

Leica

StereoZoom® Series Microscopes

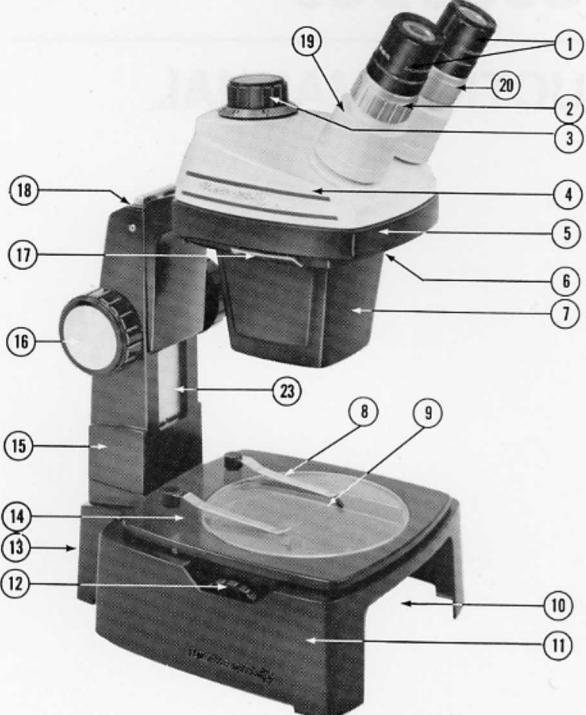
INSTRUCTION MANUAL



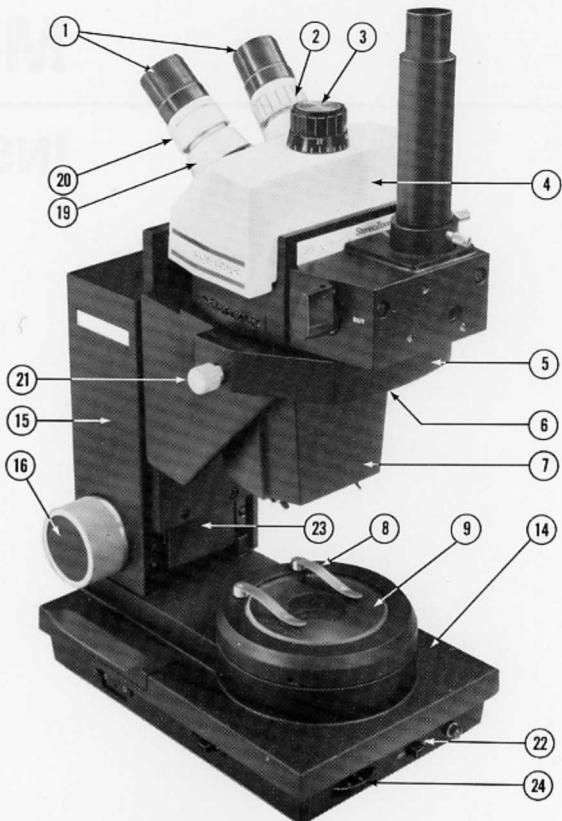
StereoZoom® Series Microscopes

INSTRUCTION MANUAL

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**StereoZoom 4 Pod
on a B Stand**



**StereoZoom 7 Pod
on an R Stand**

- | | | |
|----------------------------|------------------------------|---------------------------|
| 1. Eyepieces | 9. Glass Stage Plate | 17. Lock Lever |
| 2. Eyepiece Adjusting Ring | 10. 3-Way Mirror (not shown) | 18. Port Hole (not shown) |
| 3. Magnification Knob | 11. Trans-Illumination Base | 19. Eyepiece Adapter |
| 4. Power Pod | 12. Mirror Axle | 20. Eyepiece Ring |
| 5. Arm | 13. Port Hole (not shown) | 21. Thumbscrew |
| 6. Illuminator Stations | 14. Base | 22. Base Illuminator |
| 7. Objective Cover | 15. Upright | 23. Focusing Slide |
| 8. Spring Clip | 16. Focusing Knob | 24. Thumbwheel |

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Image excellence, rugged construction and exceptional versatility are the hallmarks of the Leica StereoZoom® series of stereo microscopes. These features are in keeping with a tradition of quality Leica has maintained for more than 100 years as a microscope manufacturer. The StereoZoom series, introduced in the 1950's, has become the world standard for stereo microscopes.

Since its introduction, the StereoZoom series has undergone constant improvements and expansion through the development of new models and accessories. Interchangeability between Power Pods, Stands, Eyepieces, Supplementary Lenses and a host of special accessories provides the user with a nearly limitless choice of feature combinations which permit the exact tailoring of the StereoZoom equipment to the requirements of the task.

The StereoZoom series can be used to advantage for nearly any visual task requiring 3-D observation at moderate magnifications. Frequently, the StereoZoom series offers the most economical approach to providing microscope magnification even when there is no requirement for 3-D observation.

Six Power Pods form the nucleus of the StereoZoom series. Two of these are fixed power while four of them provide continuously variable magnification by means of operator controlled zoom systems. Eyepieces and Supplementary Lenses extend the magnification ranges of these Power Pods both upward and downward. All optical elements are sealed into the Power Pods so that all Pods may be interchangeably mounted on any one of the thirteen Stands and Arms offered as part of the StereoZoom series. For viewing convenience, the Pods may be turned 180 degrees for conventional or reversed eyepiece orientation.

Other accessories include a wide choice of illuminators and illumination modes, mechanical stages and stage plates, polarizing accessories, reticles and photographic equipment.

Selection of the right combination of components involves consideration of cost, magnification range, field of view, working distance, eye relief, specimen illumination requirements and convenience of use. With this in mind, descriptive data on the StereoZoom series components are presented in Section 9.0 of this manual both to assist you in interpreting the instructions presented here and to help you more fully utilize the StereoZoom equipment you already have purchased. For more detailed information, send for the latest edition of Leica's StereoZoom Microscope Catalog.

2.0

Safety Precautions

Many of the StereoZoom series microscope equipments are equipped with halogen illuminators. Please note the type with your equipment and follow the WARNING set forth below.

WARNING: The Halogen-Cycle Lamp is pressurized and may shatter. *DO NOT* operate lamp in excess of rated voltage as this will increase lamp pressure and the risk of shattering. Protect the lamp against abrasions and scratches and against liquids when lamp is operating. Replace *only* with specified replacement lamp.

To guard against personal injury, wear protective glasses and clothing when handling lamp. Turn power off when installing and before removing lamp. Allow lamp to cool before removing. Dispose of lamp with care.

Do not operate in proximity of substance or material that is flammable or adversely affected by heat or drying.

3.0

Unpacking

Each of your StereoZoom series microscopes and accessories have been carefully packaged to insure that they reach you in the best possible condition. Do not discard any packing material or shipping containers until you have assembled your equipment and checked carefully for any small items that may have been overlooked.

Note: Parts and controls referred to in this section can be identified by referring to the photographs and legend preceding Section 1.0 and to Section 8.0.

MOUNTING THE POWER PODS

Power Pods can be mounted on any Stand or Arm, except the R Stands, by simply swinging out the two Lock Levers at either side of the Arm, inserting the Pod so that it faces either forward or backward, and swinging the Lock Levers shut. The fit between Pods and Arms is intentionally snug to prevent movement during use. Therefore, be sure the Pod is fully seated in the Arm.

On R Stands, the Power Pod is retained in the Arm by two Thumb Screws instead of the Lock Levers.

CHANGING STAND WORKING DISTANCE

The Stands have provisions for a wide range of working distances when Supplementary Lenses are added to the Pods. Increased working distance can be accommodated on the A and B Stands by removing the four screws from the underside of the Stand, inserting the 31-27-03 Elevator between the Base and Upright and securing with the four screws supplied with the Elevator.

The R Stands incorporate a built-in provision for variable working distance. To change working distance, remove the four screws which secure the Focusing Slide, reposition the Arm in the desired location and reinstall the four screws. Three positions are available.

MOUNTING THE ILLUMINATORS

All Illuminators for StereoZoom microscopes, except the Coaxial, Ring, Eyepiece and Spot Illuminators, can be mounted in a variety of ways, either free standing or attached to a Power Pod or to a Stand. Refer to the Instruction Manual provided with your Illuminator for specific instructions.

TRANS-ILLUMINATION BASE

The B Stand for StereoZoom series microscopes is designed for use with both opaque and transparent

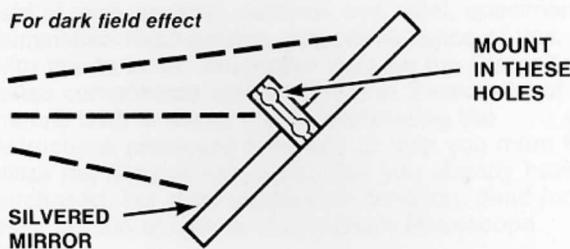
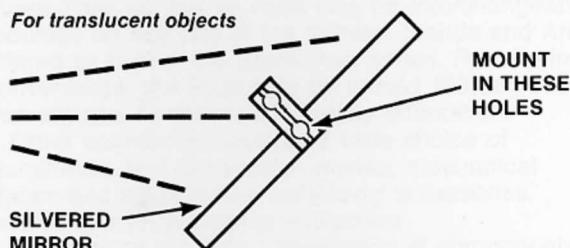
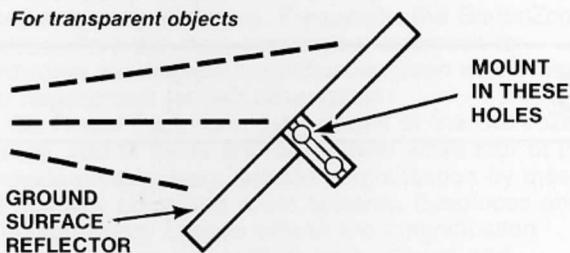


specimens. This stand is identical to the A Stand except with the addition of the Trans-Illumination Base, which includes a Clear Glass Stage Plate and a 3-Way Mirror.

The 3-Way Mirror, when used in conjunction with a Nicholas or General Purpose Illuminator inserted in the Port Hole in the rear of the Base, can be used to provide three types of transmitted illumination for the examination of a wide variety of transparent/translucent specimens.

When looking at transparent objects, it is recommended that the ground surface of the 3-Way Mirror be used by placing the Mirror Axles of the Base in the lower pair of Mirror holes. If the object to be examined is translucent, rotate the Mirror to use the reflective surface.

If the specimen is transparent, and a dark field illumination effect is desired, place the Mirror Axles in the upper pair of holes.



These diagrams illustrate the mounting positions for the 3-way mirror.

For the examination of translucent living specimens, the use of the cool, white-light Fluorescent Illuminator is recommended. Refer to the Instruction Manual supplied with this Illuminator for installation instructions.

INTERPUPILLARY DISTANCE ADJUSTMENT

To set the Eyepieces for your proper interpupillary distance, grasp each Eyepiece Adapter while looking into the microscope and move the Eyepieces together or apart until you see the full field of view with both eyes. Check this by closing one eye and then the other without moving your head.

Each observer must adjust the interpupillary distance to their individual requirements and should recheck it each time they use the microscope.

EYEPiece LOCKING FEATURE OF StereoZoom 5

The StereoZoom 5 Power Pod incorporates an Eyepiece locking feature which lets you lock the Eyepiece directly into the Power Pod while allowing free rotation of the Eyepieces.

First, roataete the inner Eyepiece Lock Ring until the Set Screw lines up with the access hole in the Eyepiece Ring, then insert the hexagonal Wrench (supplied with the Power Pod) into the Set Screw. Insert the Eyepiece completely, making sure that it seats properly on its locating shoulder, and tighten the Set Screw.

Repeat the above procedure for the other Eyepiece.

FOCUSING FIXED POWER PODS

1. Illuminate a flat specimen and then, using the right eye only, look through the right Eyepiece and focus on the specimen turning the Focusing Knob until the image is sharp.
2. Look through the left Eyepiece, and using only the left eye, rotate the Eyepiece Adjusting Ring clockwise or counterclockwise until the image is sharp.

Each observer must focus the microscope to their individual requirements and should recheck it each time they use the microscope.

FOCUSING VARIABLE POWER PODS

1. Set the Magnification Knob to the lowest power, illuminate and center a flat specimen within the field of view. Turn the Focusing Knob until the best image is obtained.
2. Set the Magnification Knob to the highest power and, using only your right eye, adjust the Focusing Knob until the image is sharp. The right Eyepiece is now properly focused.

Note: depth of field decreases as magnification increases. It is many times greater at low power than it is at high power. This means that while it is quicker and easier to bring the specimen into focus at low power, the most critical focus can only be achieved at high power.

3. Reset the Magnification Knob to low power and, using only the left eye, turn the Eyepiece Adjusting Ring until the image is clear and sharp. Make sure the Eyepiece shoulder maintains contact against the Adjusting Ring shoulder. The left Eyepiece is now properly focused.

The microscope will now be properly focused for

both your eyes throughout the magnification range.

Each observer must focus the microscope to their individual requirements and should recheck it each time they use the microscope.

Note: Operators who normally wear glasses with a correction of 2 or more Diopters, and don't wear them when using the microscope may find refocusing necessary when changing magnification.

CHANGING THE MAGNIFICATION OF FIXED POWER PODS

The magnification provided by the Fixed Power Pods may be varied by using different Eyepieces and/or Supplementary Lenses.

Total Magnification = Fixed Power × Eyepiece Power × Supplementary Lens Power.

CHANGING THE MAGNIFICATION OF VARIABLE POWER PODS

The Variable Power Pods allow you to change the power continuously to exactly the best magnification for a given specimen by simply turning the Magnification Knob located on the top of the Power Pod. The StereoZoom Microscopes allow you to scan an object at a lower power and then concentrate on some particular detail by increasing the power gradually to the desired value.

The power range can be further extended by using different Eyepieces and/or by adding Supplementary Lenses below the Objective.

Total Magnification = Variable Power × Eyepiece Power × Supplementary Lens Power.

MEASURING PROCEDURE

StereoZoom Microscopes may be used as measuring instruments by inserting a Reticle in one of the Wide Field Eyepieces. A variety of linear and grid patterned Reticles are available for particualr applications as well as Stage Micrometers for calibrating the microscope. These are described in Section 9.0.

SELECTING A RETICLE DISC

Select the magnification that will enable you to see the necessary detail and yet cover as much total area of the specimen as is required. Greatest accuracy will result from measurements made within the central $\frac{2}{3}$ rds of the field of view in a north-south direction. After the magnification has been selected the appropriate reticle disc should then be selected. First, decide what unit you desire to measure the specimen by, then use the following formula to determine what reticle will provide that unit:

$$S \times M = K$$

S = Dimension each division is to equal in the specimen plane.

M = Magnification of the Power Pod only.

K = Actual dimension of each smallest division on the reticle.

Example: Desired dimension on specimen, S = .002"
 Magnification of Power Pod, M = 2X
 Actual dimension of division on reticle (equal to .002" on the specimen) would be K = .004" (approximately 0.1mm).

INSERTING THE RETICLE DISC

Caution

Before installing a Reticle be sure it is free of dust, lint, smears, etc. To clean the Reticle wipe its surfaces with a cotton pad moistened with a mild soap. Rinse and dry without pressure using a soft lintless cloth.

1. Remove the black cylindrical Field Diaphragm by unscrewing it from inside the smaller diameter end of the Eyepiece (refer to the Assembly Views on page 8.14).
2. Place the Reticle into the thin metal rim on top of the Field Diaphragm so that the scale will face towards the inside of the Field Diaphragm.
3. The thin metal rim will extend beyond the surface of the glass. Using a pencil with eraser, or thumbnail or similar object, press against the outside of the rim to force it inward and downward against the Reticle. If the Reticle is to be temporarily installed, bend in the metal rim at three points around the glass. If the Reticle is to be permanently installed, do this at three points around the circumference and then bend the rim over the Reticle around the whole circumference by holding the mount at a 45° angle and rolling it on a hard surface such as a table top.
4. Replace the Field Diaphragm and Reticle assembly by screwing it in until the scale comes into sharp focus when viewed through the Eyepiece.
5. To remove the Reticle, press against the scale side of the Reticle and push it out of its mount.

CALIBRATING THE RETICLE

After the correct Reticle has been selected it must be calibrated. If the Reticle is to be calibrated in inches a 31-16-89 or 31-16-87 Stage Micrometer should be used. If the Reticle is to be calibrated in millimeters a 31-16-90 or 31-16-99 Stage Micrometer should be used.

For the most accurate calibration and measurements, the Reticle and the Stage Micrometer both should be positioned in the north-south direction.

The Reticle must be calibrated for each objective power that it is used with and must also be calibrated for each StereoZoom microscope that it is used with.

1. It is recommended that the Eyepiece containing the Reticle be placed in the right Eyepiece Adapter.
2. Place the appropriate Stage Micrometer on the Microscope Stage Plate.
3. Focus carefully so that you see the Stage Micrometer scale sharply in focus at the same time as the Reticle scale is sharply in focus.
4. Align the Reticle scale with the Stage Micrometer scale so that they may be compared.
5. Read the number of scale intervals "b" on the Stage Micrometer which correspond to the number of intervals "a" on the Reticle. One interval of the Reticle then corresponds to b/a intervals of the Stage

Micrometer. Compute this ratio and use it to make measurements in the specimen plane.

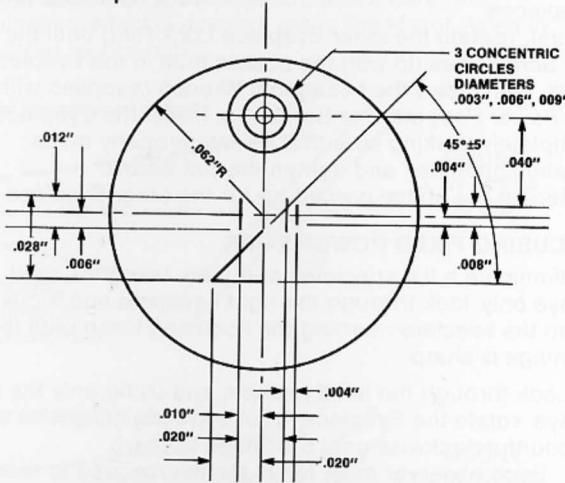
SPECIAL RETICLES

Often industrial or experimental applications require special custom made scales such as a Reticle that could be used as a "GO - NO GO" gauge.

For a quotation on special reticles to your specifications write:

Leica Inc.
 Special Products
 P.O. Box 123
 Buffalo, New York 14240-0123

In your request state the objective magnification you prefer to work with and model of Wide Field Eyepieces in which the reticle will be placed. An accurate drawing of the pattern you need, fully dimensioned, must be submitted. The example below illustrates the kinds of dimensions required.



TYPICAL PATTERN FOR RULING RETICLE DISC

INSTALLATION OF SUPPLEMENTARY LENSES

Until you are familiar with the installation procedure it is recommended that you first remove the Power Pod from its Stand and remove the Eyepieces, turn the Power Pod upside down and install the Supplementary Lens as noted, then insert the Power Pod back in its Stand and replace the Eyepieces.

Once you have become familiar with the procedure, the Supplementary Lens may easily be installed without removing the Power Pod from the Stand.

Stereo 1 & 2, StereoZoom 3, 4 & 5

Cat. No.	Working Distance
31-27-41 0.3X	247mm (9¾")
Supplementary Lens	
31-26-18 0.5X	178mm (7")
Supplementary Lens	
31-26-19 2.0X	38mm (1½")
Supplementary Lens	
31-27-42 0.75X	105mm (4")
Supplementary Lens	
31-27-43 1.5X	44mm (1¼")
Supplementary Lens	

To mount one of these Supplementary Lenses, simply screw it into the large diameter thread located on the bottom of the Power Pod housing. Make sure it is threaded securely against the shoulder.

NOTE: If the threads start to seize-up during installation, apply a very small amount of oil to the Lens thread, wipe away the excess and reassemble.

The 0.3X and 0.5X Lenses are restricted to use on those Stands where the working distance is attainable as on K, KT, S or SK, or the A and B Stands when used in conjunction with the 31-27-03 Elevator.

The 0.75X and 1.5X lenses can be used on all stands.

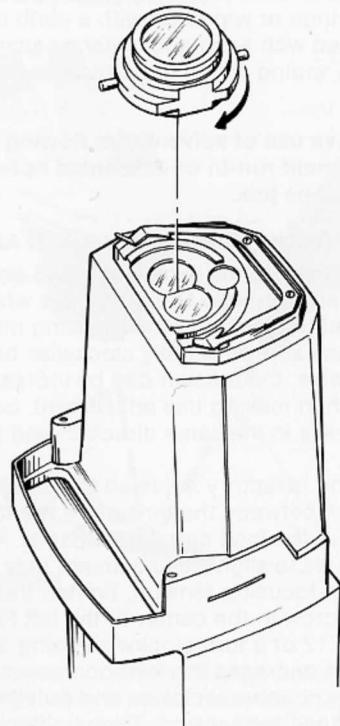
StereoZoom 7

Cat. No.	Working Distance
31-27-08 0.25X Supplementary Lens	266mm (10½")
31-27-04 0.5X Supplementary Lens	127mm (5")
31-27-05 1.5X Supplementary Lens	32mm (1¼")
31-27-06 2.0X Supplementary Lens	14mm (9/16")

CAUTION

When installing or removing a Supplementary Lens, be careful that its pins do not scratch the objective lenses in the Power Pod.

1. Position the Supplementary Lens so that the longer pin projects perpendicular to the flat face of the Power Pod as shown below.



2. Seat the Supplementary Lens in the shallow semicircular recess in the Power Pod and rotate it clockwise 90° until it clicks into position. Check to see that it is properly mounted and make sure that the flat side of the Supplementary Lens is aligned with the flat face of the Power Pod.
3. To remove the Supplementary Lens, rotate it counterclockwise 90° and then remove it carefully from the Power Pod.

PROTECTING THE MICROSCOPE AND ACCESSORIES

The primary rule to follow with respect to proper care of microscopes and accessories is to keep them as free from dust and dirt as possible. Dust, fingerprints or a smear on the optics will degrade the image. When the equipment is not in use, cover it with a plastic cover.

CLEANING THE OPTICS

The Power Pods have been factory aligned, cleaned and sealed. DO NOT attempt to disassemble them. Within each Eyepiece Adapter is a glass dust cover. The Eyepieces should be kept in place to prevent dust from settling on these covers. However, if dust does accumulate, it can be removed by unscrewing the Eyepiece Adapter and wiping the dust cover with a soft clean cloth. If the dust is gritty, it should be blown off with an air syringe or wiped off with a cloth or cotton swab moistened with soap and water or alcohol followed by a thorough wiping with a dry cotton swab.

CAUTION

Avoid excessive use of solvents, as flowing solvents may cause cement run-in on cemented optics, making cleaning a tedious job.

ADJUSTING FOCUS TENSION ON ARMS AND STANDS

Both Arms and all Stands except the R, S and SK Stands have two hex socket-head Gib Screw B's which can be used to adjust the tension of the focusing mechanism. By turning these screws slightly clockwise or counterclockwise, the tension can be increased or decreased. When making this adjustment, be sure to adjust the screws in the same direction and about the same amount.

Each R Stand is factory adjusted to establish the proper balance between the tension of the focusing mechanism and the load carrying capacity. After considerable use, a slight readjustment may be needed. To increase the focusing tension, tighten the hex socket-head screw in the center of the left Focusing Knob about 1/12 of a turn clockwise using a 7/64-inch hex wrench. To decrease the tension, loosen the screw about 1/2 turn counterclockwise and pull the left knob outward to reduce the tension. Then tighten the screw gradually until the desired tension is established.

LUBRICATION

Power Pods and R Stands are permanently lubricated at the factory and generally do not require periodic

lubrication. If cleaning and relubrication become necessary as a result of abnormal use or exposure to unusually harsh environments, the equipment should be returned to the factory or serviced by qualified maintenance personnel.

The Focusing Slide on all stands other than R stands should be wiped clean occasionally, using a solvent such as Xylol or alcohol, and relubricated with a light coating of grease. Alvania #2 grease, which is available at Shell service stations, is recommended for this purpose.

SERVICE

All optical, electrical and mechanical equipment requires periodic servicing to keep it performing properly and to compensate for normal wear.

Establishing a schedule of regular preventive maintenance will help to assure long life and sustained optimum performance for your instrument. It will also help to avoid unexpected trouble and the necessity of having the instrument serviced at inconvenient times.

A program of planned preventive maintenance, involving a thorough cleaning, checking and adjustment of mechanisms is recommended for all instruments.

This work should be performed by qualified personnel with the proper training and equipment. Your authorized Leica dealer, or Leica, can arrange this service.

IMPORTANT

If unexpected trouble is experienced with your instrument, contact your Leica dealer. He may be able to suggest simple remedies to correct the apparent difficulty without your having to send the instrument out for servicing.

Should it become necessary to send your instrument out for service:

Please pack the instrument carefully in a crush resistant carton with at least three inches of shock absorbing, dustless material surrounding it to prevent transit damage. Saving the original carton in which your instrument is received will prove helpful for this purpose. If a suitable carton is not available, one may be ordered from the factory at nominal cost.

Include a detailed letter in the shipping carton, preferably fastened to the instrument, describing the trouble experienced. This information will enable the service technician to effect required repairs promptly and at least expense.

ILLUMINATING THE SPECIMEN

The full potential of your stereomicroscope can be realized only if the microscope is equipped with the right kind of illumination system. Equally important considerations are operator comfort and efficiency, which also depend upon specimen illumination.

Providing optimum illumination is complicated by the great variety of specimens which are examined under stereomicroscopes and by the very nature of stereomicroscope design. A StereoZoom microscope embodies two separate and complete microscope systems mounted at different viewing angles with respect to the specimen, and optimum viewing requires a critical balance between the illumination supplied to the two microscope systems.

No single Illuminator is capable of satisfying the requirements for all kinds of specimens. For this reason Leica offers a number of different Illuminators. Each Illuminator is suitable for a variety of specimen types, but usually there is a "best" Illuminator for each specimen. Following are some general suggestions for Illuminator selection; however, it may be necessary to do a little experimenting before the optimum solution is reached for some particularly difficult specimens.

TRANSPARENT AND TRANSLUCENT SPECIMENS

For these specimens a properly equipped B or R Stand is recommended. The R Stands are available in five models, two of which have built-in Base Illuminators and Transformers and no additional equipment is required. The R Stands are especially recommended for photomicrography with the StereoZoom 7 Power Pod.

The Fluorescent Illuminator is recommended for use with the B Stand when highly diffuse illumination is required (not suitable for color photomicrography). For more intense directional illumination, the B Stand with its built-in 3-Way Mirror and an attached Nicholas or General Purpose Illuminator is recommended. The focus feature of the General Purpose Illuminator makes it the better choice. Care should be exercised with both Illuminators to align both the Reflector and the Illuminator so that balanced illumination is provided for both halves of the microscope. For completely transparent specimens, the diffuse side of the Reflector should face the Illuminator because full aperture illumination cannot be achieved with the mirror side at low magnification levels.

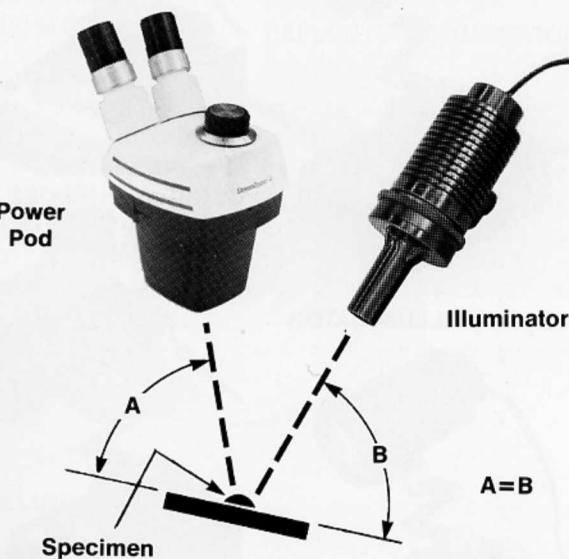
DIFFUSE OPAQUE SPECIMENS

In general, any Illuminator will make this kind of non-reflective specimen visible in the microscope; however, the choice of Illuminators will have a profound effect on the visibility of specimen detail. Contours can be made visible by the shadows cast when the specimen is illuminated from one side only and at a large angle of incidence. Changing the Illuminator position will enhance some details while suppressing others. When desirable, shadows can be eliminated completely by the simultaneous use of two or more Illuminators or by using

an omni-directional source such as the Ring Illuminator. The Ring, General Purpose and Reflector Illuminators are recommended for use on large objects such as minerals, coins, electronic and mechanical components, gems and powders and for dissecting and other work involving the manipulation of tools under the microscope.

SPECULAR SPECIMENS

Bright field illumination of specular (highly reflective) surfaces demands that the optical Law of Reflection be taken into account. The axis of the Illuminator must be positioned so that after reflection from the specimen surface, the direction of the image-forming rays will coincide with the axes of the microscope. This condition can be fulfilled by tipping the specimen and orienting the Illuminator as illustrated below.



The out-of-focus condition of large areas of the specimen image which results from this method of illumination can be avoided completely on Stereo 1 & 2 or StereoZoom 3, 4 & 5 Power Pods by use of a Spot Illuminator or a Vertical Illumination Attachment. A StereoZoom 7 Pod equipped with a Coaxial Illuminator will also eliminate this problem.

The Coaxial illumination system used in conjunction with the StereoZoom 7 Power Pod is applicable to nearly all kinds of specular specimens, with the images of polished specimens appearing exactly the same as when viewed through a metallograph or metallurgical microscope.

Somewhat less effective illumination for specular specimens may be attained with all StereoZoom series microscopes by adding a Vertical Illumination Attachment to the Power Pod and by employing either a General Purpose, Nicholas or Reflector Illuminator

attached to the Stand or Power Pod. This can also be achieved by using a Spot Illuminator on a Stereo 1 or 2, or StereoZoom 3, 4 or 5 Power Pod. A StereoZoom microscope equipped for vertical illumination is shown on page 7.3.

CAVITIES

Special illuminators are generally required when viewing any kind of opaque or translucent surface located on the side or at the bottom of a deep cavity. The Spot Illuminators are designed primarily for cavity illumination or wherever a compact vertical illuminator is required. They can be used on all Power Pods except the StereoZoom 7. Three models are available, each being



NICHOLAS ILLUMINATOR



GENERAL PURPOSE
ILLUMINATOR WITH IRIS
DIAPHRAGM



GENERAL PURPOSE
ILLUMINATOR WITH IRIS
DIAPHRAGM AND FILTER
HOLDER



GENERAL PURPOSE
ILLUMINATOR WITH IRIS
DIAPHRAGM,
NICHOLAS
ATTACHMENT AND
FILTER HOLDER

designed for a particular working distance and magnification factor as described on page 7.2.

The Vertical Illumination Attachment combined with either the Nicholas or General Purpose Illuminator is another solution. The Vertical Illuminator Attachment will work with all StereoZoom Pods.

ILLUMINATORS

There are many types of illuminators which may be used with StereoZoom microscopes.

Nicholas Illuminator

General Purpose Illuminator

Fluorescent Illuminator

Reflector Illuminator

Ring Illuminator

Spot Illuminators

Coaxial Illuminator

Eyepiece Illuminator

Fiber Optic Annular Illuminator

Fiber Optic Bifurcated Illuminator

Fiber Optic Four-Point Illuminator

The type of illuminator chosen is determined by the type of specimen, the area of the specimen which must be illuminated and the intensity of the desired illumination. Whenever possible, mount the illuminator to the microscope so that the illumination stays centered as the microscope is focused on specimens of different thickness.

NICHOLAS ILLUMINATOR provides a directional concentrated beam of relatively high intensity light. It can be supplied with an adjustable Linkage and a three-step variable Transformer. The Nicholas Illuminator may be mounted in the hole in the arm of the A Stand, or in the Stationary Arm, or in the hole at the rear of the B Base. It may also be mounted to the Linkage which may be attached to either of the two holes in the Power Pod or R Stand, or fastened directly to the threaded hole in the top of the Transformer and used as a movable source to bring light in from any direction. In its various positions, it can be used to examine opaque-diffuse materials, translucent materials, and transparent materials.

GENERAL PURPOSE ILLUMINATOR provides an intense spot of light which is concentrated in a relatively small field and focusable from three inches to infinity.

It can be supplied with a 3-step, variable Transformer and an adjustable Linkage. When equipped with a Linkage, the General Purpose Illuminator may be mounted directly to the StereoZoom Power Pod or R Stand, or to the Transformer. Four accessories have been designed for use with the General Purpose Illuminator:

1. The adjustable Iris Diaphragm is an aperture control which regulates brightness. Used with the Nicholas Attachment, it is a field diaphragm which regulates the size of the spot of light.
2. The Filter Holder holds two-inch round or square filters and can be attached to the basic illuminator, the Iris Diaphragm, or the Nicholas Attachment.
3. The Nicholas Attachment contains a focusable telephoto type projection lens system which can

image the field diaphragm from six inches to infinity. It can be used with or without the Iris Diaphragm and the Filter Holder.

4. The Cone Adapter attaches to the illuminator housing or the Iris Diaphragm permitting the illuminator to be mounted in the E Arm, A stand, B Base or the Nicholas Adapter on an ER Arm.

FLUORESCENT ILLUMINATOR provides a cool diffuse light of daylight character.

When it is mounted in the base of the B stand, it may be used to examine transparent specimens. When it is mounted on the Linkage, it may be used to examine opaque materials. It is especially effective where surfaces are highly reflective. The Fluorescent Illuminator is particularly useful for examining live specimens because its light is cool.

REFLECTOR ILLUMINATOR gives moderately directional lighting of a fairly high intensity. It illuminates a general area. It is a versatile illuminator and can be used with opaque-diffuse materials and translucent materials.

RING ILLUMINATOR The source is a dual concentric ring fluorescent tube providing cold light of daylight quality. The lamp is mounted on a StereoZoom Power Pod by means of a coupler and on the StereoZoom 7 by means of a converter and coupler.

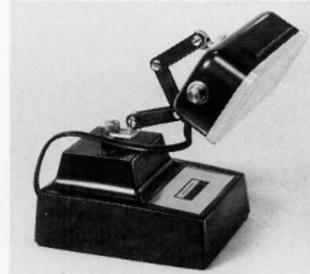
Use in conjunction with the Coaxial Illuminator System results in very effective shadowless illumination of the specimen.

SPOT ILLUMINATORS are available in three models to provide vertical illumination for all StereoZoom series Power Pods except the StereoZoom 7. The three models offer a range of working distance from 3" to 10" with magnification factors of 1.0X, 0.5X and 0.3X to provide vertical illumination for the examination of P. C. boards, cracks, crevices and holes up to a depth of 10". These compact illuminators attach to the bottom of the Power Pods by means of a threaded adapter and provide an uncluttered work space above and around the specimen.

COAXIAL ILLUMINATOR for StereoZoom 7 only is an ideal illuminator for viewing flat, highly reflective specimens, and is a compact unit which allows complete flexibility of the StereoZoom 7 Microscope. It is equipped with green, yellow, and daylight blue filters in a unique rotating turret. The easily changed lamp is



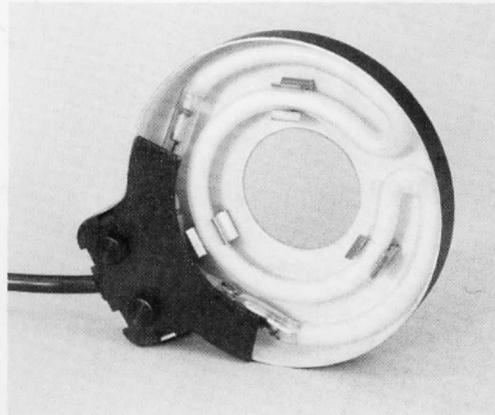
GENERAL
PURPOSE
ILLUMINATOR
WITH CONE
ADAPTER



FLUORESCENT
ILLUMINATOR



REFLECTOR ILLUMINATOR



RING ILLUMINATOR



SPOT ILLUMINATOR



COAXIAL ILLUMINATOR

powered by a three-tap Transformer. The Coaxial Illuminator must be installed to the StereoZoom 7 Power Pod at the factory.

EYEPIECE ILLUMINATOR—designed primarily for use with the StereoZoom 7 Power Pod when equipped with a photomicrographic system or viewing screen. It provides the same efficient illumination as a Coaxial Illuminator for precise examinations of multilayer, flat, and opaque objects in semiconductor and electronics applications. Includes a built-in filter holder for accepting any of several available 13/16" diameter filters.



EYEPIECE ILLUMINATOR



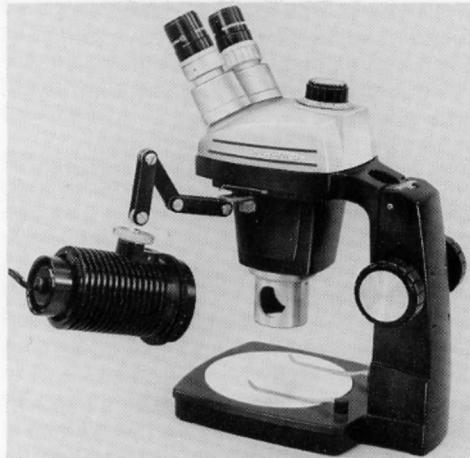
**FIBER OPTIC
BIFURCATED ILLUMINATOR**

FIBER OPTIC ILLUMINATORS are available in five models depending on the Power Pod and lenses you are using. The 150-watt Quartz-Halogen fan-cooled light source is rheostat-controlled, making daylight filters, color temperature meter and other accessories unnecessary. All systems are multi-positionable and focusable, providing consistently even illumination with low noise and low vibration.

VERTICAL ILLUMINATION ATTACHMENT

If straight top lighting is necessary to bring out surface detail, one of the external illuminators already mentioned may be used in combination with the Vertical Illumination Attachment. This Attachment has no light source of its own. Instead, it has a mirror system which reflects light directly downward on the specimen.

The Vertical Illumination Attachment is especially useful for examining interior surfaces of castings or machined parts, cracks, holes and crevices. The Vertical Illuminator Adapter is attached to the bottom of the Power Pod in the same manner as a Supplementary Attachment Lens, oriented as necessary and clamped in place by a thumb screw.

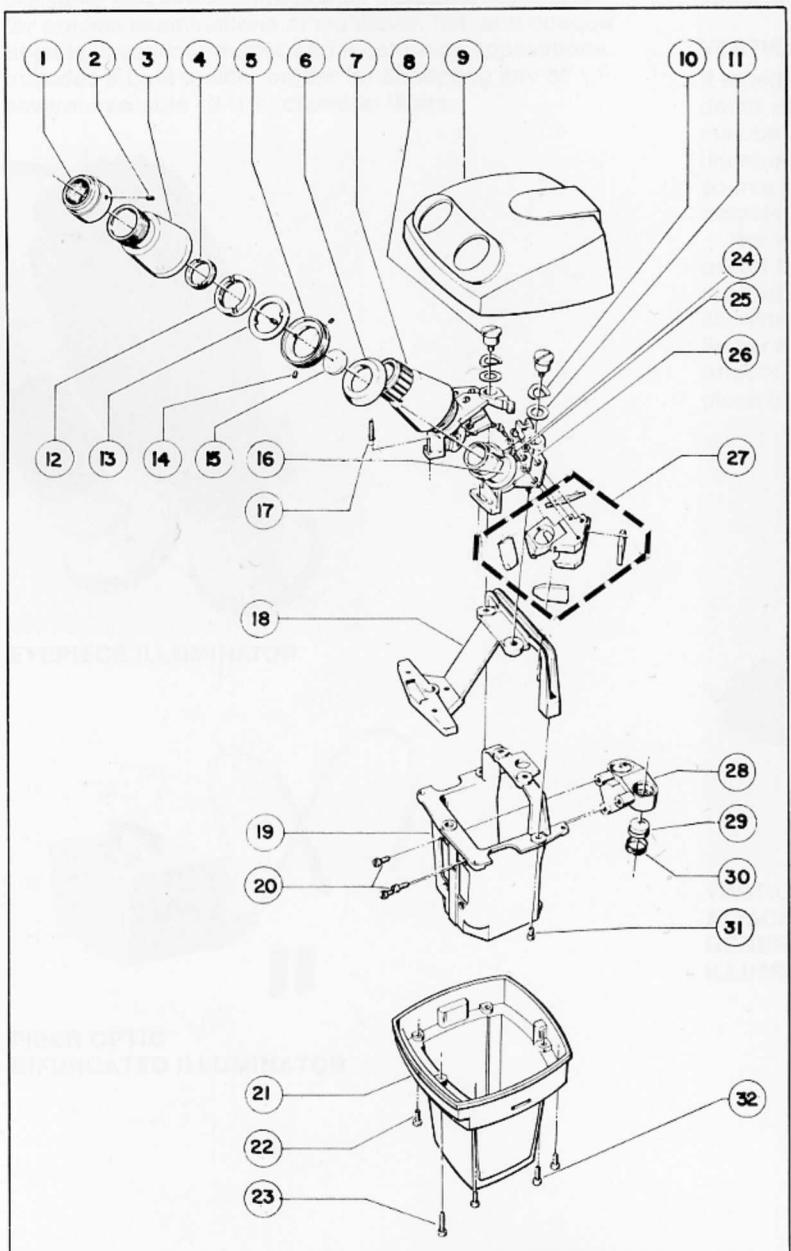


**VERTICAL ILLUMINATION
ATTACHMENT WITH
GENERAL PURPOSE
ILLUMINATOR**



STEREO 1

1.0X Fixed Power Pod, Cat. No. 31-26-91



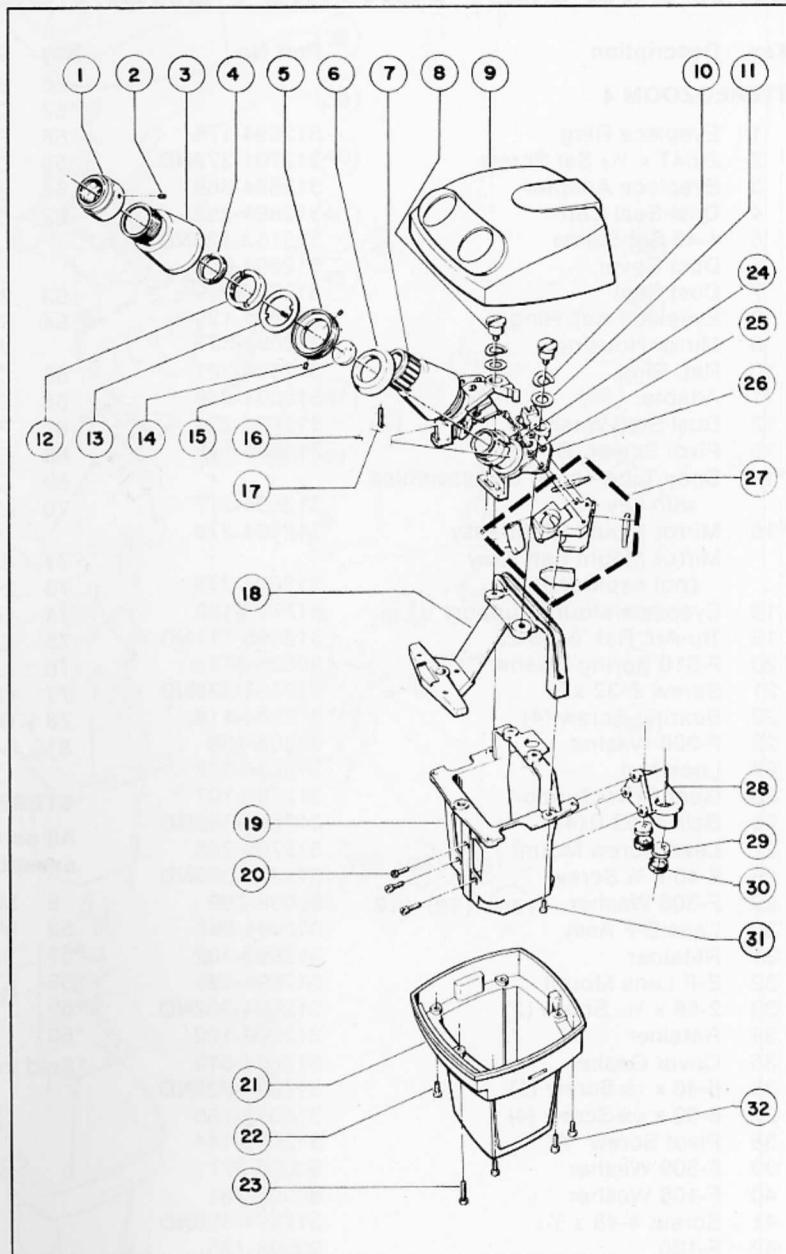
Key	Description	Part No.
1	Eyepiece Ring	312694-175
2	2-64T x 1/16 Set Screw	312701-379ND
3	Eyepiece Adapter	312694-369
4	Ret. Ring	312694-321
5	Dust Seal Cap	312694-259
6	Dust Seal	312740-129
7	Eyepiece Adj. Ring	312694-129
8	Pivot Screw A	312694-144
9	Mirror Housing	312691-129
10	F-309 Washer	90008-377
11	F-108 Washer	90008-281
12	Adapter	312694-269
13	Dust Seal Washer	312694-234
14	4-48 x 1/4 Set Screw	315153-120ND
15	Dust Cover	312694-052
16	Body Tube	312694-277
17	Pin	312799-171
18	Eyepiece Mount Support	312799-102
19	Housing	312692-105
20	8-32G10S Screw	96208-0808
21	Objective Cover	312694-370
22	6-32 x 5/16 lg Screw (4)	316012-150
23	6-40 x 1.00 lg Screw (1)	312694-125
24	4-48 x 3/16 Screw	312694-326ND
25	F-120 Washer	90008-125
26	Eyepiece Mount Right	312799-116
	Eyepiece Mount Left (not exploded)	312799-115
*27	Mirror Mount Right Assy	312694-376
	Mirror Mount Left Assy (not exploded)	312694-375
28	Lens Mount	312691-101
29	Lens AB Assy	312691-023
30	Retainer Ring	423496-106
31	8-36 x 3/32 Screw	312694-327ND
32	6-40T x 5/8 Screw	312694-324ND

*Sold in assembled units only.

Stereo 2
2.0X Fixed Power Pod,
Cat. No. 31-26-92

Key	Description	Part No.
1	Eyepiece Ring	312694-175
2	2-64T x $\frac{1}{16}$ Set Screw	312701-379ND
3	Eyepiece Adapter	312694-369
4	Ret. Ring	312694-321
5	Dust Seal Cap	312694-259
6	Dust Seal	312740-129
7	Eyepiece Adj. Ring	312694-129
8	Pivot Screw A	312694-144
9	Mirror Housing	312692-126
10	F-309 Washer	90008-377
11	F-108 Washer	90008-281
12	Adapter	312694-269
13	Dust Seal Washer	312694-234
14	4-48 x $\frac{1}{4}$ Set Screw	315153-120ND
15	Dust Cover	312694-052
16	Body Tube	312694-277
17	Pin	312799-171
18	Eyepiece Mount Support	312799-102
19	Housing	312692-105
20	8-32G10S Screw	96208-0808
21	Objective Cover	312694-370
22	6-32 x $\frac{5}{16}$ lg Screw (4)	316012-150
23	6-40 x 1.00 lg Screw (1)	312694-325ND
24	4-48 x $\frac{3}{16}$ Screw	312694-326ND
25	F-120 Washer	90008-125
26	Eyepiece Mount Right	312799-116
Eyepiece Mount Left (not exploded)		
*27	Mirror Mount Right	312694-375
Mirror Mount Left (not exploded)		312694-376
28	Lens Mount	312692-101
29	Lens AB Assy	312692-023
30	Retainer	312692-102
31	8-36 x $\frac{3}{32}$ Screw	312694-327ND
32	6-40T x $\frac{3}{8}$ Screw	312694-324ND

*Sold in assembled units only.



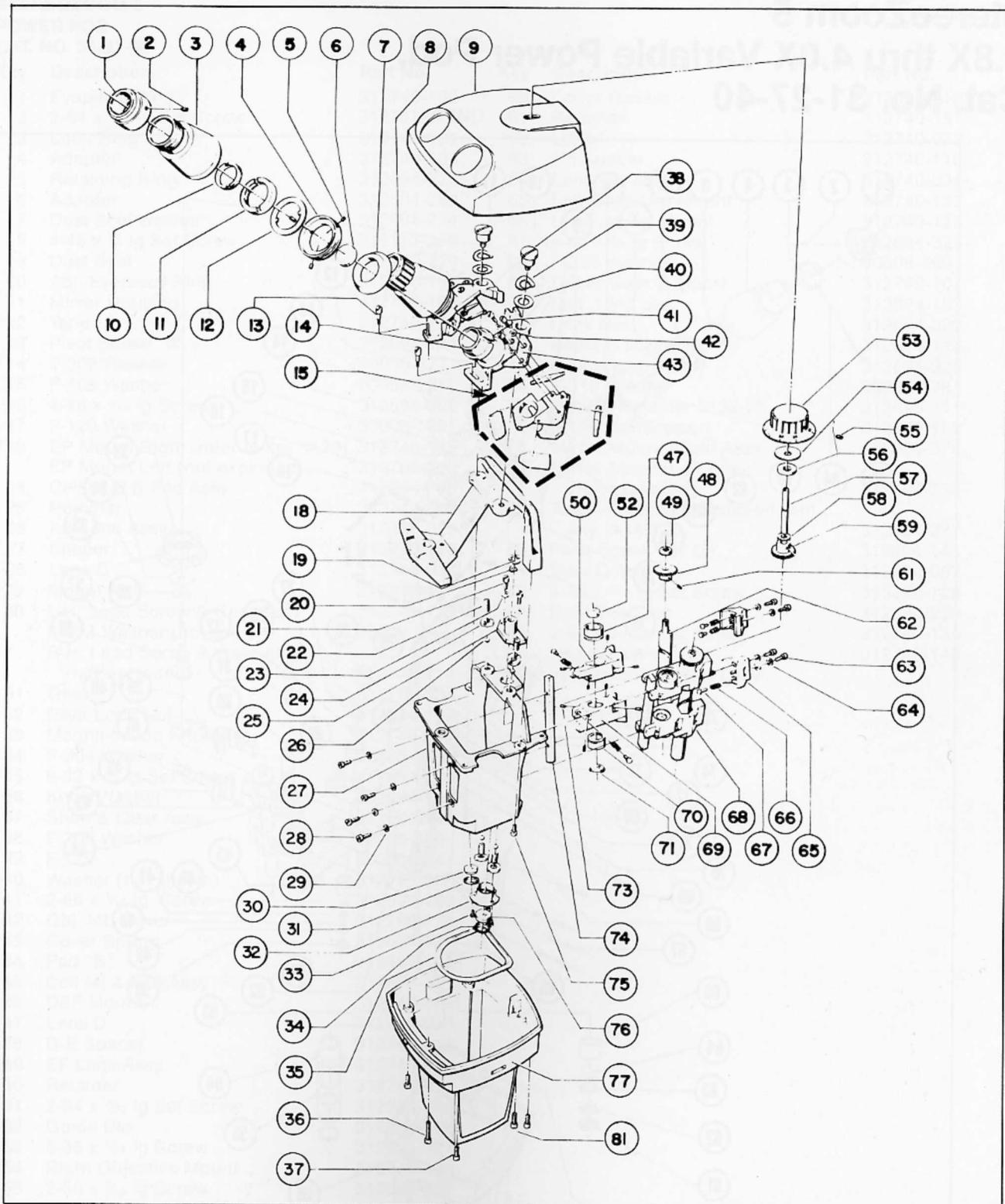
StereoZoom 3

1.0X thru 2.5X Variable Power Pod, Cat. No. 31-26-93

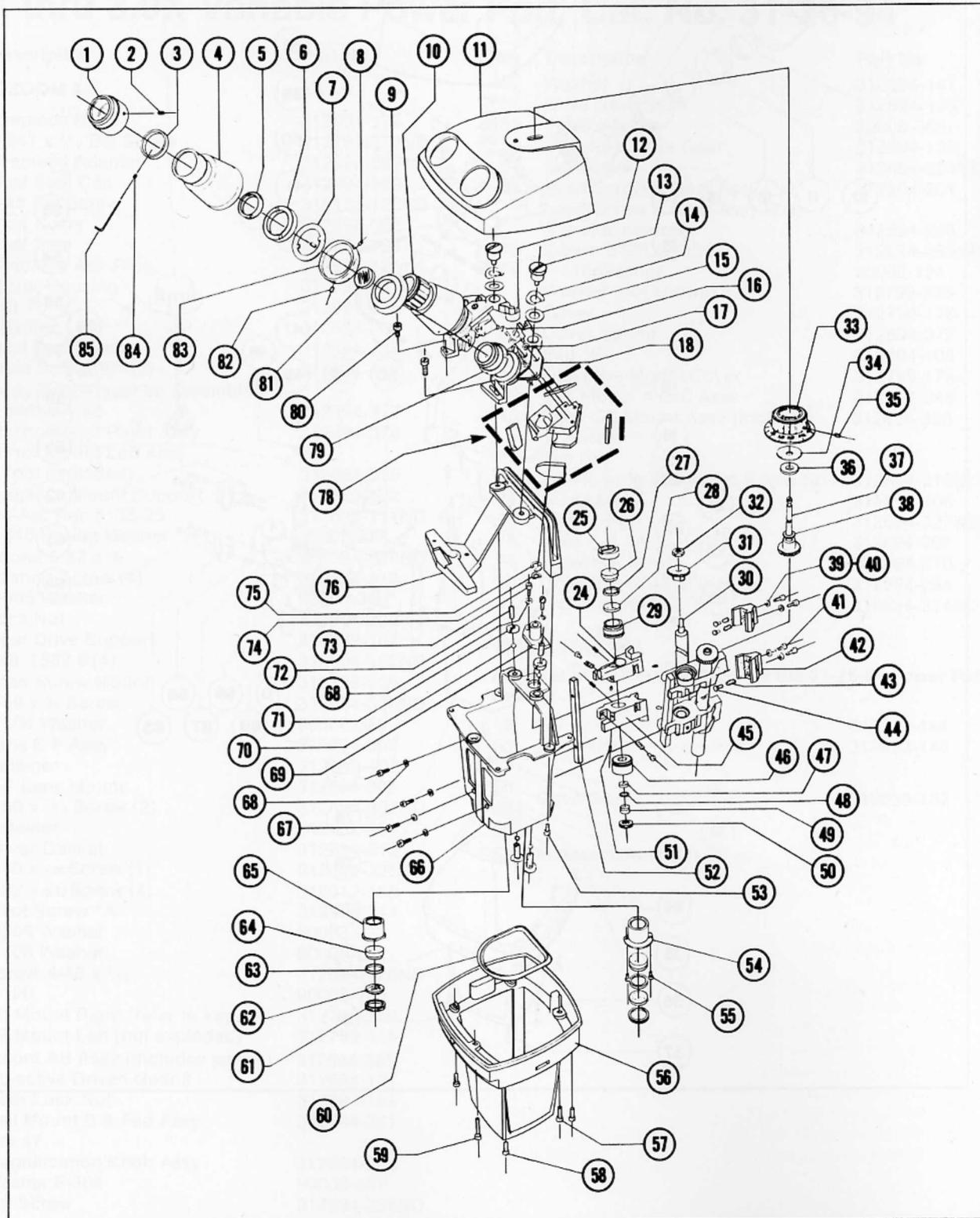
StereoZoom 4

0.7X thru 3.0X Variable Power Pod, Cat. No. 31-26-94

Key	Description	Part No.	Key	Description	Part No.
STEREOZOOM 4					
1	Eyepiece Ring	312694-175	56	Washer	312694-141
2	2-64T x $\frac{1}{16}$ Set Screw	312701-379ND	*57	Drive Gear Shaft	312694-139
3	Eyepiece Adapter	312694-369	*58	F-305 Washer	90008-368
4	Dust Seal Cap	312694-259	*59	Objective Drive Gear	312694-120
5	4-48 Set Screw	315153-120ND	61	Set Screw	312694-229ND
6	Dust Cover	312694-052	62	Lead Screw & Gear Assy L.H. (not exploded)	312694-201
7	Dust Seal	312740-129	63	2-56 x .312 LG Screw	312694-292ND
8	Eyepiece Adj. Ring	312694-129	64	F-119 Washer Washer (not shown)	90008-124
9	Mirror Housing	312694-391	65	Cover	312799-235
10	Ret. Ring	312694-321	66	Cover Spring	312694-372
11	Adapter	312694-269	67	Pad "B"	312694-105
12	Dust Seal Washer	312694-234	68	Objective Mount Cover	312799-178
13	Pivot Screw "B" (2)	314694-145	69	Cell Mount A Pad Assy	312694-348
*14	Body Tube—must be assembled with key 43	312694-277	70	Lens CD Mount Assy (includes lenses)	312694-386
*15	Mirror Mount Right Assy	312694-376	71	See 70	
	Mirror Mount Left Assy (not exploded)	312694-375	73	2-64 x $\frac{7}{32}$ lg Spline Set Screw (8)	312694-310ND
18	Eyepiece Mount Support	312799-102	74	Guide Bar	312694-106
19	Tru-Arc Ret. 5133-25	312695-111ND	75	Screw, 8-36 x $\frac{3}{32}$	312694-327ND
20	F-310 Spring Washer	90008-378	76	Lens E-F Assy	312694-067
21	Screw, 6-32 x $\frac{3}{8}$	312694-329ND	77	Objective Cover	312694-370
22	Bearing Screw (4)	312694-118	78	Objective Driven Gear RH	312694-264
23	F-306 Washer	90008-369	81	6-40 x $\frac{3}{8}$ Screw (1)	312694-324ND
24	Lock Nut	312694-322			
25	Gear Drive Support	312799-107			
26	Ball .1562 Ø(4)	312694-152ND			
27	Lead Screw Mount	312799-265			
28	6-40 x $\frac{1}{8}$ Screw	312694-328ND			
29	F-306 Washer	90008-369			
30	Lens E-F Assy	312694-067			
31	Retainer	312692-102			
32	E-F Lens Mount	312694-395			
33	2-56 x $\frac{3}{16}$ Screw (2)	312694-302ND			
34	Retainer	312692-102			
35	Cover Gasket	312694-312			
36	6-40 x 1.00 Screw (1)	312694-325ND			
37	6-32 x $\frac{9}{32}$ Screw (4)	316012-150			
38	Pivot Screw "A"	312694-144			
39	F-309 Washer	90008-377			
40	F-108 Washer	90008-281			
41	Screw, 4-48 x $\frac{3}{16}$	312694-326ND			
42	F-120	90008-125			
*43	EP Mount Right (refer to key 14)	312799-116			
*	EP Mount Left (not exploded)	312799-115			
47	Mount AB Assy (includes lenses)	312694-385			
48	Objective Driven Gear 2	312694-121			
49	Gear Lock Nut	312694-169			
50	Cell Mount B & Pad Assy	312694-351			
52	See 47				
53	Magnification Knob Assy	312694-366			
54	Washer F-304	90008-367			
55	Set Screw	312694-236ND			
STEREOZOOM 3					
All parts are similar to those for the 31-26-94 Power Pod except:					
	9	Mirror Housing		312693-144	
	53	Magnification Knob Assy		312693-140	
	*57				
	*58				
	*59	Drive Gear & Shaft Assy		312693-132	
	*60				
	*Sold in Assembled Units Only				



StereoZoom 5
0.8X thru 4.0X Variable Power Pod,
Cat. No. 31-27-40



STEREOZOOM 5

POWER POD

CAT. NO. 31-27-40

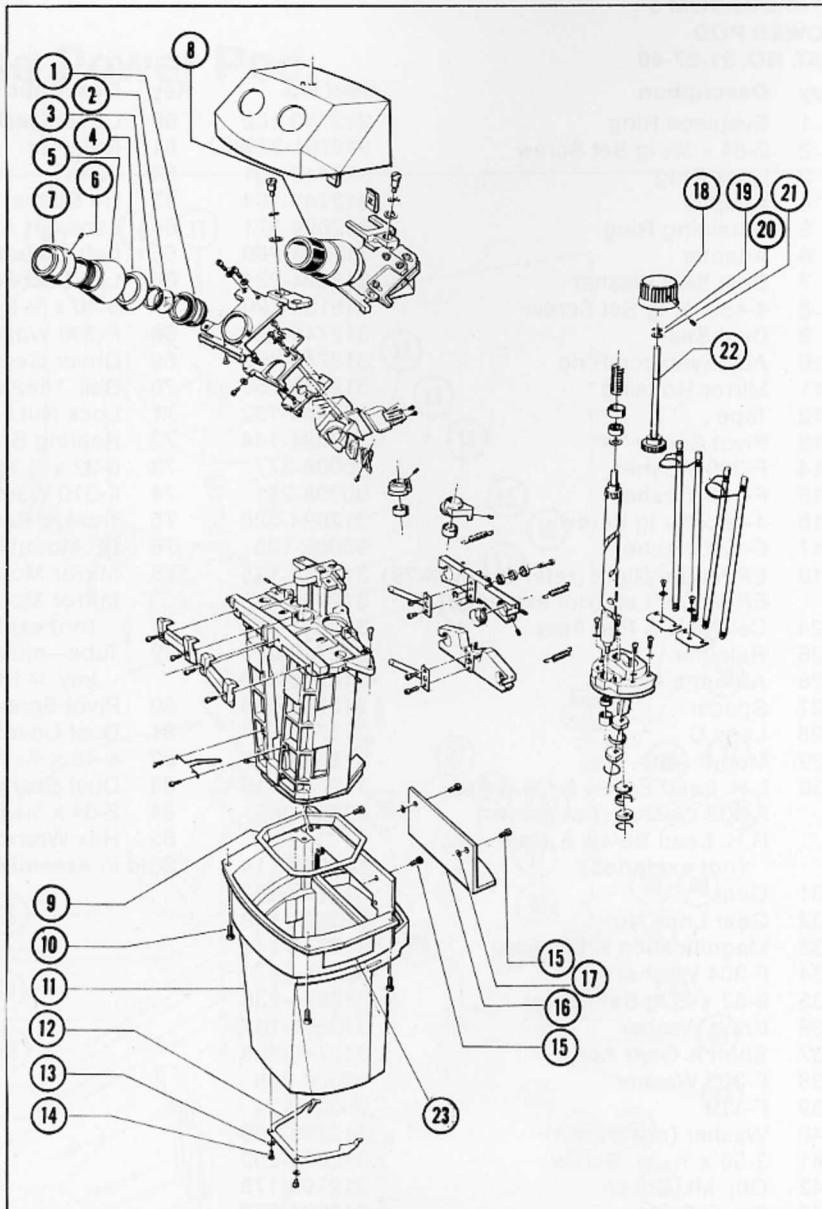
Key	Description	Part No.	Key	Description	Part No.
1	Eyepiece Ring	312740-102	60	Cover Gasket	312694-312
2	2-64 x $\frac{1}{16}$ lg Set Screw	312701-379ND	61	Retainer	312740-151
3	Lock Ring	312740-101	62	Lens I	312740-032
4	Adapter	312740-104	63	H-I Spacer	312740-118
5	Retaining Ring	312694-321	64	Lens GH Assy	312740-031
6	Adapter	312694-269	65	Left Objective Mount	312740-123
7	Dust Seal Washer	312694-234	66	Lead Screw Mount	312740-125
8	4-48 x $\frac{1}{4}$ lg Set Screw	315153-120	67	6-40 x $\frac{3}{16}$ lg Screw	312694-328
9	Dust Seal	312740-129	68	F-306 Washer	90008-369
10	Adj. Eyepiece Ring	312740-103	69	Driver Gear Support	312799-107
11	Mirror Housing	312740-160	70	Ball .1562 dia	312694-152
12	Tape	312740-132	71	Lock Nut	312694-322
13	Pivot Screw "A"	312694-144	72	Bearing Screw	312694-118
14	F-309 Washer	90008-377	73	6-32 x $\frac{3}{16}$ lg Screw	312694-329
15	F-108 Washer	90008-281	74	F-310 Washer	90008-378
16	4-48 x $\frac{3}{16}$ lg Screw	312694-326	75	Tru-Arc Retainer 5133-25	312695-111
17	F-120 Washer	90008-125	76	EP Mount Support	312799-102
*18	EP Mount Right (refer to key # 79)	312740-135	*78	Mirror Mount Right Assy	312694-376
	EP Mount Left (not exploded)	312799-115		Mirror Mount Left Assy (not exploded)	312694-375
24	Cell Mt B & Pad Assy	312694-348	*79	Tube—must be assembled with key # 18	312694-277
25	Retainer	312740-105	80	Pivot Screw "B" (2)	314694-145
26	AB Lens Assy	312740-023	81	Dust Cover	312694-052
27	Spacer	312740-106	82	4-48 x $\frac{1}{16}$ lg Set Screw	313326-128
28	Lens C	312740-024	83	Dust Seal Cap	312694-259
29	Mount ABC	312740-107	84	2-64 x $\frac{1}{16}$ lg Set Screw	312740-136
30	L.H. Lead Screw & Gear Assy	312740-113	85	Hex Wrench	312740-148
	F-303 Washer (not shown)	90008-366		*Sold in Assembled Units Only.	
	R.H. Lead Screw & Gear Assy (not exploded)	312740-114			
31	Gear	312799-183			
32	Gear Lock Nut	312694-169			
33	Magnification Knob Assy	312740-141			
34	F-304 Washer	90008-367			
35	6-32 x $\frac{1}{2}$ lg Set Screw	312694-236			
36	Knob Washer	312694-141			
37	Shaft & Gear Assy	312740-133			
38	F-305 Washer	90008-368			
39	F-119	90008-124			
40	Washer (not shown)	312799-235			
41	2-56 x $\frac{5}{16}$ lg. Screw	312694-292			
42	Obj. Mt. Cover	312799-178			
43	Cover Spring	312694-372			
44	Pad "B"	312694-105			
45	Cell Mt A Pad Assy	312694-351			
46	DEF Mount	312740-109			
47	Lens D	312740-025			
48	D-E Spacer	312740-110			
49	EF Lens Assy	312740-028			
50	Retainer	312740-111			
51	2-64 x $\frac{7}{32}$ lg Set Screw	312694-310			
52	Guide Bar	312694-106			
53	8-36 x $\frac{3}{16}$ lg Screw	312694-327			
54	Right Objective Mount	312740-120			
55	2-56 x $\frac{3}{16}$ lg Screw	312694-302			
56	Objective Cover	312694-370			
57	6-40 x $\frac{3}{8}$ lg Screw (1)	312694-324			
58	6-32 x $\frac{9}{32}$ lg Screw (4)	316012-150			
59	6-40 x $\frac{1}{16}$ lg Screw (1)	312694-325			

StereoZoom 7

1.0X thru 7.0X

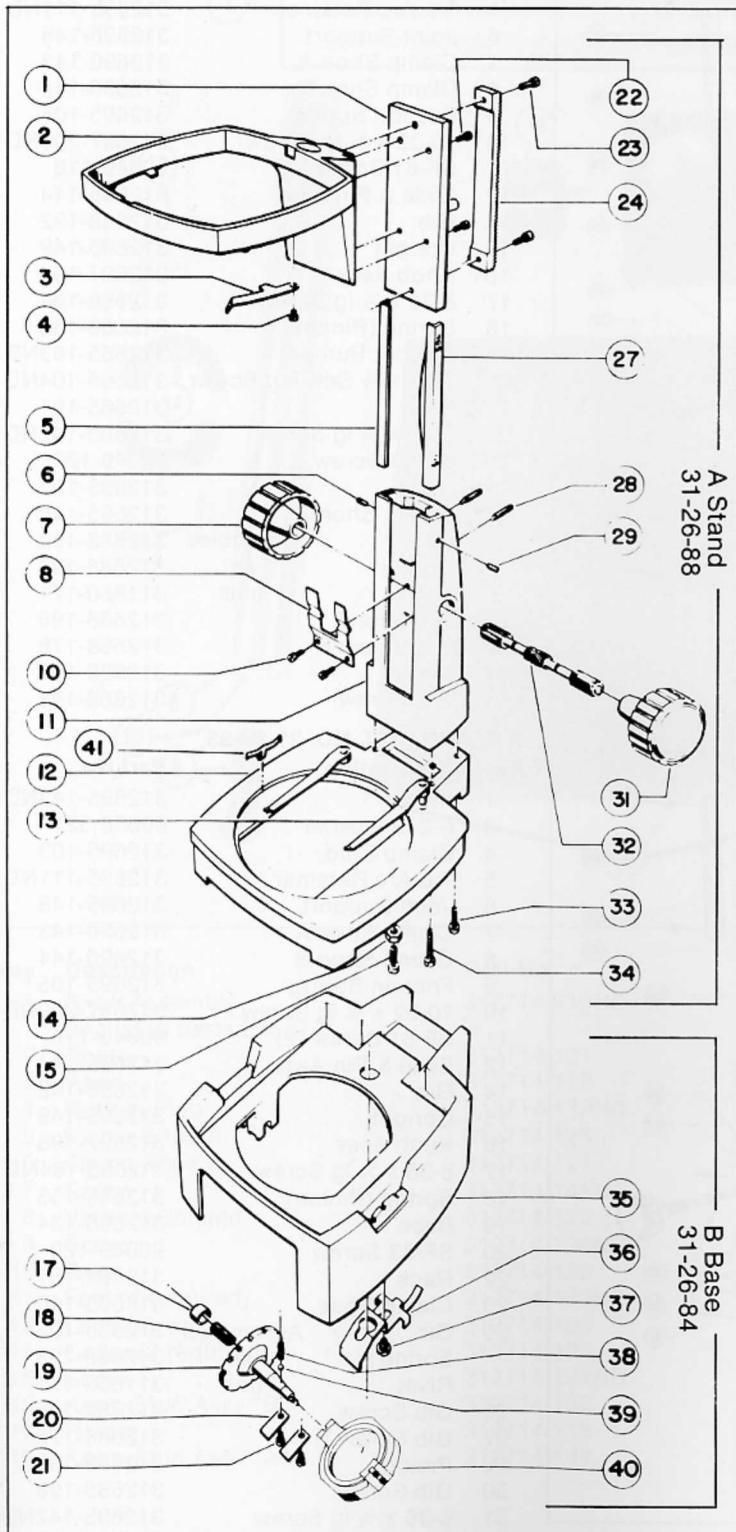
Variable Power Pod, Cat. No. 31-27-01

Key	Description	Part No.
1	Tube	312701-438
2	Dust Cover	312701-047
3	Snap Ring	312701-437
4	Dust Seal	312701-496
5	Adapter (left)	312701-234
	Adapter (right) not exploded	312701-325
6	2-64 x $\frac{1}{16}$ Set Screw	312701-379ND
7	Eyepiece Ring	312701-235
8	Eyepiece Adjusting Ring	312701-236
9	Gasket	312701-356
10	6-32 x $\frac{1}{4}$ Fillister Hd Screw	312701-436ND
11	Lower Housing	312701-510
12	Mounting Spring	312701-349
13	$\frac{1}{8}$ x $\frac{1}{4}$ dia Washer	312701-351ND
14	1-40 x $\frac{1}{4}$ Phillips Hd Screw	312701-308ND
15	6-32 x $\frac{1}{2}$ Fillister Hd Screw	312701-400ND
16	Cover Plate	312701-393
17	F-332 Washer	90008-463
18	Knob	312701-507
19	Tru-Arc 5133-25	312695-111ND
20	F-310 Washer	90008-378
21	4-40 x $\frac{1}{4}$ Set Screw	312701-485
22	Gear & Shaft Assy	312701-408
23	Name Plate	312701-509



NOTE: IT IS RECOMMENDED THAT PARTS NOT
NUMBERED BE REPLACED AND INSTALLED AT
THE FACTORY SHOULD THE NEED EVER ARISE.

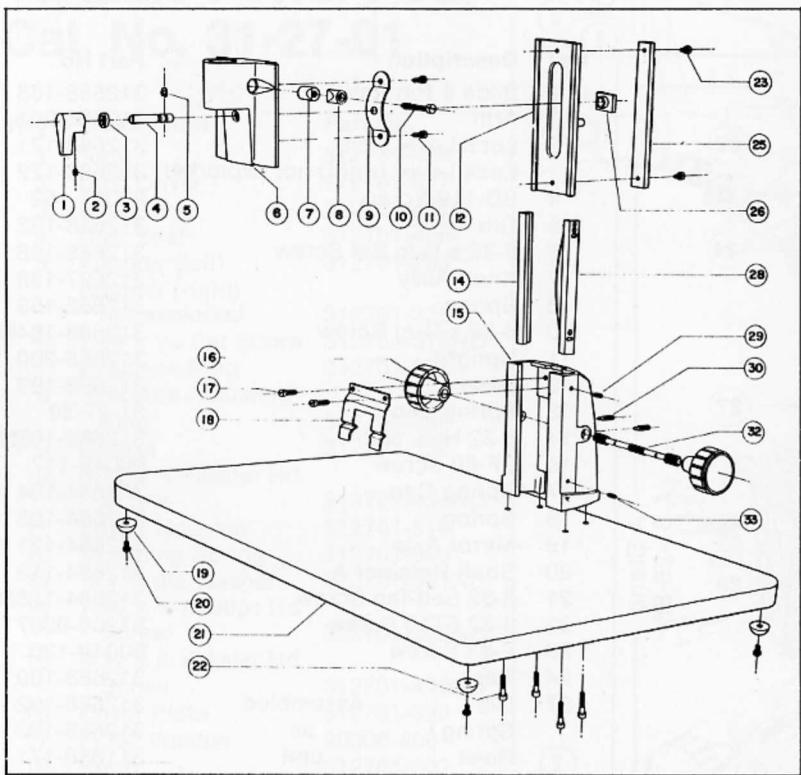
A and B Stands
A Stand, Cat. No. 31-26-88
with B Base, Cat. No. 31-26-84



Key	Description	Part No.
1	Slide & Pin Assy	312688-188
2	Arm	312688-201
3	Lock Lever (left)	312688-121
	Lock Lever (right) not exploded	312688-122
4	SD-119 Screw	90047-182
5	Gib	312688-192
6	8-36 x 1/4 Ig Set Screw	312688-198
7	Knob Assy	312697-198
8	Spring	312688-153
10	8-36 x 1/4 Ig Screw	312688-184ND
11	Upright	312688-200
12	Base	312688-199
13	Spring Clip	31-27-30
14	8-32 Hex. Nut	312688-103ND
15	SF-80 Screw	90049-117
17	Spring Cap	312684-104
18	Spring	312684-105
19	Mirror Axle	312684-121
20	Shaft Retainer A	312684-113
21	8-32 Self-Tap Screw	312684-125ND
22	8-32 FT10 Screw	97206-0807
23	F-83 Screw	90049-120
24	Rack	312688-109
27	Gib } Assembled Spring } as Rivet } unit	312688-192 312688-193 311850-171
28	Gib Screw B	312688-178
29	Set Screw	312688-198
31	Knob Assy	312697-198
32	Pinion	312688-187
33	8-36 x 7/16 Ig Screw	312688-185ND
34	8-36 x 15/16 Ig Screw	312688-183ND
35	Base	312684-128
36	Base Lock	312684-106
37	SF-79 Screw	90049-116 & 90008-8
38	Ball Spring	312684-111
39	Pad B	312694-105
40	Mirror Assy	312732-910
41	Stage Plate Spring	312688-174

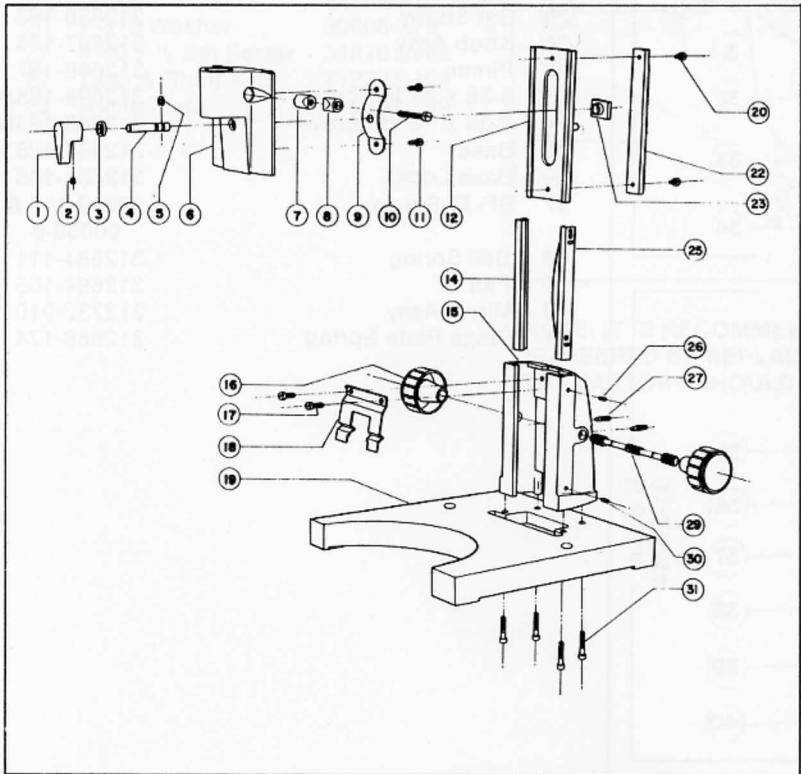
KT Stand, Cat. No. 31-26-65

K Stand, Cat. No. 31-26-95



KT STAND CAT. NO. 31-26-65

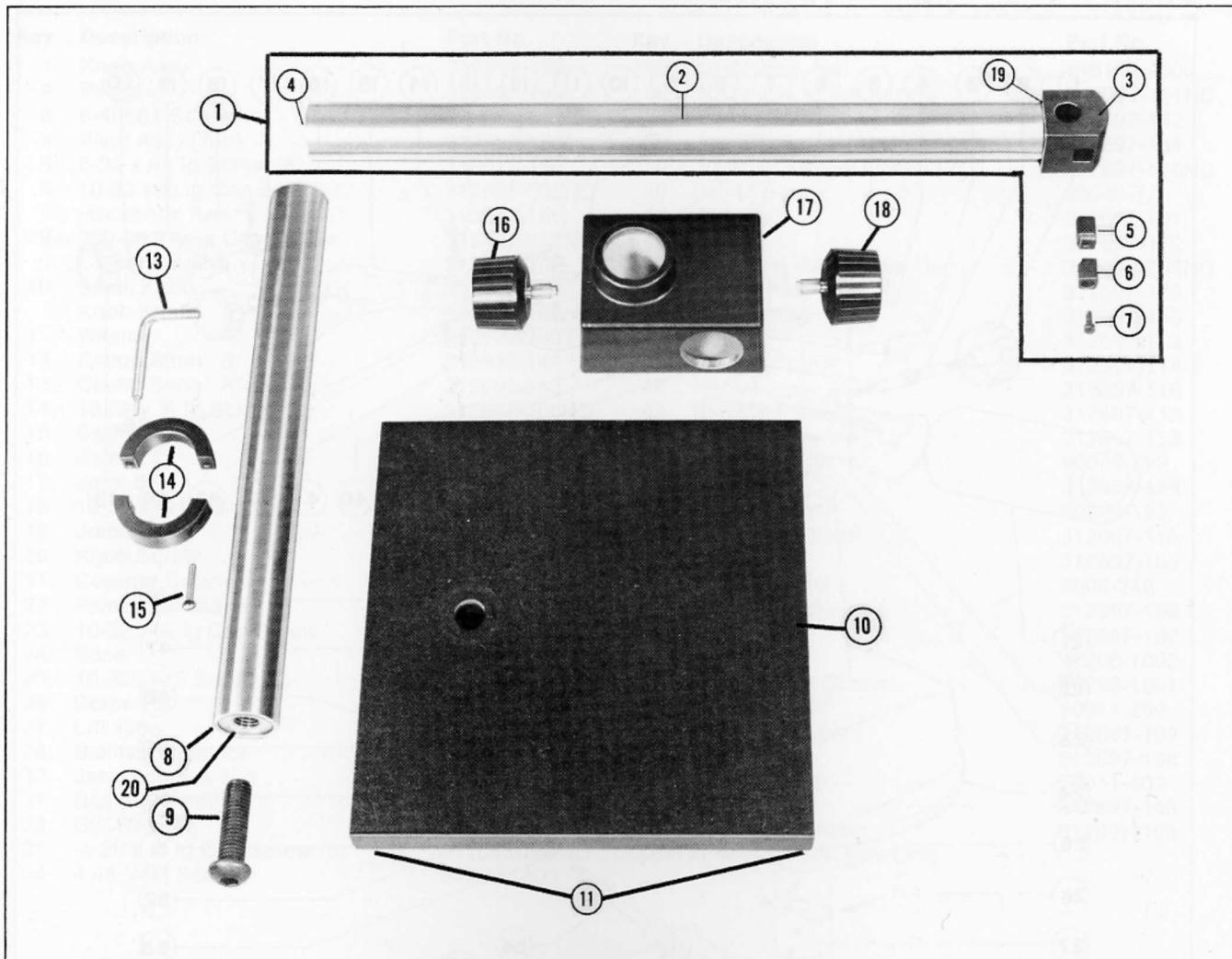
Key	Description	Part No.
1	Knob	312695-143ND
3	F-279 Washer	90008-321
4	Clamp Stud	312695-103
5	Tru Arc Retainer	312695-111ND
6	Joint Support	312695-148
7	Clamp Shoe A	312690-143
8	Clamp Shoe B	312690-144
9	Friction Spring	312695-105
10	10-32 x 3/4 lg Screw	312697-200ND
11	SF-81 Screw (2)	90049-118
12	Slide & Pin Assy	312695-144
14	Gib	312688-192
15	Upright	312695-149
16	Knob Assy	312697-198
17	8-36 x 1/4 lg Screw	312688-184
18	Spring (Pinion)	312688-153
19	Rubber Bumper	312665-103ND
20	6-32 x 1/2 Self Tap Screw	312665-104ND
21	Base	312665-101
22	8-36 x 3/4 lg Screw	312695-142ND
23	SF-83 Screw	90049-120
25	Rack	312695-107
26	Clamp Shoe	312695-140
28	Gib Assembled	312688-192
	Spring as	312688-193
	Rivet unit	311850-171
29	Gib Screw	312688-198
30	Gib Screw B	312688-178
32	Pinion	312688-187
33	Gib Screw	312688-198



K STAND CAT. NO. 31-26-95

Key	Description	Part No.
1	Knob	312695-143ND
3	F-279 Washer	90008-321
4	Clamp Stud	312695-103
5	Tru Arc Retainer	312695-111ND
6	Joint Support	312695-148
7	Clamp Shoe A	312690-143
8	Clamp Shoe B	312690-144
9	Friction Spring	312695-105
10	10-32 x 3/4 lg Screw	312697-200ND
11	SF-81 Screw (2)	90049-118
12	Slide & Pin Assy	312695-144
14	Gib	312688-192
15	Upright	312695-149
16	Knob Assy	312697-198
17	8-36 x 1/4 lg Screw	312688-184ND
18	Spring (Pinion)	312688-153
19	Base	312695-134
20	SF-83 Screw	90049-120
22	Rack	312695-107
23	Clamp Shoe	312695-140
25	Gib Assembled	312688-192
	Spring as	312688-193
	Rivet unit	311850-171
26	Gib Screw	312688-198
27	Gib Screw B	312688-178
29	Pinion	312688-187
30	Gib Screw	312688-198
31	8-36 x 3/4 lg Screw	312695-142ND

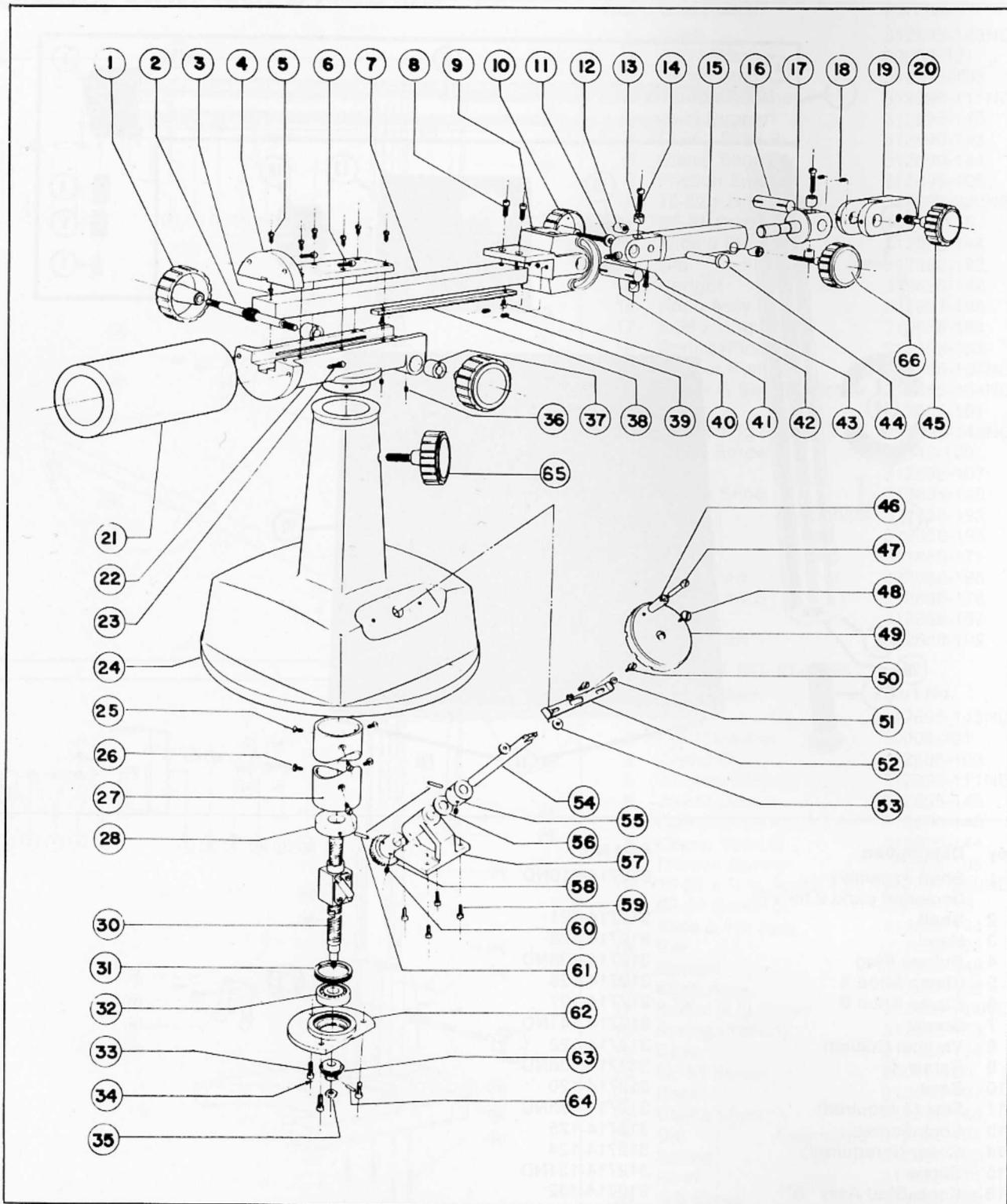
S Stand, Cat. No. 31-27-14



Key Description

Key	Description	Part No.
1	Shaft Assembly (included parts 2 thru 7)	312714-910ND
2	Shaft	312714-121
3	Head	312714-128
4	Bottom Plug	312714-138ND
5	Clamp Shoe A	312714-126
6	Clamp Shoe B	312714-127
7	Screw	312714-141ND
8	Vertical Column	312714-122
9	Screw	312714-136ND
10	Base	312714-120
11	Feet (4 required)	312714-133ND
13	Lock Screw	312714-125
14	Collar (2 required)	312714-124
15	Screw	312714-134ND
16	Knob-Stud Assy "B"	312714-132
17	Holder	312714-113
18	Knob-Stud Assy "A"	312714-149

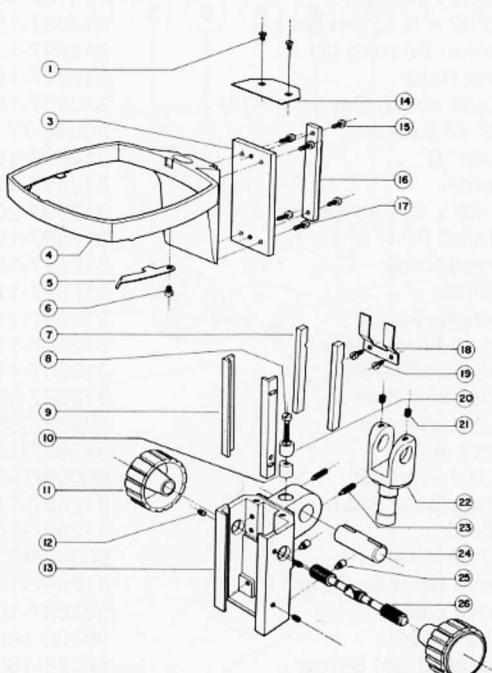
SK Stand, Cat. No. 31-26-97



Key	Description	Part No.	Key	Description	Part No.
1	Knob Assy	312697-198	*35	10-32 Hex. Nut	716180-4600
2	Pinion	312697-193	36	10-32 x 1/8 lg Set Screw	312697-151ND
3	6-40F6T Screw	97206-1610	37	Pinion Bearing (2)	312697-132
4	Pivot Assy (Top)	312697-168	38	Arm Rack	312697-164
5	6-32 x 5/16 lg Screw (6)	316012-150	39	10-32 x 3/8 lg Set Screw (2)	312697-156ND
6	10-32 x 1/2 lg Cap Screw	312697-202ND	40	SE-43 Screw	90048-77
7	Horizontal Arm	312697-165	41	Axle "B"	312697-191
8	250-28 x 5/8 lg Cap Screw	312697-203ND	42	Screw	312697-172
9	Clamp Bearing	312697-192	43	1/4-28 x 5/8 Cap Screw	312697-203ND
10	Small Knob	312697-199	44	Clamp Pin	312697-126
	Knob Shaft	312697-196	45	Small Knob	312697-199
11	Washer	312697-140	46	Handle	312697-113
12	Clamp Shoe "B"	312690-144	47	Handle Screw	312697-114
13	Clamp Shoe "A"	312690-143	48	Knob Screw "A"	312697-116
14	10-32 x 3/4 lg Screw	312697-200ND	49	Elevation Crank	312697-112
15	Swing Arm	312697-175	50	Shoulder Screw	312697-138
16	Axle A	312697-190	51	F-261 Washer	90008-293
17	Joint B	312697-130	52	Lock Assy	312697-139
18	10-32 x 3/8 lg Screw (2)	312697-156ND	53	F-157 Washer	90008-162
19	Joint A	312697-189	*54	Drive Gear Shaft	312697-115
20	Knob Screw	312697-197	*55	Collar	312697-105
21	Counter Balance	312697-170	*56	F-239 Washer	9008-246
22	Pivot Assy (Base)	312697-168	*57	Drive Gear Bearing	312697-106
23	10-32 x 1/2 lg Cap Screw	312697-202ND	*58	Drive Gear	312697-107
24	Base	312697-206	*59	10-24F16S	96206-1002
25	10-32C12S Screw (4)	96202-2004	*60	8-36V8S Set Screw	96228-1801
26	Screw (3)	312697-167	61	I-341 Roll Pin	90011-359
27	Lift Tube	312697-103	*62	Bearing Support	312697-109
*28	Ball Nut Retainer	312697-110	*63	Driven Gear	312697-108
*30	Jack Screw & Nut	312697-101	*64	I-395 Roll Pin	90011-403
*31	Bearing Retainer	312697-111	65	Knob Assy	312697-143
*32	Ball Bearing	312697-104ND	66	Small Knob Assy	312697-199
*33	1/4-20 x 3/4 lg Cap Screw (3)	211043-204ND	*Sold in Assembled Units Only		
*34	4-48 V4M Screw	94228-1400			

E (Stationary) Arm, Cat. No. 31-26-59

ER (Rotatable) Arm, Cat. No. 31-26-90



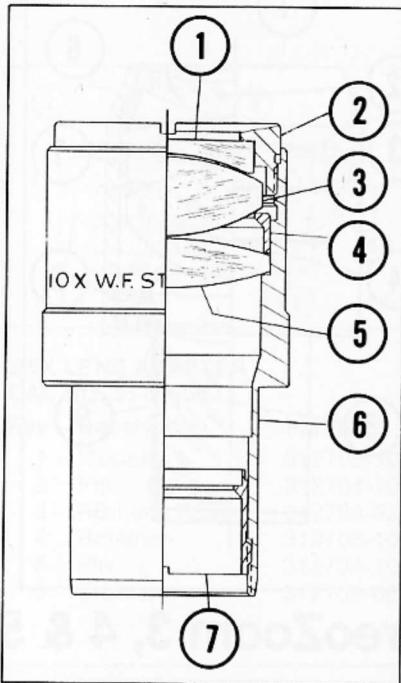
E (STATIONARY) ARM CAT. NO. 31-26-59

Key	Description	Part No.
1	4-48 x 1/4 lg Screw	312690-127ND
3	Upper Slide & Pin Assy	312690-141
4	Arm	312688-201
5	Lock Lever (right) (not exploded left)	312688-121
6	SD-119 Screw	90047-182
7	Rear Gib	312690-121
8	10-32 x 3/4 lg Screw	312697-200ND
9	Front Gib	312690-122
10	Clamp Shoe "A"	312690-143
11	Knob Assy	312697-198
12	Gib Screw "A"	312688-198
13	Housing	312690-147
14	Cover	312690-148
15	SF-83 Screw	90049-120
16	Upper Rack	312689-106
17	8-32 x 5/16 lg Screw	312659-106
18	Spring	312659-105
19	4-48 x 1/4 lg Screw	312690-126ND
20	Clamp Shoe "B"	312690-144
21	10-32 x 375 lg Set Screw	312697-156ND
22	Joint & Stop Assy	312689-910
23	Gib Screw "B"	312690-142
24	Axle "A"	312697-190
25	Gib Screw	312690-139
26	Pinion	312690-132

ER (ROTATABLE) ARM CAT. NO. 31-26-90

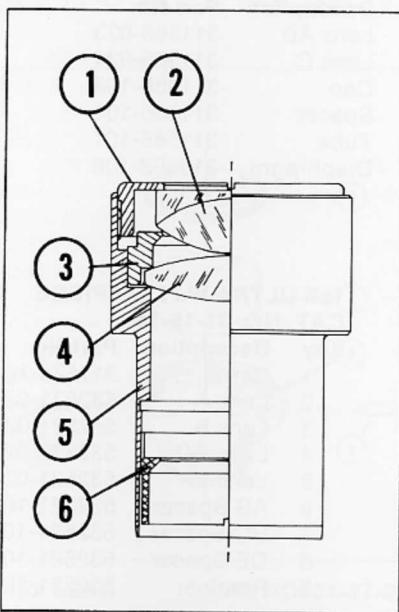
Key	Description	Part No.
1	Body Bearing	312690-149
2	Lock Lever "A"	312690-134
3	8-32 x 3/16 lg Screw (2)	312690-145
7	Arm	312690-146
8	Lock Lever "B"	312690-135
9	10-32 x 3/4 lg Screw	312697-200ND
10	Front Gib	312690-122
11	Shoe Clamp "A"	312690-143
12	Knob Assy	312697-198
13	Gib Screw "A"	312688-198
14	Housing	312690-147
15	4-48 x 1/4 lg Screw	312690-127ND
16	Cover	312690-148
17	8-32F12T Screw (4)	97206-1826
18	F-83 Screw (2)	90049-120
19	Upper Rack	312689-106
21	Upper Slide	312690-141
22	Rear Gib	312690-121
23	Spring	312659-105
24	4-48 x 1/4 lg Screw	312690-126ND
25	Shoe Clamp "B"	312690-144
26	Gib Screw "B"	312690-142
27	10-32 x 5/8 lg Set Screw	312697-156ND
28	Joint & Stop Assy	312689-910
29	Axle "A"	312697-190
30	Gib Screw	312690-139
31	Pinion	312690-132
32	Gib Screw "A"	312688-198
33	Adapter	312690-134
34	4-40 x 1/4 Screw	312690-137

Wide Field Eyepieces



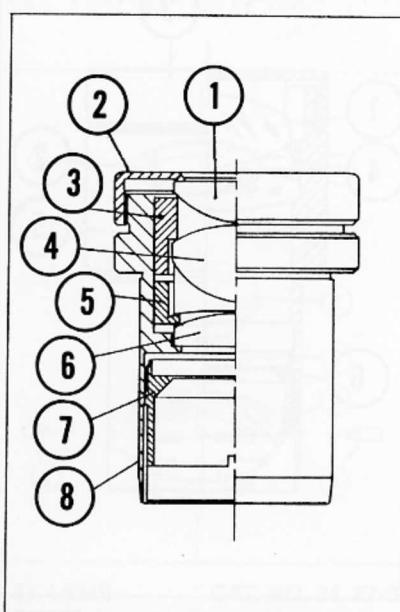
**10X EYEPIECE FOR STEREO 1 & 2,
STEREOZOOM 3, 4, 5 & 7
CAT. NO. 31-15-71**

Key	Description	Part No.
1	Lens C	311571-023
2	Cap	311571-101
3	Lens B	311571-022
4	Spacer	311571-102
5	Lens A	311571-021
6	Tube	311571-103
7	Diaphragm	310567-104



**15X EYEPIECE FOR STEREO 1 & 2,
STEREOZOOM 3, 4, & 5
CAT. NO. 31-05-62**

Key	Description	Part No.
1	Retainer	310562-109
2	AB Lens Assy	310552-023
3	Spacer	310562-102
4	Lens C	310562-024
5	Tube	310562-110
6	Diaphragm	310562-108

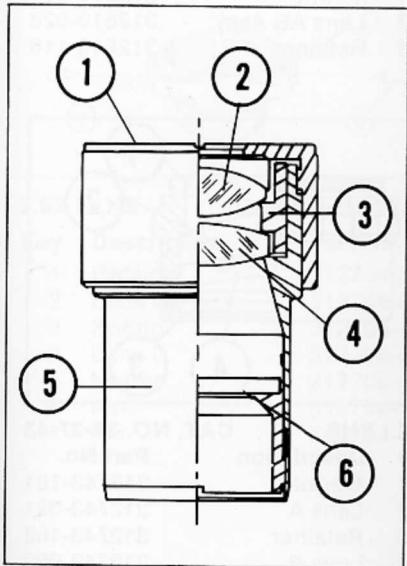


**20X EYEPIECE FOR STEREO 1 & 2,
STEREOZOOM 3, 4, 5, & 7
CAT. NO. 31-15-64**

Key	Description	Part No.
1	Lens A	311564-021
2	Cap	311564-104
3	AB Spacer	311564-101
4	Lens BC	311564-024
5	CD Spacer	311564-102
6	Lens D	311564-025
7	Diaphragm	310563-106
8	Tube	311564-103

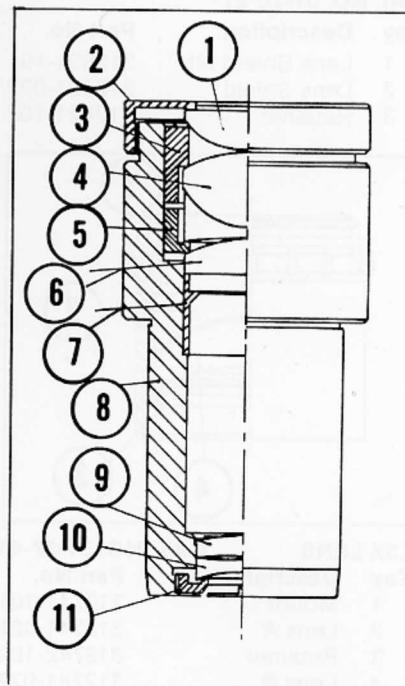
30X EYEPIECE CAT. NO. 31-15-65

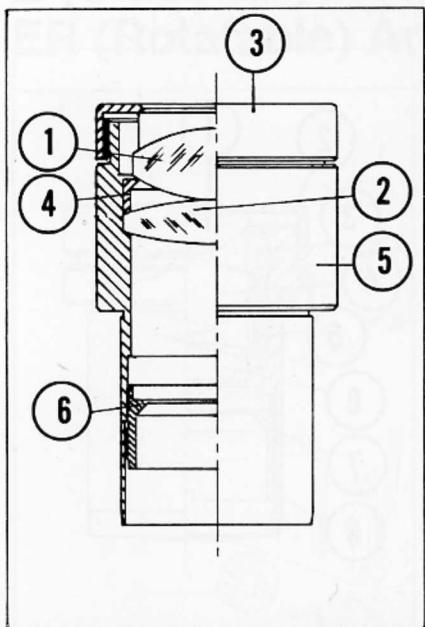
Key	Description	Part No.
1	Lens A	311564-021
2	Cap	311564-104
3	AB Spacer	311564-101
4	Lens BC	311564-024
5	CD Spacer	311564-102
6	Lens D	311564-025
7	Diaphragm	311565-102
8	Tube	311564-101
9	Lens E	311565-021
10	Lens F	311564-022
11	Retainer	311565-103



**15X EYEPIECE FOR
STEREOZOOM 7
CAT. NO. 31-05-68**

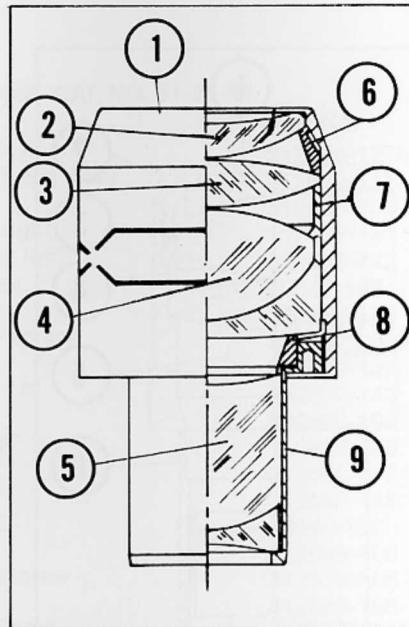
Key	Description	Part No.
1	Retainer	310568-105
2	Lens BC Assy	310568-107
3	Spacer	310568-102
4	Lens A	310568-021
5	Barrel	310568-103
6	Diaphragm	310568-104





12.5 EYEPiece CAT. NO. 31-15-66

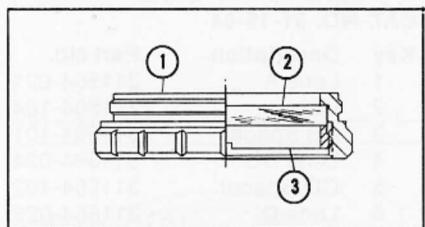
Key	Description	Part No.
1	Lens AB	311566-023
2	Lens C	311566-024
3	Cap	311566-102
4	Spacer	311566-103
5	Tube	311566-101
6	Diaphragm	310562-108



15X ULTRA W.F. EYEPiece CAT. NO. 31-15-74

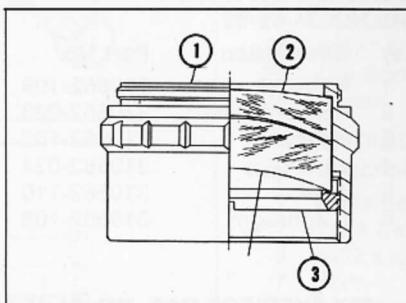
Key	Description	Part No.
1	Barrel	311574-101
2	Lens A	532521-021
3	Lens B	532521-022
4	Lens CD	532521-025
5	Lens EF	532521-032
6	AB Spacer	532521-102
7	BC Spacer	532521-103
8	DE Spacer	532521-104
9	Retainer	532521-105

Supplementary Lenses - Stereo 1 & 2, StereoZoom 3, 4 & 5



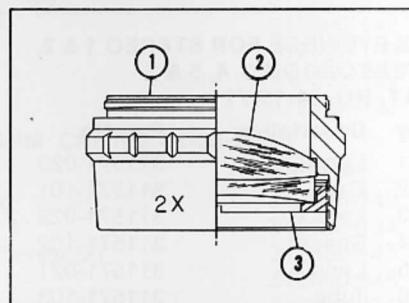
CLEAR GLASS LENS SHIELD CAT. NO. 31-26-21

Key	Description	Part No.
1	Lens Shield Mt.	312621-101
2	Lens Shield	312621-022
3	Retainer	312621-102



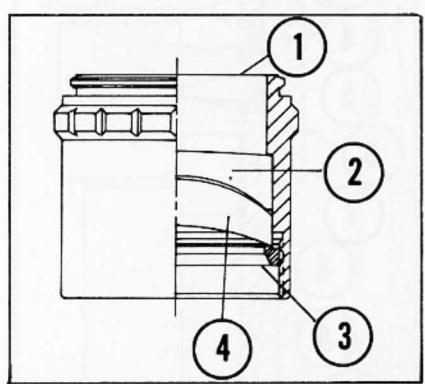
0.5X LENS CAT. NO. 31-26-18

Key	Description	Part No.
1	Mount	312618-106
2	Lens AB Assembly	312618-025
3	Retainer	312618-110



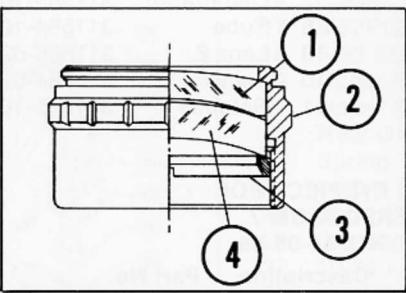
2X LENS CAT. NO. 31-26-19

Key	Description	Part No.
1	Mount	312619-107
2	Lens AB Assy	312619-028
3	Retainer	312619-110



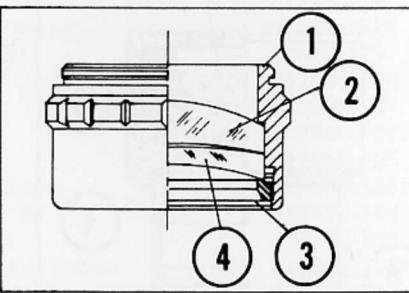
0.3X LENS CAT. NO. 31-27-41

Key	Description	Part No.
1	Mount	312741-101
2	Lens A	312741-021
3	Retainer	312742-102
4	Lens B	312741-022



0.75X LENS CAT. NO. 31-27-42

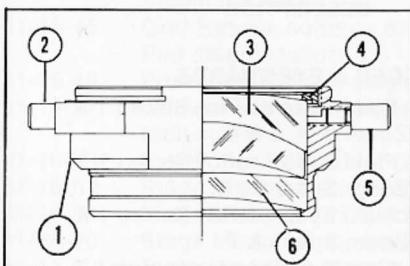
Key	Description	Part No.
1	Lens A	312742-021
2	Mount	312742-101
3	Retainer	312742-102
4	Lens B	312742-022



1.5X LENS CAT. NO. 31-27-43

Key	Description	Part No.
1	Mount	312743-101
2	Lens A	312743-021
3	Retainer	312743-102
4	Lens B	312743-022

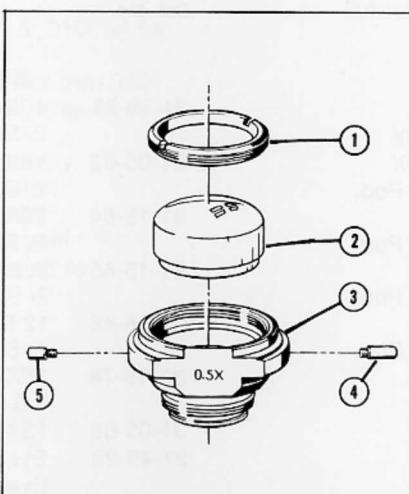
Supplementary Lenses For StereoZoom 7



.25X LENS ADAPTER

CAT. NO. 31-27-08

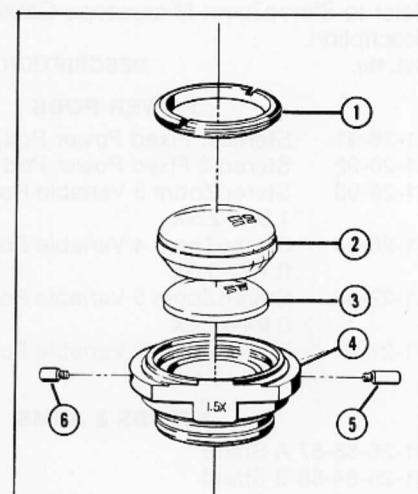
Key	Description	Part No.
1	Mount	312708-102
2	Pin	312704-108
3	AB Lens Assy	312708-023
4	Retainer	312708-103
5	Pin	312704-107
6	C Lens	312708-024



.5X LENS

CAT. NO. 31-27-04

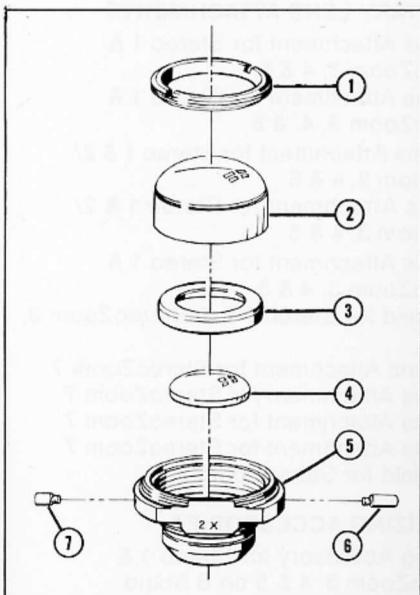
Key	Description	Part No.
1	Retainer	312704-102
2	Lens AB Assy	312704-026
3	Mount	312704-101
4	Pin	312704-107
5	Pin	312704-108



1.5X LENS

CAT. NO. 31-27-05

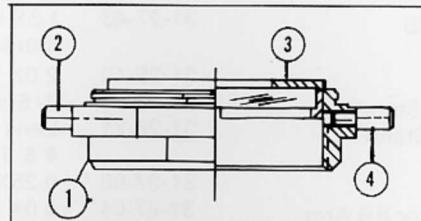
Key	Description	Part No.
1	Retainer	312704-102
2	Lens AB Assy	312705-026
3	Lens C	312705-024
4	Mount	312705-101
5	Pin	312704-107
6	Pin	312704-108



2.0X LENS

CAT. NO. 31-27-06

Key	Description	Part No.
1	Retainer	312704-102
2	Lens AB Assy	312706-026
3	Spring	312706-103
4	Lens C	312706-024
5	Mount	312706-105
6	Pin	312704-107
7	Pin	312704-108



LENS SHIELD

CAT. NO. 31-27-35

Key	Description	Part No.
1	Mount	312734-101
2	Pin	312704-108
3	Seal Assy	312735-103
4	Pin	312704-107

Refer to StereoZoom Microscope Catalog for full description.

Cat. No.	DESCRIPTION	Cat. No.	DESCRIPTION	
POWER PODS				
31-26-91	Stereo 1 Fixed Power Pod, 1.0X	31-15-71	10X Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3, 4, 5 & 7	
31-26-92	Stereo 2 Fixed Power Pod, 2.0X	31-05-62	15X Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-26-93	StereoZoom 3 Variable Power Pod, 1.0X-2.5X	31-15-64	20X Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3, 4, 5 & 7	
31-26-94	StereoZoom 4 Variable Power Pod, 0.7X-3.0X	31-15-65	30X Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3 & 4	
31-27-40	StereoZoom 5 Variable Power Pod, 0.8X-4.0X	31-15-66	12.5X Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3, 4, 5 & 7	
31-27-01	StereoZoom 7 Variable Power Pod, 1.0X-7.0X	31-15-74	15X Ultra Wide Field Eyepiece for Stereo 1 & 2/StereoZoom 3, 4, 5 & 7	
STANDS & ARMS				
31-26-88-87	A Stand	31-05-68	15X Wide Field Eyepiece for StereoZoom 7	
31-26-84-88	B Stand	31-49-29	Eyeguard for 31-05-68 & 31-15-71	
31-26-95	K Stand	31-50-64	Eyepieces	
31-27-14	S Stand	31-50-64	Eyeguard for 31-05-62 & 31-05-63	
31-26-65	KT Stand	31-50-64	Eyepieces	
31-26-97	SK Stand	42-12-02	10X Wide Field Viewfinder Eyepiece	
31-27-50-01	RA Stand			
31-27-50-22	RB Stand, 120V-UL			
31-27-50-23	RC Stand, 120V-UL & CSA			
31-27-50-24	RD Stand, 120V-UL			
31-27-50-25	RE Stand, 120V-UL & CSA			
31-26-59	E Arm			
31-26-90	ER Arm			
STAND & ARM ACCESSORIES				
31-26-84	B Base (Base only)	31-27-41	0.3X Lens Attachment for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-26-84-86	Trans-Illumination Base	31-26-18	0.5X Lens Attachment for Stereo 1 & 2/StereoZoom 3, 4, & 5	
31-26-86	Clear Glass Stage Plate for B Stand	31-27-42	0.75X Lens Attachment for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-26-87	Opaque Contrast Plate for A Stand	31-27-43	1.5X Lens Attachment for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-26-88	A Stand (Stand only)	31-26-19	2.0X Lens Attachment for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-27-03	Elevator	31-26-21	Lens Shield for Stereo 1 & 2/StereoZoom 3, 4 & 5	
31-27-21	Nicholas Illuminator Adapter for ER Arm	31-27-08	0.25X Lens Attachment for StereoZoom 7	
31-27-30	Stage Clip	31-27-04	0.5X Lens Attachment for StereoZoom 7	
31-27-32	3-Way Mirror	31-27-05	1.5X Lens Attachment for StereoZoom 7	
31-27-48	Graduated Mechanical Stage for A Stand	31-27-06	2.0X Lens Attachment for StereoZoom 7	
31-27-49	Graduated Mechanical Stage for B Stand	31-27-35	Lens Shield for StereoZoom 7	
31-27-54	Plain Stage for R Stands			
31-27-55	Graduated 3" x 3" Mechanical Stage for R Stands			
31-27-60	Ungraduated 4" x 5" Right Hand Mechanical Stage for R Stands			
31-27-61	Ungraduated 4" x 5" Left Hand Mechanical Stage for R Stands			
31-60-35	5" x 5" Mask Paddle for 4" x 5" Stages			
31-60-36	4" Waffer Paddle for 4" x 5" Stages	31-16-04	Micro. Disc; measures 0.002" at 2X Pod magnification	
31-60-37	3" x 3" Mask Paddle for 4" x 5" Stages	31-16-07	Micro. Disc; measures 0.005" at 1X Pod magnification	
31-60-38	4" x 4" Mask Paddle for 4" x 5" Stages	31-16-08	Micro. Disc; measures 0.001" at 3X Pod magnification	
31-60-39	3" Waffer Paddle for 4" x 5" Stages	31-16-30	Cross Line Disc	
31-60-40	2½" x 3" Lazy Susan Wafer Paddle for 4" x 5" Stages			
31-60-41	3" x 4" Lazy Susan Wafer Paddle for 4" x 5" Stages			
EYEPIECES & EYEGUARDS				
SUPPLEMENTARY LENS ATTACHMENTS				
POLARIZING ACCESSORIES				
MICROMETER DISCS				

- 31-16-42 Micro. Disc; measures 0.001 " at 3X Pod magnification
31-16-43 Micro. Disc; measures 0.02mm at 5X Pod magnification
31-16-44 Micro. Disc; measures 0.01mm at 7X Pod magnification
31-16-45 Grid Reticle; squares of .002" & .010" at 5X Pod magnification
31-16-46 Protractor Reticle; single degrees thru 360°
31-16-47 General Purpose Reticle; linear, angular & radii scales
31-16-48 Viewfinder Reticle; for photography
31-16-87 Stage Micrometer; ruled to 0.005"
31-16-89 Stage Micrometer; ruled to 0.001"
31-16-90 Stage Micrometer; ruled to 0.01mm
31-16-99 Precision Stage Micrometer; ruled to 0.01mm

CASES

- 31-40-37 Carrying Case for series B stereo microscopes
31-40-38 Carrying Case for series A stereo microscopes

Refer to StereoZoom Microscope Catalog or to specific instruction manuals for detailed information concerning illuminators and photomicrographic equipment.

10.0

StereoZoom Microscope Tables

These tables provide all the data you need to determine the proper optical combination—eyepieces, Power Pod, and supplementary lenses—for your specific application.

Field diameter (the viewing area) is a function of magnification. The lower the magnification, the larger the field size and vice versa. Choice of magnification depends upon the type of material you will be viewing. In general, you need higher magnification for very fine detail, and lower power to view larger areas or for greater depth of focus.

Stereo 1 1X POWER POD

Wide Field Eyespecies	Without Supplementary Lens		With .3X Lens		With .5X Lens		With .75X Lens		With 1.5 Lens		With 2X Lens	
	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.
10X	20mm 10X 100mm (.78")	66mm 3X 247mm (4") (2.6")	40mm 5X 168mm (5.7") (1.56")	27mm 7.5X 105mm (5.2") (1.05")	13mm 15X 44mm (4.1") (1.7")	10mm 20X 34mm (3.9") (3.9")						
12.5X	17mm 12.5X 100mm (.66")	56mm 3.75X 247mm (4") (2.2")	34mm 6.25X 168mm (6.8") (1.32")	22mm 9.4X 105mm (6.8") (1.05")	11mm 18.75X 44mm (4.1") (1.7")	8.4mm 25X 34mm (1.3") (1.3")						
15X	17mm 15X 100mm (.66")	56mm 4.5X 247mm (4") (1.32")	34mm 7.5X 168mm (6.8") (1.32")	22mm 11.25X 105mm (6.8") (1.05")	11mm 22.5X 44mm (4.1") (1.7")	8.4mm 30X 34mm (1.3") (1.3")						
15X Ultra	20mm 15X 100mm (.78")	66mm 4.5X 247mm (4") (1.32")	40mm 7.5X 168mm (6.8") (1.32")	27mm 11.25X 105mm (6.8") (1.05")	13mm 22.5X 44mm (4.1") (1.7")	10mm 30X 34mm (3.9") (3.9")						
20X	12mm 20X 100mm (.47")	40mm 6X 247mm (4") (1.56")	24mm 10X 168mm (6.8") (1.94")	16mm 15X 105mm (6.8") (1.05")	8mm 30X 44mm (4.1") (3.1")	6mm 40X 34mm (1.7") (1.3")						
30X	7mm 30X 100mm (.29")	24mm 9X 247mm (4") (1.95")	15mm 15X 168mm (6.8") (1.95")	10mm 22.5X 105mm (6.8") (1.32")	5mm 45X 44mm (4.1") (1.9")	3.7mm 60X 34mm (1.3") (1.3")						

Stereo 2 2X POWER POD

Wide Field Eyespecies	Without Supplementary Lens		With .3X Lens		With .5X Lens		With .75X Lens		With 1.5 Lens		With 2X Lens	
	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.
10X	10mm 20X 100mm (.39")	33mm 6X 247mm (4") (1.3")	26mm 10X 168mm (6.8") (1.3")	20mm 10X 105mm (6.8") (1.3")	13mm 30X 44mm (4.1") (1.7")	9mm 40X 34mm (1.7") (1.3")						
12.5X	8.4mm 25X 100mm (.39")	26mm 7.5X 247mm (4") (1.1")	17mm 12.5X 168mm (6.8") (1.3")	17mm 12.5X 105mm (6.8") (1.05")	11mm 35X 44mm (4.1") (1.7")	8.4mm 50X 34mm (1.7") (1.3")						
15X	8.4mm 30X 100mm (.39")	26mm 9X 247mm (4") (1.3")	17mm 15X 168mm (6.8") (1.3")	17mm 11.25X 105mm (6.8") (1.05")	11mm 22.5X 44mm (4.1") (1.7")	8.4mm 60X 34mm (1.7") (1.3")						
15X Ultra	10mm 30X 100mm (.39")	33mm 9X 247mm (4") (1.3")	20mm 15X 168mm (6.8") (1.3")	20mm 11.25X 105mm (6.8") (1.05")	13mm 35X 44mm (4.1") (1.7")	9mm 45X 34mm (1.7") (1.3")						
20X	6mm 40X 100mm (.24")	26mm 12X 247mm (4") (1.2")	12mm 20X 168mm (6.8") (1.94")	12mm 12.5X 105mm (6.8") (1.05")	8mm 30X 44mm (4.1") (3.1")	6mm 40X 34mm (1.7") (1.3")						
30X	3.6mm 60X 100mm (.14")	12mm 18X 247mm (4") (1.48")	10mm 22.5X 168mm (6.8") (1.95")	10mm 22.5X 105mm (6.8") (1.32")	5mm 45X 44mm (4.1") (1.9")	3.6mm 60X 34mm (1.7") (1.3")						

StereoZoom 3 1X to 2.5X POWER POD

Wide Field Eyespecies	Without Supplementary Lens		With .3X Lens		With .5X Lens		With .75X Lens		With 1.5 Lens		With 2X Lens	
	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.
10X	20mm 10X 100mm (.78")	66mm 3X 247mm (4") (2.6")	40mm 5X 168mm (6.8") (1.56")	27mm 7.5X 105mm (6.8") (1.05")	13mm 15X 44mm (4.1") (1.7")	10mm 20X 34mm (3.9") (3.9")						
10X	10mm 10X 100mm (.78")	66mm 3X 247mm (4") (2.6")	40mm 5X 168mm (6.8") (1.56")	27mm 7.5X 105mm (6.8") (1.05")	13mm 15X 44mm (4.1") (1.7")	10mm 20X 34mm (3.9") (3.9")						
12.5X	17mm 12.5X 100mm (.66")	56mm 3.75X 247mm (4") (2.2")	34mm 6.25X 168mm (6.8") (1.32")	22mm 9.4X 105mm (6.8") (1.05")	11mm 18.75X 44mm (4.1") (1.7")	8.4mm 25X 34mm (1.3") (1.3")						
15X	17mm 15X 100mm (.66")	56mm 4.5X 247mm (4") (1.32")	34mm 7.5X 168mm (6.8") (1.32")	22mm 11.25X 105mm (6.8") (1.05")	11mm 22.5X 44mm (4.1") (1.7")	8.4mm 30X 34mm (1.3") (1.3")						
15X Ultra	20mm 15X 100mm (.78")	66mm 4.5X 247mm (4") (1.32")	40mm 7.5X 168mm (6.8") (1.32")	27mm 11.25X 105mm (6.8") (1.05")	13mm 22.5X 44mm (4.1") (1.7")	10mm 30X 34mm (3.9") (3.9")						
20X	12mm 20X 100mm (.47")	40mm 6X 247mm (4") (1.56")	24mm 10X 168mm (6.8") (1.94")	16mm 15X 105mm (6.8") (1.05")	8mm 30X 44mm (4.1") (3.1")	6mm 40X 34mm (1.7") (1.3")						
30X	7mm 30X 100mm (.29")	24mm 9X 247mm (4") (1.95")	15mm 15X 168mm (6.8") (1.95")	10mm 22.5X 105mm (6.8") (1.32")	5mm 45X 44mm (4.1") (1.9")	3.7mm 60X 34mm (1.3") (1.3")						

StereoZoom 4 .7X to 3X POWER POD

Wide Field Eyespecies	Without Supplementary Lens		With .3X Lens		With .5X Lens		With .75X Lens		With 1.5 Lens		With 2X Lens	
	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Diam. Mag. Dist.
10X	10mm 2X 100mm (.39")	93mm 2.1X 247mm (4") (3.7")	56mm 3.5X 168mm (6.8") (4.1")	36mm 5.25X 105mm (6.8") (5.5")	19mm 10.5X 44mm (7.8") (7.8")	16mm 14X 34mm (5.5") (5.5")						
12.5X	8.4mm 2.5X 100mm (.39")	93mm 2.8X 247mm (4") (4.1")	56mm 4.25X 168mm (6.8") (6.8")	36mm 6.5X 105mm (6.8") (6.8")	19mm 12X 44mm (7.8") (7.8")	16mm 16X 34mm (5.5") (5.5")						
15X	8.4mm 3X 100mm (.39")	93mm 3.2X 247mm (4") (4.4")	56mm 4.8X 168mm (6.8") (7.2")	36mm 8.5X 105mm (6.8") (8.5")	19mm 13X 44mm (7.8") (7.8")	16mm 17X 34mm (5.5") (5.5")						
15X Ultra	10mm 3.5X 100mm (.39")	93mm 3.5X 247mm (4") (4.4")	56mm 5.25X 168mm (6.8") (7.2")	36mm 10.5X 105mm (6.8") (10.5")	19mm 16X 44mm (7.8") (7.8")	16mm 21X 34mm (5.5") (5.5")						
20X	12mm 4X 100mm (.47")	93mm 4.2X 247mm (4") (5.3")	56mm 6.25X 168mm (6.8") (8.2")	36mm 12.5X 105mm (6.8") (12.5")	19mm 18X 44mm (7.8") (7.8")	16mm 24X 34mm (5.5") (5.5")						
30X	10mm 5X 100mm (.41")	93mm 5.2X 247mm (4") (6.1")	56mm 7.25X 168mm (6.8") (9.2")	36mm 15.5X 105mm (6.8") (15.5")	19mm 21X 44mm (7.8") (7.8")	16mm 28X 34mm (5.5") (5.5")						

StereoZoom 5 .8X to 4X POWER POD

	Without Supplementary Lens	With .3X Lens	With .5X Lens	With .75X Lens	With 1.5 Lens	With 2X Lens
Wide Field Eyepieces	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.
10X	25mm 8X 100mm (.8") (4") to to 5mm 40X (.20")	33mm 2.4X 247mm (3.25") (9.7") to to 16mm 12X (.59")	50mm 4X 188mm (2.75") (6.6") to to 10mm 20X (.39")	168mm 6X 105mm (1.65") (4.1") to to 7mm 30X (.26")	17mm 12X 44mm (1.10") (4.1") to to 3.3mm 60X (.13")	12.5mm 16X 34mm (1.49") (1.3") to to 2.5mm 80X (.10")
	21mm 10X 100mm (.8") (4") to to 4.2mm 50X (.16")	69mm 3X 247mm (2.75") (9.7") to to 14mm 15X (.59")	42mm 5X 168mm (1.65") (6.6") to to 8.4mm 25X (.33")	28mm 7.5X 105mm (1.10") (4.1") to to 5.6mm 37.5X (.22")	14mm 15X 44mm (1.10") (4.1") to to 2.8mm 75X (.11")	10.5mm 20X 34mm (1.41") (1.3") to to 2.1mm 100X (.08")
	21mm 12X 100mm (.8") (4") to to 4.2mm 60X (.16")	69mm 3.6X 247mm (2.75") (9.7") to to 14mm 18X (.59")	42mm 6X 168mm (1.65") (6.6") to to 8.4mm 30X (.33")	28mm 9X 105mm (1.10") (4.1") to to 5.6mm 45X (.26")	14mm 18X 44mm (1.50") (4.1") to to 2.8mm 90X (.11")	10.5mm 24X 34mm (1.41") (1.3") to to 2.1mm 120X (.08")
15X	25mm 12X 100mm (.98") (4") to to 5mm 60X (.20")	83mm 3.6X 247mm (3.25") (9.7") to to 16mm 18X (.65")	50mm 6X 168mm (1.65") (6.6") to to 10mm 30X (.39")	33mm 9X 105mm (1.31") (4.1") to to 7mm 45X (.26")	17mm 18X 44mm (1.66") (4.1") to to 3.3mm 90X (.13")	12.5mm 24X 34mm (1.49") (1.3") to to 2.5mm 120X (.10")
	15mm 16X 100mm (.59") (4") to to 3mm 80X (.12")	50mm 4.8X 247mm (1.97") (9.7") to to 10mm 24X (.39")	30mm 8X 168mm (1.16") (6.6") to to 6mm 40X (.24")	20mm 12X 105mm (1.10") (4.1") to to 4mm 60X (.16")	10mm 24X 44mm (1.39") (4.1") to to 2mm 120X (.08")	7.5mm 32X 34mm (1.77") (30") (1.3") to to 1.5mm 160X (.06")
20X	15mm 24X 100mm (.36") (4") to to 1.8mm 120X (.07")	30mm 7.2X 247mm (1.18") (9.7") to to 6mm 36X (.24")	18mm 12X 168mm (1.72") (6.6") to to 3.7mm 60X (.14")	12mm 18X 105mm (1.48") (4.1") to to 2.4mm 90X (.10")	6mm 36X 44mm (1.24") (4.1") to to 1.2mm 180X (.05")	4.5mm 48X 34mm (1.18") (1.3") to to 3mm 240X (.04")
30X	9mm 24X 100mm (.36") (4") to to 1.8mm 120X (.07")	30mm 7.2X 247mm (1.18") (9.7") to to 6mm 36X (.24")	18mm 12X 168mm (1.72") (6.6") to to 3.7mm 60X (.14")	12mm 18X 105mm (1.48") (4.1") to to 2.4mm 90X (.10")	6mm 36X 44mm (1.24") (4.1") to to 1.2mm 180X (.05")	4.5mm 48X 34mm (1.18") (1.3") to to 3mm 240X (.04")

StereoZoom 7 1X to 7X POWER POD

	Without Supplementary Lens	With .25X Lens	With .5X Lens	With 1.5 Lens	With 2X Lens
Wide Field Eyepieces	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.	Field Total Work Diam. Mag. Dist.
10X	20mm 10X 76mm (.79") (3") to to 2.8mm 70X (.11")	80mm 2.5X 266mm (3.1") (10.5") to to 11mm 17.5X (.45")	40mm 5X 127mm (1.6") (5") to to 5.7mm 35X (.22")	13mm 15X 32mm (1.52") (5.2") to to 1.9mm 105X (.07")	10mm 20X 14mm (1.25") (3.9") (56") to to 1.4mm 140X (.05")
	16.8mm 12.5X 76mm (.66") (3") to to 2.4mm 87.5X (.09")	67mm 3.1X 266mm (2.6") (10.5") to to 10mm 22X (.38")	34mm 6.25X 127mm (1.3") (4.4") to to 5mm 43.75X (.19")	11mm 19X 32mm (1.44") (4.1") to to 1.8mm 131X (.06")	7.5mm 25X 14mm (1.25") (3.3") (56") to to 1.2mm 175X (.05")
	14mm 15X 76mm (.55") (3") to to 2.0mm 105X (.08")	56mm 3.75X 266mm (2.2") (10.5") to to 8mm 26.25X (.31")	28mm 7.5X 127mm (1.1") (5") to to 4mm 52.5X (.16")	9.3mm 22.5X 32mm (1.37") (4.1") to to 1.3mm 157.5X (.05")	7mm 30X 14mm (1.25") (2.8") (56") to to 1mm 210X (.04")
15X	20mm 15X 76mm (.79") (3") to to 2.8mm 105X (.11")	80mm 3.75X 266mm (3.1") (10.5") to to 11mm 26.25X (.45")	40mm 7.5X 127mm (1.6") (5") to to 5.7mm 52.5X (.22")	13mm 22.5X 32mm (1.52") (4.1") to to 1.9mm 157.5X (.10")	10mm 30X 14mm (1.25") (3.9") (56") to to 1.4mm 210X (.05")
	12mm 20X 76mm (.47") (3") to to 1.7mm 140X (.07")	88mm 5X 266mm (1.19") (10.5") to to 7mm 35X (.27")	24mm 10X 127mm (1.04") (5") to to 3.4mm 70X (.13")	8mm 30X 32mm (1.37") (4.1") to to 1.1mm 210X (.04")	6mm 40X 14mm (1.25") (2.4") (56") to to 9mm 280X (.03")
20X	7.3mm 30X 76mm (.29") (3") to to 1.0mm 210X (.04")	29mm 7.5X 266mm (1.11") (10.5") to to 4.2mm 52.5X (.16")	15mm 15X 127mm (1.58") (5") to to 2.1mm 105X (.08")	5mm 45X 32mm (1.19") (4.1") to to 7mm 315X (.03")	3.7mm 60X 14mm (1.25") (1.4") (56") to to 5mm 420X (.02")
	7.3mm 30X 76mm (.29") (3") to to 1.0mm 210X (.04")	29mm 7.5X 266mm (1.11") (10.5") to to 4.2mm 52.5X (.16")	15mm 15X 127mm (1.58") (5") to to 2.1mm 105X (.08")	5mm 45X 32mm (1.19") (4.1") to to 7mm 315X (.03")	3.7mm 60X 14mm (1.25") (1.4") (56") to to 5mm 420X (.02")
30X	7.3mm 30X 76mm (.29") (3") to to 1.0mm 210X (.04")	29mm 7.5X 266mm (1.11") (10.5") to to 4.2mm 52.5X (.16")	15mm 15X 127mm (1.58") (5") to to 2.1mm 105X (.08")	5mm 45X 32mm (1.19") (4.1") to to 7mm 315X (.03")	3.7mm 60X 14mm (1.25") (1.4") (56") to to 5mm 420X (.02")

Warranty For StereoZoom® Series Microscopes

SCOPE AND DURATION OF WARRANTY

Seller warrants to buyer that the Leica products to be delivered hereunder will (i) be free from defects in material, manufacturing workmanship, and title, and (ii) conform to Seller's applicable product descriptions and specifications, if any, contained in or attached to Seller's quotation. If no product descriptions or specifications are contained in or attached to the quotation, Seller's applicable product descriptions and specifications in effect on the date of shipment shall apply. The criteria for all testing shall be Seller's applicable product specifications utilizing factory-specified calibrations and test procedures and instruments.

All product warranties, except the warranty of title, and all remedies for warranty failures are limited in time as shown in the table below.

PRODUCT WARRANTED	DURATION OF WARRANTY PERIOD
STEREOZOOM® SERIES MICROSCOPES	12 MONTHS

Any product or part furnished without charge to Buyer during the warranty period to correct a warranty failure shall be warranted to the extent of the unexpired term of the warranty applicable to the repaired or replaced item.

The warranty period shall commence on the date the product is sold to the Buyer. The warranty period shall be 12 months from the date of purchase.

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Except as set forth in any applicable indemnity, the foregoing warranty is exclusive and in lieu of all other warranties, whether written, oral, express, implied or statutory. NO IMPLIED STATUTORY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. Warranty coverage does not include consumable supplies such as lamps, bulbs, charts or cards. Warranty coverage does not include any defect or performance deficiency (including failure to conform to product descriptions or specifications) which results, in whole or in part, from (1) negligent storage or handling of the product by the Buyer, its employees, agents or contractors, (2) failure of Buyer to prepare or maintain the site or provide power requirements or operating environmental conditions in compliance with any applicable instructions or recommendations of Seller, (3) adverse power conditions or environmental conditions such as erratic power, voltage spikes, RF or magnetic interference, HVAC failure or other causes beyond the reasonable control of the Seller, (4) absence of any product, component, or accessory recommended by Seller but omitted or removed at Buyer's direction, (5) any design, specification, or instruction furnished by

Buyer, its employees, agents or contractors, (6) any alteration of the product by persons other than Seller, (7) combining Seller's product with any product furnished by others where such combination causes failure of or degradation to performance of Seller's product, (8) combining incompatible products of Seller, (9) improper maintenance of the product, or failure to comply with any applicable instructions or recommendations of Seller, or (10) acts of God, acts of civil or military authority, fires, floods, strikes or other labor disturbances, war, riot, or other causes beyond the reasonable control of the Seller. Seller does not warrant products of others which are not included in Seller's published product catalog.

BUYER'S REMEDIES

If Seller determines that any product fails to meet any warranty during the applicable warranty period, Seller shall correct any such failure by either, at its option, repairing, adjusting, or replacing without charge to Buyer any defective or nonconforming product. Seller shall have the option to either furnish new or exchange replacement parts or assemblies provided the Buyer obtain prior authorization to return the product to one of the Leica Service Centers. Warranty service during the applicable warranty period will be performed without charge to Buyer during Seller's normal business hours. Warranty service will be provided by having the item shipped to a Leica Technical Services facility, along with a copy of the original invoice under which the item was purchased. While every effort will be made to render services promptly, this does not include any guarantees of specific response time or up-time, which may be available for purchase under separate contract. Subject to the availability of personnel, after-hours service is available upon request at an additional charge. The remedies set forth herein are conditioned upon Buyer promptly notifying Seller within the applicable warranty period of any defect or nonconformance.

The preceding paragraphs set forth Buyer's exclusive remedies and Seller's sole liability for claims based on the failure of the products to meet any warranty, tort (including negligence and strict liability) or otherwise, and however instituted, and upon the expiration of the applicable warranty period, all such liabilities shall terminate. In no event shall Seller be liable for special or consequential damages.

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Improvements

Improvements are constantly being made in all Leica products to provide better performance, greater convenience of use, longer life, and improved appearance.

Often the nature of such improvements will be self evident and will not require an explanation.

If the improvements affect use or maintenance procedures, supplementary instructions will be included in your manual or with the instrument.

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