USE AND CARE OF YOUR
ZOOM STEREOMICROSCOPE
SERIES 880

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USE AND CARE OF SWIFT SERIES M880

ZOOM STEREOMICROSCOPES

SWIFT Series M880 stereomicroscopes are the result of a most intensive research and development program, and produce an image of unsurpassed definition, an extremely large field of view and great depth of focus. Magnification is variable through a unique, precision zoom lens system coupled with the latest advancements in mechanical development.

UNPACKING YOUR SERIES M880 STEREOMICROSCOPE

If your M880 was purchased with carrying case, a bolt extends through the bottom of the case into the base of the instrument. This bolt is for safety in shipping and must be unscrewed to allow the stereomicroscope to be removed from the case.

Be extremely careful, in removing the packing material, not to discard any accessories that may be included.

The M880 consists of two main components, the stand and binocular body.

The stand contains the illuminators and focusing controls, while the body contains the entire optical system. The stand has a receptacle to receive the body, and it is only necessary to insert the body into this receptacle. Be sure the body is inserted completely; then tighten the lock screws found in the receptacle. This secures the body into the stand.

By loosening these screws the body may be rotated to any desired position.

FACTS ABOUT STEREOMICROSCOPES

Stereomicroscopes, unlike compound microscopes, produce an erect image. The image is exactly like the actual specimen.

A stereomicroscope is actually two separate optical systems, mounted side by side, parfocalled and parcentered to each other. Note the eyetubes and objectives are not mounted parallel to each other but are at a converging angle toward the specimen. This is true of all stereomicroscopes.

The M880 stereomicroscope produces an erect, three dimensional image of the specimen, allowing study of even the most irregular specimens.

Stereomicroscopes are especially effective at lower magnifications because lower power objectives have greater "depth" than higher powered ones. This means that the higher the magnification, the less actual three dimensional result is obtained.
Stereomicroscopes are especially useful in dissecting, study of tissue, mold, woods, metals, textiles and virtually all opaque specimens.

ABOUT THE SERIES M880

Series M880 stereomicroscopes are available in a variety of configurations. The most versatile is Model M8802B which includes a unique, built-in system of both incident and transillumination, both with the ability to be varied in intensity by the built-in transformer. The large, rectangular base provides adequate work space for even the largest specimens.

Model M8801 has no illumination system and it is recommended a separate illuminator, such as SWIFT SL-23, be employed.

Model M8803 is mounted onto a "yardarm", or universal type stand. This stable, counter-balanced arm is especially useful in examination of specimens of great size that could not ordinarily be placed onto the stage of the instrument.

The binocular body is common to all three models and includes an identical optical system.

No mirrors are used in Series M880, and optical angles are achieved by using only highest quality prisms. Optical surfaces are coated to reduce reflection and glare.

USING YOUR SWIFT SERIES M880 STEREOMICROSCOPE

Refer to the illustration of Model M8802B for nomenclature of each component of the M880 stereomicroscope, and proceed as follows:

1. Connect the power cord to the 117V AC outlet. Do not connect to a 220V source.
2. Place the specimen onto the stage.
3. If the specimen is opaque, move the illuminator selector to "incident", to illuminate the upper light source. If the specimen is transparent, as in films, move the selector to illuminate the transilluminator.
4. Rotate the zoom magnification selector to the lowest power.
5. While viewing through the eyepieces, grasp the focus knobs and bring the image of the specimen into sharp focus.
6. Center the specimen to the field of view.
7. Rotate the zoom selector to its highest extreme and readjust the focus knobs to image the specimen clearly, with the right eye only.
8. Using your left eye, adjust the acuity adjustment on the left eyetube to image the specimen clearly.
9. Grasp both eyetubes and bring them together, while viewing with both eyes, to see one field of view. If two overlapping fields are seen, the eyetubes are too close, while if two distinctly separate fields are seen, the eyetubes are too far apart.
10. Once steps 8 and 9 are completed the optical system is adjusted to your particular vision and you will find viewing comfortable and without strain.
11. Adjust the illumination intensity control to a comfortable level.

Model M8802B is normally supplied with paired widefield 10× eyepieces. Resulting magnification is 7× through 30×.

By substituting either paired W15× or W20× eyepieces magnification will be increased.

A 2× amplifying lens is also available, to double the normal magnification. This amplifying lens mounts into the threaded portion of the nosepiece (objectives' cover).

MEASURING WITH YOUR M880 STEREOMICROSCOPE

The W10× eyepieces are designed to accept a scale graduated in increments of .001″. This scale may be read direct at 20×.

This scale is easily installed as follows:

1. Place the W10× eyepiece upside down, and a shelf will be noted within the eyepiece tube.
2. Note, the scale is accompanied by a spring-steel snap ring.
3. Place the glass scale onto the shelf in the inverted eyepiece. The scale on the glass disc should face toward the lenses of the eyepiece.
4. Insert the snap ring to secure the glass scale against the shelf. Exercise care not to scratch the glass scale.
5. The eyepiece may now be reinstalled in the microscope.
6. While viewing through the eyepiece, the scale will be superimposed over the image of the specimen. This scale is graduated in increments of 0.001″ and may be read directly from the scale when the 2× objectives are in position, that is, at 20× total magnification.

If you require measurements at other magnifications, as when 1×, 3×, or 4× objectives are in position, the value of the graduations of the scale must be recomputed as follows:

1. Place a stage micrometer or fine vernier onto the stage, and focus the microscope to image its graduations sharply in the field of view.
2. Note, the eyepiece scale is now superimposed over the image of the vernier scale.
3. The graduations to be removed of the vernier are constant, so by comparing the graduations of the eyepiece scale with the graduations of the vernier, the number of eyepiece scales to each graduation of the vernier will equal the vernier's calibration. Note, in some magnifications, the resulting value of the graduations of the eyepiece scale may require estimating to the fourth place, such as .0015, etc.

If you desire measurements at a magnification other than 20×, a stage micrometer or vernier must be placed onto the stage, then, by focusing onto the graduations of the vernier, the eyepiece scale will be superimposed over it. You may then recompute the value of the eyepiece scale's graduations.

PHOTOMICROGRAPHY WITH SERIES M880 STEREOMICROSCOPE

Polaroid® assembly, Swift Cat. MA8814 includes Polaroid® film pack back, bridge, copal shutter, timer, eyepiece and cable release. A standard eyetube is included as well.

This is installed as follows:

1. Remove the left eyetube by unsrewing it in a counter-clockwise direction.
2. Install the standard eyetube.
3. Mount the Polaroid® onto the eyetube and lock it with its setscrew.

Parfocal the camera to the M880 by following the instructions accompanying the Polaroid®.

35mm, SLR cameras of most popular brands may also be utilized. Swift camera attachment MA873, plus adapter for your specific camera, is available at nominal cost. Write for Swift Bulletin 68-5-SD for a complete listing of cameras to which this unit is adaptable.

TROUBLE SHOOTING

A. PROBLEM—the image goes out of focus of its own volition.
CORRECTION—use Swift wrench MT201 to tighten the tension collar found on the spindle of the focus controls.

B. PROBLEM—two separate images are seen.
CORRECTION—bring the eyetubes closer together to see one image.

C. PROBLEM—two overlapping images are seen.
CORRECTION—move the eyetubes apart to see one image.

D. PROBLEM—unable to adjust your eyes to see one image.
CORRECTION—look to infinity, or at a distant object, then quickly view through the stereomicroscope.

E. PROBLEM—the focus knobs slip at either upper or lower limits of travel.
CORRECTION—this is normal. A unique slip clutch is built in to prevent damage to precision gears. This is activated at both upper and lower limits of travel.

F. PROBLEM—image appears washed out, or dim.
CORRECTION—adjust the intensity of illumination.

CARE OF YOUR SWIFT SERIES M880 STEREOMICROSCOPE

The painted surface of your M880 stereomicroscope should be cleaned frequently using a soft cloth and mild detergent.

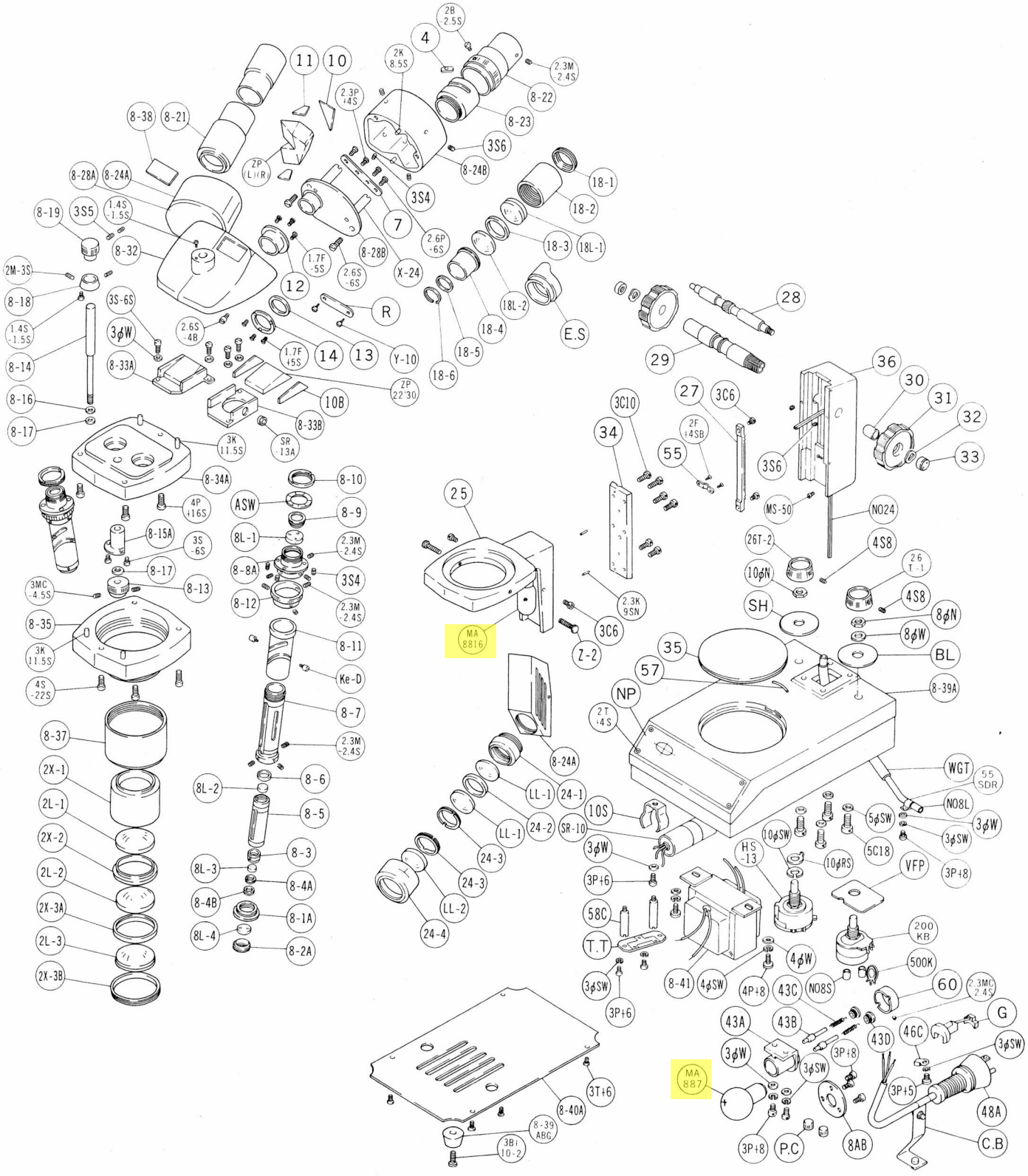
Optical surfaces should never be wiped while dry. Particles of dust or grit should be removed by brushing with a soft camel hair brush or by blowing with a rubber syringe. In most cases the glass may then be cleaned by moistening it with your breath, then wiping with good quality lens tissue, folded several times. If soil still remains, good quality lens tissue, folded several times and moistened with Xylol, will satisfactorily clean the lens. Never use harsh solvents or detergents on optical glass.

Your Series M880 stereomicroscope should be serviced at regular intervals to clean and lubricate necessary areas. This should be done by a qualified, authorized technician.

Your Series M880 stereomicroscope is designed and constructed to function satisfactorily with only routine maintenance. With ordinary care, it will last a lifetime. It is backed by a selected dealer organization and the most liberal warranty available. Inquiries regarding the M880 or other SWIFT products should be directed to your authorized SWIFT dealer, or:

Swift Instruments, Inc.
Technical Instrument Division
P. O. Box 562
San Jose, California 95106

STEREO 880 SERIES

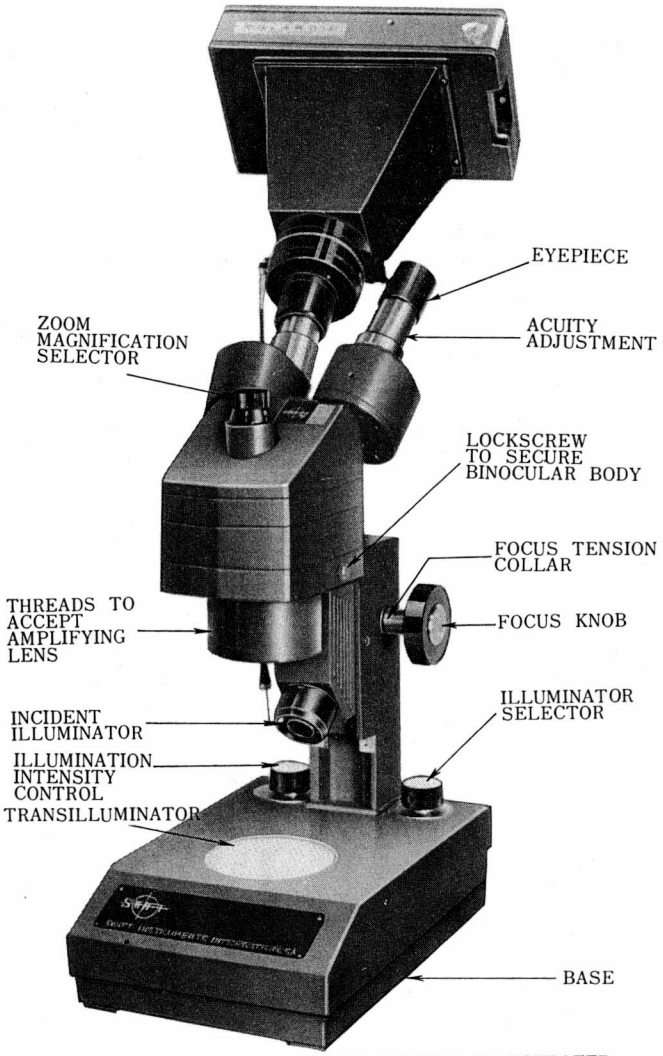


PARTS LIST

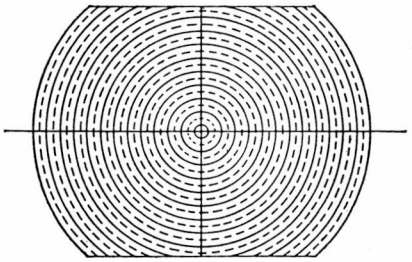
Part Number	Description
E.S	Eye shield
18-1	Retainer Ring
18-2	Eyepiece Cap
18L-1	Eye Lens
18-3	Spacer Ring
18L-2	Field Lens
18-4	Lower Frame
18-5	Diaphragm Ring
18-6	Retainer Ring
2.3M-2.4S	Screw
8-22	Eyepiece Tube w/diopter
2B-2.5S	Screw
4	Metal Piece
8-23	Inner Tube
8-24B	Rotator Cover
3S6	Screw
3S4	Screw
2K8.5S	Knock Pin
2.6P+6S	Screw
2.3P+4S	Screw
7	Pressing Plate
X-24	Support Pole
8-28B	Rotator
2.6S-6S	Screw
10	Side Plate
11	Side Plate
ZP(L)(R)	Prism
8-21	Eyepiece Tube, straight
8-24A	Rotator Cover
8-28A	Rotator
8-38	Marking Plate
1.4S-1.5S	Screw
8-32	Prism Housing
1.7F-5S	Screw
12	Collar
13	Spring Washer
14	Ring
1.7F+5S	Screw
R	Link
Y-10	Screw
2.6S-4B	Screw
ZP22°30'	Prism
10B	Side Plate
8-33B	Prism Seat
SR-13A	Stop Ring
3S-6S	Screw
3φW	Washer
3K11.5S	Knock Pin
8-34A	Prism Seat Base
4P+16S	Screw
8-19	Knob
3S5	Screw
8-18	Graduated Ring
1.4S-1.5S	Screw
8-14	Shaft
8-16	Washer
8-17	Celluloid Washer
8-15A	Shaft Guide
3S-6S	Screw
8-17	Celluloid Washer
8-13	Gear B
3MC-4.5S	Screw
8-10	Ring
ASW	Washer
8-9	Retaining Ring
8L-1	Lens
8-8A	Lens Holder
2.3M-2.4S	Screw
3S4	Screw
8-12	Gear A
2.3M-2.4S	Screw
8-11	Grooved Tube
Ke-D	Key Screw
8-7	Guide Tube
2.3M-2.4S	Screw
8-6	Retaining Ring
8L-2	Lens
8-5	Inner Tube
8-3	Lens Holder
8L-3	Lens
8-4A	Retaining Ring
8-4B	Ring
8-1A	Lens Support
8L-4	Lens
8-2A	Lens Holder
8-35	Joint
3K11.5S	Knock Pin
4S-22S	Screw
8-37	Cover
2X-1	Lens Frame
2L-1	Lens
2X-2	Spacer Ring
2L-2	Lens
2X-3A	Spacer Ring
2L-3	Lens
2X-3B	Retainer Ring
8-33A	Prism Seat
MA8816	Bulb 6V 3A

PARTS LIST

Part Number	Description
8-24A	Lamp Case
24-1	Lens Frame
LL-1	Lens
24-2	Spacer Ring
LL-1	Lens
24-3	Retaining Ring
24-3	Retaining Ring
LL-2	Lens
24-4	Lens Cap
25	Pod
Z-2	Screw
3C6	Screw
2.3K9SN	Knock Pin
34	Dove Slide
3C10	Screw
55	Cord Fastener
2F+4SB	Screw
27	Rack
3C6	Screw
3S6	Screw
36	Arm
29	Pinion Metal
30	Metal Ring
28	Pinion
31	Knob
32	Washer
33	Nut
MS-50	Screw
NO24	Single Wire Cord
NO8L	Vinyl Tube
WGT	Cover Tube
55SDR	Cord Stopper
3φW	Washer
3φSW	Spring Washer
3P+8	Screw
10S	SR Fastener
SR-10	Series Regulator
3φW	Washer
3P+6	Screw
8-41	Transformer
4φSW	Spring Washer
4φW	Washer
4P+8	Screw
58C	Pole
T.T	Terminal
3φSW	Spring Washer
3P+6	Screw
MA887	Bulb 6V 3A
43A	Socket
43B	Shaft
43C	Spring
43D	Nut
60	Cap
2.3MC-2.4S	Screw
3φW	Washer
3φSW	Spring Washer
3P+8	Screw
200KB	Volume
500K	Volume Regulator
NO8S	Tube
VFP	Insulator
BL	Indication Plate
8φW	Washer
8φN	Nut
26T-1	Knob
4S8	Screw
HS-13	Switch
10φSW	Spring Washer
10φRS	Stopper
SH	Indication Plate
10φN	Nut
26T-2	Screw
4S8	Screw
8-39A	Base
57	Stopper
35	Stage Plate
NP	Marking Plate
2T+4S	Screw
P.C	Plastic Connector
8AB	Cord Flange
3P+8	Screw
G	Grommet
46C	Earth Rag
48A	U.L. 3-Wire Cord
C.B	Cord Fastener
3T+6	Screw
8-40A	Bottom Plate
8-39ABG	Rubber Shoes
3B+10-2	Screw
5φSW	Washer
5C18	Screw
3φSW	Spring Washer
3P+5	Screw



MODEL M8802B WITH MA8814 CAMERA ILLUSTRATED



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