

1. Introduction

The PriorLux MET upright compound metallurgical microscope is a high quality instrument equipped with high resolution, chromatically corrected optics for excellent image quality in reflected light applications. The robust construction and hard wearing materials ensure long lasting and trouble free operation. The instrument can be used with a number of supplied accessories including a polariser and analyser for polarising contrast.

For documentation the instrument is available with a trinocular head which permits mounting of a video or digital camera system.

2. Unpacking

The PriorLux MET is shipped in protective bags within a pre-formed container. Each component should be carefully unpacked and checked, cutting rather than tearing the plastic bags. The head (binocular or trinocular) should be fitted to the dovetail on top of the stand and locked in place with the head locking screw. The eyepieces then just drop into the eyepiece tubes at the front of the head, these should be pushed in as far as they will go.

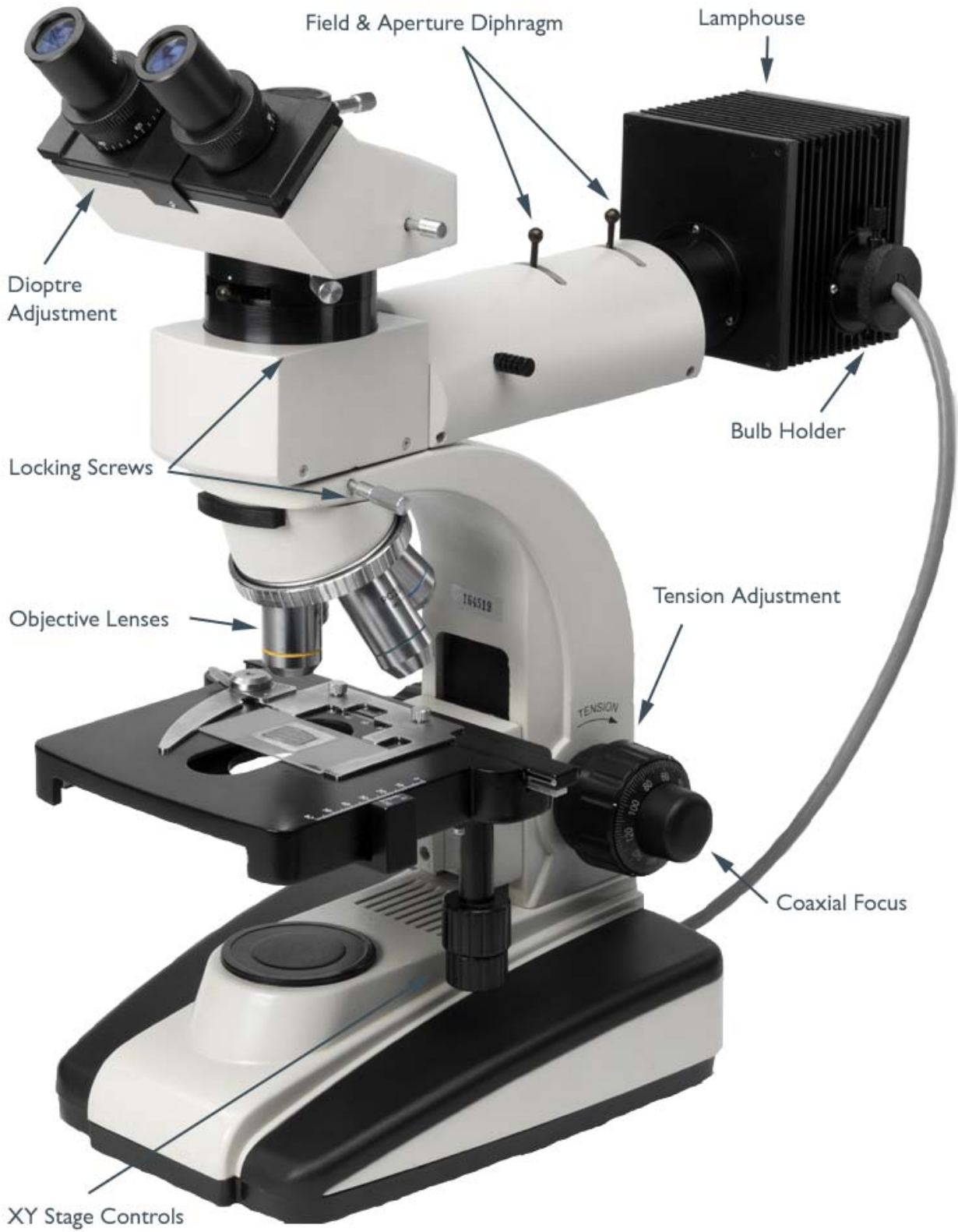
Remove each objective lens from its protective “pot” and screw into the free positions on the nosepiece.

At all times ensure the cooling slots in the base of the microscope are free from obstruction.

3. Specifications

Eyepieces	10x 18mm field of view, focusing eyepieces		
Condenser	N/A		
Mechanical Stage	Coaxial XY		
Focusing Mechanism	Co-axial fine and coarse adjustment with tension control and focus stop		
Viewing Head	Interpupillary distance 55-75mm		
Kohler Illumination	12V 30W halogen lamp with variable brightness control		
Power Supply	220/240 VAC 50Hz or 110/120 VAC 60Hz.		
Objectives	Mag.	NA	Tube Length
	10x	0.25	∞
	20x	0.45	∞
	40x (S)	0.65	∞
	80x (S)	0.90	∞

4. Component Parts



5. Electrical Connection and Safety

Stands are supplied with an operating voltage of either 220/240 VAC 50/60Hz or 110/120 VAC 50/60Hz. The instrument is supplied with a power lead complete with appropriate plug for mains connection. UK plugs are fitted with a 3A fuse. This should only be replaced with a similarly rated fuse. The instrument should ALWAYS be switched off and isolated from the mains before any lamp or fuse is changed. The internal fuse is a T1.25A type (replacement code W335). If necessary, replace only with this type of fuse.

6. Setting Up

Connect the power cable to the base of the microscope, at the rear, and before switching on the power, reduce the lamp intensity control to its minimum setting. After switching on, the intensity should be increased to a comfortable level. This procedure should be reversed before switching off. Following this method will considerably prolong the life of the bulb.

Binocular/Trinocular Head

Interpupillary distance should be set by rotating both eyepiece tubes in an arc until the two images coincide and the view is perfectly circular to both eyes. Note the value on the scale between the eyepieces so that the position can quickly be regained for future viewing.

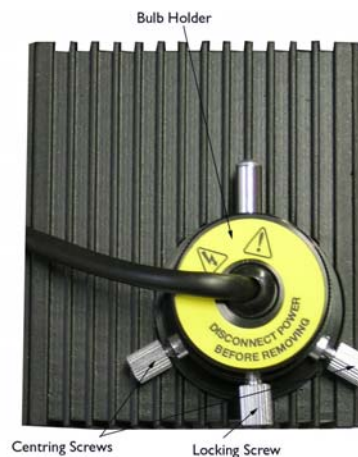
Place a specimen on the stage and focus the image while looking through only the right eyepiece. When the specimen is in focus close the right eye and adjust the dioptre on the left eyepiece so that the image is perfectly focused. The instrument is now balanced for your eyes.

7. Setting Up Illumination

- A. Place a piece of plain white paper or card on the stage
- B. Remove an objective from the nosepiece and turn this empty position into the optical path.
- C. Switch on the power, you should see light on the paper.
- D. Focus the filament of the lamp onto the paper by rotating the knob on the left hand side of the lamphouse.



- E. Then on the right hand side of the lamphouse undo the locking screw and adjust the position of the bulb holder until the image of the filament is close to the centre. It may help to defocus the lamp and mark the edges of the illuminated circle first. Fine adjustments can be made using the centring screws.



- F. Remove the paper and using the 10x objective view a metallurgical specimen. If there is any shadowing in the field of view carefully adjust the bulb focus until it disappears.

8. Cleaning Objectives

It is critical that the front lens of each objective is kept clean and free of contamination. Any dust or dried immersion oil will seriously affect the image quality attainable with that objective. If contamination is suspected then the easiest way to confirm this is by removing the objective lens and examining the front lens using the eyepiece. To do this take out one of the eyepieces, turn it around so that you are looking the wrong way through it and move it towards the front of the objective until you can focus on the front lens. This will clearly show any contamination. To remove dirt and oil a lens cloth, lens tissue or cotton bud dampened with industrial alcohol can be used. A spiral motion starting from the centre of the lens moving to the outside is the best way of achieving a thoroughly clean surface

11. Using a Camera

The PriorLab / PriorLux microscopes, when fitted with a trinocular head, can be used with a range of cameras for documentation purposes. Video cameras, both analogue and digital provide 'moving' pictures for more advanced imaging applications, while digital 'still' cameras can be used for basic image capture.

Detailed instructions for the operation of the selected video or digital camera are supplied with the camera.

Assembly Video Cameras

- A. Screw the c-mount adapter (part no. WXCM1 1.0x or WXCM050 0.5x) to the video camera
- B. Loosen the knurled silver screw on the c-mount adapter and insert the adapter with the attached camera into the top of the photo tube on the trinocular head
- C. Tighten the screw to secure the assembly
- D. Connect camera to a PC, framegrabber or analogue monitor as required
- E. To view the image via the camera, pull out the light path selector on the side of the trinocular head. This diverts 80% of the light to the camera and 20% to the eyepieces

Assembly Digital Cameras

This is similar to the assembly of video cameras above, but a digital coupler (part no. MZO1403 suitable for the Nikon Coolpix 4500 or the MZO5503 suitable for the Nikon Coolpix 5400) and a step down ring (part no. W3000) may also be required depending on the camera model used.

For more detailed set up information refer to the literature supplied with the camera.



Digital Camera

**Step Down
Adapter**

Digital Coupler

1.0x C-Mount

12. Bulb Replacement

Halogen bulbs have a finite life and will need replacing from time to time. Replacement bulbs, part number W3257, are available from Prior Scientific.

To change the bulb;

- A. Switch off the microscope and isolate from the mains electrical supply
- B. When cool, loosen the bulb holder locking screw.
- C. Slide the bulb holder out of the lamphouse.
- D. Remove the old bulb and replace it with the correct replacement bulb (part no. W3257, 12V 30W push fit double pin type). Do not handle the bulb with bare fingers, hold it in a piece of paper tissue or in the bulb wrapping material. Finger marks can cause contamination which blackens the bulb when it is switched on. If the bulb has been touched with the fingers, clean it with a tissue moistened with alcohol.



13. Fuse Location

The fuse is located on the base towards the front right corner of the instrument.



14. Spare Parts

W3257 – Spare bulb 12V 30W Halogen

W335 – Fuse T1.25A

15. Safety Precautions

The following symbols have been used on this microscope



These symbols are found on the underside of the instrument.

Warning High voltage, disconnect power supply before changing the bulb.

These symbols are found on the bulb holder on the side of the lamp house.

Warning Potentially hazardous Voltage, disconnect power supply before changing the bulb.

Caution Hot Surface, allow bulb to cool down completely before attempting to change the bulb.



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19. Regulatory Compliance



Complies to the following standards

EN/IEC 61010-1:2001 Safety requirements for electrical equipment for measurement, control, and laboratory use – part 1: General requirements

EN61326:1997 (+A1/A2/A3) Electrical equipment for measurement, control and laboratory use – EMC requirements

Class B emissions

EN61326:1997 (+A1/A2/A3) Electrical equipment for measurement, control and laboratory use – EMC requirements

General immunity

CFR 47 : 2004 class A Code of federal regulations pt 15subpart B – Radio frequency devices – unintentional radiators

