

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 2 of 15

Selecting **BF** (for bright field viewing) illuminates the entire field of view equally and no **reticle** is visible in the oculars.

The **DF/FL** button is a beam-splitter that sends 100% of the visible light to the oculars, and is used if dark-field or fluorescence imaging produces minimal visible image.

The **TV/DO** button sends the image to the port where **video or digital cameras** are attached, while still sending 50% of the light to the oculars.

- C. **Objectives** are changed by depressing the **Blue Arrows Button** on the **Control Pad** or **Microscope Base**
- D. The **Stage** is lowered for changing slides or for changing from an **oil** to a **non-oil objective** by depressing the **Stage Button**. A blinking **Orange LED** appears. Load a slide and depress the **Stage Button** again to bring up the **Stage**. **The Stage may be LOWERED with the 100X objective in place, but should only be RAISED with either the 1X or 4X lens in place to avoid damaging the higher power objectives.**
- E. Focusing is preferably done with the **Focus Button** (coarse and fine, up and down). Try **not** to use the **Fine Focus Knob** on the **Microscope**
- F. In the **Photo** mode, the **Photo Lens Button** can be used to make minor adjustments in the image magnification
- G. The **Intensity Button** selects one of the 10 built-in **Neutral Density Filters**
- H. The **A. Stop Button** (controlling the substage condenser aperture) can be used to increase the depth of field and contrast by depressing the right side of the **Button**. If too much image diffraction (graininess) is observed, the aperture is too small and needs to be opened by depressing the left side of the **Button**, which opens up the diaphragm
- I. To effect **Kohler Illumination** and to focus the light source precisely on the **Specimen**:
 1. Select the **10X Objective**
 2. Adjust the interpupillary distance of the **Oculars**, focus each **Ocular** independently on the double lines pointing to the **circle** in the center of the **Reticle**
 3. Focus on the **Specimen**
 4. Use the **F. Stop Button** to close down the **Field Diaphragm** until the sharp edges of the **Diaphragm Blades** are visible. By focusing the **Condenser Focusing Knob** (lower left side and behind the **Stage**), a red fringe will be seen on one side of true focus on the **Field Diaphragm** and a blue fringe

STANDARD OPERATING PROCEDURE

© 1998 Michael J. Dykstra

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 3 of 15

will be seen on the other side of true focus. Try to focus in between these two chromatic aberrations

5. Open up the **Field Diaphragm (F. Stop Button)** until it almost fills the viewing area (not the reticle) visible through the **Oculars**
6. Center the **Image** of the **Field Diaphragm** with the two **Silver Knobs** below and to the back to the **Stage**. Open the **F-Stop (Field Diaphragm)** completely.

The VANOX now has its light source perfectly centered and focused on the specimen no matter what objective you are using.

- J. When using **Oil Immersion Lenses (60X and 100X lenses)**, the **Objective Lens** must be oiled in order to achieve the highest possible resolution. The **Front Condenser Lens Element** does not need to be oiled (it does not appreciably improve resolution)
- K. When using the **40X High Dry Objective** with the **Focusing Collar**, note that it has numbers from 0.11 to 0.23 inscribed on the moveable **Barrel**. These correspond to **Coverglass** thickness.

A standard #1.5 **Coverglass** (recommended, if you are in the position of purchasing any) should be used with the **Objective** set at 0.15-0.17. This means that the **Objective** is adjusted for a **Coverglass** that is about 0.15-0.17 mm thick (a #1.5 **Coverglass** is about 0.15 mm thick, a #1 is about 0.1 mm thick and a #2 is about 0.2 mm thick).

If you are using an immunocytochemistry or autoradiography type of slide, mounted in gelatine, it will probably be thicker than average, so it is useful to try around 0.2 as a starting point. Each time the **Barrel** is readjusted, the VANOX must be refocused.

III. Use of the Filters on the Right Bottom of the Microscope

Except for the Didymium filter, only one filter should be pushed in at a time.

- A. **Filter #1 (LBD):** push in for bright field viewing and for **Daylight Type films** as well as when using the **Autofocus** mode
- B. **Filter #2 (LBT):** push in for **Tungsten-type Films**
- C. **Filter #3 (Didymium):** push in to get richer red/blue colors for H & E work. This is generally neither needed nor recommended.
- D. **Filter #4 (Green):** push in for **Black-and-White Films**

IV. Use of the Frame-splitter and Micrometer Mark Sliders

STANDARD OPERATING PROCEDURE

© 1998 Michael J. Dykstra

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 4 of 15

These devices only work in viewing or photography modes, they will not work with the digital or video cameras.

- A. The **Frame-Splitter** is on the upper left side of the **Microscope**. The positions are labeled on its surface and may be observed through the **Oculars**. **Please leave this inserted into the microscope at all times.**
- B. To insert micrometer marks on **Photographs**, remove the **Frame Splitter** and replace it with the appropriate **Micrometer Mark Slider** (10X, 20X, 40X, 100X), all of which are in the upper left **Desk Drawer**. Position the **Mark** appropriately. **The micrometer mark sliders tend to be enormous dust magnets and it is extremely difficult to take photographs that do not show dust focused in the film plane.**

V. Using the Polarizers:

- A. Slide the **Polarizing Filter** (in the top left desk drawer) into the slot on the left side below the **Stage**
- B. Slide the **Polarizing Analyzer** (in the top left desk drawer) into the **Bright Field Nose Piece** after removing the protective **Plastic Guard**
- C. Put a **Specimen** on the **Stage** and bring it into focus. Select area of interest
- D. Move **Polarizing Analyzer Lever** until the background is darkest (the polarizers are crossed). Any polarized material should light up well at this point. The **Polarizing Analyzer** can be moved to increase background lighting for better visualization of non-polarized material

VI. Epifluorescence Work

A. **Cautionary Notes**

1. When using this mode, be careful not to look directly at the **Excitation Light**. When handling **Slides**, look through the orange protective **UV Shade**. If you notice a reflection of UV light from the microscope base keypad, push the **Photo Button** (gray button) on the right side of the **Microscope**. After the condenser assembly has rotated the condenser lens into proper position, the UV light reflecting off the base should be gone. Turn off the transmitted light by depressing the **Black Button** at the bottom right rear of the **Microscope**.
2. **The UV Lamp must be changed at 400 hrs**
3. The **Automatic Focus** feature does not work with the **Epifluorescence Nose Piece**

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 5 of 15

4. **Do not** cover the **Microscope** until the **Excitation Light Housing** has cooled down

B. Start-up

1. Turn on the **VANOX Microscope Switch**
2. Push the **Blue Button** on the **Control Pad** to bring the 4X **Objective** into place over the **Condenser Lens**
3. Push the **Stage Button** to lower the **Stage**
4. Remove the **Bright Field Nose Piece** and the **UV Port Cover** behind the **Nose Piece** after loosening the **Locking Knob** on the right side and install the **UV Nose Piece** found in the lower right desk drawer. Lock in place with the **Locking Knob**
5. Attach the orange **UV Shade** by sliding the metal tab into the **Slot** below the **G Button** on the front of the **UV Nose Piece**. **Please handle the UV Shade ONLY by the metal tab to keep from breaking the plastic.**
6. Turn on the **UV Power Supply** switch (green) on the large **Power Supply Unit** to the right of the **Vanox Microscope**. It may take up to 10 min for the **Power Supply** to stabilize. **Do Not** switch off the **UV Power Supply** less than 15 min after ignition (it greatly shortens bulb life)
7. **Field Iris Centration:**
 - a. Remove the **ND (neutral density) Filter** by pulling it out to the first click stop (it is at the left rear of the **UV Nose Piece**)
 - b. Rotate the 10X **Objective** into place and focus on the **Specimen**
 - c. Stop down the **Field Iris Diaphragm (labeled Field)** on the right rear of the **UV Nose Piece** until it is at minimum diameter
 - d. Center **Diaphragm Image** with the **F.S. Knobs** (silver knobs directly in front of the **ND Filter Slider** on the left side of the **UV Nose Piece**)
 - e. Open the **Field Diaphragm** fully

C. Fluorescence Observation:

1. Turn on the **Microscope Power Switch**
2. Place a **Specimen** on **Stage**
3. Select **Objective** desired
4. Focus on the **Specimen** (the **Autofocus Mode** is inoperable with the **UV Nose Piece**)
5. Depress the **Black Off Button** on the right rear of the **Microscope** to shut off the **Bright Field Light Source**
6. Select the **Filter Cube** of choice (see **Section C.10** below)

STANDARD OPERATING PROCEDURE

© 1998 Michael J. Dykstra

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 6 of 15

7. Depress the **Shut Button** on the front of the **UV Nose Piece** to open the **Excitation Shutter**. A green **LED** will light up when the **Shutter** is **closed**
8. If the **Excitation Light** is too bright, push in the **ND Filter Slider** (on left side of **UV Nose Piece**)
9. Adjust the **Aperture Dial** at the right rear of the **UV Nose Piece** to set the signal-to-noise ratio. Closing down the aperture decreases both signal and noise, but tends to decrease background noise more quickly than signal.
10. Selection of appropriate **Filter Cubes**:

Filter Name	Excitation λ	Emission λ	Applications
IB (dual Red/Green emission)	490		FITC/TRITC, acridine orange
B (Blue)	435	490	FITC
G (Green)	546		TRITC, Feulgen, Texas Red, Cy3, Rhodamine
U (ultraviolet)	334	365	DAPI

Spectral Characteristics of Some Common Fluorochromes (from Sigma Chemical Co.) August 20, 1996

Fluorochrome	Excitation (nm)	Emission (nm)	Color
Fluorescein (FITC)	495	525	green
Hoechst 33258	360	470	blue
R-Phycoerythrin (PE)	488	578	orange-red
Rhodamine (TRITC)	552	570	red
Quantum Red	488	670	red
Texas Red	596	620	red
Cy3	552	570	red

D. Fluorescence Photography:

1. Refer to **Sections III and VIII** for **Camera** set-up and general photography instructions
2. Use the highest **ASA/ISO Film** possible to compensate for the lower light levels of epifluorescence work
3. Choose the appropriate **Filter Cube**
4. Open **Shutter** (depress **Shut Button** so that green **LED** is not lit)

STANDARD OPERATING PROCEDURE

© 1998 Michael J. Dykstra

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 7 of 15

5. Make sure **Bright Field Light Source** is off (**Depress the Black Button** at right rear of the **Microscope**)
6. Depress **Spot Button** on **Microscope Base**. An **Orange LED** will light up
7. Put fluorescing object of interest under the **Spot** in the center of the **Reticle**. The area under the **Spot** will be metered for determining exposure time
8. Pull out the **Black Knob** on the top right side of the **Microscope** to send all the illumination to the **Camera**. Note that the **Exposure Time** has decreased from that shown with the **Black Knob** pushed in
9. Depress the **Expose Button** on the **Microscope Base** to take a **Photograph**
10. **Calculation of Negative Magnifications:**
Multiply the objective magnification X photo lens magnification X 1.25 for 35 mm camera backs
Note: When the Microscope Pad says the 1X Objective is in place, it is actually a 4X; when it says the 60X Objective is in place, it is actually a 100X oil Objective.

E. Shut-down

1. If the **Excitation Light** has been on for **more than 15 min**, turn off the **UV Power Supply**
2. Depress the **Gray Photo Button** on the right rear of the **Microscope**
3. Gently pull the **Orange UV Filter** from the **UV Nose Piece**
4. Remove the **UV Nose Piece** from the **Microscope** and replace it with **Bright Field Nose Piece**. Lock it in place with the **Locking Knob**
5. Turn off the **Microscope Power Switch** and log out in the **Log Book**
6. **Do not Cover the Microscope Until the Excitation Light Source is cool to the Touch**

F. Anti-quenching Additive for Mounting Media Used for Fluorescence Microscopy from Sigma Chemical Co. Several Choices are Available (August 20, 1996)

1. Sigma #P3130, n-Propyl gallate (\$18.45/100g)

used as a 0.1 M solution in 90% glycerol in PBS (90 ml glycerol + 10 ml PBS into which 2.12 g of n-Propyl gallate is mixed)

2. Sigma #P6001, p-phenylenediamine, free base (\$8.10/50 g); or Sigma #P1519, p-phenylenediamine, dihydrochloride (\$10.80/25 g)

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 8 of 15

reference: **J. Immunol. Methods, 43:349-350 (1981)**

3. Sigma #D2522, 1,4-Diazabicyclo[2,2,2]octane (DABCO) (\$12.70/25g)

added to mounting medium to 2.5% concentration

reference: ***Antibodies: A Laboratory Manual***, Harlow and Lane, 1988,
Cold Spring Harbor

reference: **J. Histochem. Cytochem.** 33:755 (1985)

VII. Loading and Unloading Cameras with Film

A. Loading **35 mm Camera Backs**

1. **Non-imprinting backs** (on right and left sides of **Microscope**)

- a. Pull up the **Rewind Crank** to open the **Camera Back**
- b. Put the film leader into the **Take-up Reel** on the right side of the back
- c. Put the **Film Cassette** under the **Rewind Crank**
- d. Push the **Rewind Crank** down and close the **Back**
- e. Select **35R** on the **Control Pad**
- f. Waste 2 frames of **Film** by pushing **Time Off/Winding** button on the **Microscope Base** 2 times
Make sure that the REWIND KNOB is turning (indicating that the film is engaged with the TAKE-UP REEL)

B. Unloading film from **35 mm Camera Backs**

1. For the **Non-imprinting Back**, press the "R" button on the **Back** and use the **Rewind Crank** to rewind the **Film** into the **Cassette**. **Make sure that the Rewind Crank is turned in the direction of the arrow revealed when it is raised for use.** When finished, pull up the **Rewind Crank** to open the **Back**.
2. For the **Imprinting Back**, when the end of the **Roll** is reached, the **Film** will automatically rewind. If the film is to be removed before the **Roll** is finished, select the "RE" position on the back and after the film has rewound, slide the button on the side of the **Back** facing you to remove film

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 9 of 15

C. **35 mm Imprinting Back** (may be installed if needed)

- a. Select **35L** and make sure the **Power Supply** is turned on (the **U-ACAD** unit has a switch on the back), which will light up the **Control Pad Display**
- b. Open the **Camera Back** by pushing the button the side facing you up and simultaneously pulling back gently on the **Camera Back**. Put the **Film Cassette** into the **Back** and lay the **Film Leader** over the **Take-up Assembly**. Close the **Back** and the **Film** will automatically load, making a whirring noise. When it is finished, the window on top of the **Back** should have the number "1" showing. If it shows a flashing "E", the film was not properly loaded. Try again
- c. **Do not** waste two frames of film as is done with the **Non-imprinting Back**, because the **Camera Back** does this automatically
- d. **The imprinting back will always produce a small black rectangle on the film for the data imprinting, and so some of the picture area will be lost**

D. **Using the Control Pad for the Imprinting (left) 35 mm Camera Back, if Installed**

*The Back must be installed first. If both 35mm backs look the same, then the **Imprinting Back** is not currently installed.*

1. Turn on the **Power Supply**
2. Set the **Film Speed (ASA/ISO)**
 - a. DX-coded **Film Cassettes** automatically set ASA/ISO
 - b. Non-DX-coded **Film Cassettes**: depress the **ISO Button** and use the gray **Jog Dial** to set ASA/ISO value; Depress **ISO Button** a second time to save the value
3. **Brightness, contrast and buzzer volume** work well at the factory default settings
4. **Imprint Brightness** should be fine at factory defaults (mid-scale)
5. **Input of Imprinting Data**
 - a. Press **Edit Button**
 - b. Input location is indicated by a **Bar Cursor**
 - c. The **Cursor** location can be moved with the **Arrow Buttons**
 - d. Rotate the **Jog Dial** until the desired character is within the **Brackets**

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 10 of 15

- e. Depress the **Right Arrow Button** to input the selected character. The first character will be entered and the cursor will move to the 2nd character position
- f. The **Arrow Buttons** have the functions of both setup and cursor shifting
- g. Data with 8 alpha-numeric digits can be input
- h. Depress the **Edit Button** to save the imprinting data

6. **Auto Countup**

- a. The last **Imprint Data Character** must be a number
- b. The number must be within the last 6 digits of the string
- c. To actuate, depress **Auto Inc. Button**

E. **Polaroid 4 X 5" Back**

- 1. Select "L" on **Control Pad** to direct the image to the large format **Back**
- 2. Put **Polaroid Back Lever** in L position
- 3. Push **Film Sleeve** into **Back** until it stops
- 4. Pull **Film Sleeve** out of **Back** until it stops (**gently**)
- 5. Take **Photograph** (see **Section X**)
- 6. Push **Film Sleeve** into **Back** until it stops
- 7. Flip **Lever** on **Back** to "P" position
- 8. Pull **Film Sleeve** out of **Back** **gently and evenly**
- 9. Process **Film** in **SEM room** (if using **Polaroid Type 55 P/N Film**)
 - a. Strip **Negative** from **Positive**
 - b. Soak **Negative** in sodium sulfite 2-3 min or until gelatinous layer slides off the film. It helps to jiggle the film in the sodium sulfite to get the layer to slide off.
 - c. Rinse in running water about 5 min
 - d. Dip in **Photo-flo** for about 30 sec
 - e. Hang to dry over sink
 - f. Coat the **Positive** on the **Cardboard Sheet** next to the SEM. Use the **Plastic Coating Strips** in boxes above counter. If the **Positive** is not coated, it will fade within a few days

VIII. **Camera Settings**

- A. Select the **Camera** being used on the **Control Pad**; a **Reticle** will appear in the field of view in all camera settings, which is used to focus the **Oculars** and to frame the

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 11 of 15

Photographs. The outer frame of the **Reticle** is for 4 X 5" negatives and the inner corners are to frame for 35 mm format. The final negative/transparency will show slightly **more** than is delimited by the **Reticle** (see page 14).

The reticle is only visible in a camera mode.

1. 35L means left **35 mm Camera**
2. 35R means right **35 mm Camera**
3. L means large format (**Polaroid Camera**)
4. Depressing DF/FL will send all light to the **Binocular Head** (the other ports are left dark) in low-illumination situations
5. Depressing TV/DO sends the image to the **Video Port**
6. BF is for non-photographic bright field work

B. Program the **Metering System** (on the **Microscope Base**). This information is stored independently for the different **Backs**

1. Depress round **Reset Button** after a new roll of **Film** has been loaded (remember to advance two frames on the **35 mm Camera Back** being used before resetting)
2. Set **ISO/ASA/EI** of **Film** with **Orange Arrows Button** (For Polaroid Type 55 P/N FILM, set **ISO/ASA** to 64, **Exposure Adj.** to 1.00 and **Reciprocity** to 2)
3. Set **Reciprocity** according to the **chart on at the end of this typescript material (page 15)** by depressing the **Orange Square Button**
4. Depress the **Round Set Button** to save settings
5. Set **Exposure Adj.** by depressing the **Gray Arrows Button**. A setting of 1.00 is correct unless bracketing exposures
6. The **Exposure Meter** will average the entire **Frame** within the **Reticle** unless the **Spot Button** is depressed, which will cause an **Orange LED** to appear. In the **Spot** mode, the **Circle** in the center of the **Reticle** is the only area metered. **Use this mode for epifluorescence work.** Place the **Circle** of the **Reticle** over a glowing cell or organelle. Depress the **Spot Button** again to exit the spot metering mode (the **LED** will go out)
7. Depress the **Lock Button** to **Lock** in the exposure time shown so that each ensuing photograph will have exactly the same time of exposure. An **Orange LED** will begin blinking when in this mode. Depress the **Lock Button** a second time to shut off the **LED** and exit this mode and return to automatic metering
8. Depress **Expose Button** to take a **Photograph**
9. Depress the **No Winding Button** to take a double exposure. A blinking **Orange LED** will appear. Depress the **Expose Button** to take the

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 12 of 15

photograph. When finished with this mode, depress the **No Winding Button** again. This mode is used for taking 2 half-frame photographs on one frame of film. **To meter for half-frame pictures, meter the whole frame first and then depress the LOCK button to store the metering value. Next, take the two half-frame pictures as described above. Finally, release both the Lock and No Winding buttons before taking any further pictures**

10. Depress the **Manual Button** to make a manual exposure. An **Orange LED** will appear. Depress the **Expose Button**, and when the desired time has elapsed, depress the **Time Off/Winding Button**. Push the **Manual Button** again to shut off this mode. The **Orange LED** goes out
11. The **Frame** readout tells how many frames of film have been exposed in the selected **Camera Back**
12. The **Recall Button** displays the previous exposure time

IX. Calculating Magnifications on the Film Plane

- A. For **35 mm Backs**, multiply the **Objective** magnification by the **Photo Lens** factor on the **Control Pad**
- B. For the **Polaroid 4 X 5" Back**, multiply the **Objective** magnification by the **Photo Lens** factor on the **Control Pad** and multiply that product by **3**
- C. For **all Backs** when using the **Epifluorescence Nose Piece**, an added multiplication factor of **1.25** must be added

X. Film Photography

- A. Focus the **Reticles** in each **Ocular** after adjusting the proper interpupillary distance
- B. Select the **Camera Back** desired
- C. Select the **Objective** and **Photo Lens** magnifications desired
- D. **Focus on Specimen:**
 1. **Manual:** use **Focus Button** on **Control Pad**. Raise the **Photo Lens** setting to 5X for critical focusing and then decrease it to 2.5X before taking a photograph to help cover up minor focusing errors
 2. **Automatic:** to use this mode, you must be using a **35 mm Back** with the **Brightfield Nose Piece** and have the **LBD Filter** in place

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 13 of 15

- a. Press the **AF Button**. This should produce in-focus photographs. The **Autofocus** mode does not work with objectives over 40X or with **any of the objectives on the epifluorescence nosepiece**. In addition, if the slide is a thicker-than-average mount, has wrinkles or bubbles in the specimen, has abnormal contrast, or the illumination is uneven, the **Autofocus** mode will probably not work. **If the image looks to be in focus after using the AF button, trust that it IS in focus.** It helps to be somewhat close to focus before asking the **Autofocus** mode to complete the process

- E. Check the **Camera settings** (see **Section VIII.B**)
 F. Depress the **green Expose Button** on the **Microscope Base**

XI. Calibrating the Vanox for Photography:

35 mm Backs

Objective	Internal Lens	Mag on Film Plane	Field of View
1 X	2.5 X	2.5 X	Whole bright area
4 X	2.5 X	10 X	Whole bright area
10 X	2.5 X	25 X	Outside reticle frame
10 X	3.3 X	33 X	"
10 X	4.0 X	40 X	"
10 X	5.0 X	50 X	"
20 X	2.5 X	50 X	"
40 X	2.5 X	100 X	"
100 X	2.5 X	250 X	"

Large-Format (4 X 5") Back

Objective	Internal Lens	Mag on Film Plane	Field of View
1 X	2.5 X	7.5 X	More than bright area
4 X	"	30 X	"
10 X	"	75 X	"
20 X	"	150 X	"

LAELOM **Laboratory for Advanced Electron and Light Optical Methods**
North Carolina State University College of Veterinary Medicine
4700 Hillsborough Street, Raleigh, North Carolina 27606
STANDARD OPERATING PROCEDURE
© 1998 Michael J. Dykstra

Subject: Operating Instructions for the VANOX AH-3 Photomicroscope			
SOP No: Vanox Microscope	Version No: 3.2	Effective Date: September 14, 2004	Page: 14 of 15

40 X	“	300 X	“
100 X	“	750 X	“

XII. Changing the 12V, 100W Lamp (Done by the LAELOM Management):

- A. Remove the **Lamp Holder** on the lower left rear of the **Microscope**
- B. Remove blown **Lamp** by depressing gold **Levers**
- C. Insert a new **Lamp** without touching the glass **Lamp** with bare fingers because body oils will damage the **Lamp**
- D. Re-insert the **Lamp Holder** into the **Microscope**, lining up the **Locator Pin**

XIII. Calibrating the VANOX for Individual Objectives (Done by the LAELOM Management):

Periodically Necessary to make the Autofocus Mode Work

- A. Place clear glass portion of glass slide under objective
- B. Select the **Objective** to be used. Depress orange **Obj. Mag** button on the **Control Pad**. Select the magnification of the **Objective** in place
- C. Depress the orange **Type Button** on the **Control Pad** and select the type of **Objective** in place
- D. Depress the **Set** button on the **Control Pad** to save settings
- E. Repeat this set of operations for each **Objective** located on the **Brightfield Nose Piece**. When finished, the **AF mode** should work