the lamp, see “WARNING: 5. Cautions on lamp replacement (for E200 MV series only)” on P. vi to follow what is described there.
	**CAUTION (for E200LED MV series only)** This symbol can be found on the field lens unit (the LED is set underneath the field lens unit), and cautions the following: • Make sure that the field lens unit is securely attached. • Illuminating the LED with the field lens unit removed, a light of high intensity gets in your eyes and causes an irritating discomfort in your eyes, resulting in a harmful effect on the microscopy for a while. • A light leak may lead to inability of observation when the filed lens unit is left removed.

⚠ WARNING

1. Do not disassemble.

Disassembling this product may result in electric shock or malfunction. Malfunctions and damage due to such mishandlings will not be warranted. Do not disassemble any part that is not indicated in this manual. If you experience problems with the product, contact your nearest Nikon representative.

2. Read the instructions thoroughly.

To ensure safety, thoroughly read this manual and the manuals for other equipment to be used with this product. In particular, be sure to follow the warnings and cautions at the beginning of the manuals.

3. Input voltage

This product can be used with 100 to 240 V AC at 50/60 Hz, and can be used with most wall outlets in the world. However, note that you avoid using the product under an environment where the supply voltage may extremely fluctuate.

4. Use the specified lamp. (for E200 MV series only)

Use the specified lamp. Using an incorrect lamp may damage the product or cause a fire.

- **Specified lamp**
  Halogen lamp 6 V-30 W (PHILIPS 5761)

5. Cautions on lamp replacement (for E200 MV series only)

- When replacing the lamp, wait approximately 30 minutes after turning off the lamp, and make sure that the lamp and the field lens unit have cooled sufficiently.
- To prevent electric shock and product damage, turn off the power switch (press to the "O" position) and unplug the power cord from the wall outlet before replacing the lamp.
- When replacing the lamp, be sure that the lamp socket is not damaged. If it is damaged, it may cause lamp failure or overheating. In addition, install the lamp into the lamp socket until it hits the limit. If the lamp is not properly installed, it may fall off or cause overheating or smoke due to mal-connection.
- After replacing the lamp, be sure to attach the field lens unit. Never use the product without the field lens unit attached.
- Do not break the used lamp. It should be disposed of as an industrial waste, according to the local regulations and rules.

6. Cautions on the power cord

Be sure to use provided (or specified) power cord. Use of other power cords may result in malfunction or fire.

- See Chapter 10, "Specifications" for the specified power cord.
- To prevent electric shock, turn off the power switch (press to the "O" position) before connecting or disconnecting the power cord.
- Note that this product is classified as Class I for electric shock protection. Be sure to connect it to a protective earth terminal.

⚠ WARNING

7. Cautions on heat from the light source (for E200 MV series only)

The lamp becomes hot during use. Do not remove the field lens unit while the lamp is on, and be sure the lamp has been off for 30 minutes before touching it.

- When replacing the lamp, make sure that the lamp is cool enough to touch (the light should be off at least 30 minutes).
- Do not touch the lamp while it is on or until the lamp has been off for 30 minutes, as doing so may result in burns.
- Never bring cloth, paper or flammable volatile substances such as gasoline, petroleum benzine, acetone, thinner, or alcohol near a hot lamp, as a fire may result.
- Do not block the air vents on the field lens unit. If the field lens unit is covered or items are placed on the field lens unit, heat dissipation may be hindered, causing the field lens unit to become abnormally hot.

8. Notes on handling flammable solvents

The following flammable solvents are used with the product:

- Immersion oil (Nikon Immersion Oil for oil immersion objectives)
- Absolute alcohol (ethyl alcohol or methyl alcohol for cleaning optical parts)
- Petroleum benzine (for wiping off the immersion oil)
- Medical alcohol (for disinfecting the microscope)

Never hold a flame near these solvents. When using a solvent, thoroughly read the instructions provided by the manufacturer, and handle correctly and safely. Note the following precautions when using solvents with the product.

- Keep solvents away from the lamp, the field lens unit, and any other parts that may become hot.
- Keep solvents away from the product and its surroundings when turning on/off the power switch or plugging/unplugging the power cord.
- Be careful not to spill the solvents.

9. Notes on handling hazardous specimens

This microscope is mainly for use in microscopic observation of cells and tissue fixed on the slide. When handling a sample, check to determine whether the sample is hazardous.
Handle hazardous samples according to the standard procedure for your laboratory.
If the sample is of an infectious nature, wear rubber gloves to avoid infection, and be careful not to touch a sample. In the event of contact of a sample to the microscope, decontaminate the contaminated portion according to the standard procedure for your laboratory.

CAUTION

1. Turn off the power switch before assembling the microscope, replacing the lamp (for E200 MV series only), and plugging in or unplugging the power cord.

Turn off the power switch before you plug or unplug the power cord to prevent electrical shock or fire. Also turn off the power switch and then unplug the power cord before assembling the microscope, and before changing the lamp. To turn off the power, press the power switch to the "○" position.

2. Do not wet the product or allow intrusion of foreign matters.

Do not wet or spill liquids onto the product, as it may result in malfunction, overheat, or electric shock. If water or other liquids are accidentally spilled onto the product, immediately turn off the power switch (press to the "○" position) and unplug the power cord from the wall outlet. Then, wipe off the liquid with a piece of dry cloth. Intrusion of foreign matters into the product may also result in malfunctions. If liquids or foreign matters enter the product, do not use the product, and contact your nearest Nikon representative.

3. Cautions on moving the product

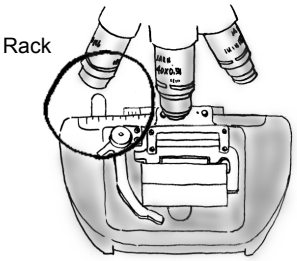
- When carrying the microscope, hold the microscope firmly by the bottom front recess and the top rear.
- When moving the product, do not hold by the focusing knobs, eyepiece tube, and stage, etc. The parts may become detached and cause the product to fall, and may also result in malfunctions and loss of precision.

4. Cautions on assembling the product

- Take care to avoid pinching your fingers and hands.
- Scratches and dirt (i.e. fingerprints) on optical components such as lenses and filters will degrade the microscope image. When assembling the product, be careful not to scratch or directly touch the optical components.

5. Stage rack

The stage rack will protrude when the stage is operated. Be careful not to hit the rack with your hand or other parts of your body when handling the microscope as you may get hurt by an edge of the rack.



6. Disposal of the microscope

To avoid biohazard risks, dispose of the microscope as contaminated equipment, according to the standard procedures for your facility.

Notes on Handling the Product

1. Handle with care.

The product is a precision optical instrument. Handle the product with care and avoid physical shocks and vibrations.
In particular, the precision of objectives may be lost by even weak physical shocks.

2. Weak electromagnetic waves

This product emits weak electromagnetic waves. So as to avoid degrading the performance of precision electronic devices, do not install this product near such devices. If TV or radio reception is affected, move the TV or radio further from this product.

3. Installation location and storage location

The product is a precision optical instrument. Use or storage of the product under inappropriate conditions may result in malfunctions or loss of precision. The following conditions must be considered for the installation location and the storage location.

- Install the product in a location with a temperature of 0 to +40ºC and a relative humidity of 60% or less (no condensation).
  Store the product in a location with a temperature of -20 to +60ºC and a relative humidity of 90% or less (no condensation).
  Use or storage of the product in a hot or humid location may result in molding of or condensation on the lenses, loss of precision, and malfunctions.
- Install the product in a place with little dust and dirt.
  When storing the product, place a cover over the product to protect it from dust.
- Install the product in a place with little vibration.
- Install and store the product on a level and sturdy table or stage that can bear the weight of the product.
  Install the product in a location with minimal exposure to hazards in the event of earthquakes and other potential disasters. If necessary, secure the product to the working desk or other heavy and stable items with a strong rope or other means, so as to prevent it from falling.
- Install the product so that the power cord to the microscope can be unplugged immediately from the AC inlet in case of an emergency.
- Avoid placing the product in direct sunlight or immediately under the room lights.
  The image quality is degraded in a bright environment due to the extraneous light entering the objective. A room light immediately above the microscope may also enter the objective as extraneous light, especially when using a condenser lens with a longer working distance. In this case, it is recommended that you turn off the room light above the microscope.
- Install the product at least 10 cm away from the surrounding walls.
- Do not install the product in a closed space such as a locker or a cabinet.
- Do not place items on the product.

4. Notes on handling the lamp (for E200 MV series only)

Do not touch the glass part of the lamp with bare hands. Wear gloves or use a cloth when handling the lamp so as not to leave fingerprints on the surface. Wipe off any fingerprints or stains using a clean cloth moistened with alcohol. Fingerprints will etch into the hot surface of the lamp and reduce the brightness, damage the lamp or reduce its service life.

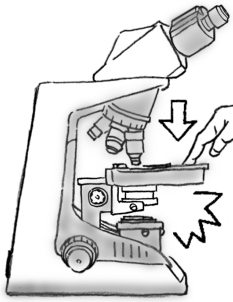
Handle the lamp gently. Shocks and vibrations will damage the lamp or reduce its service life.

5. Notes on handling optical parts

Scratches and dirt (i.e. fingerprints) on optical components such as lenses and filters will degrade the microscope image.
Handle the optical components with care, so as not to damage them. If they require cleaning, see Chapter 9, “Care and Maintenance”.

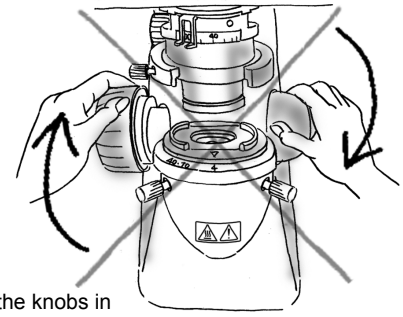
6. Refocusing

When changing specimens using the refocusing mechanism, gently lower the stage by hand taking care not to hit the field lens with the condenser holder (P.19).



7. Focus knobs

Do not turn the right and left focus knobs simultaneously in opposite directions. Do not turn the coarse focus knob any further after the stage has been moved up or down to its limit. These operations will damage the focusing mechanism.
(The coarse focus knob has a protection device. The knob turns freely for a while after it has reached its upper limit.)


Do not turn the knobs in opposite directions.

8. Oil-immersion observation

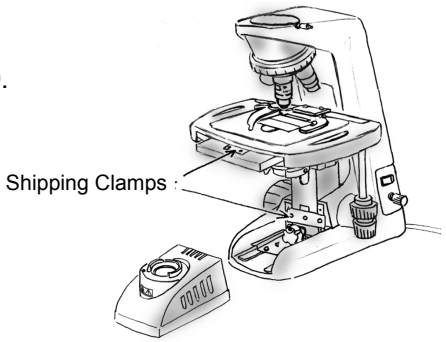
Use only a minimum quantity of oil. If too much oil is applied, surplus oil may flow out to the stage and the condenser which may lead to degraded performance.

WARNING

When using petroleum benzine or absolute alcohol to wipe off immersion oil or to clean the lenses, follow the instructions provided by their manufacturers. Absolute alcohol and petroleum benzine are inflammable. Take great care when handling them.

9. Shipping clamps

The microscope is held tightly by the clamps during shipment.
Be sure to remove the clamps before use. For details, see P.29.



1 Nomenclature of Each Part

The microscope is made up of the following components.

(1) Main Body

(2) Eyepieces
Screwed on to the eyepiece tube.

(3) Eyepiece Tube
This is a binocular eyepiece tube. A trinocular eyepiece tube is available for photomicrography and TV microscopy.

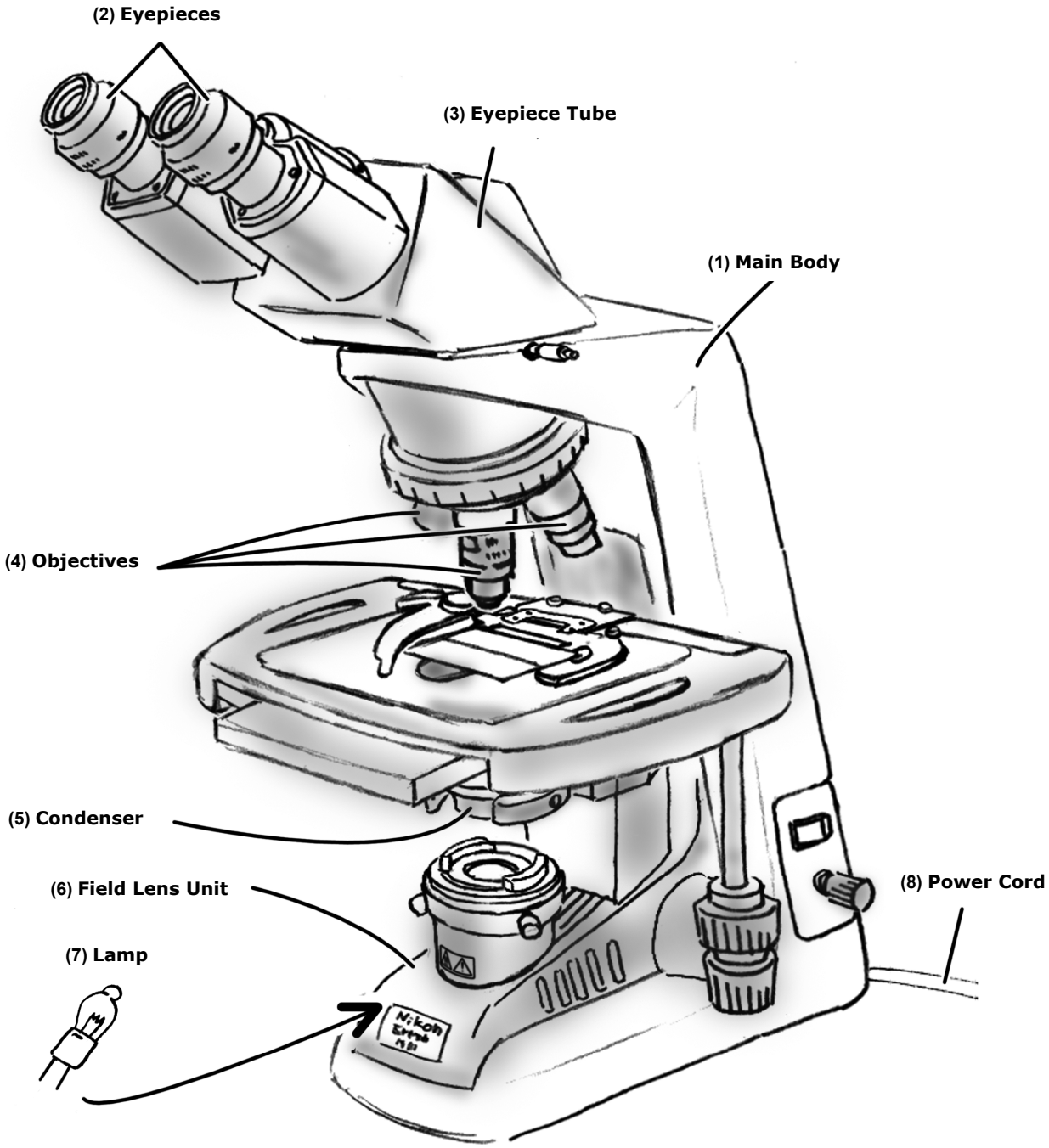
(4) Objectives
Objectives with various magnifying powers are available.

(5) Condenser
Used for condensing light.
The condenser should be positioned slightly lower than its upper limit.
Adjust the aperture diaphragm lever according to the objective.

(6) Field Lens Unit
Draw out the field lens unit when changing lamp. (for E200 MV series only)
The microscope may have a field diaphragm. A field diaphragm is used to control the illumination range and should be adjusted according to the objective. (Note that there are two types of microscopes; the one with the field diaphragm, and the one without.)

(7) Lamp (for E200 MV series only)
Halogen lamp 6 V-30 W is used.

(8) Power Cord
Use the power cord provided.



* The main body in this figure is an example of ECLIPSE E200 MV RS.
* The light source for E200 MV series is halogen lamp, and the light source for E200LED MV series is white LED.

2 Switches and Controls

(1) Diopter ring
Adjust the diopter ring to compensate for the difference between your right and left eyesight. (P.12)

(2) Revolving nosepiece
Can hold up to four objectives.

(3) Stage

(4) Specimen holder
Put your finger at the root or the tip tilt of the claw to open the claw. (P.10, 21, 31)

(5) Condenser aperture diaphragm lever
Set the lever to match the magnifying power of the objective. (P.15)

(6) Condenser clamp screw

(7) Condenser auxiliary lens
Screw on to the bottom of the condenser.

(8) Filter holder
The blue filter is provided for E200 MV series.

(9) Longitudinal stage motion (Y Axis) knob

(10) Lateral stage motion (X Axis) knob
These knobs are located either to the right or the left of the stage.

(11) Field diaphragm ring
Set the ring to match the magnifying power of the objective. (P.18)
This ring is equipped only on the microscope with a field diaphragm.

(12) Field diaphragm centering screws
Used to center the field diaphragm image. (P.14)
These screws are equipped only on the microscope with a field diaphragm.

(13) Fine focus knob
Used for fine focusing.

(14) Power switch
When pressed to the "I" position, power is turned on and the lamp lights.
When pressed to the "○" position, power is turned off and the lamp goes off.

(15) Brightness control dial
When turned clockwise, the lamp voltage increases and the viewfield becomes brighter.
When turned counterclockwise, the lamp voltage decreases and the viewfield becomes darker.

(16) Condenser focus knob
Use this knob when focusing the field diaphragm image on the specimen. (P.14)
The condenser focus knob is located on the opposite side depending on the model of he microscope.

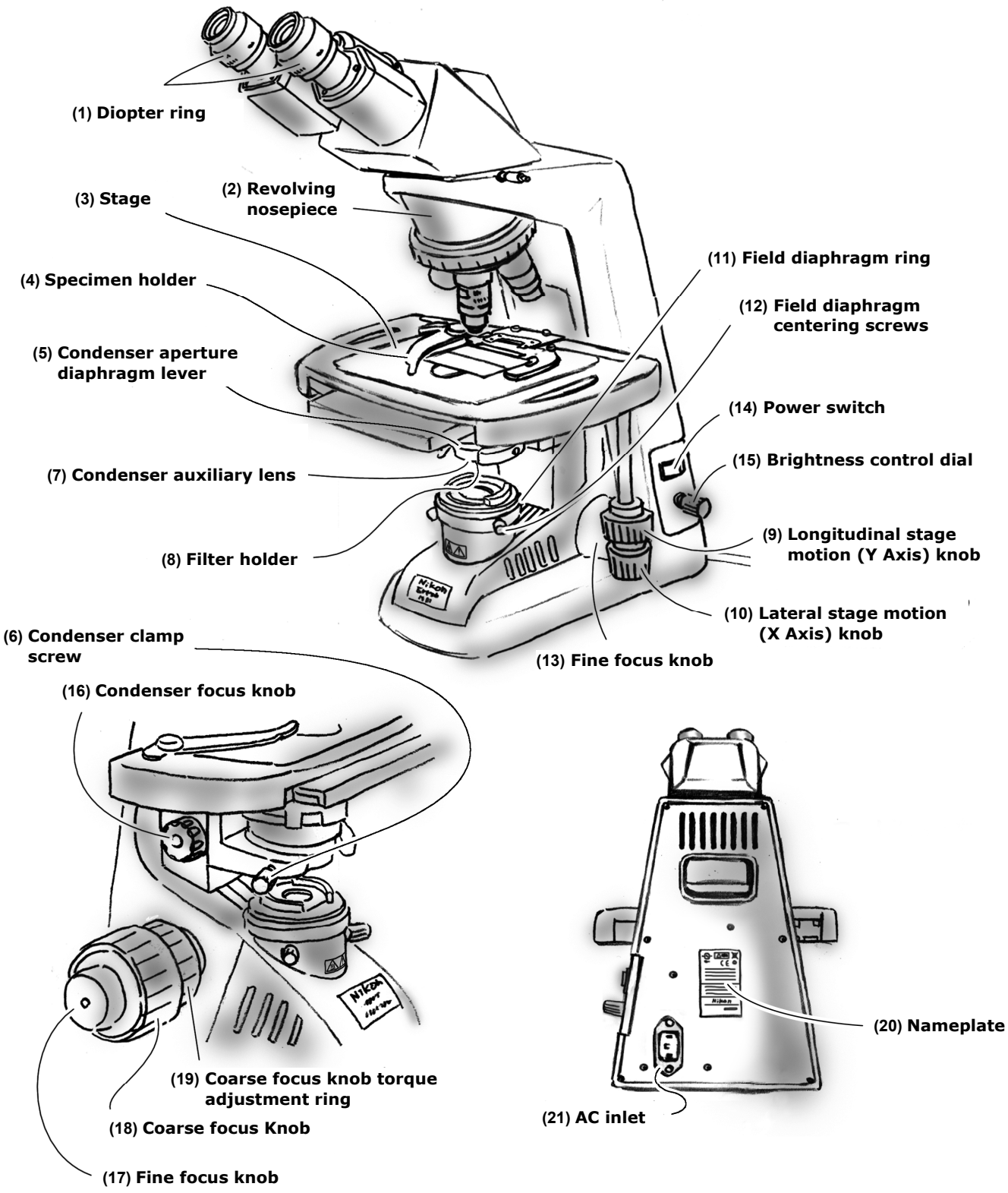
(17) Fine focus knob
Used for fine focusing.

(18) Coarse focus Knob
Used for coarse focusing.
The coarse focus knob is located on the opposite side of the stage motion knobs.

(19) Coarse focus knob torque adjustment ring
Used to adjust the tension (torque) of the coarse focus knob. (P.24)

(20) Nameplate
Indicates the input voltage.

(21) AC inlet
Plug the power cord into this inlet. Make sure that the power switch is off (turned to "○") before plugging the cord in.


(1) Diopter ring
(2) Revolving nosepiece
(3) Stage
(4) Specimen holder
(5) Condenser aperture diaphragm lever
(6) Condenser clamp screw
(7) Condenser auxiliary lens
(8) Filter holder
(9) Longitudinal stage motion (Y Axis) knob
(10) Lateral stage motion (X Axis) knob
(11) Field diaphragm ring
(12) Field diaphragm centering screws
(13) Fine focus knob
(14) Power switch
(15) Brightness control dial
(16) Condenser focus knob
(17) Fine focus knob
(18) Coarse focus Knob
(19) Coarse focus knob torque adjustment ring
(20) Nameplate
(21) AC inlet

3 Microscopy Procedure (Quick Reference)

1 Turn on the power switch.

Press the power switch to the "I" position.

2 Lower the condenser slightly down from its upper limit.

Rotate the condenser focus knob to lower the condenser slightly down from its upper limit.

3 Fully open the field aperture and condenser aperture diaphragms. (Field diaphragm control is only for microscopes with the field diaphragm.)

Turn the field diaphragm ring to the left limit to fully open the diaphragm.

Turn the condenser aperture diaphragm lever to the left limit to fully open the diaphragm.

4 Bring the 10× objective into the optical path.

Rotate the revolving nosepiece to bring the 10× objective into the optical path.

5 Place the specimen slide on the stage and bring the specimen into the optical path.

Rotate the stage motion (Y axis and X axis) knobs to bring the specimen into the optical path.

6 Focus on the specimen. ⇒P10

Turn the focus knobs to focus on the specimen.

7 Adjust the diopter. ⇒P12

Turn the diopter ring on the eyepieces.

8 Adjust the interpupillary distance.

Match the distance between the eyepieces with the distance between your eyes.

9 Focus on the field diaphragm and center its position.

(This adjustment is only for microscopes with the field diaphragm.) ⇒P14

Use the condenser focus knob, field diaphragm ring and field diaphragm centering screws for this adjustment.

10 Select the objective.

Rotate the revolving nosepiece to the desired objective magnification.

11 Adjust the condenser aperture diaphragm.

Turn the condenser aperture diaphragm lever to the same figure as the magnification of the objective in the optical path.

12 Focus on the specimen.

Turn the brightness control dial to adjust the brightness of the viewfield and focus on the specimen with the focus knobs.

13 Adjust the field diaphragm. **(This adjustment is only for microscopes with the field diaphragm.)**

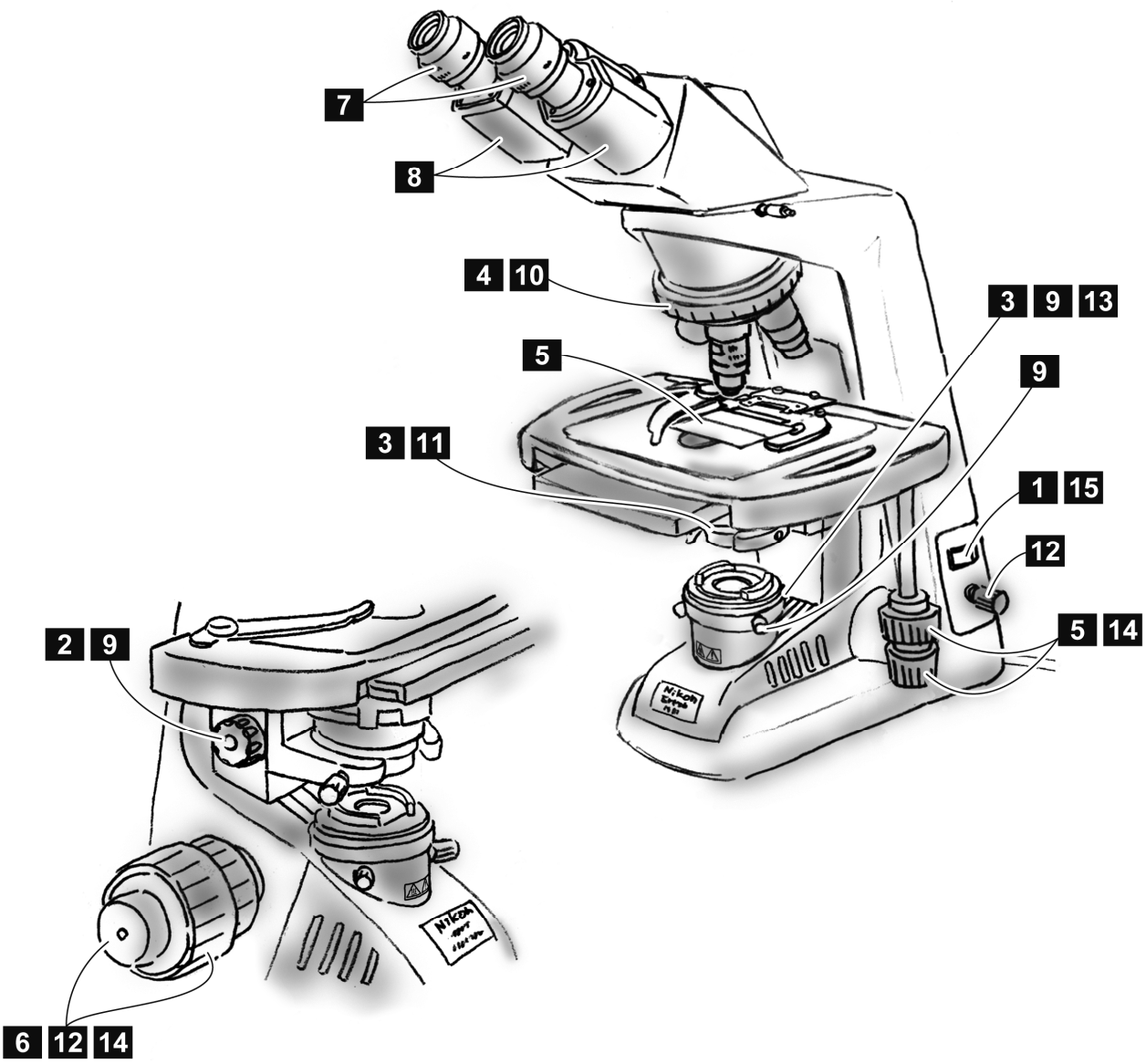
Turn the field diaphragm ring until the diaphragm image just circumscribes the viewfield.

14 Perform the microscopy. ⇒P18

Whenever the objective is changed, adjust the condenser aperture and field aperture diaphragms.

15 Turn off the power switch.

Press the power switch to the "○" position.



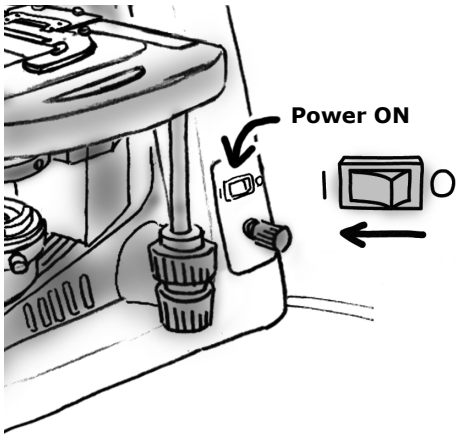
4 Microscopy Procedure (Detailed)

★Note that the figures in this manual show the "stage motion knobs" located on the right side and the "condenser focus knob" located on the left side of the microscope body. These operating parts are located on the opposite side depending on the model of the microscope. The "coarse focus knob" and "coarse focus knob torque adjustment ring" are located on the opposite side of the "stage motion knobs". The "fine focus knob" is coaxial and located on both sides.

Preparation Operations previous to the microscopy

1 Turn on the power switch.

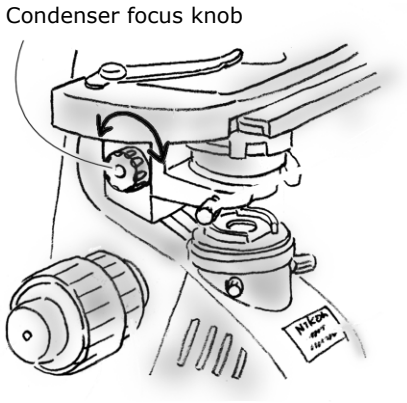
Press the power switch to the "I" position and the lamp will come on.



2 Lower the condenser slightly from its upper limit.

Turn the condenser focus knob to raise the condenser to its upper limit once, and then lower it slightly. (The condenser click-stops at its upper limit.)

Condenser focus knob

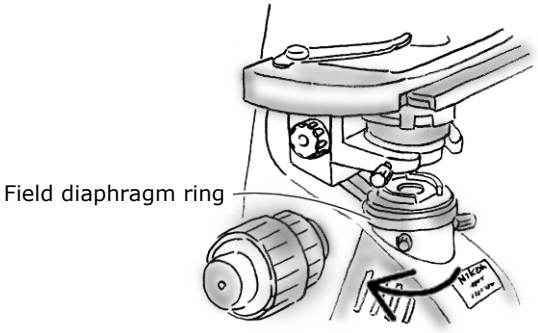


3 Fully open the field aperture and condenser aperture diaphragms.

(Field diaphragm control is only for microscopes with the field diaphragm.)

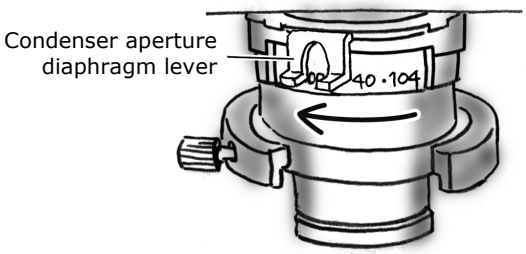
(1) Turn the field diaphragm ring to the left limit to fully open the diaphragm.

(1)



(2) Turn the condenser aperture diaphragm lever to the left limit to fully open the diaphragm.

(2)

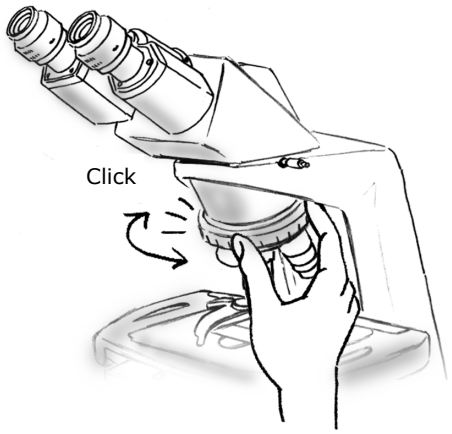


4 Bring the 10x objective into the optical path.

Rotate the revolving nosepiece to bring the 10x objective into the optical path.

Hint

The objective will click into place when rotated into position.

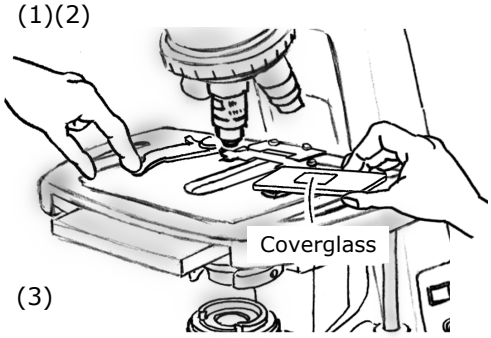


5 Place the specimen slide on the stage and bring the specimen into the optical path.

(1) Place specimen slide on the stage with the coverglass facing upward.

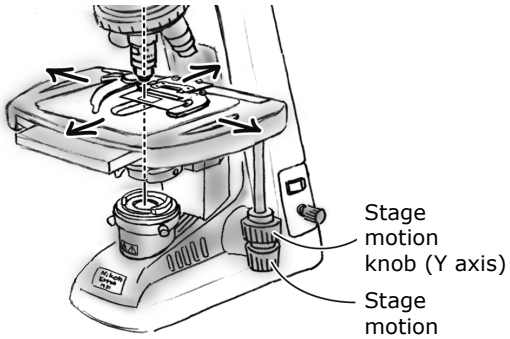
(2) Open the claw of the specimen holder with your finger at the root or the tip tilt and fix the specimen slide with the claw.

(1)(2)



(3) Rotate the stage motion (Y axis and X axis) knobs to bring the specimen into the optical path. Illumination light goes through the specimen.

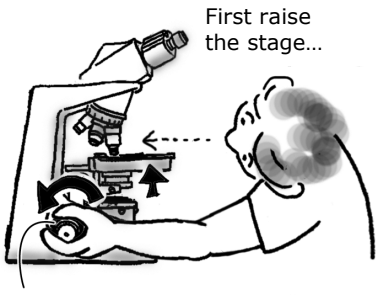
(3)



6 Focus on the specimen.

(1) Rotate the coarse focus knob to raise the stage to its upper limit.
The coarse focus knob is on the side without the stage motion knobs.

(1)



Caution

Do NOT turn the coarse focus knob further after the stage has reached its upper limit. This operation will damage the focusing mechanism.

Hint

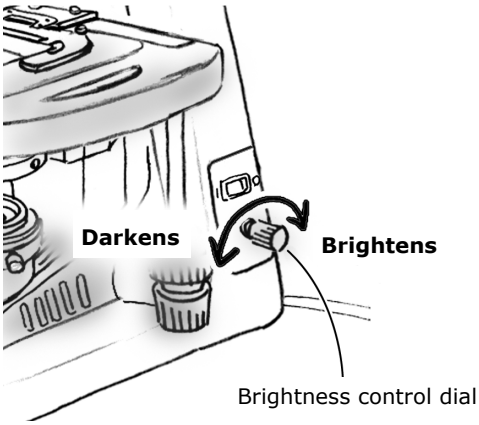
- When you raise the stage using the coarse focus knob, take your eyes off the eyepieces and look at the gap between the upper surface of the specimen and the front of the objective from the side.
- Since the working distances of 10x and 4x objectives are long (P.34), these objectives do not touch the specimen even when the stage is raised to its upper limit provided that the slide and coverglasses of a standard thickness are used. (The standard thickness for slide is 1.2 mm and that for coverglass is 0.17 mm.)

(2) Look into the eyepiece with your right or left eye, and adjust the brightness of the viewfield by turning the brightness control dial.

Hint

Turning the dial clockwise increases the brightness; turning the dial counterclockwise decreases it.)

(2)

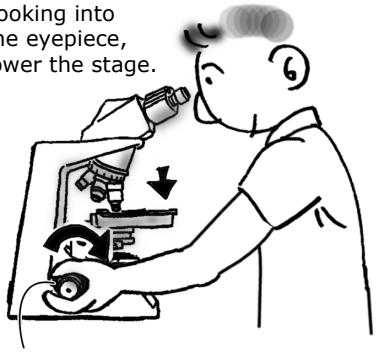


(3) Looking into the eyepiece, slowly rotate the coarse focus knob to lower the stage. When the specimen image appears, stop rotating the knob.

Caution

Do NOT turn the coarse focus knob further after the stage has reached its lower limit. This operation will damage the focusing mechanism.

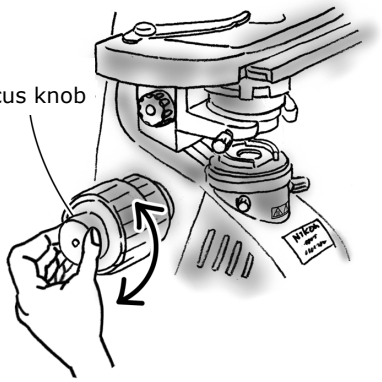
(3) Looking into the eyepiece, lower the stage.



Coarse focus knob

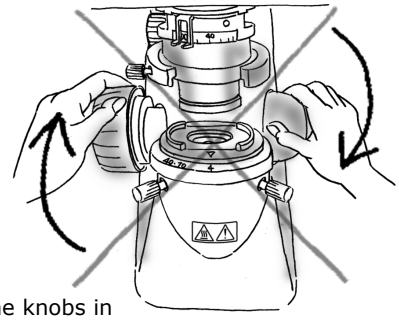
(4) Rotate the fine focus knob and precisely focus on the image.

(4)



Caution

Do NOT turn the right and left focus knobs simultaneously in opposite directions. This operation will damage the focusing mechanism.



Do NOT turn the knobs in opposite directions.

7 Adjust the diopter ring on the eyepieces.

This procedure is to adjust the diopter ring on the eyepieces according to the difference between your right and left eyesight.

Hint

This adjustment enables the user to take full advantage of high performance of objectives, including their parfocality.

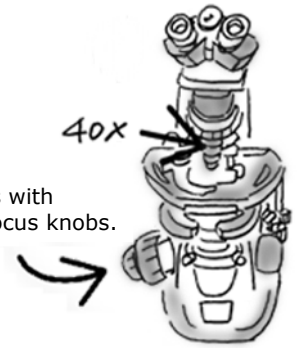
(1) Turn the diopter ring on the right and left eyepieces to align its bottom edge with the engraved base line. This is the standard position for the diopter adjustment.

(1)

Match the bottom edge of the diopter ring with the engraved base line.

(2) Swing the 40x objective in the optical path. Rotate the coarse and then fine focus knobs to bring the specimen in focus. Refer to step (6) for focusing.

(2)

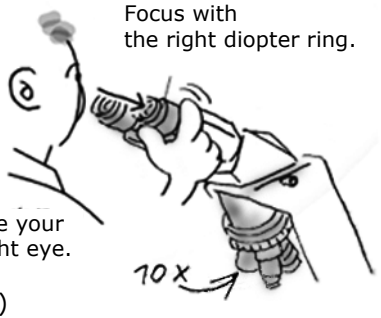


Focus with the focus knobs.

(3) Switch back to the 10x (or 4x) objective.

(4) While looking into the right eyepiece with your right eye, focus on the specimen by rotating the right diopter ring without using the focus knob.

(3)(4)



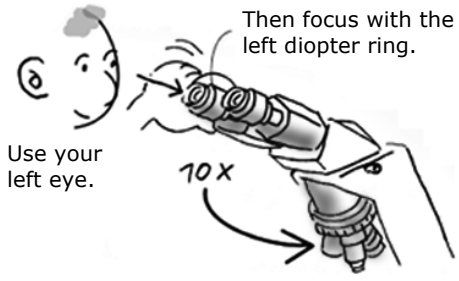
Focus with the right diopter ring.

Use your right eye.

(5) While looking into the left eyepiece with your left eye, focus on the specimen by rotating the left diopter ring without using the focus knob.

(6) Repeat steps (2) to (5) to check the specimen is in focus.

(5)



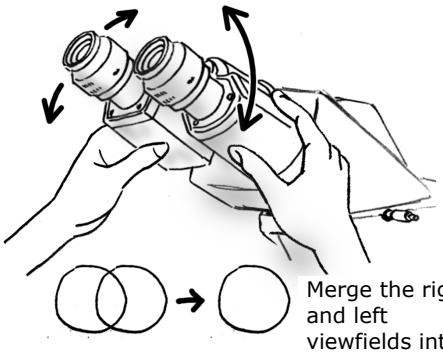
Then focus with the left diopter ring.

Use your left eye.

8 Adjust the interpupillary distance.

This adjustment is to match the distance between the eyepieces with the distance between your eyes.

Looking through the eyepieces, merge the right and left viewfields into one by turning the binocular part. When looking into the eyepieces, do it as if you look far, and you can merge easily one viewfield with another.



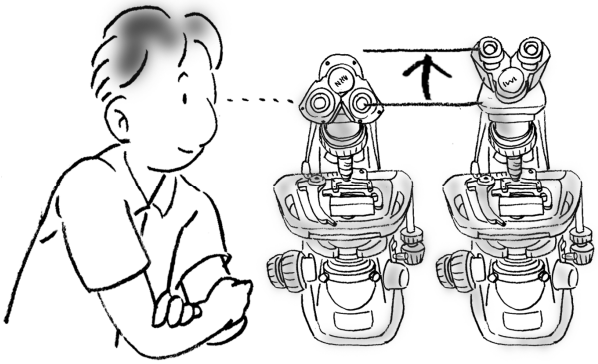
Merge the right and left viewfields into one.

Try !!

Changing the Eye Level

Turn the binocular eyepiece tube of your microscope 180 degrees, and you will get the microscope with higher eye level. (*1) If you feel uncomfortable in observing the image due to the lower eye level, you may find this convenient. Before storing the microscope in the cabinet, put back the binocular eyepiece tube to its original lower position. If not, the tip of the eyepiece may hit against the shelf when storing, or the microscope cannot be stored in the cabinet.
The eye level can be raised even higher (till 50 mm) if an "Eye Level Raiser (optional)" is installed between the main body and the eyepiece tube.
See P.25 for details on the eye level raiser.

*1 When the interpupillary distance is 64 mm, the eye level is raised about 30 mm.



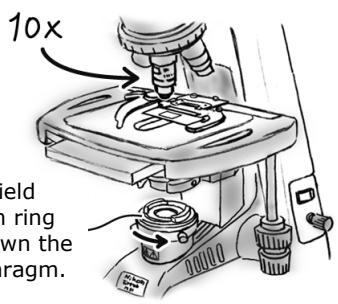
*** The next step 9 is for microscopes equipped with field diaphragm. If the microscope does not have a field diaphragm, skip to step 10.**

9 Focus on the field diaphragm and center its position.

(This adjustment is only for microscopes with the field diaphragm.)

(1) Check that the 10x or 4x objective is in the optical path. Turn the field diaphragm ring to its right limit to stop down the diaphragm.

(1)

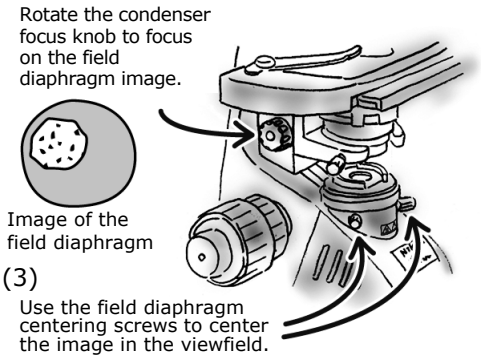


(2) While looking into the eyepieces, rotate the condenser focus knob so that the outline of the field diaphragm image may become clear.

Hint

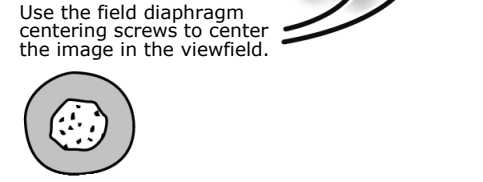
When you rotate the condenser focus knob too much to pass the focal point, the color of the image outline looks reddish or bluish. Find the position that the image outline has no color, where the diaphragm image is in focus.

(2)



(3) Rotate the field diaphragm centering screws until the field diaphragm image comes to the center of the viewfield.

(3)

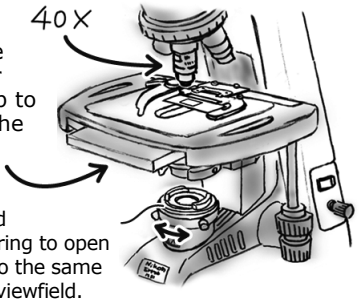


(4) Switch to the 40x objective. If the image outline blurs, rotate the condenser focus knob to obtain the best-focused position.

Hint

Note that the field diaphragm image focused with the 40x objective is not so clear as that focused with the 10x objective.

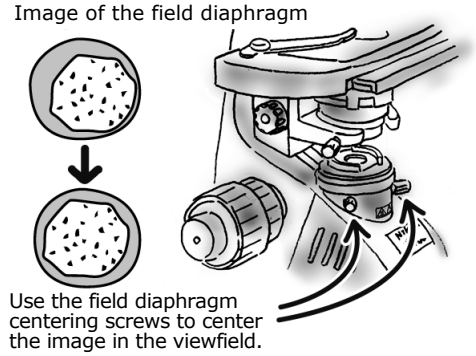
(4)(5)



(5) Turn the field diaphragm ring so that the field diaphragm image may become about the same size as the viewfield.

(6) If the field diaphragm image is not centered, use the centering screws again.

(6)



Caution

If the field diaphragm image is not in the exact center of the viewfield, it will be off-centered especially when stopped down. Perform the centering adjustment without fail.

This completes the preparatory operations.

From the next step, you proceed to the actual microscopy for the target point of desired specimen with the desired objective magnification.

Microscopy — Operations for actual microscopy

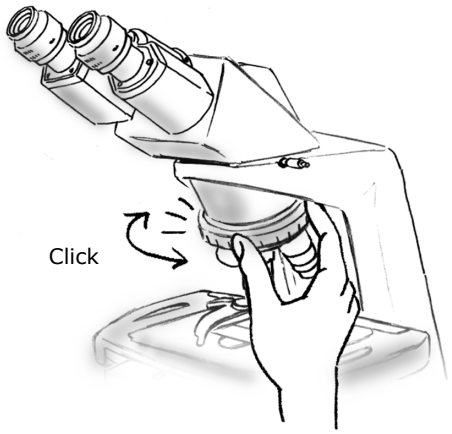
10 Select the objective.

Rotate the revolving nosepiece to the desired objective magnification.

Hint

The objective will click into place when rotated into position.

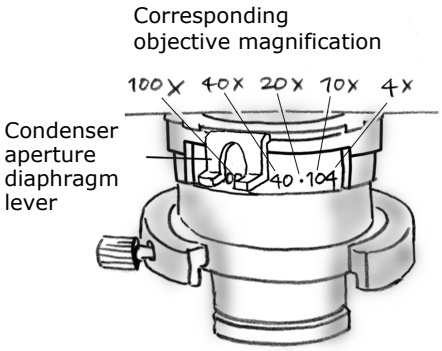
Every time you change the objective magnifications, adjust the aperture diaphragm lever according to the selected objective. If the microscope is equipped with a field diaphragm, also adjust the size of the field diaphragm.
(Refer to steps 11 and 13.)



11 Adjust the condenser aperture diaphragm.

Turn the condenser aperture diaphragm lever to the same figure as the magnification of objective in the optical path.

The figures on the condenser show the approximate positions of the aperture diaphragm lever corresponding to each objective magnification. (When the aperture diaphragm lever is moved to that position, the size of the aperture diaphragm will be 70% to 80% of the objective's numerical aperture.) Each time you change the objective magnifications, align the aperture diaphragm lever to the same figure as the magnifying power of the objective.

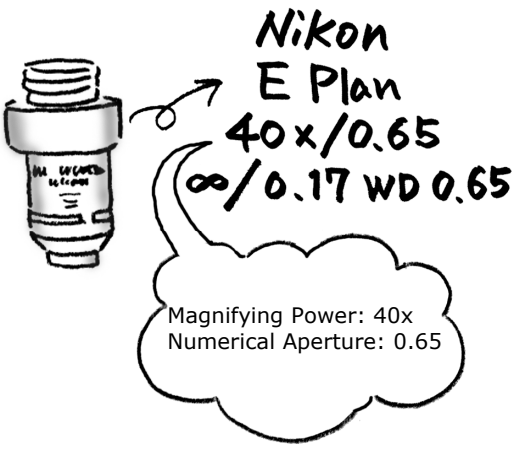


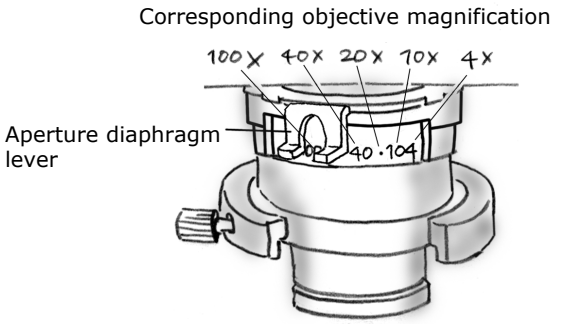
Try!!

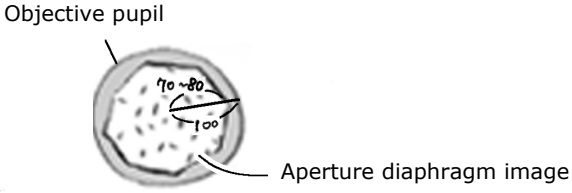
Adjusting the Aperture Diaphragm

The aperture size is increased or decreased by turning the condenser aperture diaphragm lever. If the aperture diaphragm is closed, the brightness and resolution are decreased but the contrast and range of focus are increased. If the aperture diaphragm is opened, the brightness and resolution are increased but the contrast and range of focus are decreased.
Generally, a good image of sufficient contrast can be achieved with the aperture diaphragm closed to approximately 70% to 80% of the objective's numerical aperture. Since the image resolution will be degraded when the aperture diaphragm is closed too much, do not close the aperture diaphragm to less than 60% of the objective's numerical aperture except when observing a specimen with extremely low contrast, such as a near-transparent specimen.
The aperture diaphragm controls the numerical aperture of the illumination. Do not use it to control brightness. Use the brightness control dial to control the brightness.

- **The objective's numerical aperture is indicated on the side of the objective. 40x/0.65 → magnifying power 40x, numerical aperture 0.65**
- **The image of the aperture diaphragm cannot be seen through the eyepiece. To observe the diaphragm image, remove the eyepiece and look down the open tube. (The eyepiece is fastened to the eyepiece tube. Loosen the screw before removing the eyepiece.)**
- **The figures on the condenser show the approximate positions of the aperture diaphragm lever corresponding to each objective magnification. (When the aperture diaphragm lever is moved to that position, the size of the aperture diaphragm will be 70% to 80% of the objective's numerical aperture.) Each time you switch the objective, align the aperture diaphragm lever to the same figure as the magnifying power of the objective to get a good image with sufficient contrast.**



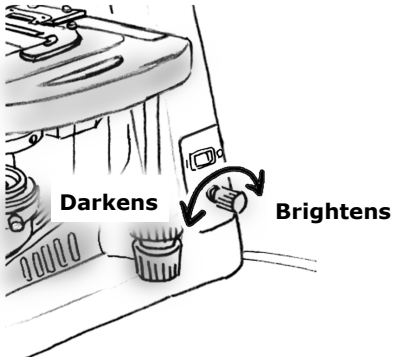




12 Focus on the specimen.

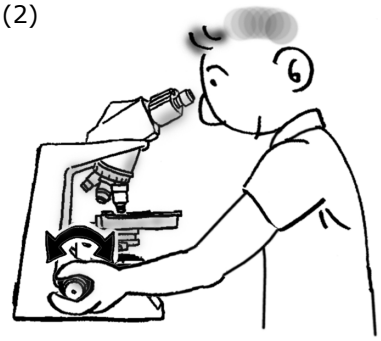
(1) Looking into the eyepieces, turn the brightness control dial to adjust the brightness of the viewfield.

(1)



(2) If the specimen is out of focus, rotate the focus knobs to focus on the specimen.

(2)

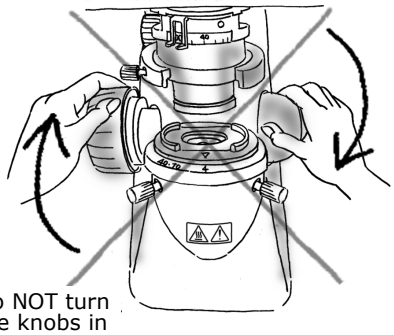


Caution

Do NOT turn the right and left focus knobs simultaneously in opposite directions, and do NOT turn the coarse focus knob further after the stage has reached its upper or lower limit. These operations will damage the focusing mechanism.

Hint

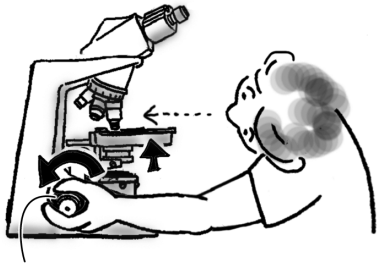
Turning the focus knobs recklessly is a long and hard way to focus on the image. If you are using a high magnification objective, you may even damage the specimen by pressing it against the objective. Before breaking the coverglasses or damaging the objectives, read the following and find the correct way to focus on the specimen.



Do NOT turn the knobs in opposite directions.

Hints

1. **When rotating the coarse focus knob while looking into the eyepieces, be sure to turn it only in the direction that lowers the stage.**
2. **When raising the stage using the coarse focus knob, take your eyes off the eyepieces and look at the gap between the upper surface of the specimen and the front of the objective from the side.**
3. **First focus with a low magnification objective. Then change to a high magnification objective.**



Coarse focus knob

* **The next step 13 is for microscopes equipped with field diaphragm.**

If the microscope does not have a field diaphragm, skip to step 14.

13 Adjust the field diaphragm.

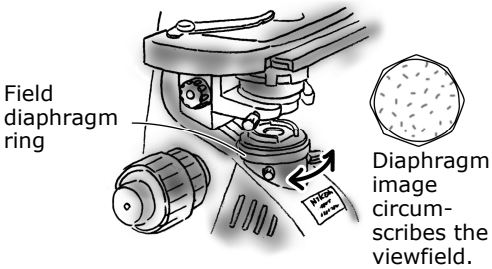
(This adjustment is only for microscopes with the field diaphragm.)

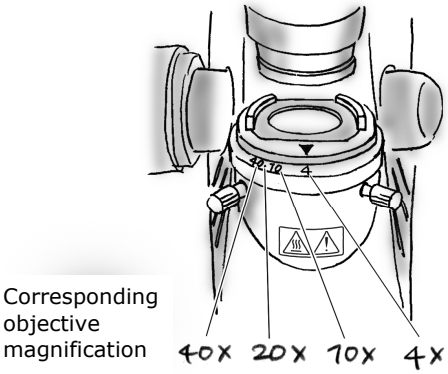
Looking into the eyepieces, turn the field diaphragm ring until the diaphragm image just circumscribes the viewfield.

The field diaphragm is used to control the specimen's illuminated area relative to the microscope's viewfield. If it is opened to a larger aperture than necessary, stray light will enter the viewfield, which may reduce the image contrast. Every time you change the objective magnifications, turn the field diaphragm ring until the diaphragm image just circumscribes the viewfield.

Hint

- The figures around the field diaphragm show the approximate positions for field diaphragm ring corresponding to each objective magnification when 10x eyepieces are used.
- For 100x objective, the field diaphragm cannot be closed enough.

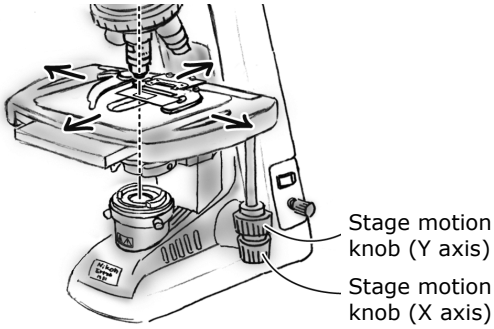




14 Perform the microscopy.

Rotate the stage motion knobs to move the specimen into the optical path. If the specimen is out of focus, rotate the focus knobs to focus on the specimen.

Change the objectives or specimens and repeat the procedures of steps 10 to 14.



Try!!

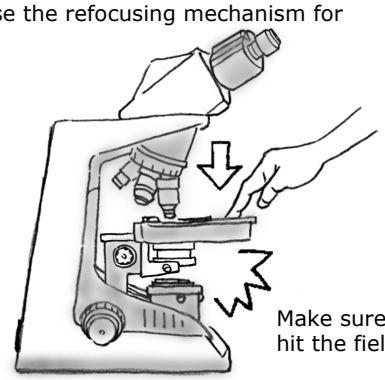
Replacing a Specimen Using the Refocusing Mechanism

Try focusing on the specimen with 40x or higher magnification objective. You will find the specimen is brought very near to the objective.(*1) It will be very difficult to change the specimen without moving the focus knob. In a case like this, use the refocusing mechanism for easy specimen replacement.

(1) Use one hand to gently press down the stage. (*2)

(2) While holding the stage at that position, change the specimen.

(3) Gradually release the stage so that it rises slowly. (The stage will return to the focal position.)



Make sure not to hit the field lens.

*1： The distance between the front of the objective and the specimen when the specimen is in focus is called the "working distance" of the objective. For details, see P.34.

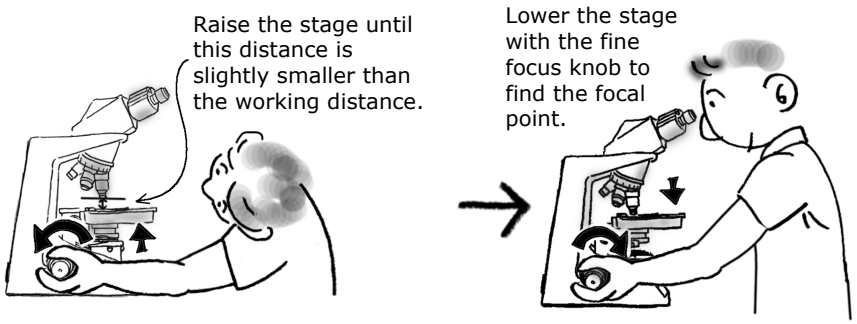
*2： When lowering the stage, take great care not to hit the field lens with the condenser and the parts under the condenser.

Try !!

Using the Working Distance for Focusing

Each objective has its working distance indicated on its side. The working distance is the distance between the front of the objective and the specimen when the specimen image is in focus. If you have difficulties in focusing with the standard procedure described on P.17, try one of the following methods using the working distance for focusing.

Method 1:
While looking at the microscope from the side, rotate the coarse focus knob to bring the specimen close to the objective. When the distance between the specimen and the front of the objective becomes slightly smaller than the working distance, take your hands off the coarse focus knob. The specimen is now almost in focus. Look into the eyepieces and rotate the fine focus knob in the direction that lowers the stage.

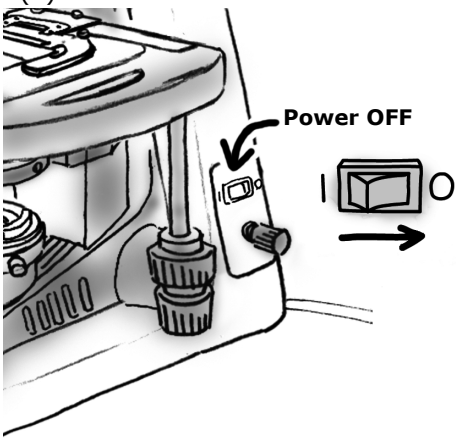


Method 2:
Swing the 40x objective into the optical path. While looking at the microscope from the side, rotate the coarse focus knob until the specimen almost touches the objective (about 0.5 mm apart from the front of the objective). The specimen is now almost in focus. Switch to the 10x objective, look into the eyepieces, and rotate the fine focus knob slightly to find the focal point. Be careful not to hit the objective with the specimen.

15 Turn off the power switch.

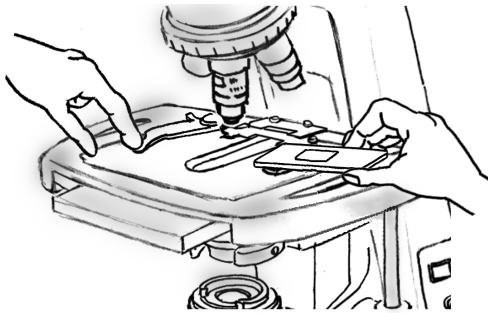
(1) Press the power switch to the "○" position.
Power of the microscope will turn off and the lamp will go out.

(1)



(2) Open the claw of the specimen holder with your finger at the root or the tip tilt and remove the specimen slide.

(2)



This completes the microscopy procedure.

When storing the microscope:

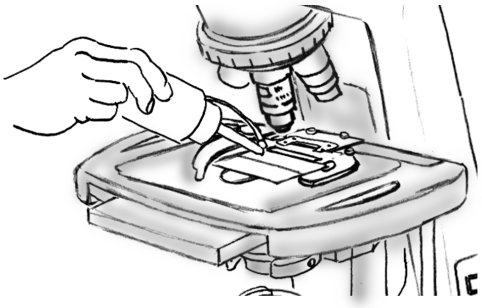
- Unplug the power cord.
- Before storing the microscope, wait approximately 30 minutes after turning off the lamp, and make sure that the field lens unit has cooled sufficiently.
- Return the binocular part to its lowest position.
- Cover the microscope with the vinyl dust cover. (Before covering the microscope, wait approximately 30 minutes after turning off the lamp, and make sure that the field lens unit has cooled sufficiently.)
- When carrying the microscope, hold it at its upper rear and lower front ends.

5 Miscellaneous Operations

1 Oil-Immersion Observation

The "Oil" mark on the side of an objective indicates that it is an oil-immersion type objective. (The oil-immersion objective also has a black band around the barrel end.) An oil-immersion objective is used with the immersion oil applied between the front of the objective and the coverglass. For an oil-immersion objective with a numerical aperture of 1.0 or more, use of an oil-immersion type condenser is required to take full advantage of its performance. An oil-immersion type condenser, like an oil-immersion type objective, needs immersion oil to be applied between the front of the condenser and the coverglass.
The abbe condenser included in the bright viewfield set can be used for oil immersion observation. The condenser has an oil receptacle around its front lens.

● Example of Oil-Immersion



Condenser:
Move the specimen toward the back and lower the condenser slightly. Add a drop of oil on the front of the condenser from the long hole on the stage. Bring the specimen back over the condenser and slowly raise the condenser.

Objective:
Rotate the revolving nosepiece to move the objective out of position. Add a drop of oil to the specimen. Slowly rotate the revolving nosepiece to bring the objective back into position.

● Eliminate Air Bubbles

Make sure that air bubbles are not trapped during oil application. Air bubbles degrade the image. To see if any air bubbles are trapped in the oil, remove one eyepiece and fully open the aperture diaphragm (and field diaphragm, if the microscope has the field diaphragm). Look into the eyepiece tube and check the objective pupil (a bright round part). If you cannot see it well, replace one of the eyepieces with the adapter and the centering telescope (both optional) and look through the eyepieces of the centering telescope while rotating the eyepiece part of the centering telescope.
Do any of the following to eliminate air bubbles:

- Rotate the revolving nosepiece to move the objective back and forth once or twice.
- Gently rotate the condenser focus knob to move the condenser up and down.
- Add another drop of oil.
- Wipe off the oil and apply again.

● Handling of the Immersion Oil

Use a minimum quantity of oil. If too much oil is applied, surplus oil may flow out onto the stage and the condenser and degrade performance.
After completing oil-immersion observation, be sure to clean the objective, condenser, and any other parts that may be stained by oil. Any oil residue left on the lenses of oil-immersion type objectives or adhesion of oils on the front lens of dry type objectives will degrade image quality.
Use petroleum benzine to wipe off oil and finish with absolute alcohol (ethyl or methyl alcohol). If petroleum benzine is not available, use methyl alcohol instead. In that case, wipe off the oil several times (generally 3 to 4 times) as the detergency of methyl alcohol is weaker than petroleum benzine.

WARNING

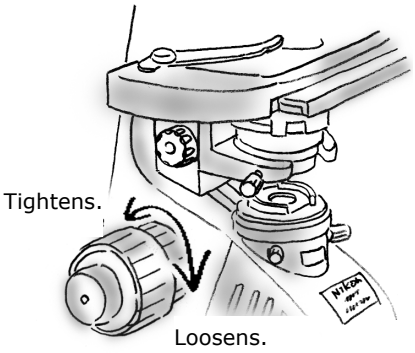
When handling petroleum benzine and absolute alcohol, be sure to follow the instructions provided by the manufacturers. Since they are highly flammable take great care when handling them.

● Cautions on Handling the Immersion Oil

- Close the container cap tightly after use. Make sure that the cap is closed tight after refilling the container. Check the cap periodically to make sure it has not come loose, allowing oil to leak out.
- Do not press the container hard. Oil may splash out.
- If you find an oil drips around the container, wipe them off.
- Avoid contact of immersion oil with eyes or skin. In the event of contact with eyes or skin, take one of the following measures although Nikon immersion oil does not contain any toxic ingredients.
  - ◊ **Contact with skin: Rinse your skin thoroughly with soap and water.**
  - ◊ **Contact with eye: Rinse your eye thoroughly with water (more than 15 minutes) and see a doctor.**
- Do not leave immersion oil in the sun (ultraviolet rays may damage it).

2 Torque Adjustment of the Coarse Focus Knob

The tension (torque) of the coarse focus knob rotation can be adjusted. To increase the tension, turn the coarse focus knob torque adjustment ring counterclockwise. The torque adjustment ring is located at the back of the coarse focus knob. To decrease the tension, turn the ring clockwise. Do not decrease the tension too much. If it is too loose, the stage will fall under its own weight.



3 Upper Limit Bolt

The upper limit bolt is used to prevent the specimen touching the objective when a 40x or larger-power objective (objectives with a small working distance) is used. Using the upper limit bolt, the stage does not move up from a certain position. Attach the bolt as follows.

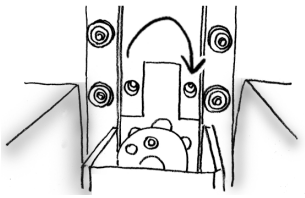
(1) Bring an objective with 40x or larger power into the optical path. Focus on the specimen.

(2) Lower the stage to slightly below the position set in step (1).

(3) Remove the field lens unit.

(4) A hexagonal socket head bolt is located in the left hole at the lower part of the focusing mechanism. Remove the bolt using a supplied hexagonal wrench and screw it into the right hole.

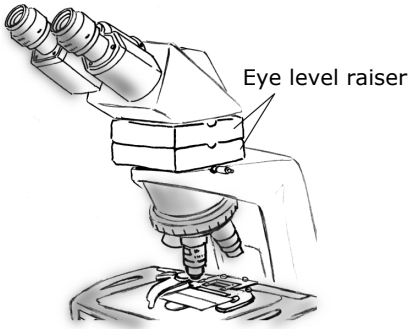
Move the bolt from the left to the right hole.



Note: The upper limit bolt may not work well depending on the thickness of the specimen or the microscope itself. The specimen may touch the 40x objective or the stage may be stopped by the limit before the specimen image is in focus. Check that the bolt works before relying on it.

4 Eye Level Raiser

The eye level raiser (optional) adjusts the height of the eyepiece tube according to the eye level of the user. Install the eye level raiser between the main body and the eyepiece tube. One eye level raiser is 25 mm high. You can use up to two raisers – this raises the eyepiece tube by 50 mm. Use a hexagonal wrench (nominal size 2) for M4 set screws to install the raisers.

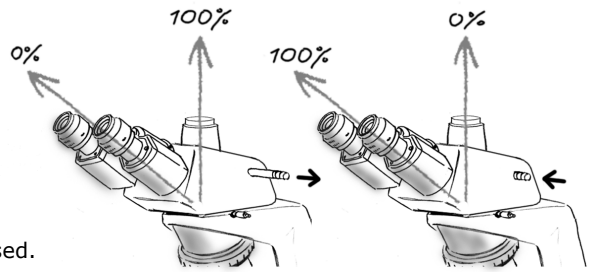


5 Photomicrography and TV Microscopy

The microscopes ECLIPSE E200 MV series and E200LED MV series can be used for photomicrography and TV microscopy.
For those observations, trinocular eyepiece tube, photomicrographic equipment, TV vertical tube, and C-mount CCTV camera (optional) are available. Read the manuals provided with these devices for installation and operating conditions.
Eyepiece tubes and relay lenses come in various types. For details, contact your nearest Nikon representative.

● Trinocular Eyepiece Tube

Push or pull the optical-path selection lever to adjust the amount of light sent to the binocular part and the vertical tube.
The eyepiece tubes for the ECLIPSE Ci and Ni series or 50i and 80i series can be also used.



Distribution of light for trinocular eyepiece tube (example)

● Vertical Tube Adapters

When installing the photomicrographic equipment and TV camera on the vertical tube of the trinocular eyepiece tube, vertical tube adapters are required in-between. For details, contact your nearest Nikon representative. Typical combinations are shown below.

- Photomicrographic equipment: Use the TV vertical tube and the photomicrographic vertical tube adapter.
- C-mount CCTV camera: Use the TV vertical tube and the direct C-mount adapter. The relay magnification is 1x.
- Digital still camera: Use the TV vertical tube and the direct C-mount adapter. Use the relay lens for the C-mount adapter, as necessary.

● TV Relay Lenses

For the C-mount CCTV camera, 0.6x, 0.45x and 0.35x relay lenses are available. Select the magnification of the relay lens according to the size of the photographic element. When a 3CCD TV camera is used with some relay lenses, the colors of the video image may blur. For details, contact your nearest Nikon representative.

● Color Tone

The color tone of the illumination varies with the position of the brightness control dial. If the dial is turned clockwise and the voltage is increased, the light has a bluish tone. If the voltage is reduced, the light has a reddish tone.
For the E200 MV series, attach the provided blue filter to the bottom of the condenser and check the color tone of the specimen.
For the E200LED MV series, there is little change in the color tone.

● Uneven Viewfield Brightness

When a 4x objective is used for the photomicrographic equipment or digital still camera, the viewfield may look partially dark. Make the brightness of the viewfield uniform using one of the following methods.

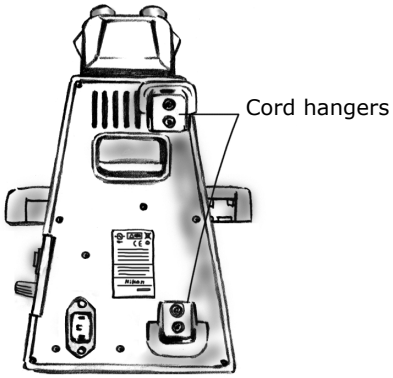
- **Lower the condenser.**
  Slightly lower the condenser to take more space between the specimen and the condenser. If the microscope is equipped with a field diaphragm, the field diaphragm image may blur slightly.
- **Use a phase-contrast condenser and diffuser slider (both optional).**
  Attach the phase-contrast condenser and the diffuser to the microscope. When the diffuser is inserted into the optical path, the amount of light will drop to about 60% of its initial value. Also, you will not be able to see the field diaphragm in the viewfield.

6 ND Filter for the Objective

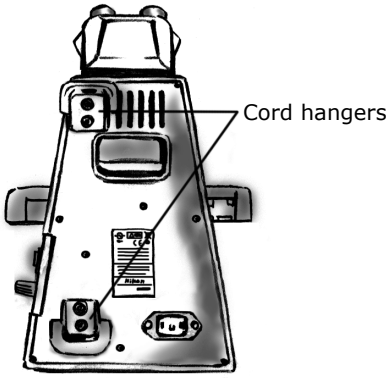
When observing the specimen with 10x and 40x objectives in turns, placing an ND3 filter (specially designed for objectives; optional) to the rear end of the 10x objective will facilitate the observation. With the ND filter attached, you will have the same brightness and color tones for both 10x and 40x objectives without adjusting the brightness control dial.

7 Cord Hangers

Push the cord hangers (optional) into the holes on the rear of the microscope. The hangers can be used for winding the power cord around when the microscope is not in use. To remove the hangers, use a screwdriver.



E200 MV series



E200LED MV series

6 Assembly

WARNING

- **Before assembling or connecting devices, thoroughly read the "Safety Precautions" at the beginning of this manual, and be sure to follow all warnings and cautions written therein.**
- **To prevent electric shock, fire, and product damage, turn off the power switches (press to the "○" positions) on all devices, and unplug the power cords.**

CAUTION

- **Take care to avoid pinching your fingers and hands.**
- **Scratches and dirt on optical components (i.e. lenses and filters) will degrade the microscope image. Keep them free of scratches, dust, fingerprints, and other dirt.**
- **The product is a precision optical instrument. Handle the product with care, and avoid subjecting it to strong physical shocks. In particular, the accuracy of objectives may be lost by even weak physical shocks.**

This chapter describes the installation, assembly, and setup of the product in the actual sequence. Assemble the product as described in this chapter.

Tools Required for Assembly

Hexagonal wrench (one hexagonal wrench is provided with the microscope)

1 Assembly of Standard Set

1 Installing the microscope body

1. **Select a location for the installation.**

   For the installation location, refer to "Installation location and storage location" in "Notes on Handling the Product" at the beginning of this manual (P. ix).

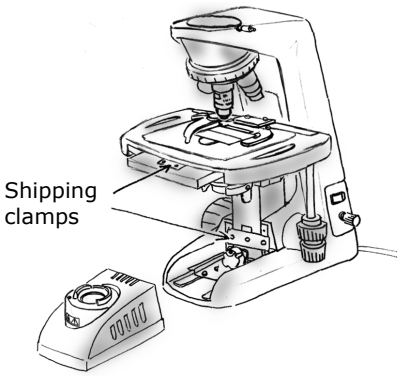
2. **Take out the main body from the box and place it on a stable surface.**

2 Removal of Shipping Clamps

The stage top plate and focusing mechanism are clamped for protection against vibration and shocks during transportation. Remove these shipping clamps with the hexagonal wrench provided.

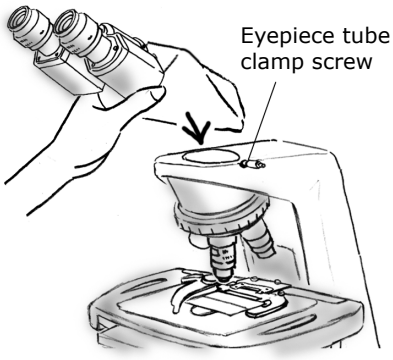
- **Stage Top Plate:**
  The top plate of the stage is retained in the Y-axis direction by a plate fastened with two bolts. Remove the bolts and the plate.

- **Focusing Mechanism:**
  Remove the field lens unit to expose a plate retaining the vertical movement of the focusing mechanism. The plate is fastened with 3 bolts. Remove the bolts and the plate.



3 Installing the Eyepiece Tube

Loosen the eyepiece tube clamp screw by hand and place the eyepiece tube on the circular dovetail mount. Tighten up the eyepiece tube clamp screw by hand.



4 Connecting the Power Cord

Turn off the power switch of the microscope (press to the "○" position).
Connect one end (socket) of the supplied power cord to the AC inlet on the rear of the microscope. Connect the other end (plug) to an AC electrical outlet with the ground conductor (earth conductor).
Make sure that the power cord is securely connected.

Be sure to use provided (or specified) power cord. Use of other power cords may result in malfunction or fire.

This completes the assembly of the microscope standard set.

2 Assembly of Additional Components

1 Condenser

The condenser is attached to the microscope before shipment.
When re-attaching the condenser after removing or replacing the condenser, follow the procedure below.

(1) Lower the condenser holder to its full limit by rotating the condenser focus knob.

(2) Screw in the auxiliary lens to the bottom of the condenser.
Make sure that the auxiliary lens is securely inserted in order to take full advantage of its optical characteristics.

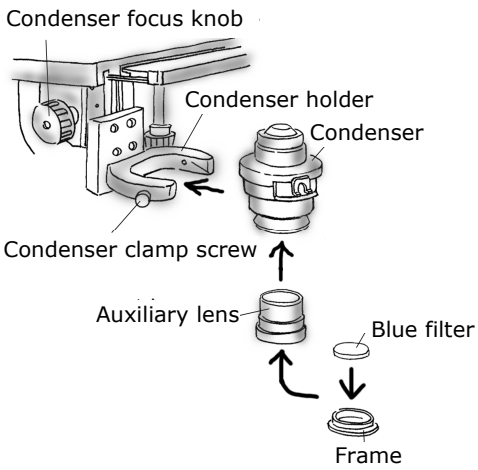
(3) Slide the condenser into the condenser holder.

(4) Position the condenser with its nameplate facing front. Tighten the condenser clamp screw located to the left.

(5) Raise the condenser holder to its full limit by rotating the condenser focus knob.

(6) For the E200 MV series, place the blue filter in the frame provided and insert them into the bottom of the condenser.

(7) Focus the condenser so that light passing through the condenser focus the image on the correct position of the specimen (center of the optical path).



- **Microscopes without the field diaphragm**
  Rotate the condenser focus knob to raise the condenser to its full limit and then slightly lower it to the position where the diffuser image can no longer be seen in the viewfield.

- **Microscope with the field diaphragm**
  (7-1) Focus on the specimen with the 10x objective.

  (7-2) Close the field diaphragm to its minimum aperture by rotating the field diaphragm ring.

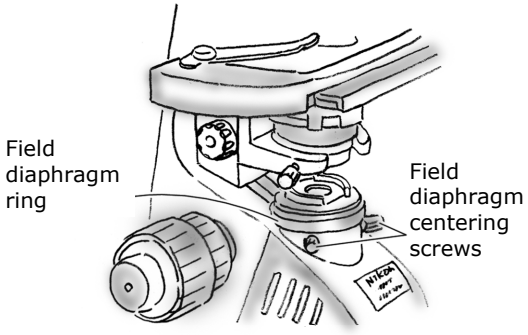
  (7-3) Focus the field diaphragm image on the specimen surface by rotating the condenser focus knob.

  (7-4) Center the field diaphragm image in the viewfield of the eyepiece by manipulating the centering screws.

  (7-5) Change to the 40x objective and focus on the specimen by rotating the fine focus knob.

  (7-6) Focus the field diaphragm image on the specimen surface by rotating the condenser focus knob.

(7-7) Center the field diaphragm image in the viewfield of the eyepiece by manipulating the centering screws. Centering is easier to perform if the size of the field diaphragm image is adjusted so that it is slightly smaller than the viewfield.



2 Objectives

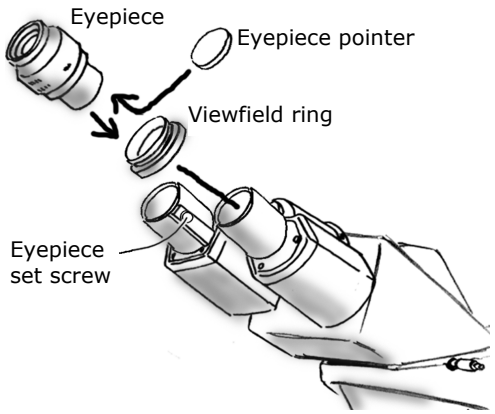
Objectives are attached to the microscope before shipment.
When replacing an objective, remove the specimen from the stage and lower the stage. Remove the objective holding it with both hands. Be careful not to drop the objective.
Screw a new objective into the revolving nosepiece. Set the objectives in such an order that the objective magnification increases as the revolving nosepiece is turned clockwise (as viewed from the top of the microscope).

3 Specimen Holder

The specimen holder is attached to the stage before shipment.
When removing the holder, loosen the two hexagonal socket head bolts furthermost from the specimen using the hexagonal wrench provided.

4 Eyepiece and Eyepiece Pointer

The 10x eyepieces are attached to the eyepiece tube before shipment. When removing an eyepiece, loosen the eyepiece set screws using the hexagonal wrench provided and then remove the eyepiece.
When attaching an eyepiece, push the eyepiece down to its full limit and tighten up the set screw. Be careful not to tighten too hard.
When changing to a 15x eyepiece (optional), be sure to change both the right and left eyepieces together. The right and left eyepieces should be of the same magnification.



The eyepiece pointer (optional) serves as a reference for pointing out the specimen. Attach the pointer to one of the eyepieces. Rotate and remove the viewfield ring from the eyepiece end. Attach the eyepiece pointer to the eyepiece and then put back the viewfield ring.

5 Other Accessories

For installation of other accessories such as the photomicrographic equipment, see the manual provided for each product.

3 Replacement of Consumable Materials

1 Replacing the Lamp (for E200 MV series only)

WARNING

- **To avoid electrical shock or damage to the product, turn off the power switch (press to the "○" position) and unplug the power cord before lamp replacement.**
- **Use the specified lamp. Using a different kind of lamp may damage the product or cause a fire hazard.**

  Specified lamp: Halogen lamp 6 V-30 W (PHILIPS 5761)

CAUTION

- **The lamp is hot when in use. To avoid burn injury, turn off the microscope and wait at least 30 minutes (until the lamp is cool enough to touch) before attempting to change the lamp.**
- **Make sure that the contacts of the lamp and socket are not damaged before installing a new lamp. If the contacts are damaged, they may cause poor illumination or overheating.**
- **Insert the lamp's contact pins fully into the socket holes. If the pins are loose, the lamp may come loose or result in a contact failure, which will cause overheating or smoke.**
- **Be sure to put the field lens unit back in place after replacing the lamp. Never turn on the lamp without the field lens unit.**
- **Do not touch the glass part of the lamp using your bare hands. Wear gloves or use a cloth when handling the lamp to protect the surface from fingerprints. Wipe off any fingerprints or stains using a clean cloth moistened with alcohol. Fingerprints will etch into the hot surface of the lamp and reduce the brightness, damage the lamp or reduce its service life.**
- **Handle the lamp gently. Shocks and vibrations will damage the lamp or reduce its service life.**
- **Do not break the used lamp. It should be disposed of as an industrial waste, according to the local regulations and rules.**

3 Replacement of Consumable Materials

(1) Turn off the power switch (press to the "○" position) and unplug the power cord.

(2) Wait about 30 minutes until the lamp and its surroundings are cool enough to touch.

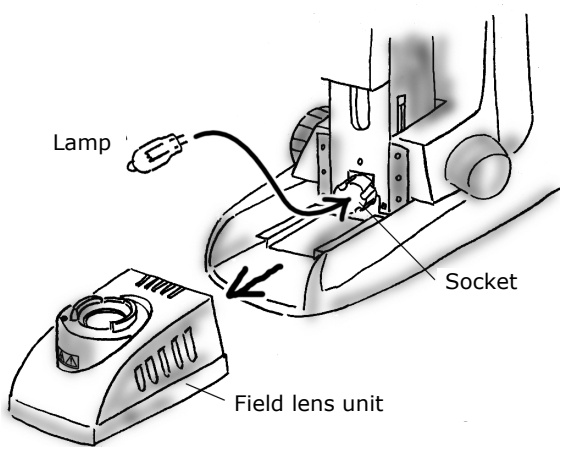
(3) Hold the field lens unit at the vertical grooves on both sides and pull it toward you to remove it.

(4) Remove the old lamp.

(5) Hold a new lamp wearing gloves or using a cloth. Insert the lamp's contact pins fully into the socket holes straight and securely.

(6) Put the field lens unit back in place.

(7) Plug the power cord.



7 Optical Characteristics

1 Combinations of 10x (Field No. 20) Eyepiece with E-Plan Objectives

Objective Magnification	Total Magnification	Numerical Aperture	Real Viewfield	Depth of Focus	Resolving Power	Working Distance
4×	40×	0.1	5 mm	63.2 μm	2.8 μm	30 mm
10×	100×	0.25	2 mm	10.1 μm	1.1 μm	7 mm
40×	400×	0.65	0.5 mm	1.2 μm	0.4 μm	0.65 mm
100×	1000×	1.25	0.2 mm	0.4 μm	0.2 μm	0.23 mm

2 Microscope Terminology

(1) Total Magnification

The total magnification of a microscope is the individual magnifying power of the objective multiplied by that of the eyepiece.

(2) Numerical Aperture (N.A.)

The numerical aperture is an important factor in determining the efficiency of the condenser and objective. It is represented by the formula:

$$\text{N.A.} = n \sin \alpha$$

where n is the refractive index of the medium (air, immersion oil, etc.) between the objective and the specimen or condenser, and α is half of the maximum angle at which light enters or leaves the lens from or to a focused object point on the optical axis.

The larger the numerical aperture the brighter the image and the higher the resolution.

(3) Resolving Power

The ability of an optical system to discriminate between two discrete objects separated by a minute distance. The more minute the distance, the higher the resolving power of the optical system. In relation to the numerical aperture, the resolving power is represented by the following formula:

$$\text{Resolving power} = \frac{\lambda}{2 \times \text{N.A.}}$$

where λ is the used wavelength of light. (The resolving power in the above table is indicated for $\lambda = 0.55\mu m$.)

(4) Working Distance (W.D.)

The clearance between the front of the objective and the upper surface of the coverglass, when a specimen image is sharply focused. Generally, the higher the magnifying power of the objective, the shorter the working distance.

(5) Field Number of the Eyepiece

The diameter of the opening of the fieldstop inside the eyepiece measured in mm. When an eyepiece has an indication of "10x / 20", it means that the magnification is 10x and the field number is 20 for that eyepiece.

(6) Real Viewfield

The diameter in mm of the field of view observable through the eyepiece.
Real viewfield = field number of eyepiece / magnification of objective

(7) Depth of Focus

The depth (thickness) of the specimen image in focus, extending above and below the focused image plane. The larger the N.A. of the objective, the shallower the depth of focus.

$$\text{Depth of focus } (\mu\text{m}) = \frac{n\lambda}{2 \times \text{N.A.}^2} + \frac{n}{7 \times M \times \text{N.A.}} \times 1000$$

Above is an approximation assuming the resolving power of an eye as 2 minutes. λ is the wavelength of light used. (The depth of focus in the table on P.34 is indicated for λ = 0.55μm.)
n is the refractive index of a medium between the objective and the specimen or condenser. (n = 1, when the medium is air, and n = about 1.5 when the medium is oil.)
M is the total magnification (= the individual magnifying power of the objective x that of the eyepiece).

8 Troubleshooting

Misuse of this product may adversely affect performance, even if this product is properly functional. If any of the following problems occurs, be sure to check the following table for possible causes before requesting service.

If you detect problems that are not listed below or the problem still persists after measures are taken, turn off the device and contact your nearest Nikon representative.

1 Optical

Dirt or dust in the viewfield.

Causes	Corrective Measures
The specimen is dirty if dirt or dust moves when specimen is moved on stage.	Clean the specimen.
The tip of the condenser lens is dirty if dirt or dust goes in and out of view when the condenser is moved up and down while using low magnification objective.	Clean the condenser. (P.44)
Objective is dirty if dirt or dust disappears when the objective is switched.	Clean the objective. (P.44)
The field lens unit is dirty if dirt or dust moves when field lens unit is moved slightly.	Clean the field lens unit. (P.44)
The eyepiece is dirty if dirt or dust does not move when the stage, condenser, objective or field lens unit is moved.	Clean the eyepiece. (P.44)
Condenser position is not correct.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.14) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Aperture diaphragm is closed too far.	Open properly. (P.15)

Poor image quality (low resolution, contrast too low or too high)

Causes	Corrective Measures
No cover glass is attached to the slide.	Attach a cover glass 0.17 mm thick.
Cover glass is too thick or too thin.	Use a cover glass of the specified thickness (0.17 mm).
Slide is upside down.	Turn over the slide so that the cover glass faces up.
Lenses or specimen are dirty or dusty.	Move either "stage, condenser, objective or field lens unit" following the causes described in "Dirt or dust in the viewfield." and check which parts are dirty, then clean them as appropriate.
Aperture diaphragm and field diaphragm is opened or closed too far.	Close or open properly. (P.15, 18)
Condenser position is not correct.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.14) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
No immersion oil is applied to the tip of the oil-immersion objective.	Apply Nikon immersion oil to the objective. (P.22)
Nikon immersion oil is not used for oil-immersion observation.	Use Nikon immersion oil. (P.22)
Air bubbles in immersion oil.	Remove bubbles. (P.22)
Immersion oil adhering to the tip of the dry type objective (especially 40x objective).	Clean the objective. (P.23)
Correction ring of objective is not in right position (when using objectives with correction rings).	Adjust the position suitable for the cover glass.
No-cover-glass-objective is used for the specimen with the cover glass.	Use the standard objective for cover glassed specimen.

1 Optical

Image too bright.

Causes	Corrective Measures
ND filter for the objective is not used.	Attach the ND filter for the objective. (P.26)
Lamp voltage is too high.	Adjust the voltage by rotating the brightness control dial. (P.17)

Insufficient brightness.

Causes	Corrective Measures
Lamp voltage is too low.	Adjust the voltage by rotating the brightness control dial. (P.17)
Aperture diaphragm is closed too far.	Open properly. (P.15)
Condenser position is not correct.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.14) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
When an optical path switchable eyepiece tube is attached, optical path is not switched to the eyepiece 100%.	Switch the optical path to the eyepiece 100%.
The lamp has reached the end of its service life. (for E200 MV series only)	Replace the lamp. (P.32)

Image is yellowish or bluish. (for E200 MV series only)

Causes	Corrective Measures
If yellowish, blue filter is not used.	Use blue filter. (P.30)
Lamp voltage is too low or too high.	Adjust the voltage by rotating the brightness control dial. (P.17)

Darkness at the periphery, no viewfield seen, or uneven viewfield brightness.

Causes	Corrective Measures
Revolving nosepiece is not in click-stop position (objective not centered in the optical path).	Revolve to click-stop position (swing the objective correctly into the optical path).
Condenser position is not correct.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.14) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Condenser is not installed correctly.	Install correctly. (P.30)
Field diaphragm is not centered (if the microscope is equipped with a field diaphragm).	Center the field diaphragm. (P.14)
Field diaphragm is closed too far (if the microscope is equipped with a field diaphragm).	Open properly. (P.18)
Field lens unit is not installed correctly.	Install correctly. (P.33)
Lamp is not installed correctly. (for E200 MV series only)	Install correctly. (P.33)
Dirt or dust on the lens (condenser, objective, field lens, eyepiece, specimen)	Clean the lens. (P.44)
When an optical path switchable eyepiece tube is attached, the optical-path selection lever is in the intermediate position.	Switch the optical path to the eyepiece 100% properly.
When an optical path switchable eyepiece tube is attached, optical path is not switched to the eyepiece 100%.	Switch the optical path to the eyepiece 100%.

1 Optical

Image dark on one side. (One side of the viewfield (up, down, right, or left) is not focused.)

Causes	Corrective Measures
Revolving nosepiece is not in click-stop position.	Revolve to click-stop position.
Specimen rises from stage surface.	Stabilize it using the holder.

Image shifts during focus. (Becomes asymmetrically defocused when moving the focal point.)

Causes	Corrective Measures
Revolving nosepiece is not in click-stop position.	Revolve to click-stop position.
Specimen rises from stage surface.	Stabilize it using the holder.
Field diaphragm is not centered (if the microscope is equipped with a field diaphragm)	Center the field diaphragm. (P.14)

2 Operational

Image cannot be focused with high magnification objectives.

Causes	Corrective Measures
Slide is upside down.	Turn over the slide so that the cover glass faces up.
Cover glass is too thick.	Use a cover glass of the specified thickness (0.17 mm).
Fail-safe device for specimen damage protection of the objective is pushed in.	Some objective has a stopper to keep the pushed in state. Turn the tip of the objective to release. Tip of the objectives without stopper can not be rotated. Do not use force to draw the stopper. Contact your nearest Nikon representative.

High magnification objective contacts slide when changed over from low magnification.

Causes	Corrective Measures
Slide is upside down.	Turn over the slide so that the cover glass faces up.
Cover glass is too thick.	Use a cover glass of the specified thickness (0.17 mm).
Diopter is not adjusted correctly.	Adjust. (P.12)

Difference in focal point too large when switching from one objective to another.

Causes	Corrective Measures
Diopter is not adjusted correctly.	Adjust. (P.12)
Objective is not attached correctly.	Screw the objective all the way in. (P.31)

Binocular images not integrated.

Causes	Corrective Measures
Interpupillary distance is not adjusted correctly.	Adjust. (P.13)
Diopter is not adjusted correctly.	Adjust. (P.12)

Excessive eye fatigue.

Causes	Corrective Measures
Interpupillary distance is not adjusted correctly.	Adjust. (P.13)
Diopter is not adjusted correctly.	Adjust. (P.12)
Inadequate brightness or illumination.	Adjust brightness using the control dial. (P.17)

Specimen does not move smoothly.

Causes	Corrective Measures
Specimen holder is not securely fastened to the stage.	Fasten securely. (P.31)

3 Electrical

Lamp does not light when switched on.

Causes	Corrective Measures
No electrical power.	Insert the power cord into an electrical outlet. (P.29)
Power cord is not connected to the microscope main body.	Insert the power cord into the AC inlet. (P.29)
Lamp is not installed. (for E200 MV series only)	Install correctly. (P.32)
Lamp is burnt out. (for E200 MV series only)	Replace lamp. (P.32)
Incorrect lamp is used. (for E200 MV series only)	Use the specified lamp. (P.32)

Flickering or unstable lamp brightness.

Causes	Corrective Measures
Lamp is about to burn out. (for E200 MV series only)	Replace lamp. (P.32)
Power cord is not correctly connected.	Connect correctly.
Lamp is not correctly inserted into socket. (for E200 MV series only)	Insert correctly. (P.32)

Sudden lamp failure.

Causes	Corrective Measures
Incorrect lamp is used. (for E200 MV series only)	Use the specified lamp. (P.32)

9 Care and Maintenance

1 Cleaning the Lenses

- Dust is best removed using a soft brush or gauze.
- More persistent dirt, such as fingerprints, grease and oil, may be removed with lens tissue (or soft cotton, gauze) lightly moistened with absolute alcohol (ethyl alcohol or methyl alcohol).
- To clean immersion oil off the oil-immersion type objective, use lens tissue, soft cotton or gauze lightly moistened with petroleum benzine. If petroleum benzine is not available, use methyl alcohol. In this case, you need to wipe 3 to 4 times because the detergency of the methyl alcohol is somewhat weak.
- Absolute alcohol and petroleum benzine are quite inflammable. Take great care when handling them and when turning the power switch on and off. Be very careful with fire.
- When using absolute alcohol and petroleum benzene, follow the instructions provided by the manufacturer.

2 Cleaning the Microscope

- We recommend that you use a silicon cloth to clean the microscope.
- For persistent dirt, dampen a piece of gauze with neutral detergent and wipe lightly.
- Using organic solvent may result in discoloration of the plastic parts.

3 Disinfecting the Microscope

- We recommend that you use 70% medical alcohol for normal disinfection of the microscope.
- In case of spillage of a sample to the microscope, determine whether the sample is hazardous. If the sample is hazardous, follow the standard procedure of your laboratory.
- Using organic solvent may result in discoloration of the plastic parts.

4 Storing the Microscope

- When the microscope is not in use, put a vinyl dust cover over the product to protect it form dust, and store it in a dry place where mold is not likely to form.
- Before covering the microscope with the vinyl cover, turn off the microscope (press the switch to the "O" position) and unplug the power cord, then wait for more than 30 minutes until the lamp and its surrounding areas cool sufficiently.
- We especially recommend that the objectives and eyepieces be kept in a container (such as a desiccator) with desiccant in it.

5 Periodical Inspections (Charged)

- To maintain the performance of the microscope, periodical inspections and maintenance are recommended.
- For details, contact your nearest Nikon representative.

10 Specifications

1 Microscopy (Principles)

Use the objective and eyepieces of the microscope to magnify minute cells and tissue optically, manipulate the lever and handle of the microscope unit to precisely focus or move the observation point. Then observe or shoot the sample fixed on the slide.

- **Intended application of the product (for medical care)**
  This microscope is designed for the purpose of experimentations and diagnosis in microscopic observation of cells and tissue at hospitals or independent medical clinics, etc. and practices at educational institutes in the field of medicine, anatomy, and cellular biology.
  The bright field diascopic (transmitted) observation is used to observe a sample fixed on the slide (cells and tissue) as the specimen.
  The product is classified as an in-vitro diagnostic medical device.
  This product is not intended for use for measurement.
  The scale on the focus handle and stage is an indicator to reproduce the position and does not guarantee the value of the thickness or length of a sample measured using this scale.
- **Intended user**
  It is intended for the medical professional and those who work on experimentations and practitioners of the microscope observation at educational institutes in the field of medicine, anatomy, and cellular biology.

2 Performance Properties

(1) Model Name:

Microscope Main Body

- E200 MV Series
  ECLIPSE E200 MV L (Stage knob left side, without field diaphragm)
  ECLIPSE E200 MV LS (Stage knob left side, with field diaphragm)
  ECLIPSE E200 MV R (Stage knob right side, without field diaphragm)
  ECLIPSE E200 MV RS (Stage knob right side, with field diaphragm)
- E200LED MV Series
  ECLIPSE E200LED MV L (Stage knob left side, without field diaphragm)
  ECLIPSE E200LED MV LS (Stage knob left side, with field diaphragm)
  ECLIPSE E200LED MV R (Stage knob right side, without field diaphragm)
  ECLIPSE E200LED MV RS (Stage knob right side, with field diaphragm)

Eyepiece Tube
E2-TB (Binocular eyepiece tube)
E2-TF (Trinocular eyepiece tube)

(2) Optical System:

CFI60 (Infinity-corrected CF optical system)
Second objective focal length f = 200 mm
Built-in diascopic illumination system (Simplified Kohler's illumination system)

(3) Focusing Mechanism:

Fine focus knob graduation:	2μm/graduation
Fine focus knob travel:	0.2 mm up or down / revolution
Coarse focus knob travel:	about 37.7 mm up or down / revolution
Stage vertical movable range:	1.5 mm upward and 25 mm downward from the focal plane.

(4) Stage: Stroke: X axis: 77 mm
Y axis: 53 mm

(5) Revolving Nosepiece: 4-hole fixed type

(6) Illumination Light Source:

- **E200 MV Series**
  Lamp Rating: 6 V-30 W halogen lamp (PHILIPS 5761)
  Average lamp lifetime: 100hrs
  Output Rating: 6 V 5 A max.
- **E200LED MV Series**
  White LED

(7) Input Ratings:

- **E200 MV Series**
  100 to 240 VAC, 50/60 Hz, 0.8 A or less
- **E200LED MV Series**
  100 to 240 VAC, 50/60 Hz, 0.1 A or less

(8) Power Cord:

- **When used in 100-120 V region, outside Japan**
  UL listed detachable power cord set, 3 conductor grounding
  (3 conductor grounding Type SVT, No.18 AWG,
  3 m long maximum, rated at 125 V AC minimum.)
- **When used in 220-240 V region**
  Detachable power cord set approved according to EU/EN standard,
  3 conductor grounding
  (3 conductor grounding Type H05VV-F,
  3 m long maximum, rated at 250 V AC minimum.)
- **When used inside Japan**
  PSE approved detachable power cord set, 3 conductor grounding
  (3 conductor grounding Type VCTF 3 x 0.75 mm^2,
  3 m long maximum, rated at 125V AC minimum.)

3 Physical Properties

(1) Model Name:

Microscope Main Body

- E200 MV Series
  ECLIPSE E200 MV L (Stage knob left side, without field diaphragm)
  ECLIPSE E200 MV LS (Stage knob left side, with field diaphragm)
  ECLIPSE E200 MV R (Stage knob right side, without field diaphragm)
  ECLIPSE E200 MV RS (Stage knob right side, with field diaphragm)
- E200LED MV Series
  ECLIPSE E200LED MV L (Stage knob left side, without field diaphragm)
  ECLIPSE E200LED MV LS (Stage knob left side, with field diaphragm)
  ECLIPSE E200LED MV R (Stage knob right side, without field diaphragm)
  ECLIPSE E200LED MV RS (Stage knob right side, with field diaphragm)

Eyepiece Tube
E2-TB (Binocular eyepiece tube)
E2-TF (Trinocular eyepiece tube)

(2) Dimensions and Weight:

227(W) ×382(D) ×415(H)mm, 8 Kg
(Combination with Microscope Main Body: E200 MV L, Eyepiece Tube: E2-TB)

(3) Operating Environment

Room Temperature:	0 to +40°C
Humidity:	60%RH max. (no condensation)
Altitude:	2,000 m max.
Pollution:	Degree 2
Installation Category: (Overvoltage Category)	Category II
Electrical shock protection class:	Class I
Indoor use only	

(4) Storage and Transport Environmental Conditions

Temperature:	-20 to +60°C
Humidity:	90%RH max. (no condensation)

(5) Safety Standards Compliance

- UL listed product. (C-UL US Listing Mark approved)
- This product meets FCC Part 15 Subpart B Class A requirements:

  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

  These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

  This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

  Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- This product complies with Canadian EMI. (ICES-003 Class A)

  This Class A digital apparatus complies with Canadian ICES-003.

  Cet appareil numérique de classe A est conforme à la norme NMB-003 du Canada.

- CE marking
  - This product meets EU IVD Directive requirements. (GM-approved: in vitro diagnostic medical device)
  - This product meets EU Low Voltage Directive requirements.
  - This product meets EU EMC Directive requirements. (EN61326-1、EN61326-2-6)

- This product complies with Australian EMI. (AS/NZS CISPR11 Class B)

En Symbol for separate collection applicable in European countries

This symbol indicates that this product is to be collected separately.
The following apply only to users in European countries.

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the retailer or the local authorities in charge of waste management.

De Symbol für getrennte Wertstoff-/Schadstoffsammlung in europäischen Ländern

Dieses Symbol zeigt an, dass dieses Produkt separat entsorgt werden muss.
Folgendes gilt für Verbraucher in europäischen Ländern:

- Dieses Produkt darf nur separat an einer geeigneten Sammelstelle entsorgt werden. Eine Entsorgung im Hausmüll ist unzulässig.
- Wenden Sie sich für nähere Informationen bitte an Ihren Händler oder die örtlich für Abfallentsorgung zuständigen Behörden.

Fr Symbole pour la collecte sélective applicable aux pays européens

Ce symbole indique que ce produit doit être collecté séparément.
Les mesures suivantes concernent uniquement les utilisateurs européens.

- Ce produit doit être jeté séparément dans un point de collecte approprié. Ne jetez pas ce produit dans une poubelle réservée aux ordures ménagères.
- Pour plus d'information, contactez le détaillant ou les autorités locales responsables de la gestion des ordures.

Es Símbolo para recogida separada aplicable en países Europeos

Este símbolo indica que este producto se recogerá por separado.
Lo siguiente sólo se aplicará en países Europeos.

- Este producto ha sido designado para su recogida en un punto de almacenamiento apropiado. No lo tire como un deshecho doméstico.
- Para más información, contacte con el vendedor o autoridades locales al cargo de la gestión de residuos.

Dk Symbol for special bortskaffelse af denne type produkter i de europæiske lande

Dette symbol angiver, at dette produkt skal bortskaffes specielt.
Det efterfølgende er kun til forbrugere i de europæiske lande.

- Dette produkt skal bortskaffes på fx en genbrugsplads el .ligh. Det må ikke smides væk som normalt husholdningsaffald.
- For yderligere information kontakt din forhandler eller de lokale myndigheder, som fx teknisk forvaltning.

Nl Symbool voor gescheiden inzameling zoals dat wordt gebruikt in Europese landen

Dit symbool betekent dat dit product apart moet worden ingezameld.
Het volgende is alleen van toepassing op gebruikers in Europa

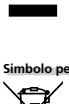
- Dit product dient gescheiden ingezameld te worden op een daartoe bestemd inzamelpunt. Niet wegwerpen bij het normale huisvuil.
- Neem voor meer informatie contact op met het verkooppunt, of met de lokale instantie die verantwoordelijk is voor het verwerken van afval.

Pt Símbolo para recolha de resíduos em separado utilizado nos países Europeus

Este símbolo indica que este produto é para ser recolhido separadamente.
Esta norma aplica-se só para os utilizadores nos países Europeus.

- Este produto está designado para recolha de resíduos em separado num recipiente apropriado. Não deitar no caixote do lixo doméstico.
- Para mais informações, contactar o revendedor ou as autoridades locais responsáveis pela gestão dos resíduos.

It Simbolo per la raccolta differenziata applicabile nei paesi europei



Questo simbolo indica che il prodotto va smaltito separatamente.
La normativa che segue si applica soltanto agli utenti dei paesi europei.

- Il prodotto è designato per lo smaltimento separato negli appositi punti di raccolta. Non gettare insieme ai rifiuti domestici.
- Per maggiori informazioni, consultare il rivenditore o gli enti locali incaricati della gestione dei rifiuti.

This symbol is provided for use in the People's Republic of China, for environmental protection in the fields of electronic information products.

このマークは、中国のお客様に向けたもので、電子情報製品分野における環境保護を目的としています。

No Symbol for kildesortering i europeiske land

Dette symbolet indikerer at produktet skal kildesorteres.
De nedenstående punktene gjelder for alle europeiske brukere.

- Dette produktet skal kildesorteres og innleveres til dedikerte innsamlingspunkter. Må ikke kastes med normalt husholdningsavfall.
- For mer informasjon, ta kontakt med din forhandler eller lokale myndigheter.

Se Symbol för separat upphämtning i euopeiska länder

Den här symbolen anger att produkten måste hämtas separat.
Följande gäller bara användare i europeiska länder.

- Den här produkten är avsedd för separat upphämtning vid ett lämpligt uppsamlingsställe. Produkten får inte kastas i hushållsavfall.
- För mer information, kontakta återförsäljaren eller de lokala myndigheter som ansvarar för avfallshantering.

Fi Erillisen keräyksen merkki Euroopan maissa

Tämä merkki osoittaa, että tuote kerätään erikseen.
Seuraavat maininnat koskevat vain eurooppalaisia käyttäjiä.

- Tämä tuote kerätään erikseen asianmukaisista keräyspisteistä. Älä hävitä tuotetta talousjätteiden mukana.
- Lisätietoja saat jälleenmyyjältä tai paikallisilta jätehuoltoviranomaisilta.

Ru Символ сортировки мусора, использующийся в европейских странах

Данный символ означает, что этот продукт должен утилизироваться отдельно от других.
Приведенная ниже информация касается только пользователей из стран Европы.

- Данный продукт должен утилизироваться отдельно от других в соответствующих приемных пунктах. Не выбрасывайте данный продукт вместе с бытовым мусором.
- Дополнительную информацию Вы можете получить у продавца или у местных властей, отвечающих за утилизацию мусора.

Gr Σύμβολο για την ξεχωριστή αποκομιδή απορριμμάτων στις Ευρωπαϊκές χώρες

Αυτό το σύμβολο υποδηλώνει ότι η αποκομιδή αυτού του προϊόντος πρέπει να γίνει ξεχωριστά.
Τα κάτωθι απευθύνονται μόνο σε Ευρωπαίους χρήστες.

- Αυτό το προϊόν είναι σχεδιασμένο έτσι ώστε να γίνεται η αποκομιδή του σε ειδικά σημεία. Μην το πετάτε μαζί με τα υπόλοιπα απορρίμματα.
- Για περισσότερες πληροφορίες, επικοινωνήστε με τον διανομέα του προϊόντος ή με τις υπεύθυνες τοπικές αρχές για θέματα διαχείρισης απορριμμάτων.

Pl Symbol oznaczający segregowanie odpadów, stosowany w krajach Europy

Ten symbol oznacza, że produkt musi być wyrzucany oddzielnie.
Poniższe uwagi mają zastosowanie tylko dla użytkowników z Europy.

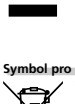
- Ten produkt jest przeznaczony do oddzielnej utylizacji i powinien być dostarczony do odpowiedniego punktu zbierającego odpady. Nie należy go wyrzucać z odpadami gospodarstwa domowego.
- Aby uzyskać więcej informacji, należy skontaktować się z przedstawicielem przedsiębiorstwa lub lokalnymi władzami odpowiedzialnymi za zarządzanie odpadami.

Hu Európai országokban érvénes "Elkülönített hulladékgyűjtés" jelzése

Ez a jelzés azt jelenti, hogy ezt a terméket elkülönítve kell gyűjteni.
Az alábbiak csak az európai országokban élő felhasználókra érvényes.

- Ezt a terméket a megfelelő hulladékgyűjtőhelyen, elkülönítve kell gyűjteni. Ne dobja ki háztartási hulladékként.
- További információkért forduljon a forgalmazóhoz, vagy a helyi hatóság hulladékgyűjtésért felelős részlegéhez.

Cz Symbol pro oddělený sběr odpadu platný v evropských zemích



Tento symbol znamená, že tento produkt se má odkládat odděleně.
Následující pokyny platí pro uživatele z evropských zemí.

- Tento produkt se má odkládat na místě sběru k tomuto účelu určeném. Neodhazujte spolu s domácím odpadem.
- Více informací o způsobu zacházení s nebezpečným odpadem vám podá příslušná místní instituce.

Jp ヨーロッパにおける廃棄物個別回収のシンボルマーク

このシンボルマークは本製品が個別に回収されなければならないことを示しています。
次項は本製品をヨーロッパ（EU）で使用する場合にのみ適用されます。

- 本製品は指定された収集場所で個別に回収されるように定められています。家庭ゴミとして廃棄しないでください。
- 詳細については販売代理店または地域の廃棄物処理機関にご連絡ください。

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