

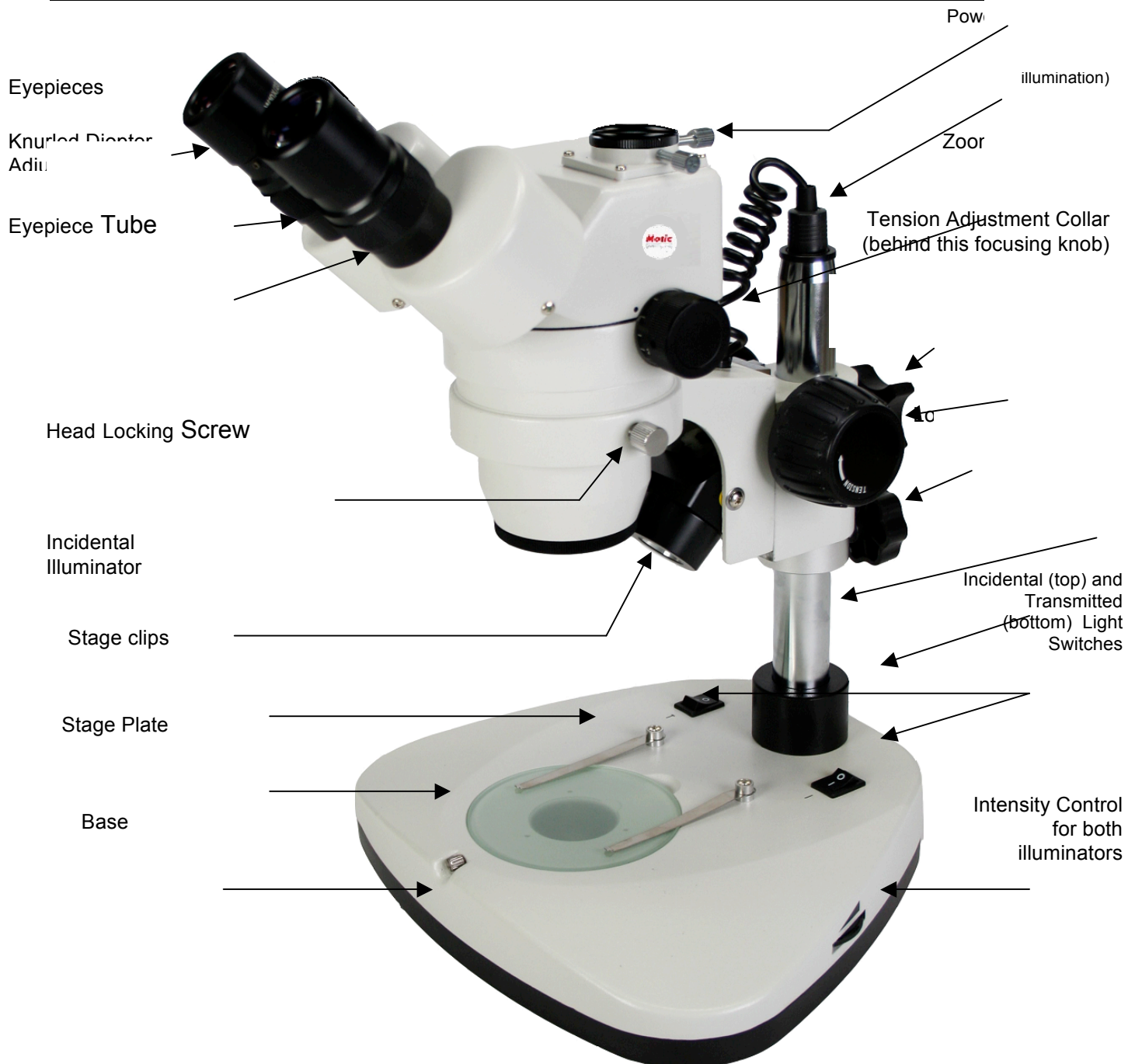
# Motic Swiftline M30TZ-SM99CL

**Microscope**  
Use and Care Manual

# M30TZ-SM99CL

The Swift M30TZ zoom stereo microscope is ideal for laboratory, industrial and educational use. The M30TZ is designed to produce a crisp image (erect) with a generous field of view and an excellent depth of focus. It features zoom objectives with continuous magnification ranges from 7.5x-45x which is not possible with a fixed power stereo microscope.

<b>Model Number</b>	<b>M30TZ</b>	
<b>Objectives</b>	.75X - 4.5X	
<b>Eyepieces</b>	W10X, FN20	
<b>Total Magnification/ Field of View</b>	7.5x-45x / 20mm - 5.75mm	
<b>Working Distance</b>	100mm	C-Mount locking screw
<b>Stand</b>	SM99CL	
<b>SM90CL Illuminator (incident &amp; transmitted)</b>	3W, 5500K LED	



Stereoscopic microscopes are designed for viewing 3-dimensional objects, inspection, or assembly of small parts, and for dissection of biological specimen at low magnification. The 45° inclined viewing head provides an upright, unreversed image which permits easy manipulation of object being viewed while looking through the microscope. The incidental and transmitted illuminators incorporate high intensity 3 watt LED lamps.

For optimum viewing satisfaction, follow these simple procedures. Nomenclature used to describe components and controls can be identified by referring to the diagram at left.

### **UNPACKING**

Remove and unpack box containing post stand with 90mm diameter black/white contrast plate installed from master carton, along with AC power cord. Remove and unpack box containing zoom head assembly, one pair of eyepieces, 2 each rubber eye shields, 0.90mm and 2mm "L" hex key wrench, 95mm frosted stage plate and dust cover.

1. Make certain not to touch any of the lens surfaces while handling the microscope. Dust, dirt, fingerprints can damage the delicate lens surfaces or adversely affect image quality.
2. Examine packing material before you discard it. Retain the packing boxes in case you need to transport, store, or return the microscope for service. If it becomes necessary to ship the microscope for any reason, pack it in the original boxes and then pack these boxes in outer corrugated shipping container for optimum protection. Use of the inadequate packing will not provide adequate protection in transit and will void your warranty.

### **ASSEMBLY**

Place the microscope post stand on a flat stable and clean surface.

1. Mounting the focusing assembly to the microscope post stand.
  - A. Tighten support collar locking screw located on post stand.
  - B. Loosen focusing block locking screw locate on back of focusing block
  - C. Slide focusing block over 32mm diameter vertical post of stand
  - D. Tighten focusing block locking screw
2. Mounting stereo zoom head to stand.
  - A. Loosen head locking screw.
  - B. Insert head into the stand (do not force), positioning head to face either forward or backward, whichever suits your preference or needs.
  - C. Tighten head locking screw.
3. Install rubber eyepiece shields over top of eyepieces.
4. Connect the coaxial plug, from incidental illuminator, into power jack located on top of 32mm diameter post.
5. Plug your IEC power cable into the IEC port located on rear of microscope base and the other end of the AC cord into appropriate 100 to 240 volt AC outlet.

### **OPERATION**

## 1. ILLUMINATION

- A. The microscope is furnished with two stage plates. The frosted glass plate is used when viewing transparent specimen slides or for viewing some specimen thin enough through which light can pass (insect wings, etc.) The plastic black/white contrast plate can be used when viewing opaque objects or for dissecting. Choose side of plate providing best contrast with specimen.

To change plates, remove black/white stage plate by putting finger in relief and press edge of stage plate to the front of base and remove plate. Install frosted glass stage plate by inserting into opening and pressing forward and down into base.

- B. There are two rocker type light controls located on the rear top surface of microscope base.
  - “I” = Turns incidental light ON and OFF (top illumination)
  - “II” = Turns transmitted light ON and OFF (substage illumination)
- C. Light intensity control located on side of base. This control varies the light intensity of either the transmitted or incidental LED illuminators.
- D. Select and push appropriate rocker switch to ON position to turn desired incidental or transmitted illuminators on.
- E. Adjust brightness of LED illuminator with intensity control knob located on side of microscope, rotating control varies intensity of both transmitted and incidental illuminators.

## 2. INTERPUILLARY ADJUSTMENT

This permits each user to adjust spacing between eyepieces in order to accommodate distance between their eyes. While looking through the microscope eyepieces with both eyes grasp eyepiece tube housings with both hands and rotate them on their axis, moving eyepieces apart or together until a full field of view is observed and images blend into one. Interpupillary distance is now corrected for your own inter-ocular distance and does not require further adjustment later unless another user changes this adjustment.

## 3. FOCUSING

- A. Adjust zoom control knobs (located on both sides of head) so that the lowest magnification number “1” is positioned at the black index dot on head. Lower magnifications have larger fields of view, making it easier to position and locate area to be viewed.
- B. Place a flat object or specimen slide (cover glass up), on stage plate.
- C. Position focusing knobs in the center of focusing range.
- D. On post mounted models, the height of viewing head can be adjusted up or down on the post in order to focus on difference sized objects. Loosen the locking knob located on the locking support collar, allowing the support collar to slide down to bottom of post. While firmly holding viewing head with one hand, loosen locking knob located on back of focusing assembly so that head can move freely up or down on post.

While looking through microscope, move viewing head up or down on post until object can be seen in approximate focus. Tighten focusing assembly locking knob. Position the support collar under the focusing block and tighten locking knob on support collar. It is not necessary to make this adjustment every time you change objects to be viewed, so long as the different objects are of similar thickness or height.

- E. Both eyepieces have knurled diopter adjustment rings. Rotate both left and right diopters in a clockwise direction to the lowest position.

- F. Adjust zoom control to the highest magnification by aligning the number “4” on knob to the black index dot on head.
- G. While looking through right eyepiece with one eye, rotate focusing control knob until specimen comes into sharp focus through right eyepiece.
- H. Adjust zoom control knob to the lowest magnification.
- I. Adjust the right diopter until the image is sharp. Do not change the focusing knob position.
- J. Without changing the position of the focusing knob, adjust the left eyepiece diopter until you obtain a sharp image in left eyepiece. The image should now be sharp throughout the zoom power range.

**SPECIFICATION CHART**

Eyepieces	Zoom Objective Position	Standard Objective 1 (supplied)	
		Working Distance – 100mm	
		Total Magnification	Field Size
<b>WF10X Field No. 20 Interpupillary Distance 54~78</b>	<b>1X</b>	<b>10X</b>	<b>20mm</b>
	<b>2X</b>	<b>20X</b>	<b>10mm</b>
	<b>3X</b>	<b>30X</b>	<b>6.7mm</b>
	<b>4x</b>	<b>40X</b>	<b>5mm</b>

4. ADAPTING C-MOUNT CAMERA to microscope (Trinocular Model Only)

This microscope is equipped with a port on top of binocular head. Take the c-mount provided with your microscope and attach it to the bracket camera.

**MAINTENANCE**

**WARNING: For your own safety, turn switch off and remove plug from power source before maintaining your microscope. If the power cord is worn, cut or damaged in any way, have it replaced immediately to avoid shock or fire hazard.**

1. OPTICAL MAINTENANCE

- A. Do not attempt to disassemble any lens components. Consult a microscope service technician when any repairs not covered by instructions are needed.
- B. Prior to cleaning any lens surface, brush dust or lint off lens surface using a camel hairbrush. You can also use an ear syringe or canned compressed air, such as that sold by most computer stores.
- C. To clean eyepiece lenses, do not remove from eyepiece tube. Clean only the outer lens surface. Breath on lens to dampen surface, then wipe with lens paper or tissue or use a cotton swab moistened with distilled water. Wipe lenses with a circular motion, applying as little pressure as possible. Avoid wiping dry lens surface as lenses are scratched easily. If excessive dirt or grease gets on lens surfaces, a small amount of Windex can be used on a cotton swab or lens tissue. To clean objective

lenses, do not remove objectives from microscope. Clean front lens element only, following same procedure.

## 2. ELECTRICAL MAINTENANCE

To replace the extra long life LED transmitted (bottom) illuminator bulb.

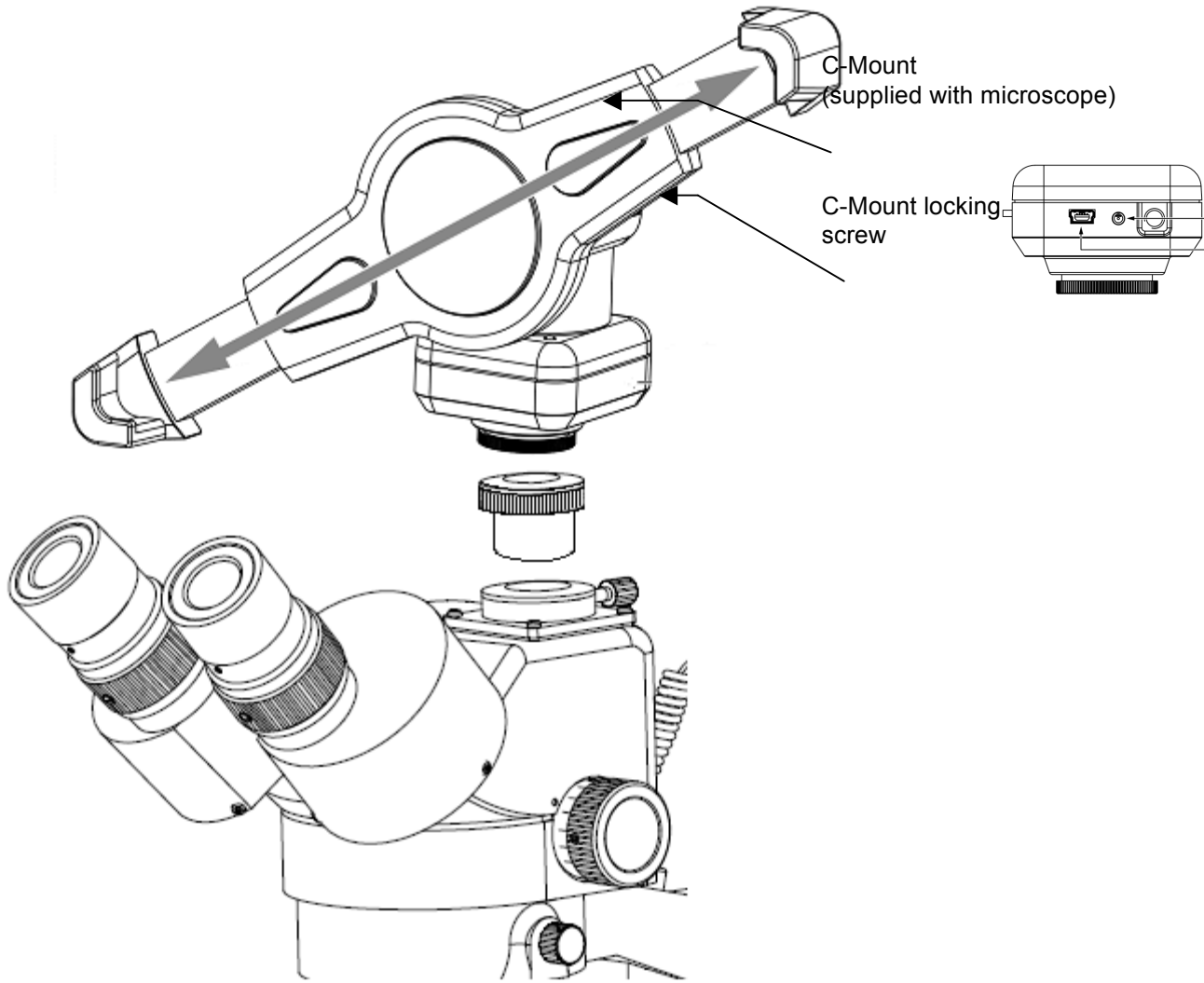
- A. First remove the glass/plastic stage plate from the top of the base stand.
- B. Inside you will notice the 3-Watt LED bulb.
- C. Using a Phillips screwdriver remove two each 3mm Phillips head screws securing the LED to heatsink plate.
- D. Using a Philips screwdriver, remove the 4 rubber feet screws securing black plastic illuminator base to the microscope pole -base.
- E. Carefully unplug the LED bottom light connector (attached to socket marked LED) from circuit board.
- F. Remove LED bulb through the heatsink plate and replace assembly with #800-425 LED bulb.
- G. Replace lamp mounting screws (2 ea), light housing screws (3ea), lamp bracket mounting screws and nuts (2ea)
- H. Carefully plug the LED bottom light connector into socket marked LED on circuit board.

The extra long life LED incidental (top) illuminator bulb must be replaced at the factory. Remove the microscope focusing block by loosening the black knurled knobs located on the back side of the post and unplug the power cord from the vertical post. Return the focus block to Motic Swiftline National for replacement of the LED bulb.

## **OPTIONAL BRACKET / CAMERA ASSEMBLY**

Your M30TZ-SM99CL microscope is equipped with a C-Mount lens, which when paired with a Motic Digital Table or Camera allow for digital microscopy.

1. Take the plastic trinocular cap of the top of the trinocular port.
2. Then take you're the C-Mount, supplied with your microscope and screw into your Motic Digital device.
3. Slide the C-Mount down into the trinocular port and tighten the C-Mount locking screw to secure your Motic digital device.



**SWIFT OPTICAL INSTRUMENTS, INC. LIMITED LIFETIME WARRANTY**

Please see our website, [www.swiftoptical.com](http://www.swiftoptical.com), for complete warranty details and exclusions.

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