Title:	Microscope Use in Provider Performed Testing BUMC		
Department/Service Line:	Laboratory		
Approver(s):	CLIA Director		
Location/Region/Division:	BUMC – POC Lab		
Document Number:	BUMC.LAB.POC.6007.R_V1		
Last Review/Revision Date:	See Signatures	**Origination Date:**	02/2022

SCOPE

This document applies to providers that use a microscope for provider performed testing at Baylor University Medical Center.

DEFINITIONS

None

METHOD/UTILITY

Microscopes are precision instruments. Achieving an accurate result with microscopic techniques requires an understanding of the operating characteristics and limitations of the equipment used. Therefore, analyzing specimens with the microscope requires training, knowledge of standard precautions, and an understanding of the capabilities, use, and care of the microscope.

PROCEDURE

Parts of the Microscope

Lenses

- The objective lens magnifies the specimen a defined amount. The objective produces the primary image and the eyepiece magnifies it. The total magnification of the image is the product of the magnification of the objective multiplied by the magnification of the eyepiece.
- The oculars (eyepieces) are placed in the top openings of the observation tubes of the microscope and magnify the primary image projected by the objective.

Stand

The stand rests on the base of the microscope and carries the arm and the stage on which the specimen is placed.

Stage

The horizontal platform on which the specimen slide is placed.

Coarse and Fine Adjustment Knobs

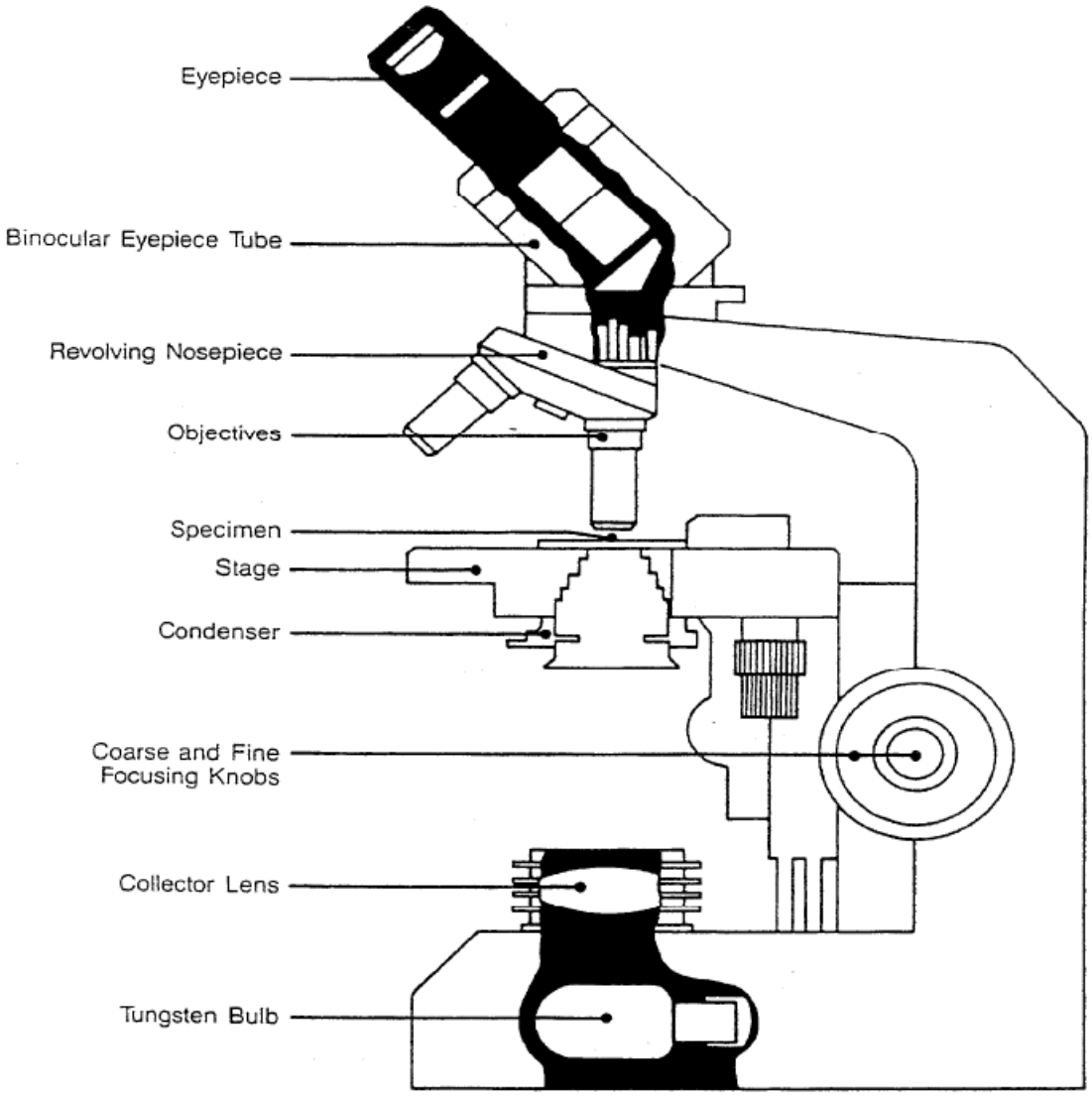
Used to bring the slide into focus by moving the stage toward or away from the objectives.

Condenser

The condenser is mounted under the stage to concentrate and focus light from the light source. It can be raised or lowered by means of a condenser knob below the stage. The aperture iris diaphragm can be opened or closed to control the amount of light striking the specimen.

Illumination

The built in light source is usually a tungsten bulb or tungsten-halogen bulb. A switch or dimmer may be used to control the intensity of the light. Lowering the intensity before turning off the microscope lengthens the life of the bulb.



Operation

Low Power Objective (10x)

1. Place a properly labeled specimen slide on the stage.
2. Lower the condenser and turn the lamp to low. Open both the aperture diaphragm and the field diaphragm.
3. With the 10x objective in place and while observing from the *side of the slide and not through the eyepiece*, use the coarse adjustment knob to slowly raise the stage until the slide comes close to the objective.
4. Look through the eyepiece and use the coarse and/or fine adjustment until the image is sharply in focus.
5. Close the field diaphragm almost completely and raise the condenser until the edges of the diaphragm are sharply focused (the condenser is usually at its highest position). Then, open the field diaphragm slowly, stopping just as it disappears from view.
6. Open and close the aperture diaphragm to optimize contrast. Contrast is increased by closing the aperture. If more light is needed, turn up the lamp.

High Power Objective (40x)

1. Focus and center the specimen with the 10x objective as instructed above.
2. Rotate the nosepiece slowly to bring the 40x objective into the light path.
3. Use the FINE adjustment knob to bring the specimen into focus.
4. *Note*: Never raise the stage with the coarse adjustment knob when using the 40x lens. Doing so may cause the lens to hit the slide and break.

Care of the Microscope

Weekly maintenance

1. Wipe microscope objectives, stage, focus knobs, eyepieces and microscope body with an alcohol pad or lens cleaner to remove any dust and excess oil.
2. Document maintenance on Microscope Maintenance form.

Annual maintenance

Annual microscope maintenance may be performed by Biomed or a contracted third party.

As Needed Maintenance

Change lamp as needed.

ATTACHMENTS

Microscope Maintenance Log for PPM Procedures (BUMC.LAB.POC.6007.A)

RELATED DOCUMENTS

Provider Performed Testing Program BUMC (BUMC.LAB.POC.6001.P)

REFERENCES

1. CLSI. *Physician and Nonphysician Provider-Performed Microscopy Testing; Approved Guideline – Second Edition.* CLSI document POCT10-A2. Wayne, PA: Clinical and Laboratory Standards Institute; 2011.

REVISION HISTORY

Version #	Effective Date	Description of Change	Revised By	Removed Date
1	See signatures	New Procedure		

Attachment Title:	Microscope Maintenance Log for PPM Procedures		
Attachment Number:	BUMC.LAB.POC.6007.A_V1	Last Review/Revision	New

Weekly maintenance

Wipe microscope objectives, stage, focus knobs, eyepieces and microscope body with an alcohol pad or lens cleaner to remove any dust and excess oil.

Annual maintenance

Annual microscope maintenance may be performed by Biomed or a contracted third party.

As Needed Maintenance

Change lamp as needed.

	Clean dust or excess oil	Lamp Change	Comments		Clean dust or excess oil	Lamp Change	Comments
Week 1				Week 27			
Week 2				Week 28			
Week 3				Week 29			
Week 4				Week 30			
Week 5				Week 31			
Week 6				Week 32			
Week 7				Week 33			
Week 8				Week 34			
Week 9				Week 35			
Week 10				Week 36			
Week 11				Week 37			
Week 12				Week 38			
Week 13				Week 39			
Week 14				Week 40			
Week 15				Week 41			
Week 16				Week 42			
Week 17				Week 43			
Week 18				Week 44			
Week 19				Week 45			
Week 20				Week 46			
Week 21				Week 47			
Week 22				Week 48			
Week 23				Week 49			
Week 24				Week 50			
Week 25				Week 51			
Week 26				Week 52			

Monthly Review

	Signature/Date		Signature/Date		Signature/Date		Signature/Date
JAN		APR		JUL		OCT	
FEB		MAY		AUG		NOV	
MAR		JUN		SEP		DEC	