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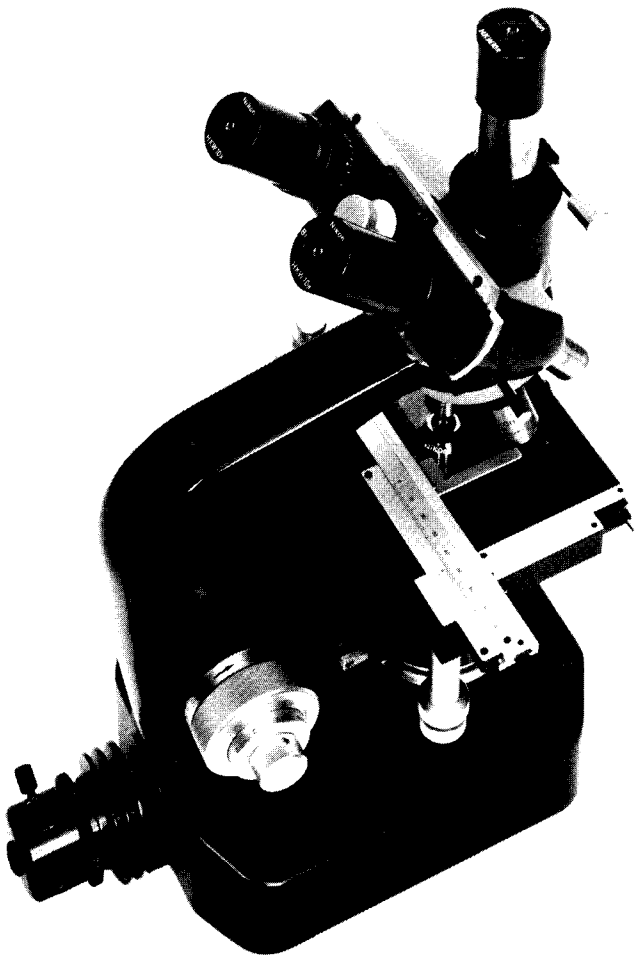
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B

Nikon

Microscope Catalog



Nikon

How To Use This Catalog

Certain often-used complete microscope configurations have been assigned specific product numbers to facilitate ordering. Other more unusual but important configurations are suggested in this catalog, but any desired assembly can be made from our large selection of interchangeable accessories.

Key to Nomenclature

First letter denotes type of Body
Second letter denotes type of interchangeable Body Tube
Third letter denotes type of interchangeable Stage
Fourth letter or letter group (following hyphen) denotes type of Microscope Base

Examples:

SBR-Cb/D6 (S-Cb stand with 6-volt dimmer base; "B" binocular body tube; "R" stage)
SUP-Kt (S-Kt "COMPACT" stand; "U" trinocular body tube; "P" plain stage with no mechanical movement)
LFR-Ke Photoscope (L-Ke Stand; "F" trinocular body tube; "R" stage; flatfield objectives)

Prefix Designations for Nikon Objectives

Plan — Indicates flat field
M — Metallurgical designed for use with opaque specimens
NCG — (No cover glass) for use with uncovered specimens in transmitted light
P — Strain free, for polarizing use
Plan P — Flat field, strain free
L — Long working distance
W — Water immersion
PM — Strain free, metallurgical type
DLL — Phase — dark contrast, light background
DM — Phase — dark contrast, medium background
BM — Phase — bright contrast, medium background
DLL-F — Phase — dark contrast light — fluorescence
DM-F — Phase — dark contrast medium — fluorescence
U — Long-working-distance, strain-free; may be used with 4-axis stage.

Warranty and Service

Nikon Microscopes, attachments and accessories are warranteed against defective material and workmanship under normal use and application for a period of 5 years from date of invoice to the original purchaser.

Service and repairs are accomplished by expert factory-trained technicians in our Garden City, Long Island offices. Repairs must be sent prepaid, and must be clearly marked "Nikon Instrument Group — Attn: Repair Dept." Please include a note describing the malfunction. If possible, please furnish the date of purchase and the invoice number.

Ordering Information

This Scientific Microscope Catalog with accompanying Price List replaces and supersedes all previous Nikon Microscope Price Lists.

Detailed brochures are available on request for specific models. The arrangement of this Catalog is designed to facilitate identification and ordering of equipment.

Please use product numbers whenever possible to avoid errors.

A national network of competent factory trained representatives is ready to assist you in the proper selection, installation and use of the equipment.

ALL PRICES ARE SUGGESTED LIST PRICES, F.O.B. GARDEN CITY, N.Y.

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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San Francisco, California 94105
(415) 362-7484

Mid West
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Niles, Illinois 60648
(312) 647-8100

New England
36 Washington Street
Wellesley Hills, Massachusetts 02181
(617) 969-8600

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NIKON Microscopes offer brightfield, darkfield, phase contrast, interference phase, differential interference, and polarization, as well as fluorescence capabilities. Teaching head attachments, projection screen attachments, projection prisms, drawing tubes and a large variety of illuminators are also available. The wide choice of options allows configurations that are tailored to the user's specific requirements.

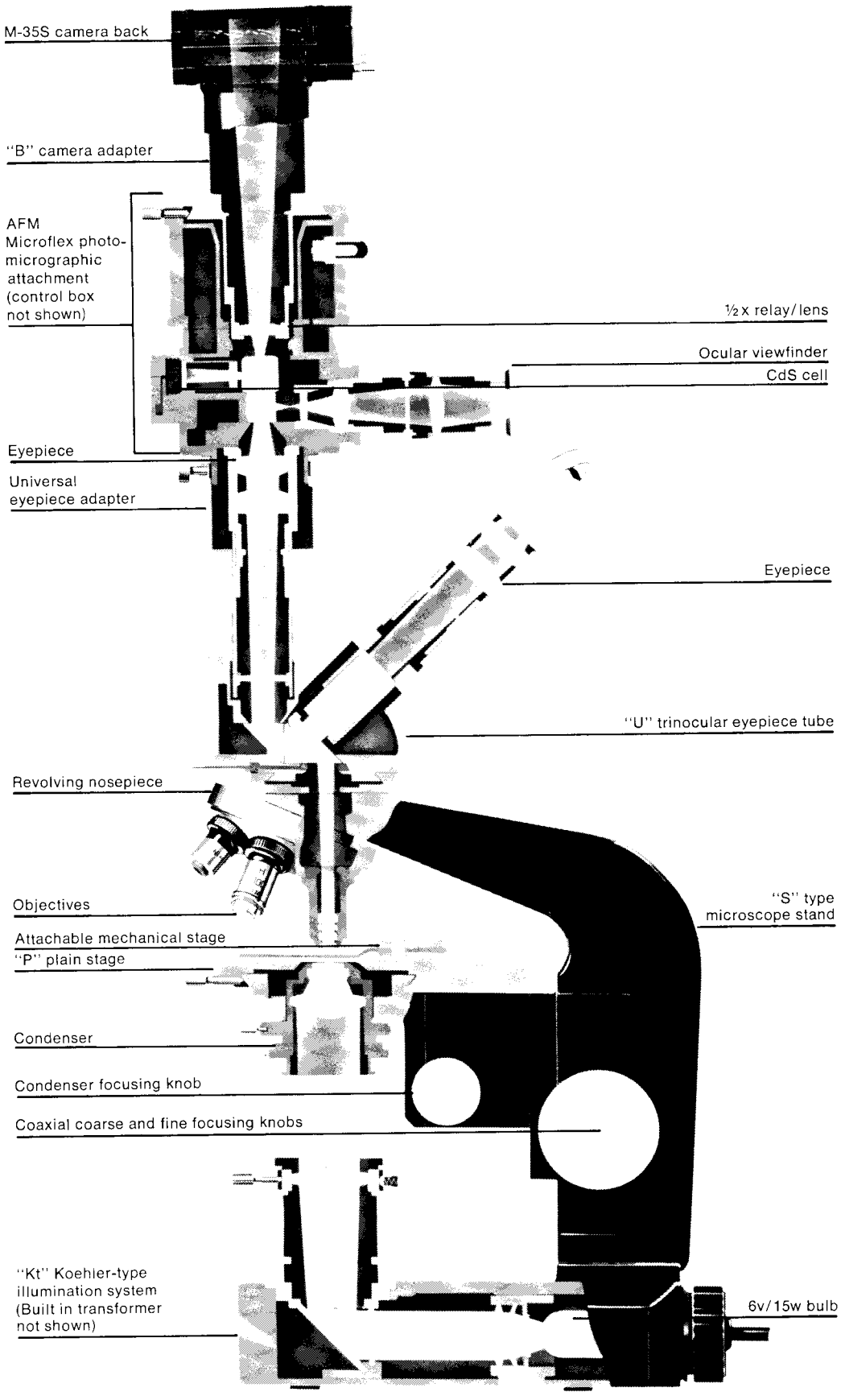
Modularity is the basic design concept of NIKON Microscopes. The stands can be equipped with interchangeable body tubes, eyepieces, objectives, and a wide array of attachments and accessories.

NIKON's worldwide reputation as the leader in photographic equipment is reflected in the comprehensiveness of our fully modular photomicro / photomacrographic units and attachments. There are probably as many NIKON Microflex photomicrographic attachments in use today on microscopes of other manufacture as the combined total of those manufacturers' own photo units. No better testimonial can be found.

Today, the various NIKON models offer unsurpassed optical quality, innovative design combined with rugged reliability, and availability at very competitive prices.

The diagram to the right shows a representative model NIKON Microscope equipped as a photomicroscope with trinocular body tube and AFM Automatic Photomicrographic Attachment. When ordering a complete microscope, it should be noted that all of the basic components indicated should be included in order to have a functional instrument.

Components of the Nikon Microscope Model S-Kt Compact

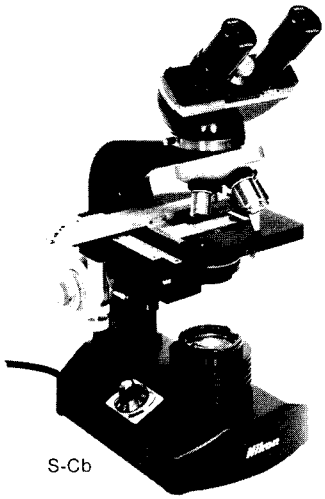


Guide to Selection

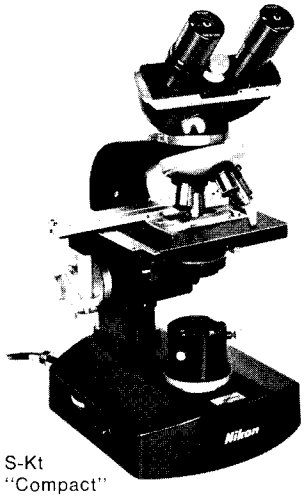


CL
Classic

CL Classic
Designed primarily as an advanced school microscope, the Classic features "student proof" locked-in objectives, eyepieces, and condenser. However, its first quality optics and full-sized stand also qualify it as a budget priced laboratory microscope.



S-Cb



S-Kt
"Compact"

"S" Series

The excellent and versatile "S" type stand has a large, dust-proof ball-bearing nosepiece with internal parcentric stops, and coaxial coarse and fine focusing knobs. It also includes the extremely useful pre-set auto focus lever. The entire range of modular accessories that has made NIKON Microscopes justly famous for their amazing versatility can be used on the "S" series. These are the clinical and laboratory microscope stands of choice throughout the world.

S-Cb
Its base has a built-in substage illuminator with double collector lens system that insures bright, even illumination throughout the entire magnification range. The S-Cb illuminator is now available in 4 versions:

1. 6 volt/15 watt — offers the advantage of increased light output with less heat from the low voltage bulb. Has built-in transformer and continuously variable intensity control.

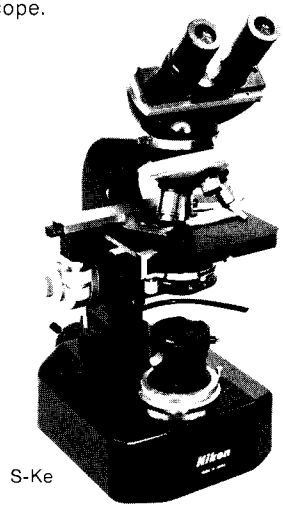
2. A new 6 volt model using a 20 watt quartz-halogen lamp is now available. It offers extra high light intensity.

3. 115 volt with dimmer — offers combined on/off switch and continuously variable solid-state dimmer. Uses half-silvered 115v/20w reflector bulb.

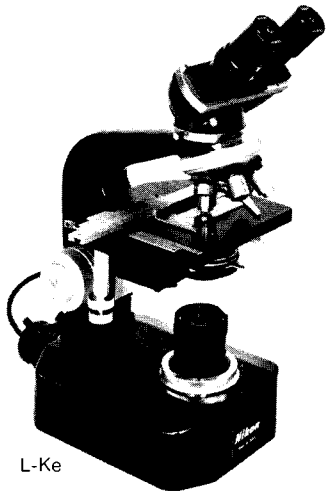
4. 115 volt line cord—this budget unit uses the 115v/20w reflector bulb, and on/off switch, but has no intensity control.

S-Kt "Compact"
Features the "S" stand on a superlative Koehler-type illuminating base with a centerable field diaphragm for optimum glare-free illumination. Uses a pre-centered 6v/15w flat-filament bulb; built-in transformer and voltage meter with continuously variable rheostat control. Detachable power cord. This is the finest of clinical and laboratory type microscopes.

S-Ke
The "S" stand on our true Koehler research quality illumination base, with a powerful 6v/30w illuminator using a 6v/5a metered variable external transformer. A superb basic research microscope.



S-Ke

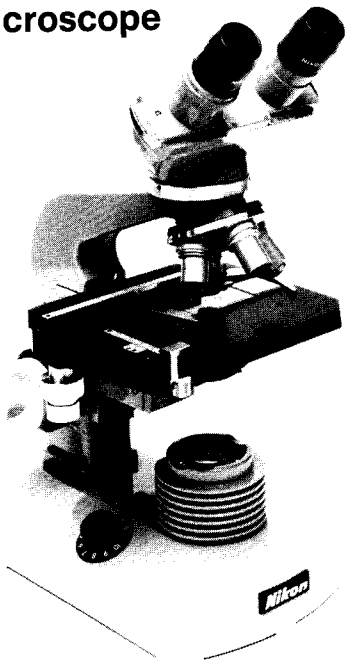


L-Ke

L-Ke
An advanced research microscope. Uses the same Koehler illumination base and 6v/30w system as the S-Ke. However, the L-Ke stand has a longer range of focusing travel (for oversized specimens); centerable focusing condenser mount; a dovetailed 5-place removable nosepiece. This is especially recommended for brightfield/phase contrast microscopy; each set of objectives can remain mounted on its own nosepiece for rapid interchange. A 12v/100w Quartz-Halogen illumination source is available for models S-Ke and L-Ke, and is recommended when optimum illumination is required for photomicrography.

Nikon

CL "Classic" School Microscope



The Nikon CL "CLASSIC" Microscope has the following specifications:

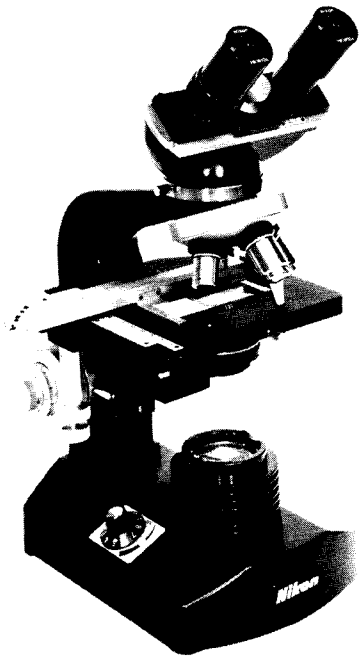
- Binocular Body Tube with 45° inclination; locked-in; rotatable 360°.
- Wide Field High Eyepoint HW10x eyepieces; locked in.
- 4-place multi ball-bearing nosepiece.
- Achromat color-coded objectives, all locked-in and parfocal: 4x, 10x, 40x, retractable and 100x (oil) retractable.
- Rectangular stage plate, 130x 135mm surface, with locked-on detachable low-position coaxial mechanical stage movement: 26x 76mm.
- Centerable Abbe 2 lens condenser with iris diaphragm, n.a. 1.25, on rack and pinion focusing, locked-in.
- Co-axial coarse and fine focusing with knobs on both sides of stand.
- Stable base 6¾" x 9"; will fit into standard size storage cabinets.
- Built-in substage illuminator 115v/30w with double-lens collector system.
- Build-in solid state dimmer, continuously variable, with on/off switch.
- Built-in 3 wire UL/CAS approved power cord.
- Plastic dust cover.
- Immersion oiler.
- Replacement 110v/20w half-silvered bulb.

77400	CL "CLASSIC" Binocular Microscope, as above, with mechanical stage
77401	CL "CLASSIC" Binocular Microscope, with plain stage
77402	CL "CLASSIC" Monocular Microscope, as above but with locked-in 45° inclined monocular body tube, rotatable 360°; locked-in wide-field high eyepoint HW10x eyepiece, mechanical stage
77403	CL "CLASSIC" Monocular Microscope, with plain stage
77410	Carrying case
77427	110v/20w Half silvered reflector bulb, bayonet base (replacement)
76910	Daylight, clear light blue filter, 33mm
76960	Eyepiece pointer
76970	Swing-out filter holder (optional)
77413	Tool for removing objectives and eyepieces

NOTE: the CL "CLASSIC" is a unique new addition to the array of Nikon Microscopes. It is a departure from the basic Nikon modular design concept, because the CL is furnished as a complete unit.

For Phase Contrast accessories, see listings on page 26. For Dark Field, see Condenser listings, page 21 and Objective listings, page 22.

S-Cb Microscope



S-Cb Microscope Series

The S-Cb is one of the dependable Nikon "S" series of laboratory microscopes.

The S-Cb in-base substage illuminator has a double collector lens system that insures bright, even illumination throughout the entire magnification range. The S-Cb is available in 5 models, allowing selection from 4 different illuminators to match performance requirements with the budget, as well as one model without any illumination system, for use with Episcopic or external illuminators. All have the 4-place Nikon ballbearing nosepiece.

77526
S-Cb/D115 Stand

Offers a combined on/off switch and continuously variable solid-state dimmer. Supplied with two 115v/20w reflector bulbs, #77427.

77513
S-Cb/D6 Stand

6 volt/20 watt: offers the advantage of increased light output from the low voltage bulb. Has built-in transformer and continuously variable intensity control. Supplied with two 6v/18w bulbs, #77907.

77558
S-Cb/115 Stand

This budget unit uses the 115v/20w reflector bulb and on/off switch. Has line cord, but no intensity control. Supplied with two #77427 bulbs.

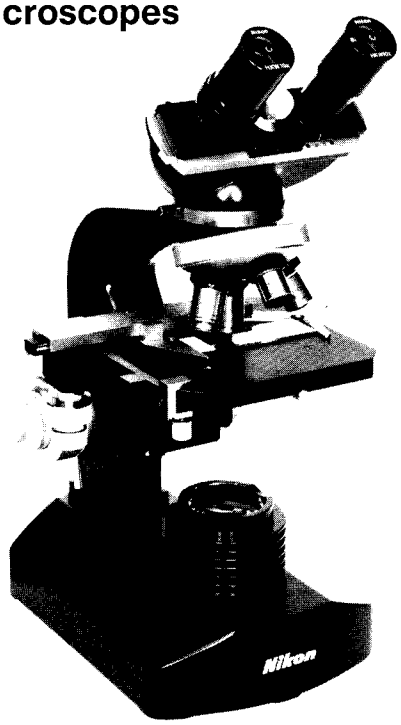
77540
S-Cb/D6QH Stand

6 volt/20 watt quartz halogen: offers the advantage of even greater light intensity than the 6 volt tungsten model. Especially recommended for phase contrast microscopy. Has a built-in transformer and continuously variable solid-state intensity control. Supplied with one quartz-halogen 6v/20w bulb, #77528.

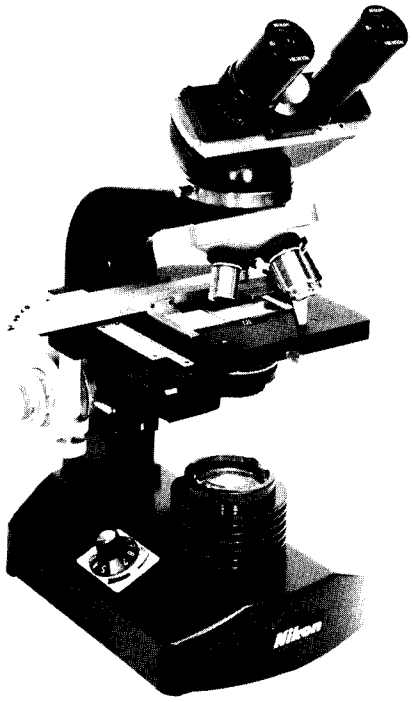
77538
S-Cb/E Stand

This fifth version of the S-Cb has had all of the in-base optical and electrical illuminator components removed. The stand is designed for special applications such as the Epi illuminator for on-axis illumination for reflected light microscopy.

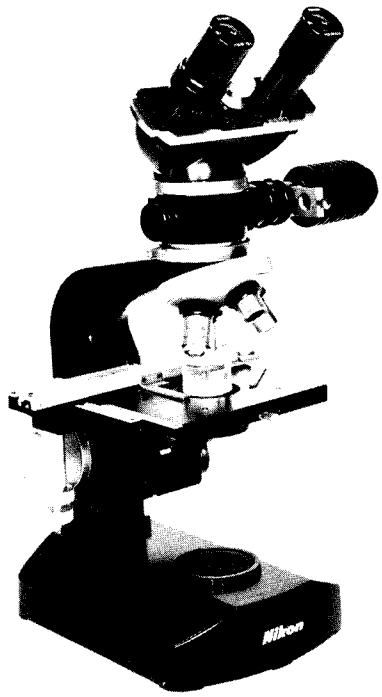
S-Cb Microscopes



SBP-Cb/115
with Ge mechanical stage



SBR-Cb/D6QH
with Phase Contrast



SBR-Cb/E with
EPI illuminator

Accessories For S-Cb

77529	Wooden case for Model S-Cb
77773	Ge attachable low-position coaxial mechanical stage, right hand model (Requires P stage)
77774	Ge stage, as above, left hand model (Requires P stage)
NOTE:	**77773 and 77774 are for use with "P" stage models**
77427	15v/20w reflector bayonet base bulb (replacement) for S-Cb/D115, S-Cb/115 and Classic
77907	6v/3a bayonet base bulb (replacement) for S-Cb/D6
77528	6v/20w quartz-halogen bulb (replacement) for S-Cb/D6 QH
77530	Quartz-halogen conversion adapter plug (to convert #77513 stand into S-Cb/D6 QH)
NOTE:	**For complete S-Cb Microscope assemblies, see page 6.**

NOTE: **For complete listings of optics, see pages 21-26. For complete listings of photomicrographic accessories, see pages 28-32.**

For S-Cb Brightfield Configurations, see page 6

S-Cb Suggested Configuration for Phase Contrast Microscopy

NOTE:	Due to light level requirements with phase contrast, the low voltage 6 volt S-Cb 20 watt quartz-halogen is recommended
77540	S-Cb/D6 QH 6 volt 20 watt quartz-halogen stand with 4-place nosepiece
77750	Binocular body tube
77858	HKW-10x eyepieces, paired
77765	"R" rectangular mechanical stage
77040	Phase turret condenser with centering telescope, green and heat absorbing filters
77020	DLL-10x phase contrast objective
77022	DLL-120x phase contrast objective
77025	DLL-40x phase contrast objective
77027	DLL-100x (oil) phase contrast objective
77900	Vinyl dust cover
76997	Lens paper
77528	Spare 6v/20w quartz-halogen bulb

S-Cb Suggested Configuration for Reflected Light Microscopy

77538	S-Cb/E stand less illuminator with 4-place nosepiece
77750	Binocular body tube
77858	HKW-10x eyepieces, paired
77765	"R" rectangular mechanical stage
76994	Epi illuminator with 6v/20w transformer
77832	M5x achromat objective
77833	M10x achromat objective
77834	M20x achromat objective
77837	M40x achromat objective
76972	Vinyl dust cover
76997	Lens paper

NOTE: The most often used configuration is the SBR-Cb with binocular head and "R" rectangular mechanical stage. These are marked with an asterisk (*).

S-Cb MICROSCOPE Series

COMPLETE ASSEMBLY BREAKDOWNS

COMPONENT		S-Cb STANDS				BODY TUBES		STAGES		EYEPIECES		ACHROMAT OBJECTIVES				PLAN ACHROMAT OBJECTIVES				CONDENSERS	ACCESSORIES					
		S-Cb/D115 (77526)	S-Cb/115 (77558)	S-Cb/D6 (77513)	S-Cb/D6 QH (77540)	Inclined Mono. Tube (77740)	Binocular Tube (77750)	R Stage (77765)	P Stage (77775)	Paired Eyepieces HKW-10x (77858)	HKW-10x Eyepiece (77857)	4x Achromat Obj. (77790)	10x Achromat Obj. (77795)	40x Achromat Obj. (77810) ▲	†100x Achromat Obj. *(77820) ▲	4x Plan Achromat Obj. (77794)	10x Plan Achromat Obj. (77796)	40x Plan Achromat Obj. (77806) ▲	†100x Plan Achromat Obj. (77821) ▲	Abbe N Condenser (77890)	Filter, Clear Blue (76914)	Filter, Clear Blue (76910) ("CL")	Vinyl Dust Cover (77900)	Lens Paper (76997)	Spare 6v Bulb (77907)	Spare 115v Bulb (77427)
S-Cb/D115 (Dimmer 115v) COMPLETE ASSEMBLIES																										
SIPCb/D115 Monocular, P Stage	77705	•				•			•		•	•	•	•	•					•		•	•	•		•
SIRCb/D115 Monocular, R Stage	77706	•				•		•			•	•	•	•	•					•		•	•	•		•
SBPCb/D115 Binocular, P Stage	77707	•					•		•	•		•	•	•	•					•		•	•	•		•
*SBRCb/D115 Binocular, R Stage	77708	•					•	•		•		•	•	•	•					•		•	•	•		•
SBPCb/D115 Flatfield Binocular, P Stage	77709	•					•		•	•						•	•	•	•	•		•	•	•		•
SBRCb/D115 Flatfield Binocular, R Stage	77711	•					•	•		•						•	•	•	•	•		•	•	•		•
S-Cb/115 (No Dimmer 115v/20w) COMPLETE ASSEMBLIES																										
SIPCb/115 Monocular, P Stage	77712		•			•			•		•	•	•	•	•					•		•	•	•		•
SIRCb/115 Monocular, R Stage	77713		•			•		•			•	•	•	•	•					•		•	•	•		•
SBPCb/115 Binocular, P Stage	77714		•				•		•	•		•	•	•	•	•	•	•	•	•		•	•	•		•
*SBR/Cb/115 Binocular, R Stage	77715		•				•	•		•		•	•	•	•	•	•	•	•	•		•	•	•		•
S-Cb/D6 (Dimmer 6v/18w) COMPLETE ASSEMBLIES																										
SIPCb/D6 Monocular, P Stage	77718			•		•			•		•	•	•	•	•					•	•		•	•	•	
SIRCb/D6 Monocular, R Stage	77719			•		•		•			•	•	•	•	•					•	•		•	•	•	
SBPCb/D6 Binocular, P Stage	77720			•			•		•	•		•	•	•	•					•	•		•	•	•	
*SBRCb/D6 Binocular, R Stage	77721			•			•	•		•		•	•	•	•					•	•		•	•	•	
SBPCb/D6 Flatfield Binocular, P Stage	77722			•			•		•	•						•	•	•	•	•	•		•	•	•	
SBRCb/D6 Flatfield Binocular, R Stage	77723			•			•	•		•						•	•	•	•	•	•		•	•	•	
S-Cb/D6 (Quartz-Halogen 6v/20w Dimmer) COMPLETE ASSEMBLIES																										
SIPCb/D6 Q.H. Monocular, P Stage	77541				•	•			•		•	•	•	•	•					•	•		•	•		
SIRCb/D6 Q.H. Monocular, R Stage	77542				•	•		•			•	•	•	•	•					•	•		•	•		
SBPCb/D6 Q.H. Binocular, P Stage	77543				•		•		•	•		•	•	•	•					•	•		•	•		
*SBRCb/D6 Q.H. Binocular, R Stage	77544				•		•	•		•		•	•	•	•					•	•		•	•		
SBPCb/D6 Q.H. Flatfield Binocular, P Stage	77545				•		•		•	•						•	•	•	•	•	•		•	•		
SBRCb/D6 Q.H. Flatfield Binocular, R Stage	77546				•		•	•		•						•	•	•	•	•	•		•	•		

*All 100x objectives are furnished with immersion oil.

NOTE: For use with "P" stage models, the Ge stage is recommended.

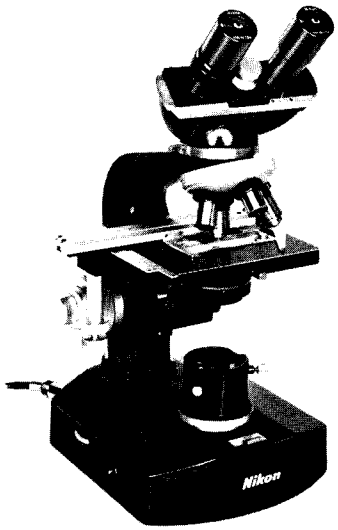
77773 Ge attachable low-position coaxial mechanical stage, **right hand model.**

77774 Ge attachable low-position coaxial mechanical stage, **left hand model.**

S-Kt Compact

The S-Kt "Compact" microscope incorporates a new design feature: the "S" type stand is mounted on the "Kt" base that contains a built-in transformer. The 6v/15w Koehler-type illuminating system uses a flat filament precentered bulb, which eliminates the need for lamp centration. A centerable iris-type field diaphragm and built-in voltmeter are also located in the Kt base. The electrical cord is detachable.

The S-Kt is the finest Nikon clinical type of instrument. It accepts virtually all of the "S" modular accessories and attachments, thereby lending itself to many varied configurations.



SBR-KT with Koehler-type illuminating system.

S-Kt Microscope Stands

77517	S-Kt "COMPACT" Stand only with 4-place nosepiece and built-in transformer with 2 bulbs (77903)
77524	S-Kt "COMPACT" Stand with 5-place nosepiece

Accessories for S-Kt

77903	6v/15w Precentered Bulb for Kt illuminator (replacement)
77523	Carrying case
77773	Ge attachable low-position coaxial mechanical stage, right hand model. (Requires P stage)
77774	Ge stage, as above, left hand model. (Requires P stage)

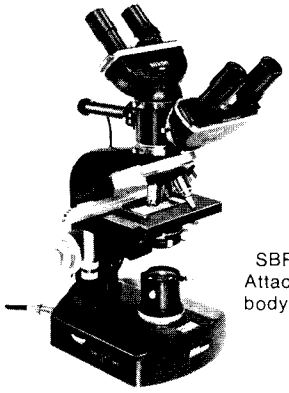
NOTE: 77773 and 77774 are recommended for use with "P" stage models listed below

S-Kt "Compact" Assemblies (See Chart Below)

77531	SBP-Kt (Binocular with P stage)
77532	SBR-Kt (Binocular with R stage)
77535	SUR-Kt (Trinocular with R stage)
77533	SBP-Kt FLAT FIELD (Binocular with P stage)
77534	SBR-Kt FLAT FIELD (Binocular with R stage)
77536	SUR-Kt FLAT FIELD (Trinocular with R stage, Achromat condenser)

S-Kt Suggested Configuration for Dual Teaching Microscope Binocular

77517	S-Kt "Compact" stand
77150	Teaching head attachment with transformer
77750	"B" binocular body tube **(2 required)**
77858	HKW-10x eyepieces, paired **(2 pair required)**
77765	"R" rectangular mechanical stage
77790	4x achromat objective
77795	10x achromat objective
77810	40x achromat objective
77820	100x (oil) achromat objective
77890	Abbe N condenser
76970	Swing-out filter holder
76914	Clear blue filter, 33mm
76972	Vinyl dust cover (Ke type)



SBR-KT with Teaching Head Attachment and dual binocular body tubes.

S-Kt Suggested Configuration for Phase Contrast Microscopy

77517	S-Kt "Compact" stand
77750	"B" binocular body tube
77858	HKW-10x eyepieces, paired
77765	"R" rectangular mechanical stage
77040	Phase turret condenser with centering telescope, green and heat absorbing filters
77020	DLL-10x phase contrast objective
77022	DLL-20x phase contrast objective
77025	DLL-40x phase contrast objective
77027	DLL-100x (oil) phase contrast objective
76970	Swing-out filter holder
77900	Vinyl dust cover

NOTE: For complete listings of optics, see pages 21-26. For complete listings of photomicrographic accessories, see pages 28-32.

S-Kt Complete Assembly Breakdowns

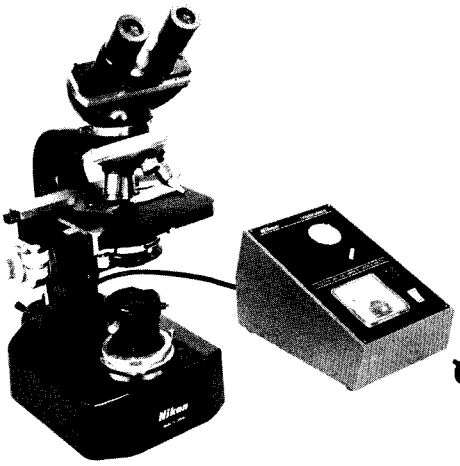
	S-Kt Compact Stand (77517)	Binocular Head (77750)	U Trinocular (77759)	R Stage (77765)	P Stage (77775)	Paired Eyepieces HKW-10x (77858)	4x Achromat Obj. (77790)	10x Achromat Obj. (77795)	40x Achromat Obj. ◄ (77810)	100x Achromat Obj. ◄ (77820)	4x Plan Achromat Obj. (77794)	10x Plan Achro. Obj. (77796)	40x Plan Achro. Obj. ◄ (77806)	100x Plan Achro. Obj. ◄ (77821)	Abbe N Condenser (77890)	Achromat Condenser (77894)	Filter, Clear Blue (76914)	Vinyl Dust Cover (77900)	Swing out Filter Holder (76970)	Lens Paper (76997)	HKW-10x Photo Eyepiece (77857)
SBP-Kt #77531	●	●			●	●	●	●	●	●					●		●	●	●	●	
SBR-Kt #77532	●	●		●		●	●	●	●	●					●		●	●	●	●	
SUR-Kt #77535				●		●	●	●	●	●					●		●	●	●	●	●
SBP-Kt FLAT FIELD #77533	●	●			●	●					●	●	●	●	●		●	●	●	●	
SBR-Kt FLAT FIELD #77534	●	●		●		●					●	●	●	●	●		●	●	●	●	
SUR-Kt FLAT FIELD #77536	●		●	●		●					●		●	●	●	●	●	●	●	●	●

Nikon

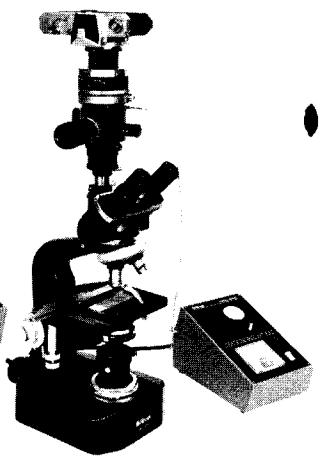
S-Ke Microscope

The S-Ke microscope stand is comprised of the "S" type body and the heavy "Ke" base that houses a complete Koehler illuminating and optical system. Koehler illumination makes the most efficient use of available light, as only the area under inspection is illuminated. Glare, flare and halo effects are reduced to a minimum. A built-in base turret with auxiliary condenser lenses to adjust the illumination for low, medium and high power objectives is one of the features that makes the S-Ke an ideal microscope for both visual and photomicrographic applications.

The 6v/30w tungsten illuminating system, with the 76708 metered transformer is standard and ordinarily furnished with the S-Ke stand. However, where higher light levels are desired, the 12v/100w quartz-halogen illuminator and power supply should be used; the S-Ke body is available without the 6v/30w tungsten system for such installations.



SBP-KE with "Ge" attachable mechanical stage and 6v/30w transformer.



SUR-KE Photoscope with flat field objectives and Nikkormat FTn camera on EFM semi-automatic Microflex attachment.

S-Ke Basic Microscope Stands

76720	S-Ke Stand with 4 place nosepiece (Standard) and #76708 6v/30w Transformer; tungsten illuminator; 2 bulbs #77904
76721	S-Ke Stand with 5 place nosepiece (Optional) and #76708 6v/30w Transformer; tungsten illuminator; 2 bulbs #77904
76974	Carrying case
76705	S-Ke Stand with 4-place nosepiece, 12v/100w quartz-halogen illuminator, power supply and 76513 bulb.
76712	S-Ke Stand with 5-place nosepiece, 12v/100w quartz-halogen illuminator, power supply and 76513 bulb.

S-Ke Microscopes — Complete Assemblies (See Chart)

76690	Model SBP-KE (Binocular, P stage)
76691	Model SBR-KE (Binocular, R stage)
76693	Model SUR-KE (Trinocular, R stage)
76695	SUR-KE Photomicroscope, (Trinocular, R stage, flat field objectives, achromat condenser)

NOTE: **For complete listings of optics, see pages 21-26. For complete listings of photomicrographic accessories, see pages 28-32.**

S-Ke Suggested Configuration for Phase Contrast Microscopy

76720	S-Ke body, 4-place, with 6v/30w transformer
77750	"B" binocular body tube
77858	HKW-10x eyepieces, paired
77765	"R" rectangular mechanical stage
77040	Phase turret condenser with centering telescope, green and heat absorbing filters
77020	DLL-10x phase contrast objective
77022	DLL-20x phase contrast objective
77025	DLL-40x phase contrast objective
77027	DLL-100x (oil) phase contrast objective
76970	Swing-out filter holder
76972	Vinyl dust cover

S-Ke Suggested Configuration for Cytological Examination

76721	S-Ke body, 5-place, with 6v/30w transformer
77750	"B" binocular body tube
77858	HKW-10x eyepieces, paired
77765	"R" rectangular mechanical stage
77892	Abbe condenser with oblique slider
77794	4x plan achromat objective
77796	10x plan achromat objective
77797	20x plan achromat objective
77841	40x plan fluorite objective
77807	40x NCG plan achromat objective (for use with smears without coverslips)
76970	Swing-out filter holder
76914	Daylight blue filter, 33mm
76972	Vinyl dust cover

S-Ke Complete Assembly Breakdowns

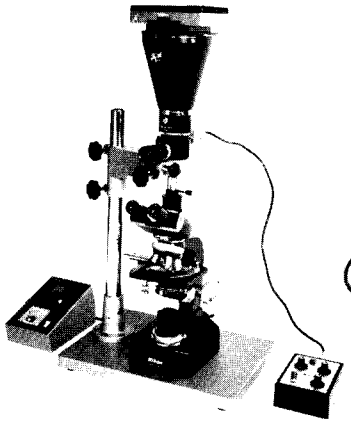
	S-KE Stand 6V/30W Trans. (76720) w/illum.	Binocular Head (77750)	U Trinocular Head (77759)	P Stage (77775) w/ GE Attachable (77773)	R Stage (77765)	Paired HKW-10x Eyepieces (77858)	Abbe Cond. w/slider (77892)	Achromat Condenser (77894)	4x Achromat Obj. (77790)	10x Achromat Obj. (77795)	40x Achromat Obj. (77810) ▲	100x Achromat Obj. (77820) ▲	4x Plan Achromat Obj. (77794)	10x Plan Achromat Obj. (77796)	40x Plan Achromat Obj. (77806) ▲	100x Plan Achromat Obj. (77821) ▲	Swing Out Filter Holder (76970)	Vinyl Dust Cover (76972)	Clear Blue Filter (76914) 33mm	Lens Paper (76997)	Mirror and Fork Assy. (76966)	HKW-10x Photo Eyepiece (77857)
SBP-KE #76690	●	●		●		●	●		●	●	●	●					●	●	●	●	●	
SBR-KE #76691	●	●			●	●	●		●	●	●	●					●	●	●	●	●	
SUR-KE #76693	●		●		●	●	●		●	●	●	●					●	●	●	●	●	●
SUR-KE (Photo) #76695	●		●		●	●		●					●	●	●	●	●	●	●	●	●	●

▲ Retractable objective

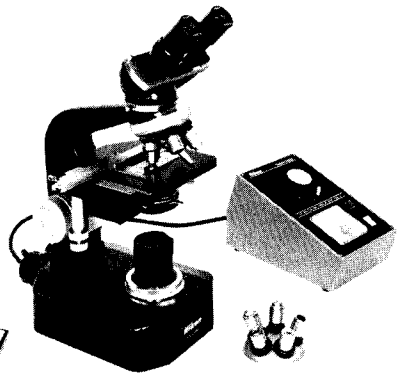
L-Ke Microscope

The model L-Ke is a most versatile research grade microscope. True Koehler illumination is an important feature that ensures the most even, brightest illumination without flare. The L-Ke is an ideal instrument for both visual observation and photomicrography. The 6v/30w tungsten illuminator with metered transformer is standard, but a high light level 12v/100w quartz-halogen system is also available. This quartz halogen illuminator extends the capabilities of the L-Ke for use with the FITC fluorescence microscopy technique, while also furnishing an ideal light source for brightfield, darkfield, and phase contrast microscopy and photomicrography. The interchangeable dovetailed nosepieces for the L-Ke allow the user to take full advantages of these opportunities, as one nosepiece could be mounted with brightfield objectives, while another could hold phase contrast and/or phase fluorescence optics.

The entire range of Nikon modular accessories and attachments can be mounted on the L-Ke stand. This versatility, combined with its precise focusing system that includes an oversized range of travel, and its centerable condenser mount, result in a microscope that is the ideal instrument for the pathologist, cytotechnologist, and research microscopist.



LFR-KE Photoscope with flat field objectives and Polaroid M-100 film pack adapter on one, with AFM Auto-Microflex attachment, mounted on cine/photo stand.



LBR-KE with additional interchangeable quintuple nosepiece on dovetail slider; 12v/100w quartz-halogen illuminator.

L-Ke Basic Microscope Stand

76752	L-Ke body with 5 place nosepiece and #76708 6v/30w transformer illuminator, 2 bulbs #77904
76751	5 place nosepiece on dovetail (Spare)
76974	Carrying case
76753	L-KE body with 5 place nosepiece, 12v/100w quartz halogen illuminator, power supply, 76513 bulb.

L-Ke Microscopes — Complete Brightfield Assemblies (See Chart)

76780	Model LBP-KE (Binocular, P stage)
76782	Model LBR-KE (Binocular, R stage)
76786	Model LUR-KE (Trinocular, R stage)
76790	LUR-KE Photomicroscope, (Trinocular, R stage, flat field objectives, achromat condenser)

Model L-Ke Suggested Configuration for Brightfield, with Options for Phase Contrast, FITC Fluorescence Microscopy, and Optional Photomicrographic Capability:

76753	L-Ke body only with 5-place nosepiece, 12v/100w quartz-halogen illuminator with metered power supply and 1 bulb
77759	"U" trinocular body tube
77858	HKW-10x eyepieces, paired
77894	Achromat condenser with slider, n.a. 1.25
77794	4x plan achromat objective
77796	10x plan achromat objective
77797	20x plan achromat objective
77806	40x plan achromat objective
77821	100x (oil) plan achromat objective
76914	Clear blue filter, 33mm
76970	Swing-out filter holder
76966	Mirror and fork assembly

(Options continued in right column)

Continued: Options for Phase Contrast, FITC Fluorescence Microscopy, and Optional Photomicrographic Capability

Phase Contrast Option

76151	5-place nosepiece (extra) on dovetail slider
77040	Phase turret condenser with centering telescope, green and heat absorbing filters
77020	DLL-10x phase contrast objective
77022	DLL-20x phase contrast objective
77025	DLL-40x phase contrast objective
77027	DLL-100x (oil) phase contrast objective

FITC Fluorescence Option

77825	100x (oil) achromat objective with iris diaphragm
77896	Ultra darkfield condenser
78516	FITC multicoated exciter filter, 45mm
78517	FITC barrier filter, #12 deep yellow, 28mm

Photomicrographic Option

77857	HKW-10x eyepiece (for trinocular photo tube)
77060	AFM Automatic Microflex attachment complete
77137	M-35S camera back, 35mm
77090	Camera cone with 1.3x relay lens for large format and Polaroid photography
77080	Graflok back, 4"x5" (accepts both Polaroid #545 film holder for 4x5 and #405 film pack 3¼x4¼ holder, as well as 4x5 sheet film carriers) (for use with 77090)
77076	Polaroid #405 film pack holder (for use with 77090)
76551	Photo stand, type 3
77332	Vinyl dust cover (to fit over photo stand assembly)

For complete listings of objectives, eyepieces and condensers that may be used with this model, see pages 22, 23 and 26.

L-Ke Complete Assembly Breakdowns

	L-KE Body 6V/30W Trans. (76752) w/illum.	Binocular Head (77750)	U Trinocular Head (77759)	P Stage (77775) w/ GE Attachable Stage Motion (77773)	R Stage (77765)	Paired HKW-10x Eyepieces (77858)	Abbe Cond. w/slider (77892)	Achromat Condenser (77894)	4x Achromat Obj. (77790)	10x Achromat Obj. (77795)	40x Achromat Obj. (77810) ▲	100x Achromat Obj. (77820) ▲	4x Plan Achromat Obj. (77794)	10x Plan Achromat Obj. (77796)	40x Plan Achromat Obj. (77806) ▲	100x Plan Achromat Obj. (77821) ▲	Swing Out Filter Holder (76970)	Vinyl Dust Cover (76972)	Clear Blue Filter (76914) 33mm.	Lens Paper (76997)	Mirror and Fork Assy. (76966)	HKW-10x Photo Eyepiece (77857)
LBP-KE #76780	●	●		●		●	●		●	●	●	●					●	●	●	●	●	
LBR-KE #76782	●	●			●	●	●		●	●	●	●					●	●	●	●	●	
LUR-KE #76786	●		●		●	●	●		●	●	●	●					●	●	●	●	●	●
LUR-KE (Photo) #76790	●		●		●	●		●					●	●	●	●	●	●	●	●	●	●

▲ Retractable objective

Apophot Universal Research Microscope

The APOPHOT Universal Research Microscope features a "vertical optical bench" design. Its large stand easily accepts a variety of attachments and accessories while retaining utmost rigidity as a rock-steady foundation for its entire system. The stand is furnished with a trinocular head containing 30° inclined observation binocular and vertical photo tube with automatic compensation for interpupillary distance adjustment. A lever controls the three-way prism for:

1. 30% visual, 70% photo
2. 100% visual
3. 100% photo

A unique zoom Koehler system is built into the APOPHOT body. By merely turning a calibrated knob, the user can match the illumination precisely to the numerical aperture of the objective. Two separate light sources can be mounted, to be used individually or simultaneously; both are controlled by a simple push-pull selector rod. This allows for combinations of 6v/30w tungsten; 12v/100w quartz-halogen; 150w Xenon-arc; HBO-200 mercury vapor as well as 200-watt second electronic flash. An episcopic illuminator is also available for on-axis reflected light illumination, which also may be used simultaneously with transmitted light illumination.

Quadruple and quintuple removable nosepieces on dovetail sliders allow easy interchange of objectives; especially desirable when both brightfield and phase contrast microscopy are required. A variety of stages is available for the APOPHOT: all are mounted on a dovetail mount for greater rigidity. Condensers are held in centerable mount by dovetail sliders for rapid interchange while retaining precision alignment.

The APOPHOT is normally equipped with a magnification changer, with factors of 1X, 1.25X and 1.5X. This component also contains a built-in phase centering telescope. The HKW-8x eyepieces are most popular for use with the APOPHOT. The APOPHOT offers Polarizing and Fluorescence attachments to meet your research requirements.

The massive APOPHOT stand makes it an ideal instrument on which to mount a full complement of photomicrographic accessories. A socket on top of the microscope arm accepts a special version of the MULTIPHOT "H" rail. This rail holds brackets for attaching to either the Polaroid Microflex cone or to mount a cine camera. It will also accept the entire MULTIPHOT 4" x 5" camera assembly, for unique photographic versatility.

NOTE: Often, inferior photographs are traceable to the influence of environmental vibrations. In such cases, please inquire about the EPOI Vibration Isolation Systems.

76450	Apophot Universal Stand consisting of: main body with coaxial coarse and fine stage focusing controls graduated to .001mm; dual illumination ports with mirror adjustment for selection of either or both illuminators in combination; built-in zoom Koehler collector system for transmitted light with knob selector for numerical apertures; 3-way trinocular tube with tube length compensation; nosepiece adapter; rack and pinion condenser focusing mount with centerable dovetail condenser holder and socket with clamp to accept vertical bar for mounting accessory equipment
76452	Rotary magnification changer with 4-position turret containing 1.0x, 1.25x, 1.5x lenses and phase centering Bertrand Lens
76505	Quadruple revolving nosepiece on dovetail slider
76510	Quintuple revolving nosepiece on dovetail slider
76462	Swing-out filter holder

Stages

76460	Rectangular mechanical stage, graduated, rotatable, with right and left hand coaxial controls 75mm x 50mm, oval cutout
76466	Square mechanical stage, graduated, rotatable, with right and left hand coaxial controls, 75mm x 50mm travel, round cutout
76468	CgC Centerable, graduated, circular, rotatable stage; 140mm diameter
76478	CgC Centerable, graduated, circular rotatable stage with built-in X and Y graduated mechanical motion
76480	Circular, graduated ball bearing stage with 45° click stops

Illuminators

76454	Lamp housing, centerable, for 6v/30w flat filament bulb (Cat. No. 77904)
76708	6v/30w Transformer with voltmeter (for above)
76459	Quartz-Halogen Light Source, 12v/100w, with adapter collar and continuously variable power supply, with one bulb (76513)
76457	Xenon-arc Light Source, 150w, with power supply
78574	200w Mercury (see Apophot Fluorescence listings)
76455	EPI illuminator (requires light source)
79882	Electronic Flash: includes Illuminator housing with flash tube, power pack and cord. Maximum output – 200 watt/secs. (for S-Ke, L-Ke & Apophot)

Optics

See pages 21, 22, 23 & 26 for selection.

77881	HKW 8x, 1 each } recommended if #76452 magnification changer is used
77882	HKW 8x, paired }

Accessories

76463	Dovetail condenser holder (extra)
76473	Adapter to mount 76965 Projection Head
76484	Adjustable Microflex adapter for use with HK5x, HKW10x, HKW15x eyepieces (replacement)
76485	Microflex adapter for use with HKW8x eyepiece (replacement)
76470	Support rail for Microflex cone, or Multiphot assembly
76471	Cine bracket for support rail
76472	Microflex cone bracket for support rail

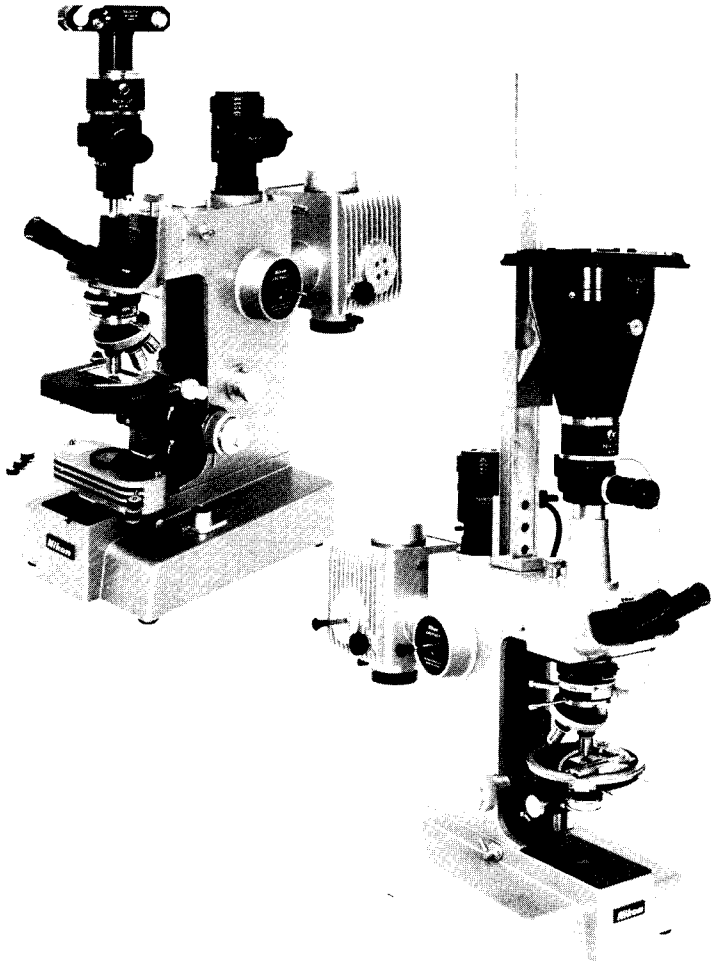
Polarizing Accessories

76480	Circular, graduated ball bearing stage with 45° click stops
77237	Low-profile attachable mechanical stage (for above)
76483	Condenser with polarizer, flip-out top element
76479	Intermediate microscope tube containing: depolarizer, Bertrand lens, magnifier for reading Babinet compensator, ¼ wave length and sensitive tint plates, Senarmont compensator
76481	Quadruple revolving nosepiece with individually centerable objective receptacles, on Apophot dovetail slider (cannot be used with Babinet compensator)
76482	Single objective adapter (for use with Babinet compensator)
77216	Single objective holder
77217	Set of 4 single objective holders #77216
77224	Babinet compensator
76477	Polarizing filter set of polarizer and analyzer (for simple polarized light work only)

NOTE: For additional polarizing accessories, see pages 14 & 15.

Fluorescence Accessories

78574	78576	Fluorescence illuminator lamphousing
	78577	Lamp socket (requires power supply)
	78578	Power supply with starter (for 78577)
	78580	200 watt super high-pressure mercury burner for Apophot fluorescence
78579		Filter bridge with 3 exciter filters (2 B.V., 1 U.V.); 2 green filters and 1 neutral density filter; field diaphragm extension lever
76451		Body tube holder for (A) or (I) body tubes
77747		Inclined monocular (A) eyepiece tube with vertical photo tube (for 76451)
77740		Inclined monocular (I) eyepiece tube (for 76451)
78575		Intermediate microscope tube with filter turret and slider; 6 barrier filters
78583		Comparison photometer consisting of: meter with sensor on coil cord; special eyepiece; check plate



Suggested Apophot Configuration for Bright Field Transmitted Light Microscopy with 35mm & Polaroid Photomicrographic Capability

76450	Basic body with trinocular body tube, vinyl dust cover
76452	Magnification changer
76460	Rectangular stage
76454	Centerable Tungsten, 6v/30w lamp housing
76708	6v/30w transformer (for above)
76459	Quartz-Halogen Light Source, 12v/100w, with power supply
76510	Quintuple nosepiece
76462	Filter holder
77882	HKW 8x eyepiece, pair
77794	4x Plan Achromat objective
77796	10x Plan Achromat objective
77797	20x Plan Achromat objective
77841	40x Plan Fluorite objective
77850	100x (oil) Plan Apochromat objective
77888	Achromat/Aplanat condenser, n.a. 1.40
77881	HKW-8x eyepiece — for trinocular tube
77060	AFM-B Auto Microflex photo attachment
76470	Support rail for camera cone
76472	Microflex cone bracket for rail
77090	Camera cone with 1.3x relay lens
77086	Polaroid M-100 Camera Back
77128	M-35A Motorized 35mm Camera Back
76943	80B Conversion Filter, 45mm
76936	82B Conversion Filter, 45mm
76948	Didymium Filter, 45mm
76945	Wrattan No. 58 Green Filter, 45mm
77904	6v/30w replacement bulb (3 each)
76513	Quartz Iodine replacement bulb (2 each)

Apophot Suggested Configuration as a Research Polarizing Microscope with Polaroid Photomicrographic Capability and Xenon/Quartz Halogen Illumination

76450	Basic body with trinocular body tube, vinyl dust cover
77212	DHKW-10x eyepiece with cross line reticle
77857	HKW-10x eyepiece
76480	CgC Polarizing stage
77237	Low profile attachable mechanical stage
76483	Swing-out condenser with polarizer
76479	Intermediate piece with depolarizer, Senarmont compensator, sensitive tint and ¼ wave plates
76481	Quadruple revolving nosepiece with individually centerable objective receptacles
76840	Plan P4x strain-free objective
76842	Plan P10x strain-free objective
76844	Plan P40x strain-free objective
76846	Plan P100x (oil) strain-free objective
76459	12v/100w Quartz-Halogen light source with power supply
76513	Spare bulbs for above (2 each)
76457	150w Xenon-arc light source with power supply
76470	Support rail for Microflex
76472	Cone bracket for support rail
77060	AFM Auto-Microflex photo attachment
77857	HKW-10x eyepiece for photo tube
77090	Cone with 1.3x relay lens
77080	Graflok 4"x5" camera back
77076	#405 Polaroid 3¼"x4¼" Film Pack back
76937	45mm Dark green filter, 2mm thick
76941	45mm Daylight blue filter
76462	Swing-Out filter holder

Apophot Suggested Configuration as a Combination Fluorescence and Brightfield Research Microscope with 35mm Photomicrographic Capability

76450	Basic body with trinocular body tube, vinyl dust cover
76451	Body tube holder for (A) or (I) body tubes
77747	Inclined monocular body tube with photo tube (A)
77858	HKW-10X eyepieces, paired (for 77747 body tube)
76460	Rectangular mechanical stage
77896	Ultra darkfield condenser
77888	Achromat/Aplanat condenser
76463	Dovetail condenser holder (spare) for above
76459	12v/100w Quartz-Halogen light source with power supply and bulb
76513	Spare bulbs for above (2 each)
76510	Quintuple revolving nosepiece on dovetail slider
77796	10X Plan Achromat objective
77797	20X Plan Achromat objective
77841	40X Plan Fluorite objective
77842	70X Fluorite objective
77843	Darkfield funnel stop for 77842
77825	100X (oil) Achromat with iris diaphragm
78576	Fluorescence illuminator lamphousing
78577	Fluorescence illuminator mercury socket assembly
78580	200 Watt mercury burner
78578	Power supply and starter (for 78576)
78579	Filter bridge with exciter filters
78575	"FL" Intermediate tube with barrier filters
76941	45mm Daylight blue filter
77060	AFM-B Auto-Microflex photo attachment
77137	M-355 35mm Camera Back

Nikon

Model MS Inverted Microscope

The model MS is an extremely versatile inverted microscope. Two basic versions are available: the round floating stage type with a "joystick" control and the square stage with low-position coaxial mechanical motion.

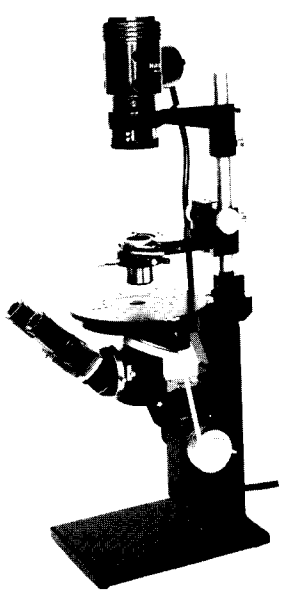
The round floating stage is preferred for most tissue culture work where chambers, flasks, or petri dishes are used. Its smooth gliding motion makes this stage very popular — special holders are available to hold petri dishes or test tubes.

The square mechanical stage version is especially useful where the MS is utilized in tissue typing with sedimentation plates; for immuno microscopy; and when microscope slides are used. Special holders for sedimentation plates are available.

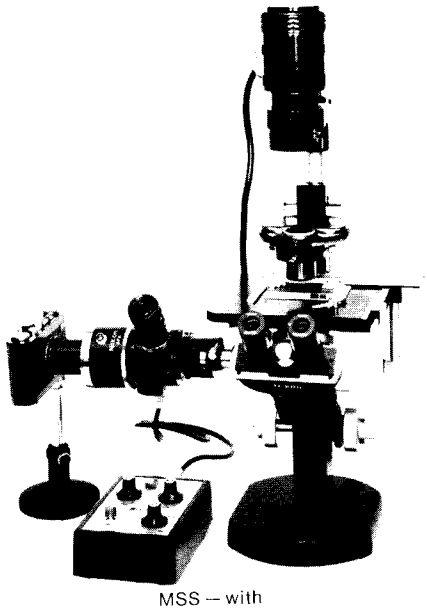
Furthermore, the MS inverted microscope offers full photographic capabilities. A rotating lever diverts all of the image forming rays to the side photo tube. Any of the Microflex attachments can be coupled to the photo tube for still or cine-micrography. There is a built-in filter slider.

A new modification is available with a fixed stage and focusable optics, especially designed for use with micromanipulators.

The 6v/30w tungsten diascopic illuminator is well suited to most applications. For those applications where higher light levels are needed, the 12v/100w quartz Halogen diascopic illuminator is recommended. An episcopic illuminator for reflected light microscopy is also available.



Model MSFC with fixed gliding stage and focusable optics; Diascopic quartz-halogen illuminator



MSS — with mechanical stage, Quartz-Halogen Diascopic Illuminator and AFM Auto-Microflex on stand

76560	**Model MS Main Body** with quadruple revolving nosepiece, built-in tube for photomicrography, co-axial coarse and fine focusing knobs; **circular gliding stage** with lever motion attachable to right or left side (supplied with 4 stage plate adapters, 5mm, 10mm, 15mm, 20mm, 3 pair stage clips); vinyl instrument cover
76561	**Model MSS Main Body** with quadruple revolving nosepiece, built-in tube for photomicrography, co-axial coarse and fine focusing knobs; **square graduated stage** with built-in low position co-axial mechanical control, stage surface; 150mm x 150mm; vinyl instrument cover
76581	**Model MSFC Main Body,** with **fixed circular gliding stage** and **focusable optics** (especially recommended for use with micromanipulators)
76582	**Model MSFS Main Body,** as above, with **fixed square graduated stage** and **focusable optics** (especially recommended for use with micromanipulators)
76562	**Diascopic Tungsten Illuminator** MSD with focusable collector lens, field diaphragm and filter holders, support arm, column; 2 bulbs No. 77904, with 6v/30w transformer (76708)
76573	**Diascopic Quartz Halogen Illuminator** MSD, 12v/100w, including lamp housing with focusable collector lens, field diaphragm and filter holders; support arm column; continuously variable power supply with one bulb (76513) (condenser mount not included)
76567	**Condenser Mount MSD,** centerable, for transmitted illumination, with rack and pinion focusing
76565	Episcopic illuminator MSE with service table, 2 bulbs 6v/18w. #77910 (less transformer), with daylight, green and yellow filters
76171	Transformer, variable 6v/20w for MSE EPI illuminator
76571	Polarizing Set for MS Diascopic Illuminator
76572	Polarizing Set for MS Episcopic Illuminator
76570	MS Test Tube Holder
77098	"MS" Auxiliary stand for mounting M-35S with Microflexes; height adjustable 5-7 inches

Filters for M & MS — 45mm diameter are listed on pages 23 & 32.

Tissue Culture Accessories

76593	M-line IN 61B Incubator circulating air type with fittings for mounting on Model M main body
76596	EPOI No. 17-504M Time Lapse Apparatus including special table top unit with base isolated from external vibrations, combination time lapse and normal speed cine drive, electronic timing controls and Bolex M5 Camera
76580	Sage Air Curtain Incubator Model 279, Range 30°C-40°C

For complete listings of optics, see pages 21-26.
For complete listings of photomicrographic accessories, see pages 28-32.

Suggested MS Inverted Phase Contrast Tissue Culture Configuration

76560	MS body with circular gliding stage and photo tube
76562	Diascopic tungsten 6v/30w illuminator on mounting column, with transformer
76567	Condenser mount
77750	Binocular body tube
77858	HKW-10x eyepieces, paired
77035	XLWD phase turret condenser with centering telescope, brightfield iris diaphragm, filters
77790	4x achromat objective
77020	DLL-10x phase achromat objective
77022	DLL-20x phase achromat objective
77809	DML-40x long-working-distance phase objective with correction collar
76569	Holder for 60mm diameter petri dish for use on MS-Rect. Mechanical Stage. Inserts for other sizes are available on special order.

Options:

(a) For use with slides, tissue typing and immuno microscopy, #76561 MSS body with square mechanical stage should be substituted for #76560 round stage type.

(b) If 12 to 15mm condenser working distance is adequate, the more highly corrected #77049 LWD phase turret condenser should be substituted for #77035 XLWD type.

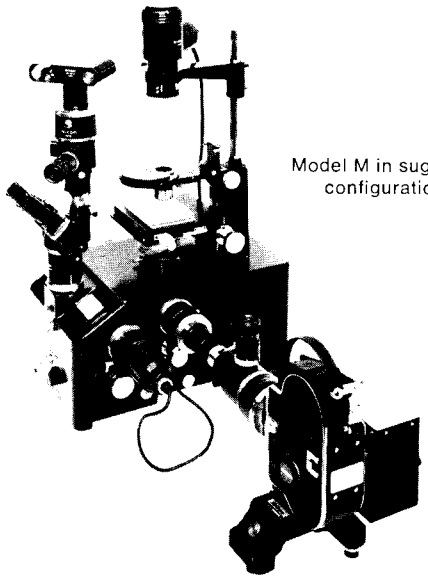
(c) If photomicrography is a prime consideration, the #76573 diascopic quartz halogen 12v/100w illuminator may be substituted for #76562 tungsten type, and an extra eyepiece must be purchased for the MS photo tube.

Model M Research Inverted Microscope

The instrument of choice for tissue culture research. The massive unique box design of the M permits simultaneous still photomicrography from a trinocular eyepiece tube and cinemicrography through the side photo port. Allows use of a data illuminator to superimpose information onto the film. The stage is located below the level of the eyepieces to afford ease in manipulating and changing specimens.

The stage assembly is especially designed to eliminate drifting, which ensures critically sharp time lapse cinemicrographs. The ultra-fine focus is located on the front control panel for pin-point precision control.

A 12v/100w quartz-halogen illuminator is available. The 6v/30w transformer for tungsten diascopic and episcopic illuminators is built into the microscope body.



Model M in suggested configuration

76502	**Inverted Microscope Model M**: main body with coaxial graduated mechanical stage; change-over Prism A (half-reflecting) and Prism B (full reflecting); 2 connecting tubes; built-in transformer with voltmeter; vinyl dust cover #76501; in fitted shipping case
76503	Circular Stage Rotating, Centerable Graduated for M (optional)
76505	Quadruple revolving nosepiece on dovetail slider
76510	Quintuple revolving nosepiece on dovetail slider
76512	Connecting Tubes replacement (2 — one each required for vertical and horizontal tubes)
76590	Fitted hardwood cabinet for Model M accessories, objectives and eyepieces
76555	Straight monocular tube, springloaded for cinemicrography
76520	Interference phase attachment for M with centering telescope for mounting on main body in place of connecting tube (The long working distance turret phase condenser, catalog No. 77042 is required for use with this attachment)
76538	**Diascopic M Tungsten Illuminator,** including lamp housing with focusable collector lens, field diaphragm and filter holders w/2 #77904 bulbs 6v/30w support arm, column and centerable condenser mount, with rack and pinion focusing
76545	**Diascopic M Quartz Halogen Illuminator** 12v/100w including lamp housing with focusable collector lens, field diaphragm and filter holders, support arm, column and centerable condenser mount, with rack and pinion focusing, continuously variable power supply, with one bulb (76513)
76535	**Episcopic M Tungsten Illuminator** including service table and 2 bulbs 6v/18w #77910; daylight, green and yellow filters
76517	Quartz Halogen Light Source, 12v/50w for Model M EPI Illuminator, with power supply and bulb (76516)
76540	Data illuminator and 2 ≠ 76907 bulbs 6v/18w
76519	Polarizing Set M Diascopic
76518	Polarizing Set M Episcopic
77099	"M" Auxiliary stand for horizontal mounting of Microflexes, height adjustable 4-6 inches

Interchangeable Accessories for Both Models M & MS

76508	Quartz Halogen light source 12v/100w for conversion of Models M and MS Diascopic tungsten illuminator, with continuously variable power supply, with one bulb (76513)
76513	Quartz Halogen Bulb, 12v/100w (replacement)
77040	Phase Turret Condenser with 10x, 20x, 40x and 100x built-in phase annuli, iris diaphragm for brightfield; heat absorbing and green 33mm filters: phase centering telescope, in fitted case

Suggested Model M Inverted Phase Contrast Configuration for Simultaneous Still Photomicrography and Automated Time-Lapse Cinemicrography (for culture flasks and culture chambers)

76502	Model M body with A (half-reflecting) and B (full-reflecting) prisms; square double-platform stage; 2 connecting body tubes
76545	Diascopic 12v/100w quartz halogen illuminator with power supply; mounting column: condenser mount
77049	LWD phase turret condenser with telescope
76510	Quintuple revolving nosepiece
77020	DLL-10x phase objective
77022	DLL-20x phase objective
77809	DML-40x LWD phase objective
77162	DLL-40x apochromat phase objective
77163	DLL-100x apochromat phase objective
77759	"U" trinocular eyepiece tube
77858	HKW-10x eyepieces, paired
77857	HKW-10x eyepiece (for photo tube)
77060	AFM Auto-Microflex complete
77137	M-35S 35mm dark box
76555	Straight photo tube for side port
77857	HKW-10x eyepiece for photo tube
76540	Data illuminator
77119	CFMA Auto-cinemicrographic system with built-in photometer, motor drive and intervalometer for Bolex H-16
76585	Bolex H-16 J5 camera body
76543	Support base for Bolex camera

77049	Long-Working-Distance Phase Turret Condenser, with Centering Telescope, (12-15mm working distance) with 4 phase annuli: 10x, 20x, 40x and 100x; iris diaphragm for brightfield, green filter and heat absorbing filter, less case
77035	Extra-Long-Working-Distance Phase Condenser (40mm working distance) with 3 phase annuli: 10x, 20x and 40x, Brightfield iris diaphragm, heat absorbing and green 33mm filters, phase centering telescope, less case
77808	L40x Long-Working-Distance Brightfield Achromat objective, n.a. 0.60 with correction collar
77809	DML 40x Long-Working-Distance Phase objective, n.a. 0.60 dark contrast; medium with correcting collar
77041	Phase Centering Telescope only (replacement)
77910	Bulb, 6v/18w, round precentered for M and MSE EPI illuminator
77904	Bulb, 6v/30w, bayonet base, flat filament for M and MS Diascopic illuminator
76569	Holder for 60mm diameter petri dish for use on MS-Rect. Mechanical Stage.
76570	Test tube holder

Model POH-3 Research Polarizing Microscope

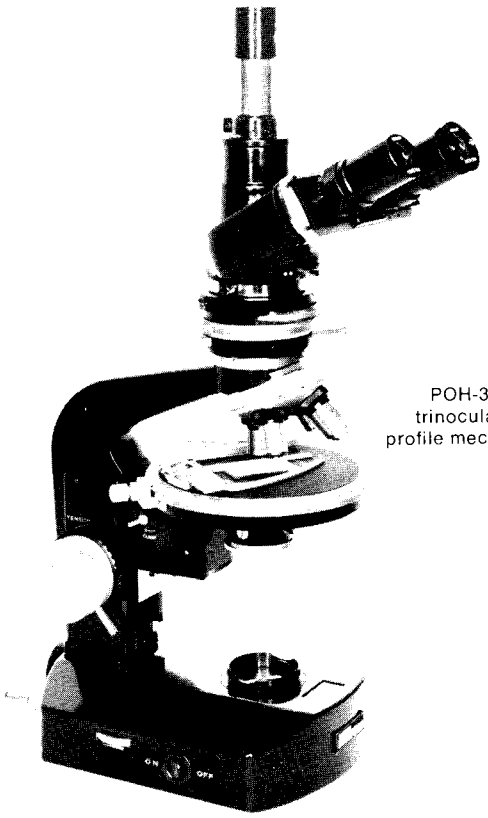
The POH-3 is a research Polarizing Microscope with an extra-long range of stage elevation and focusing. A maximum distance of 104.6mm from the objective shoulder to the stage surface makes it possible to mount the accessory Universal 4-axis stage that permits tilting of a specimen at any angle to the microscope optical axis.

A special 4-place revolving nosepiece with individually centerable objective receptacles is available. A dovetail adapter is also available to mount centerable single objective holders; these must be used if the graduated Babinet compensator is required. The special graduated circular rotatable stage has a goniometer divided into 1-degree increments; it reads to 6 minutes with either of two verniers placed 90° apart, and click stops at each 45° division. 45° click stops can be set at any optional point with a lever. A low-profile graduated mechanical motion with point-count ratchets is also available.

The intermediate tube of the POH-3 contains: 1) a Bertrand lens for conoscopic observation; magnifier for reading Babinet compensator; 2) filter analyzer, rotatable 180; 3) quarter wave and sensitive tint compensators. Because all of these components are contained in the intermediate tube, the eyepiece tubes can be changed without deterioration of optical performance. Monocular (IP), binocular (Y), and trinocular (F) eyepiece tubes are available. All have an inclination of 30° from the horizontal; the Y and F tubes have screw-in depolarizers.

A precentered 6v/15w tungsten illuminator with transformer, rheostat and voltmeter is built into the POH-3 base. For reflected light, a 6v/15w Epi illuminator is available, which accepts the centerable single objective holders.

A graduated Babinet compensator and a 6-order quartz wedge in slider are available accessories. The entire range of high quality Nikon strain-free polarizing objectives and special eyepieces can be used on the POH-3.



POH-3 with (F) trinocular and low profile mechanical stage

77205	Polarizing Microscope, POH-3 for 115v, A.C. consisting of: stand, built-in base illuminator with transformer, rheostat and voltmeter, 6v/15w pre-centered flat filament bulb; ball-bearing, graduated, circular rotatable stage; intermediate tube containing Bertrand lens, magnifier for reading Babinet compensator, ¼ wave length and sensitive tint plates; Senarmont compensator, and 3 element condenser on dovetail slider with swing-out top element, iris diaphragm and rotatable filter polarizer, 2 bulbs (77903) and vinyl cover
77237	Attachable mechanical stage, low profile, 30x30mm for circular stages, with 2 sets of point-count ratchets
76058	Attachable mechanical stage, graduated, 30mm x 30mm, top control
77201	POH-3 as above, but with Koehler Illuminator base
76708	6v/30w Transformer with meter for use with No. 77201 POH-3 with Koehler base

Body Tubes

77202	Polarizing Monocular eyepiece tube (IP), inclined 30°, takes 30mm diameter eyepieces, supplied with adapter for standard eyepieces
77246	Trinocular eyepiece tube (F), 2-way, prism (100% visual or 100% photo) inclined 30°, with depolarizer; magnification factor 1.25x, takes standard 25mm diameter eyepieces
77248	Binocular eyepiece tube (Y), inclined 30°, with depolarizer, takes standard 25mm diameter eyepieces
77247	Screw-in depolarizer for (F) and (Y) body tubes

Eyepieces, 30mm For Inclined Monocular Tube IP

77204	Huygenian, wide-field, P 5x, with cross line reticle
77206	Huygenian, wide-field, P 7x, with cross line reticle
77208	Huygenian, wide-field, P 10x, with cross line reticle
77223	Adapter sleeve to fit standard eyepieces in #77202 (IP) (Replacement)

Eyepieces, Standard for Trinocular Tube F

77855	High Eyepoint, compensating, HK 5x
77210	High Eyepoint, compensating, diopter adjustable, DHK 5x, with cross line reticle
77857	High Eyepoint, compensating, wide-field HKW 10x
77212	High Eyepoint, compensating, wide-field, diopter adjustable, DHKW 10x, with cross line reticle
77213	Micrometer reticle, 10mm in 100 graduations; replaces cross line reticle in DHKW eyepiece
NOTE:	One each HK 5x and DHK 5x or HKW 10x and DHKW 10x are required for binocular observation. An eyepiece micrometer holder sleeve is supplied separately to change from cross line reticle to

Nosepieces

77214	Single objective holder adapter on dovetail, with slot for Babinet compensator
77216	Single objective holder with centering screws (one required for each objective)
77217	Set of 4 single objective holders (77216)
77218	Quadruple revolving nosepiece, on dovetail, with individually centerable objective receptacles (cannot be used with Babinet compensator)

Strain Free Objectives For Transmitted Light

76802	Achromat, P 4x, n.a. 0.10
76804	Achromat, P 10x, n.a. 0.25
76806	Achromat, P 20x, n.a. 0.40
76810	Achromat, P 40x, retractable, n.a. 0.65
76815	Achromat, P 100x, oil, retractable, n.a. 1.25

Strain Free Flat Field Objectives For Transmitted Light

76840	Plan achromat, Plan P 4x, n.a. 0.10
76842	Plan achromat, Plan P 10x, n.a. 0.25
76844	Plan achromat, Plan P 40x, retractable, n.a. 0.65
76846	Plan achromat, Plan P 100x, oil immersion, retractable, n.a. 1.30

Additional Accessories

77224	Babinet compensator on slider, graduated, in wooden case
76825	Quartz Wedge in slider, 6-order, non-graduated (for POH-3 & SPO)
77230	Filter, daylight, 27.3mm
76930	Filter, green, 546mu, 33mm
76463	Dovetail condenser holder (for interchanging condensers)
77234	Epi-illuminator, w/filter polarizer 90° rotatable, lamp housing, collector lens, aperture and field diaphragms and filter holder with 2 16mm filters: daylight and green, (less transformer), 1.2x magnification factor
76171	6v/20w transformer for above
77235	Quartz-Halogen Light Source, 12v/50w, for POH-3 EPI, with power supply, bulb and adapter ring
77242	Filter, daylight 16mm (replacement)
77243	Filter, green, 16mm (replacement)
77244	Filter, yellow, 16mm (replacement)

Strain Free Objectives For Opaque Specimens For Use With EPI Illuminator

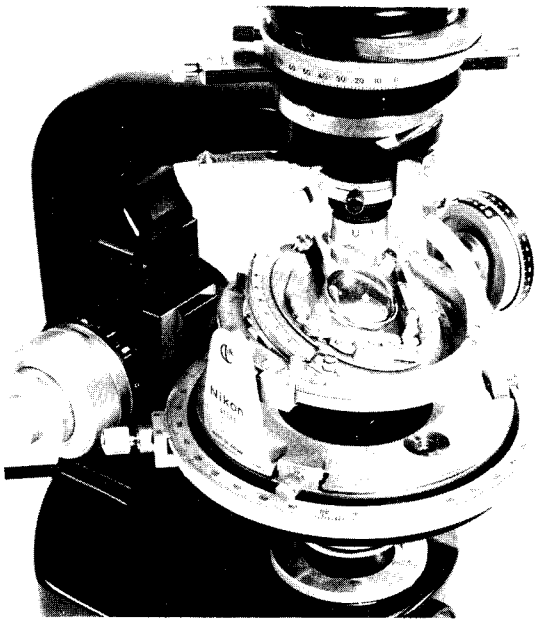
76813	Achromat PM 5x, n.a. 0.10
76814	Achromat PM 10x, n.a. 0.25
76811	Achromat PM 20x, n.a. 0.40
76812	Achromat PM 40x, n.a. 0.65 retractable
76817	Achromat PM 100x, n.a. 1.25, oil immersion, retractable

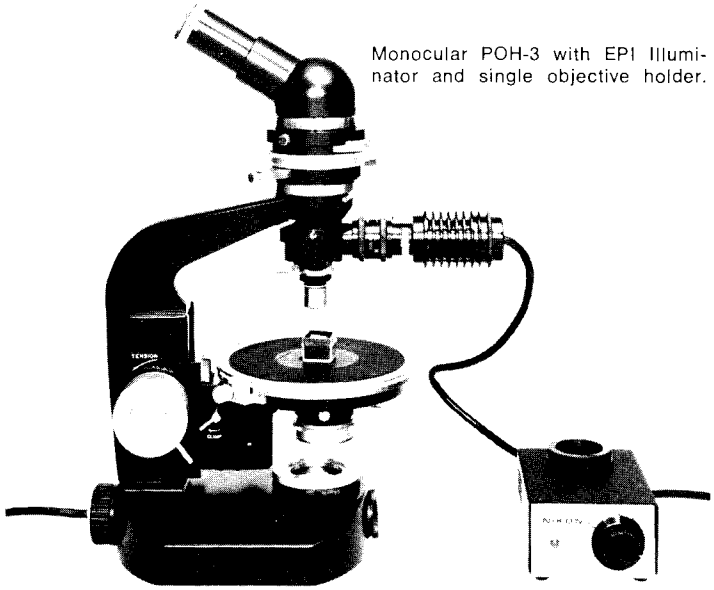
Universal 4 Axis Stage

77240	Universal Stage, 4 axis with 3 pairs of 13.5mm diameter hemispheres with ND 1.516, 1.556 and 1.649, stage plate, 2 centering screws and fitted case

Long Working Distance Objectives For Use With Universal Stage

77250	Achromat U 5x, n.a. 0.10
77252	Achromat U 10x, n.a. 0.22
77254	Achromat U 20x, n.a. 0.33





Monocular POH-3 with EPI Illuminator and single objective holder.

Suggested Configurations
Monocular Polarizing Microscope, POH-3 (M) consisting of:

77205	Basic Stand
77202	Monocular Eyepiece Tube IP
77204	Huygenian Eyepiece POH 5x with cross line reticle
77206	Huygenian Eyepiece POH 7x with cross line reticle
77208	Huygenian Eyepiece POH 10x with cross line reticle
77214	Single objective holder adapter
77217	Set of 4 single objective holders
76802	Achromat objective P 4x
76804	Achromat objective P 10x
76810	Archomat objective P 40x
76815	Achromat objective P 100x (oil)
77224	Babinet Compensator
77230	Daylight filter, 27.3mm
76930	Green filter, 33mm
77237	Low Profile Mechanical Stage
77523	Fitted Hardwood Cabinet

Trinocular Polarizing Microscope, POH-3 (F) consisting of:

77205	Basic Stand
77246	Trinocular Eyepiece Tube (F) with depolarizer
77855	Eyepiece HK 5x
77210	Eyepiece DHK 5x with cross line reticle
77857	Eyepiece HKW 10x
77212	Eyepiece DHKW 10x with cross line reticle
76802	Achromat objective P 4x
76804	Achromat objective P 10x
76810	Achromat objective P 40x
76815	Achromat objective P 100x (oil)
77213	Micrometer holder sleeve with 10/100 reticle
77218	Quadruple revolving nosepiece, indiv. centerable
77230	Daylight filter, 27.3mm
76930	Green filter, 33mm
77237	Low Profile Mechanical Stage

For photomicrographic equipment and other microscope accessories that can be used with the POH-3, see pages 28-32.

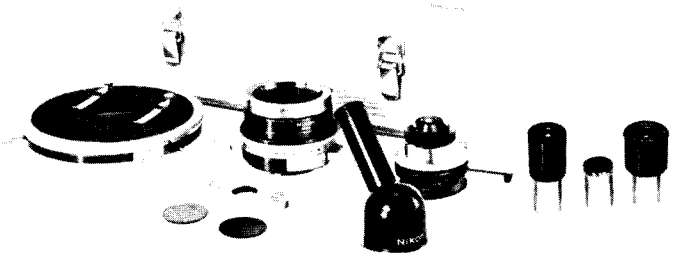
Model SPO Polarizing Attachment

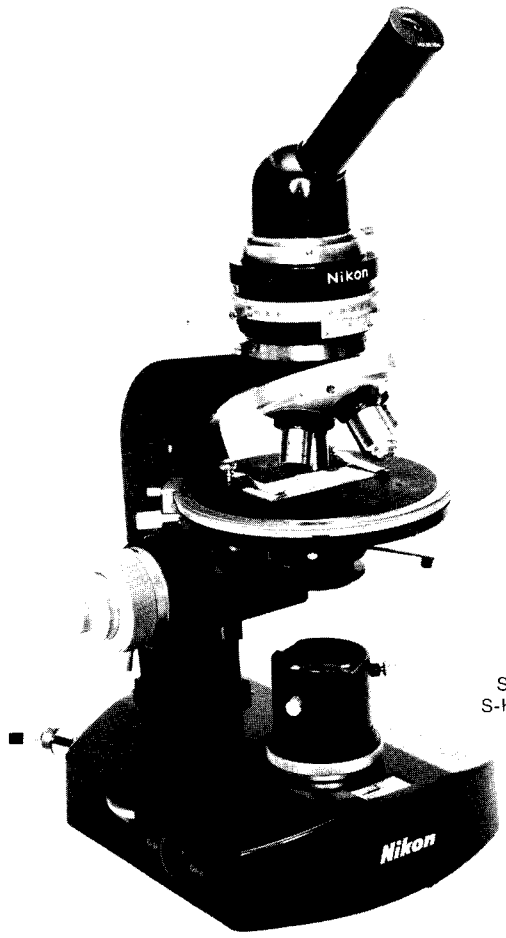
The polarizing microscope is used to examine birefringent properties in animal and plant tissues, as well as in rocks, minerals, metals, fibers and chemicals. The SPO Polarizing Attachment is designed to form a modern polarizing microscope when used on models S-Cb/D6 & S-Cb/D6QH, S-Kt, S-Ke and L-Ke.

The attachment is provided with a Sénarmont type compensator (equipped with a special quarter-wavelength retardation plate). Measurement of retardation can be readily taken with great accuracy, and a desired retardation can also be obtained.

The retention of the revolving "S" type nosepiece permits quick and accurate change of objectives. The specially designed graduated circular rotating stage does not require recentering after selecting a previously centered objective. The horizontal position of the stage eliminates flow in a liquid- or oil-immersed specimen.

The eyepieces employed are the wide-field, high-eyepoint type allowing observation over a wide field by spectacle wearers as well as normal sight observers. The objectives are strain-free and parfocal. The dimensions of the specimen can be measured by an eyepiece micrometer.





SPO set on S-Kt Compact Stand

Specifications:

Eyepieces High-eyepoint HK 5x, field number 21.

High-eyepoint DHKW-10x, field number 18. diopter adjustable type. Provided with crossline reticle and locating pin.

Eyepiece micrometer with eyepiece sleeve 10mm scale, 1 division 0.1mm. An extra eyepiece sleeve is available as optional equipment for use with the micrometer.

Condenser Abbe-type double-lens N.A. 1.30, with iris diaphragm (conoscopic and orthoscopic observation possible). Conoscopic angle 82 degrees.

"CgC" graduated centerable circular rotatable stage 140mm in diameter, 360-degree rotatable, Goniometer is divided in 1-degree increments and read to 6′ with vernier.

Centering and clamping knob and 2 clips are provided.

Polarizer Polarizing plate is made of "Mitsubishi Dichrome" and detachable from the condenser. Rotating angle graduations (0°, 90° and 270°).

Analyzer Analyzing plate is made of "Mitsubishi Dichrome" and mounted in the intermediate analyzer tube. The plate is put in or out of the light path and is rotatable 180° by means of a lever. The rotation angle is read to 2° directly and 6′ with vernier.

Bertrand lens Mounted in the analyzer tube. Can be rotated into or out of the light path. Position of the lens is preadjusted, so further adjustment is unnecessary.

1/4 wavelength retardation plate and tint plate A 1/4-wavelength retardation plate (λ = 589mμ) and tint plate (R = 530mμ) are mounted on a slider which is inserted into a slot in the analyzer tube. Used for measuring the crystal axis, positive or negative direction, weak birefringence, etc.

Compensator Sénarmont type (a type of 1/4-wavelength retardation plate, λ = 546mμ) mounted on a slider which replaces the slider of the 1/4-wavelength retardation plate and tint plate. For accurate measurement of retardation.

SPO set supplied complete with monocular eyepiece tube, two filters, daylight mat and 546mμ green, and fitted wooden case.

76800	**SPO Polarizing set, complete, consisting of the following components.**
76821*	Intermediate analyzer tube equipped with Bertrand lens and with ¼ slider with ¼ wave and tint plates
76828*	"Sénarmont" type compensator
77781	Rotatable circular centerable graduated stage with 2 clips (CgC)
76832*	Condenser with polarizer n.a. 1.25
77212	DHKW-10x eyepiece with cross line reticle
77855	HK 5x eyepiece
76913	Daylight diffusing blue filter
76930	Green filter 546mμ
76836*	Fitted wooden case
76820	Inclined monocular tube SPO

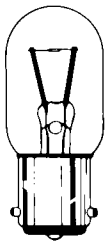
***Components (available only on special order)**

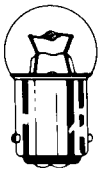
Suggested Student Polarizing Microscope Configuration

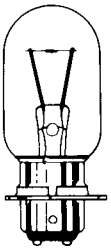
77540	S-Cb/D6 QH microscope stand with quartz-halogen illuminator
77528	Replacement QH bulbs for 77540 (two)
76800	SPO polarizing set, complete
77529	Carrying case for S-Cb (optional)

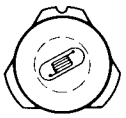
NOTE: The SPO set should be used only with strain-free objectives listed on pages 15 and 26.

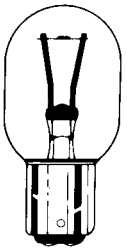
Bulbs

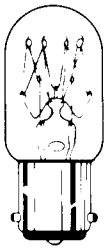

76906

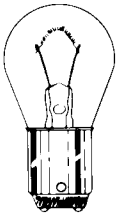

76907

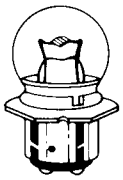

77903


77903
TOP
VIEW

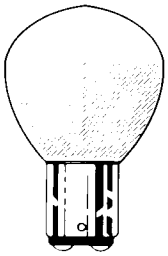

77904

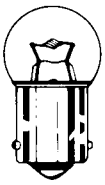

77906


77907

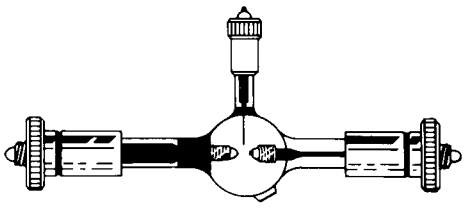

77910


77910
TOP
VIEW

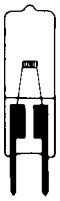

77918


76642


76617


78590


77155


76513
76516
77530

Tungsten Bulbs

Product #	Description	Fits Instruments:
76617	2.2v Miniature screw base	Model "H"
76642	6v/12w, double contact bayonet base, frosted	EPOI Inverted
76906	6v/15w, bayonet base, flat filament, oval shape	SU, Model 1 EPI, Stereo Illuminator (old)
76907	6v/15w, bayonet base, flat filament, round shape	Stereo Illuminator Model 2 (new)
▲ 77066	6v Miniature screw base	AFM Microflex Body pilot light
77155	3v Miniature screw base (GE No. 365)	Teaching Head Illuminator
77412	115v/30w, bayonet base, SUBSTITUTE 77427	"CL" Classic Binocular
▲ 77427	115v/20w, bayonet base half silvered reflector	"CL" Classic, S-Cb/D115, S-Cb/115
77903	6v/15w, bayonet precentered flange, flat filament	S-Kt, POH-3
77904	6v/30w, bayonet base, flat filament	S-Ke, L-Ke, M, MS, Apophot Tungsten, Multiphot Diascopic, Universal Illum. & FL-200 Tungsten
77906	110v/20w, bayonet base, SUBSTITUTE 77427	S, G, Classic Monocular
77907	6v/18w, bayonet base	S-Cb/D6, "S" substage
77910	6v/18w, bayonet precentered flange, flat filament	EPI Model 2, Differential "R", M&MS EPI, POH EPI
77918	115v/20w, bayonet base, reflector, blue frosted	SU 115v

Quartz-Halogen Bulbs

76513	12v/100w, Quartz-Halogen bulb, 2 pin base	All 100w Quartz-Halogen Illuminators
76516	12v/50w, Quartz-Halogen bulb, 2 pin base	All 50w Quartz-Halogen Illuminators
77528	6v/20w, Quartz-Halogen bulb, 2 pin base	S-Cb/D6 QH
▲ 77530	Q.H. Conversion Adapter Plug for 77528	Converts S-Cb/D6 to S-Cb/D6 Q.H.
77771	21v/150w, Quartz-Halogen dichroic reflector	Fiber Optics Illuminator

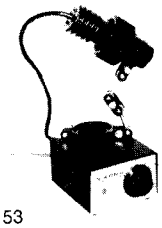
Special Bulbs: Xenon, Mercury, Etc.

▲ 76461	150w Xenon Arc Burner	Apophot Xenon Illuminator
▲ 78153	450w Xenon Arc Ozone-free Burner	Micropan
▲ 78580	200w USH200D Super High Pressure Mercury Burner	Apophot "FL" Illuminator
78590	200w HBO200 Super High Pressure Mercury Burner	FL200, FT200
▲ 79883	200 Watt-Second Electronic Flash Tube	Electronic Flash

▲ Not illustrated

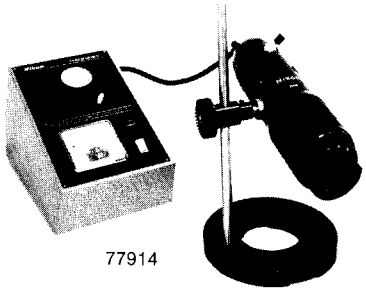
Illuminators

The 6-volt tungsten light sources are still the most popular and utilize the least expensive bulbs. The color temperature of tungsten illumination is approximately 3000°K. Both the 6v/18w Stereo Illuminator and the 6v/30w Universal Microscope Lamp are free-standing units that offer total flexibility of usage. They may be used for microscope illumination as well as side lighting for reflected light photomacrography with the MULTIPHOT. The Universal Microscope Lamp is a high intensity low voltage Koehler illuminator for all types of microscopy, photomicrography, and photomacrography. Its focusable aspheric condenser lens system with iris diaphragm can be used for true Koehler illumination with virtually no glare or flare.

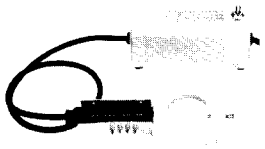


76153

Note: Replacement bulb listings — page 17.



77914



76495

77914	Universal Microscope Koehler Illuminator 6v/30w, with iris diaphragm, continuously variable transformer with voltmeter, and 2 bulbs. (No. 77904)
76153	Stereo illuminator, Model 2, including continuously variable transformer 6v/3a, with on/off switch; swivel mounting bracket and 2 bulbs. No. 76907
76156	Spotlight attachment for Stereo Illuminator
76708	Transformer 6v/30w, (variable) with meter
76171	Transformer, solid-state continuously variable, with on/off switch 6v/20w
*77916	Attachable Koehler illuminator with 6v/20w, continuously variable transformer (For S Bodies only)

**Discontinued item (Available until stock is depleted)*

Stereo Microscope Illuminators — Attachable

76495	Cool Ring Illuminator (cold cathode) with transformer
76493	Cool Ring lamp only with reflector (replacement)
76491	Dual Ring with transformer (76494)
76492	Dual Ring lamp only (replacement)
76489	Dual Ring reflector only
76494	Transformer only (replacement for Cool Ring or Dual Ring)

EPI Illuminator and Accessories

The EPI-Illuminator is an intermediate attachment that is interposed between the eyepiece tube and the objective to furnish "on-axis" illumination. Its beam of light is sent directly through the objective onto the specimen surface. Translucent specimens, such as some minerals, can be examined by combined reflected and transmitted light utilizing the different color filters supplied for contrast. The EPI's optical system fulfills all of the requirements for Koehler illumination; there is a 1.5x magnification factor. It is normally supplied with a 6v/18w tungsten light source, but can be mounted with a 12v/50w quartz-halogen source.



76994

76994	EPI ILLUMINATOR Model 2, for S-Cb, S-Kt, S-Ke, L-Ke, with daylight, green and yellow filters, 2 #76910 bulbs and variable transformers, 6v/20w
76995	Polarizing Attachment for EPI Model 2 with filter polarizer and analyzer

The following objectives (with prefix M) are Metallurgical type, and are recommended for use with the EPI Illuminator for opaque specimens.

77832	Achromat M 5x n.a. 0.10, work. dist. 15mm.
77833	Achromat M 10x n.a. 0.25, work. dist. 7.1mm.
77834	Achromat M 20x n.a. 0.40, work. dist. 5.7mm
77837	Achromat M 40x n.a. 0.65, retractable, work. dist. 0.52mm
77836	Achromat M 100x oil, n.a. 1.25, retractable, work. dist. 0.16mm
77813	Plan Achromat M 10x n.a. 0.25, work. dist. 7.0mm
77811	Plan Achromat M 20x n.a. 0.40, work. dist. 1.6mm
77812	Plan Achromat M 40x n.a. 0.65, retractable, work. dist. 0.24mm
77814	Plan Achromat M 100 n.a. 1.30, retractable, work. dist. 0.12mm

Electronic Flash

This 200-watt-second electronic flash is designed to freeze motion of living specimens, as well as specialized applications for photomicrography of fixed specimens. It can be installed on models S-Ke, L-Ke, APOPHOT, M and MS. A unique relay lens system allows use of the standard 6v/30w tungsten illumination source for normal visual observation while the electronic flash is in firing position. The #79885 version is designed for use on the EPI Illuminator or the Differential-Interference Type R.



79882

79882	Electronic flash includes illuminator housing with flash tube, power pack and cord. Maximum output 200 watts/sec. (for S-Ke, L-Ke, Apophot)
79885	Same as above for EPI Illuminator and Differential Interference Attachment Type R
79883	Flash tube only (replacement)

Quartz-Halogen Light Attachment

Quartz-halogen (also known as quartz-iodine or tungsten-halogen) light sources have a greater light output than regular tungsten, and their special characteristics are responsible for their rapidly increasing usage. The tungsten lamp filament in iodine halogen gas within a quartz envelope continues to burn at a constant 3200°K. temperature (ideal for photomicrography) without darkening the quartz envelope, throughout the entire life of the lamp. The spectral emission of the Q.H. lamp peaks at 385nm, which is ideal for the new FITC fluorescence technique (p. 36). The Q.H. lamps are relatively inexpensive and are ideal for applications such as phase contrast and differential interference, where high light levels are advantageous.



76983

12v/50w Quartz-Halogen

These Quartz-Halogen light sources are available to convert the following EPI Tungsten Illuminators for increased illumination.

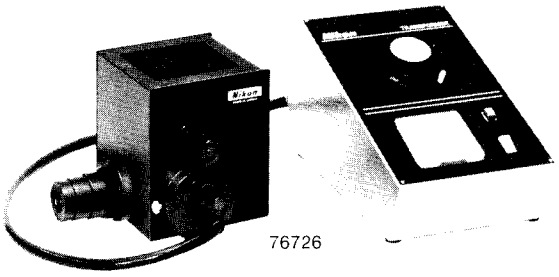
76983	Q.H. Conversion for Model 2 EPI (76994)
76984	Q.H. Conversion for Differential Interference Type R (76985)
77235	Q.H. Conversion for Model POH-2 EPI (77234)
76517	Q.H. Conversion for Model M EPI (76535) — power supply not required

Complete units consist of: Lamp Housing with Socket (#76509), Power Supply (#76508), Bulb (76515), and adapter, if required.

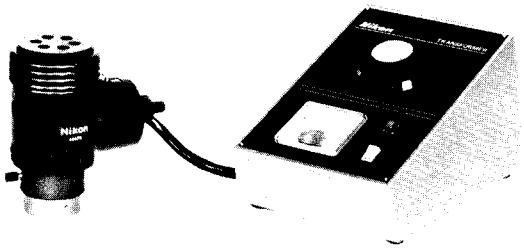
76516	Quartz-Halogen Bulb, 12v/50w (replacement)

12v/100w Quartz-Halogen

76508	Quartz-Halogen Light Source 12v/100w **for conversion** of Models M and MS Diascopic Tungsten Illuminator; with continuously variable power supply; one bulb (76513)
76459	Quartz-Halogen Light Source 12v/100w; adapter collar for Apophot; continuously variable power supply and one bulb (76513)
*76726	Quartz-Halogen Light Source 12v/100w for S-Ke and L-Ke Microscopes. With relay lens system; continuously variable power supply; one bulb (76513)
76513	Quartz-Halogen Bulb, 12v/100w (replacement)



76726

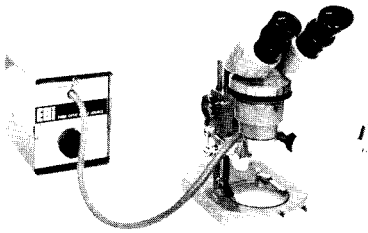


76508

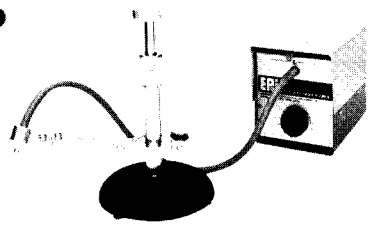
Fiber Optic Illuminators

A new series of fiber optic illuminators is now available which utilizes a 150w quartz-halogen lamp in a heat-reducing dichroic reflector. These illuminators offer extremely intense pin-point illumination with minimum heat output. The #77637 fiber optic illuminator on #77645 telescoping stand is ideal for reflected light photomacrography with the MULTIPHOT; a pair of units is recommended for side-lighting.

77637	Fiber optic quartz-halogen 150w illuminator with power supply and ball joint mount
77645	Telescoping table stand for #77637 illuminator (extends 12")
77771	DNF lamp, 150w Q.H. with dichroic reflector for #77637 (replacement)



77637 with SMZ Zoom Stereo #76000



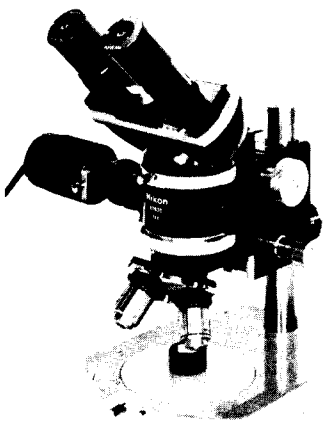
77637 on 77645 Telescoping Stand

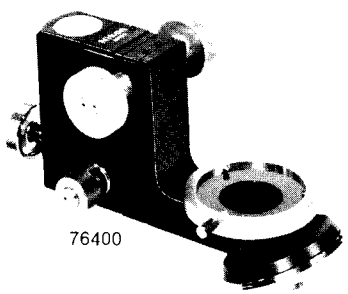
Note: Replacement bulb listings — page 17.

Modular Focusing Mount

This module is designed for special microscope applications when an EPI illuminator or Differential Type R is used with an eyepiece tube, oculars, and objectives. Separate coarse and fine focus controls are located on both sides of the modular mount.

76402	Modular Focusing Mount with single objective nosepiece
76400	Same as above, but with triple revolving nosepiece
76404	Same as above, but with quadruple revolving nosepiece
76013	Plain Stand only
76135	Universal Table Stand Type 3 (plain)
76140	Universal Table Stand Type 4 (with rack & pinion motion for boom arm extension control)
76139	Universal Table Stand Type 3 on Large Platform Base



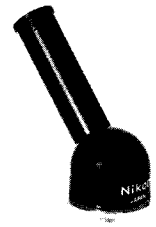


76400

On Stereo Plain Stand (76013) with EPI Illuminator (76994)

Accessories

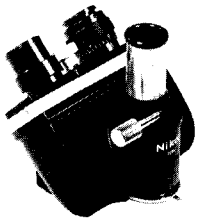
Body Tubes


77740 (I)


77747 (A)


77750 (B)


77751 (Y)


77759 (U)


77753 (F)

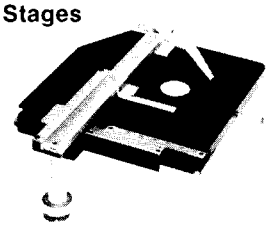

77745 (V)

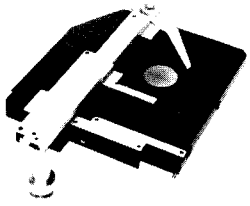
Body Tubes

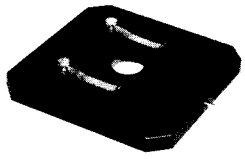
77740	(I) Monocular, 45° inclination
77747	(A) Monocular, with 30° inclination and vertical photo tube, 2 way prism: 100% visual; 100% photo "Monocular-Monocular"
77750	(B) Binocular, 45° inclination
77751	(Y) Binocular, 30° inclination
77759	(U) Trinocular, 45° inclination; 3-way sliding prism: 1. 30% visual, 70% photo, 2. 100% visual, 3. 100% photo
77753	(F) Trinocular, with 30° inclination from the horizontal, 2 way prism: 100% visual; 100% photo. 1.25 magnification factor
77745	(V) Vertical Monocular Photo Tube
77247	Depolarizer for (F) and (Y) Tube

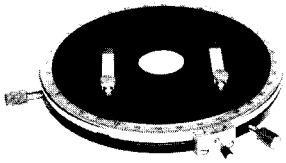
NOTE: The (F) and (Y) body tubes are recommended for polarization microscopy; both accept #77247 depolarizer. The (A), (F), and (U) body tubes require an extra eyepiece for the photo tube.

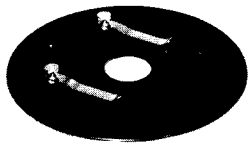
Stages

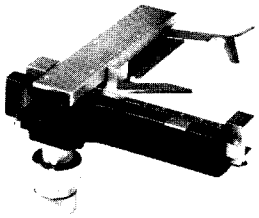

77765 (R)


78525 (RS)

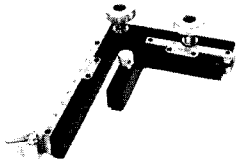

77775 (P)

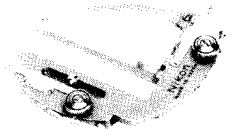

77781 (CgC)

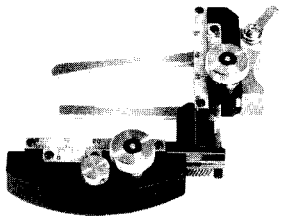

77770 (C)


77773 (Ge)


77785 (J)


77784


77237


76058

Stages

77765	"R" Rectangular, graduated, with built-in low position co-axial mechanical control, stage surface: 130mm x 140mm; travel 50mm x 75mm
78525	"RS" Stage, as above with concentric grooves for use with ultra darkfield oiled condenser; especially for use in fluorescence microscopy
77775	"P" Square plain stage, 130mm x 130mm
77781	"CgC" Centerable, graduated, circular, rotatable; stage surface: 140mm Diam.
77770	"C" Circular gliding stage, stage surface: 140mm Diam.

Attachable Mechanical Stages

77773	"Ge" attachable low position co-axial mechanical with 76mm x 25mm movement
77774	Same, but left hand model
77785	"J" Attachable mechanical for "C" or "P" stages, 50mm x 30mm movement
77783	Same, but with 75mm x 50mm movement
77784	Attachable mechanical, top control, 66mm x 28mm movement
77237	Attachable graduated mechanical stage, low profile, 30 x 30mm, with point-count ratchets for circular stages
76058	Attachable graduated mechanical stage, 30 x 30mm for circular stages

Selecting the Correct Objectives and Eyepieces

Careful thought should be given to the proper selection of optics to achieve the required image quality and resolution. Nikon's modular design concept facilitates tailoring the microscope to the user. Some necessary basic considerations are:

How critical are the resolution requirements?

Are highly corrected, relatively costly, fluorite or apochromatic objectives necessary?

Which oculars are correct?

Objectives are generally classified into three categories, describing the degree of correction of chromatic and spherical aberrations.

ACHROMATS are chromatically corrected for two colors and spherically corrected for one color. They are suitable for visual observation and photomicrography with either color or black and white films. Image quality in black and white photomicrography can be improved by the use of a green filter.

SEMI-APOCHROMATS or FLUORITES are a compromise between the economy of the achromat and the high performance of the apochromat. They are chromatically corrected for two colors and spherically corrected for two colors. Improved aberration correction results in sharper contrast and higher numerical apertures. The higher n.a. offers increased resolution and the improved corrections make for better visual and photo images.

APOCHROMATS are corrected chromatically for three colors and spherically for two colors. These optimum corrections allow the highest n.a. for unexcelled resolution. Apochromats are the finest objectives for both visual examination and photomicrography and are especially recommended for best color rendition.

"PLAN" OBJECTIVES: For specific applications such as visual examination of smears or thin sections and for large format photomicrography, it is desirable to have the entire field of view in sharp focus. Superior photomicrographs and low fatigue from prolonged viewing of flat specimens justify the higher relative prices of such "plan" or "flat field" objectives, which are available in achromatic, fluorite, and apochromatic corrections.

EYEPIECE (OCULAR) selection is a less difficult task than objective selection. Inexpensive Huygenian eyepieces are recommended for use with low power achromat objectives only. When employing high power achromats, fluorites or apochromats, either regular or flat field, a "compensating" eyepiece should be selected. This compensation actually improves color correction in addition to magnifying the image from the objective. The "high-eyepoint" eyepiece is especially recommended, as it reduces eye fatigue and eliminates the hazard of scratching either ocular or spectacle lenses for eyeglass wearers. The widefield type of ocular provides a larger apparent image, which is more relaxing to view. The Nikon HKW eyepieces fulfill all of these recommendations.

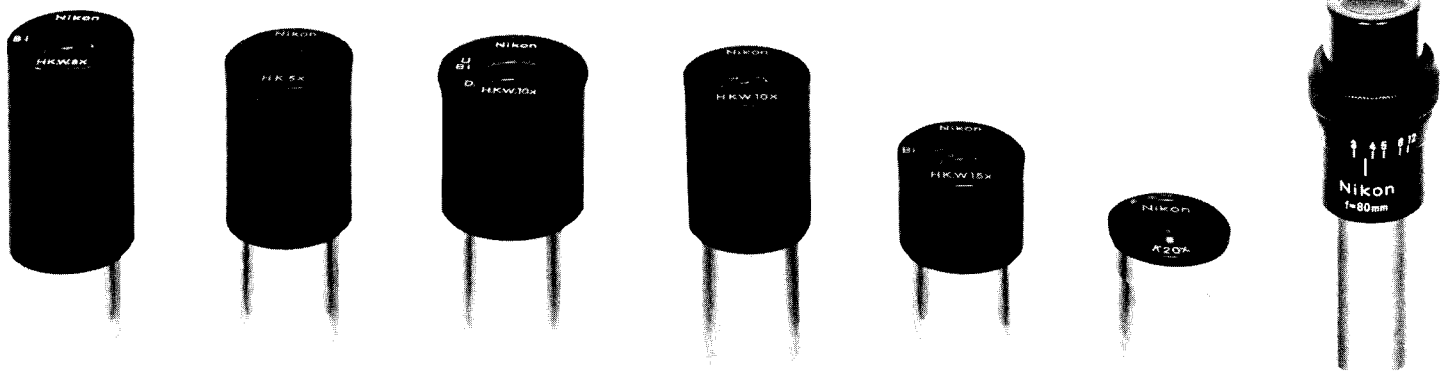
A high-magnification objective and a low-magnification eyepiece give the best resolving power. A low-power objective and a high-power eyepiece give the greatest depth of focus.

TOTAL MICROSCOPE MAGNIFICATION is computed by multiplying the objective magnification by the eyepiece (ocular) magnification. This total may be increased by a body tube or intermediate attachment tube factor.

Examples:

1) 40x objective
   x 15x eyepiece
   600x total magnification
2) 10x objective
   x 10x eyepiece
   100x
   x 1.25x teaching head tube factor
   125x total magnification
3) 20x objective
   x 8x eyepiece
   160x
   x 1.5x Epi illuminator tube factor
   240x
   x 1.25x "F" Trinocular tube factor
   300x total magnification

Eyepieces



77881 77855 77880 77857 77861 77863 78164

77855 High eyepoint, compensating HK 5x, field no. 21.0

77856 High eyepoint, compensating HK 5x, paired

77881 High eyepoint, compensating widefield HKW 8x, field no. 18.6

77882 High eyepoint, compensating widefield HKW 8x, paired

77857 High eyepoint, compensating widefield HKW 10x, field no. 18.0

77858 High eyepoint, compensating widefield HKW 10x, paired

77861 High eyepoint, compensating wide angle HKW 15x, field no. 14.0

77862 High eyepoint, compensating wide angle HKW 15x, paired

77863 Compensating K 20x, field no. 8.0

77864 Compensating K 20x, paired

77865 Huygenian, widefield HW 10x, field no. 17.5

77866 Huygenian, widefield HW 10x, paired

The following eyepiece contains a picture frame for 35mm. format and should be ordered for the "U" "F" and "MM" heads.

77880 DHKW 10x photo eyepiece w/picture frame, field no. 18.0

Polarization Eyepieces

77210 High Eyepoint, compensating, diopter adjustable, DHK 5x, with cross line reticle

77212 High Eyepoint, compensating, widefield, diopter adjustable, DHKW 10x, with cross line reticle

Large diameter, for POH Polarizing IP Monoc

77204 Huygenian, widefield, P 5x, with cross line reticle

77206 Huygenian, widefield, P 7x, with cross line reticle

77208 Huygenian, widefield, P 10x, with cross line reticle

Projection Eyepiece

78164 3.2X with adapter collar for projection mirror housing #78162 (requires #77158 eyepiece holder)

Objectives


77827


77842


77825


77808


77810


77795


77798

Achromat Objectives

77790	Achromat 4x, n.a. 0.10, work. dist. 9.50mm
77795	Achromat 10x, n.a. 0.25, work. dist. 7.10mm
77800	Achromat 20x, n.a. 0.40, work. dist. 5.70mm
77810	Achromat 40x, n.a. 0.65, retractable, work. dist. 0.54mm
77820	Achromat, oil, 100x, n.a. 1.25, retractable, work. dist. 0.16mm
77897	Funnel Stop for darkfield use of 77820
77825	Achromat, oil, 100x, n.a. 1.25, with iris diaphragm for darkfield, work. dist. 0.16mm
77835	Achromat 40x, NCG, n.a. 0.65, for uncovered slides, retractable, work. dist., 0.52mm

Flat Field Achromat Objectives

77826	Plan 1.2x with iris diaphragm, n.a. 0.03, work. dist. 29.7mm
77827	Plan 2x with iris diaphragm, n.a. 0.05, work. dist. 35.6mm
77828	Plan 3x with iris diaphragm, n.a. 0.08, work. dist. 28.6mm
77891	Spectacle Lens Condenser (for use with above objectives)
77794	Plan Achromat 4x, n.a. 0.10, work. dist. 18.2mm
77796	Plan Achromat 10x, n.a. 0.25, work. dist. 7.0mm
77797	Plan Achromat 20x, n.a. 0.40, work. dist. 1.6mm
77806	Plan Achromat 40x, n.a. 0.65, retractable, work. dist. 0.24mm
77821	Plan Achromat, oil, 100x, n.a. 1.30, retractable, work. dist. 0.12mm
77807	Plan Achromat 40x, NCG n.a. 0.65, for uncovered slides, retractable, work. dist. 0.32mm

Special Objectives

77841	Plan Fluorite 40x, n.a. 0.75, retractable, work. dist. 0.45mm
77845	Apochromat 40x, n.a. 0.80, retractable, work. dist. 0.19mm
77842	Fluorite 70x, oil, n.a. 1.25, retractable, work. dist. 0.16mm
77843	Dark field funnel stop for 77842
77847	Apochromat, oil, 100x n.a. 1.40, retractable, work. dist. 0.10mm
77850	Plan Apochromat, oil, 100x n.a. 1.30, retractable, work. dist. 0.12mm
77808	Long-Working-Distance L 40x Achromat, n.a. 0.60, with correction collar, work. dist. 2.0mm
77809	DML 40x Long-Working-Distance Phase, n.a. 0.60 dark contrast; medium, with correcting collar, work. dist. 2.0mm

Water Immersion Objectives

77798	Achromat W 10x n.a. 0.22, work. dist. 0mm to 2.0mm
77803	Achromat W 20x n.a. 0.33, work. dist. 0mm to 2.0mm
77804	Achromat W 40x n.a. 0.65, retractable, work. dist. 0.74mm

Special Phase Objectives for Combined Phase Fluorescence

78540	DLL-F 10x Achromat, n.a. 0.25, work. dist. 7.10mm
78541	DM-F 100x oil, Achromat with iris diaphragm, n.a. 1.25, work. dist. 2.0mm

Metallurgical Objectives (for use with EPI Illuminator)

77832	Achromat M 5x n.a. 0.10, work. dist. 15.0mm
77833	Achromat M 10x n.a. 0.25, work. dist. 7.10mm
77834	Achromat M 20x n.a. 0.40, work. dist. 5.70mm
77837	Achromat M 40x n.a. 0.65, retractable, work. dist. 0.52mm
77836	Achromat M 100x n.a. 1.25, retractable, work. dist. 0.16mm
77813	Plan Achromat M 10x n.a. 0.25, work. dist. 7.0mm
77811	Plan Achromat M 20x n.a. 0.40, work. dist. 1.6mm
77812	Plan Achromat M 40x n.a. 0.65, retractable, work. dist. 0.24mm
77814	Plan Achromat M 100x n.a. 1.30, retractable, work. dist. 0.12mm

Strain Free Objectives (for polarizing microscopy)

76802	P 4x strain free Achromat, n.a. 0.10 work. dist. 9.50mm
76804	P 10x strain free Achromat, n.a. 0.25, work. dist. 7.0mm
76806	P 20x strain free Achromat, n.a. 0.40, work. dist. 5.70mm
76810	P 40x strain free Achromat, n.a. 0.65, retractable, work. dist. 0.54mm
76815	P 100x oil, strain free Achromat, n.a. 1.25, retractable, work. dist. 0.16mm

Flat Field Objectives, Stain Free (for polarizing microscopy)

76840	Plan achromat, Plan P 4x, n.a. 0.10, work. dist. 18.2mm
76842	Plan achromat, Plan P 10x, n.a. 0.25, work. dist. 7.0mm
76844	Plan achromat, Plan P 40x, retractable, n.a. 0.65, work. dist. 0.24mm
76846	Plan achromat, Plan P 100x, oil immersion, retractable, n.a. 1.30, work. dist. 0.12mm

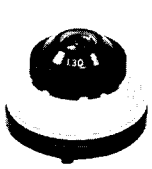
Metallurgical — For use with Differential "R" or Polarized EPI

76813	PM 5x strain free Achromat, n.a. 0.10, work. dist. 15.0mm
76814	PM 10x strain free Achromat, n.a. 0.25, work. dist. 7.1mm
76811	PM 20x strain free Achromat, n.a. 0.40, work. dist. 5.7mm
76812	PM 40x strain free Achromat, n.a. 0.65, retractable, work. dist. 0.52mm
76817	PM 100x oil, strain free Achromat, n.a. 1.25, retractable, work. dist. 0.16mm

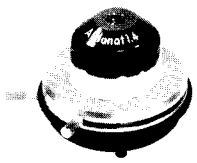
Strain Free — Long-Working-Distance

77250	Achromat U 5x, (3.2x) n.a. 0.07, work. dist. 18.8mm
77252	Achromat U 10x, (6.5x) n.a. 0.15, work. dist. 16.4mm
77254	Achromat U 20x, (13x) n.a. 0.21, work. dist. 14.6mm
NOTE:	Above specifications applicable when used without universal stage hemispheres (page 23).

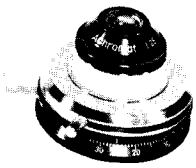
Condensers

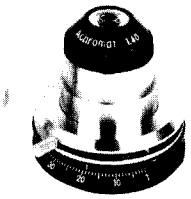

77890

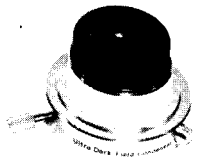

77892

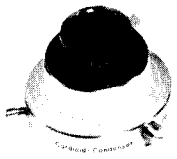

77893


77891


77894


77888


77896


77895

77890	Abbe "N" 2 lens with iris diaphragm and filter holder, n.a. 1.30
77892	Abbe, 2 lens with iris diaphragm, oblique illumination slider and filter holder, n.a. 1.30
77893	Aplanat, 3 lens with iris diaphragm, oblique illumination slider and filter holder, n.a. 1.40
77891	Spectacle lens, for use with 1.2x, 2x, & 3x plan low power objectives
77894	Achromat, 5 lens with iris diaphragm, oblique illumination slider and filter holder, n.a. 1.25. Recommended for photomicrography
77888	Achromat/Aplanat, 7 lens with iris diaphragm, oblique illumination slider and filter holder, n.a. 1.40. Most highly corrected; for highest resolution
77895	Darkfield, cardioid, with centering screws, n.a. 1.20-1.35
77896	Ultra dark field, with centering screws (recommended for fluorescence), n.a. 1.20-1.40

Functions of Filters

1) Daylight blue — simulate daylight and reduce red and infrared rays that cause eye fatigue.
2) Diffusing — eliminate bulb filament shadow at low magnification.
3) Neutral density — reduce intensity of illumination without affecting color.
4) Light balancing — balance color temperature of light for "indoor" type color film.
5) Conversion — balance color temperature of light for "daylight" type color film. 820B and 840B for Polacolor.
6) Heat absorbing — absorb infrared to keep specimen cool.
7) Dark green, 2mm thick — recommended for phase contrast. Dark green, 1mm thick — recommended for interference phase.
8) Didymium — enhance red color saturation of eosin and fuchsin stained specimens for color films, especially Kodachrome.
9) Color contrast sets — especially useful for biological specimens: green enhances red, yellow enhances violet, orange enhances blue.
10) Wratten No. 58 — for high resolution monochrome photography with achromat objectives.

Filters

33mm. Diam. to fit condenser filter retaining ring and swing-out filter holders: S-Cb, S-Kt, S-Ke, L-Ke

76909	Interference, 546nm, high transmission
76910	Light blue, clear, for "Classic"
76914	Daylight, clear blue
76915	Lemon skin diffusing high transmission filter
76918	Neutral density, 10% transmission
76920	Neutral density, 25% transmission
76922	Neutral density, 50% transmission
76924	Light balancing, 82B
76926	Light balancing, 82C
76927	Conversion filter, 80A
76923	Conversion filter, 80B
76925	Conversion filter, 80C
76929	Conversion filter, 820B
76921	Conversion filter, 840B
76928	Heat absorbing
76930	Dark Green, 2mm thick
76931	Dark Green, 1mm thick
76932	Didymium
76934	Diffusing, blue frosted
77133	Contrast filters, set of 3, Green, Yellow, Orange
78654	Wratten No. 58 Green

16mm. Diam. to fit Epi illuminator

77242	Daylight, clear blue
77243	Green
77244	Yellow

45mm. Diam. to fit Universal Microscope Lamp, Inverted Microscopes M, MS; Apophot, S-Ke, & L-Ke, Kt & CL lamp condensers.

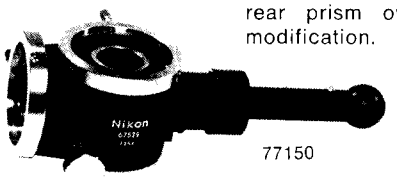
76941	Daylight, clear blue
76935	Lemon skin diffusing, high transmission
76912	Neutral density, 10% transmission
76917	Neutral density, 25% transmission
76919	Neutral density, 50% transmission
76936	Light balancing, 82B
76939	Light balancing, 82C
76942	Conversion filter, 80A
76943	Conversion filter, 80B
76944	Conversion filter, 80C
76946	Conversion filter, 820B
76947	Conversion filter, 840B
76940	Heat absorbing
76937	Dark Green, 2mm thick
76948	Didymium
76945	Wratten No. 58 Green

Special Fluorescence Filters

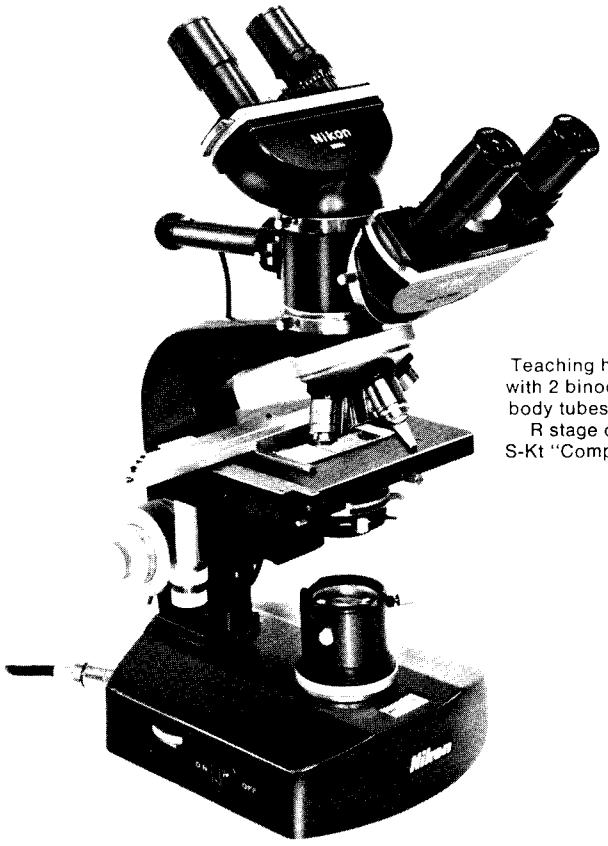
78516	FITC Excitation, 45mm
78517	Barrier, #12 deep yellow, 28mm for use with #78516

Teaching Head

The teaching head attaches to models L-Ke, S-Ke, S-Kt or S-Cb/D6 or D6QH to permit simultaneous observation by two persons. The moveable arrow pointer is illuminated in white, red or green to maximize contrast with the background. Powered by a separate 115v/3a transformer, the pointer illumination does not dim with the microscope illuminator. Tube magnification factor: 1.25x: May be equipped with any combination of monocular, binocular, or trinocular body tubes. The 30° inclined (Y) Binocular is recommended to keep the configuration at a convenient user height. For trinocular use, the (F) head should be used, as the (U) head's rear prism overhang requires modification.



77150



Teaching head with 2 binocular body tubes and R stage on S-Kt "Compact"

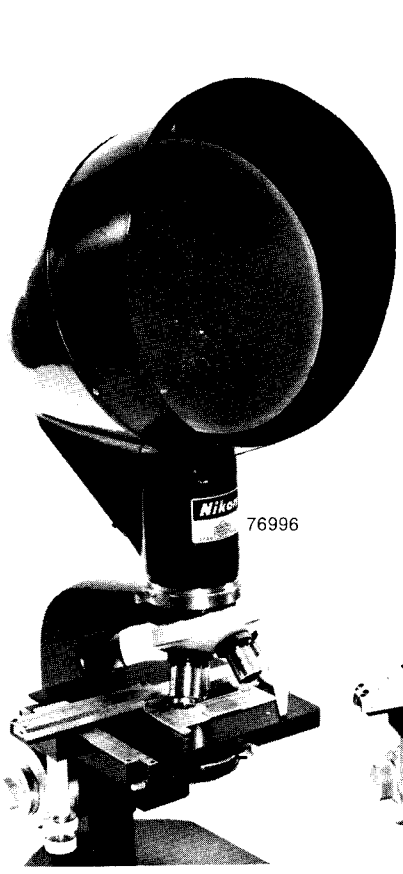
77150	Teaching head with built-in illuminated pointer, green and red filters and transformer; 2 bulbs. Magnification factor 1.25. (requires extra body tube with eyepieces)
77155	Replacement Bulb (GE No. 365)
77048	Special short phase centering telescope only. For use with Teaching Head when using phase contrast.

Projection Head

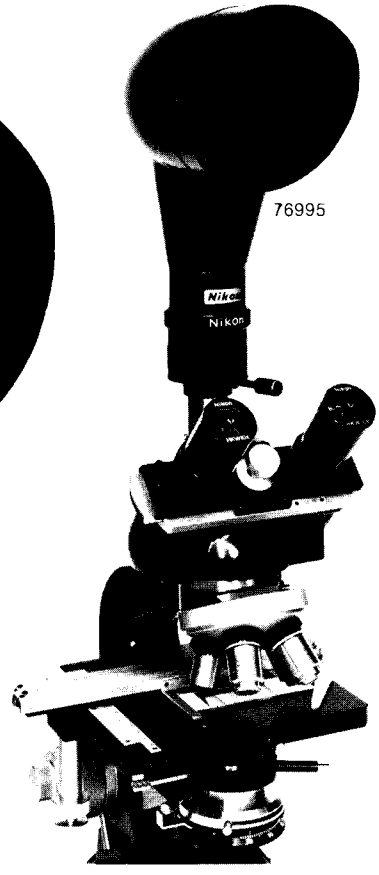
Type I attaches to microscope body in place of a body tube. Equipped with clips to hold tracing sheet. Effective diameter of screen: 170mm. Magnification of projected image — same as observed image of microscope.

Type II attaches on top of a vertical monocular tube (V) or trinocular (F) or (U) with standard eyepiece adapter. Effective screen size: 88mm. Magnification of projected image — 2/3x of total magnification of microscope.

Use of Flat-field objectives is recommended to ensure edge sharpness.



76996



76995

76996	Projection head Type I in fitted case, 6¾" screen (HKW 10x No. 77857 eyepiece required for use)
76965	Projection head Type II with 3½" screen (requires 77111)
77111	Universal eyepiece adapter (diam. 25mm for 76965)
76473	Adapter to mount 76965 Projection Head on Apophot

Differential Interference Attachment

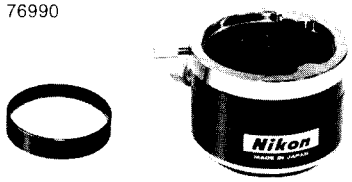
Type "T"

The Differential Interference "T" attachment is a shearing type transmitted light interference contrast accessory. It displays optical path differences in brilliant interference colors resulting in an image with three dimensional appearance showing minute specimen details.

Applications cover stained subjects as well as living material. The image comes out haloless and more luminous than phase contrast. Since the condenser aperture is fully utilized, the resolution is maintained.



76990

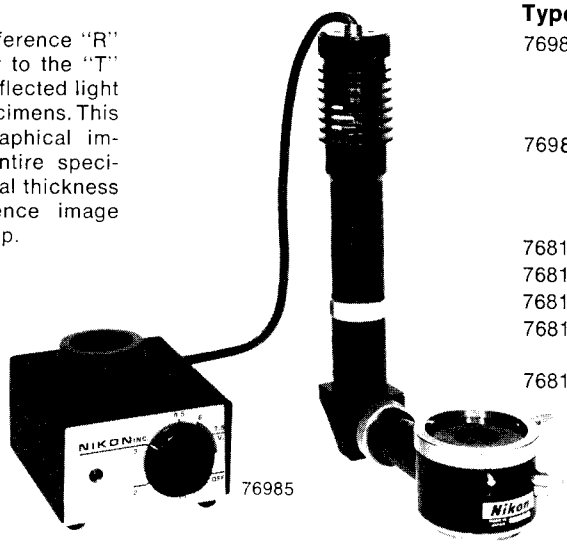


Type "T"

76990	Differential Interference Attachment, Type T (for transmitted light) consisting of: Compensator unit with 1 each filter analyzer and Savart plate; turret condenser with aperture diaphragm, filter polarizer and 3 Savart plates for 10x, 20x, and 40x objectives
	Strain Free Achromat Objectives (Recommended for use with **Type T**)
76804	P 10x strain free Achromat, n.a. 0.25, work. dist. 7.0mm
76806	P 20x strain free Achromat, n.a. 0.40, work. dist. 5.7mm
76810	P 40x strain free Achromat retractable, n.a. 0.65, work. dist. 0.54mm (Recommended for use with **Type R & T**)
77781	Circular stage, Rotating, Graduated and Centerable (CgC)

Type "R"

The Differential Interference "R" attachment is similar to the "T" but is designed for reflected light use with opaque specimens. This unit gives a topographical impression over the entire specimen; where the optical thickness varies, the interference image looks like a relief map.



76985

Type "R"

76985	Differential Interference Attachment Type R (for reflected light) Francon-Yamamoto with 6v/3a transformer Cat. No. 76171 and 2 bulbs No. 77910 to fit S-Cb, S-Kt, S-Ke, and L-Ke bodies
76984	Quartz-Halogen Lamp, 12v/50w for Differential Interference, Type R; with power supply
	Strain Free Achromat Objectives (Recommended for use with **Type R)**
76813	PM 5x Achromat, n.a. 0.10, work. dist. 15.0mm
76814	PM 10x Achromat, n.a. 0.25, work. dist. 7.1mm
76811	PM 20x Achromat, n.a. 0.4, work. dist. 5.7 mm
76812	PM 40x Achromat, retractable, n.a. 0.65, work. dist. 0.52mm
76817	PM 100x Achromat, retractable, oil, n.a. 1.25, work. dist. 0.16mm

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Drawing Attachment, Model II

Provides a magnified image of the specimen superimposed upon an erect image of the drawing surface and the pen or pencil. The desired subject details are traced onto the drawing paper. Shallow depth of focus under high magnification can be compensated by focusing at different levels and drawing-in the details as they are resolved.

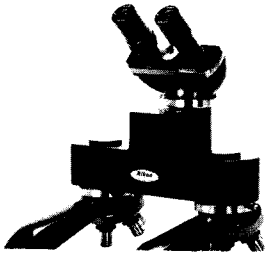
This new model transmits more than twice the light of Model I; this allows drawing with a much weaker light source. The visible drawing area is more than twice as great as with Model I; this enables the user to reproduce finer details with great accuracy.

76980	Drawing tube attachment in wooden case, for Models S-Cb, S-Kt, S-Ke, L-Ke, MS



Comparison Eyepiece Bridge

The images from two matching microscopes can be viewed in a field divided equally between the two in any ratio by means of a sliding prism. Includes a 1:1 relay lens system. Either a binocular or trinocular body tube can be mounted for visual observation and photomicrography.



77763	**COMPARISON EYEPIECE BRIDGE,** Model 2, with sliding prism and bayonet mount

NOTE: Designed for use with models S-Cb, S-Ke & L-Ke only.

Phase Contrast Objectives and Accessories

Phase contrast microscopy allows the detailed examination of colorless, unstained specimens that cannot be seen by standard brightfield techniques. It is ideal for viewing living material.

To convert a Nikon brightfield microscope to phase contrast, both the objectives and condenser must be replaced with optics containing the special phase annuli. The same condensers can be utilized with the three types of phase contrast objectives.

a) DLL (Dark — Low — Low) — designed to furnish the strongest dark contrast in objects having major differences in refractive indices. Subject is dark against light background. The most popular type of phase contrast for examination of cells and other living material; especially suited for photomicrography.

b) DM (Dark — Medium) — designed for high image contrast of specimens with small phase differences, such as fine fibers, granules and particles. Subject is relatively dark against a light background.

c) BM (Bright — Medium) — designed to give contrast similar to darkfield: the subject is light against a dark background. Especially suited for visual examination of bacterial flagelli, protozoa, fibrin fibers, minute globules and blood cell counting.



77035



77040



77049

Phase Contrast Condensers

77040 Phase Turret Condenser with 10x, 20x, 40x and 100x built-in phase annuli; iris diaphragm for brightfield; heat absorbing and green 33mm filters; phase centering telescope; in fitted case

77049 Long-Working-Distance Phase Turret Condenser (working distance 12-15mm) with 10x, 20x, 40x and 100x built-in phase annuli; iris diaphragm for brightfield; heat absorbing and green 45mm filters, phase centering telescope

77035 Extra-Long-Working-Distance Phase Turret Condenser (40mm working distance) with 10x, 20x, and 40x built-in phase annuli; iris diaphragm for brightfield; heat absorbing and green 45mm filters; phase centering telescope

77041 Phase Centering Telescope only (standard)

77048 Phase Centering Telescope only (short type) for use with Teaching Head or Interference Phase Attachment

Achromat Phase Objectives

77020 DLL 10x, dark contrast, light, n.a. 0.30, work. dist. 6.40mm

77022 DLL 20x, dark contrast, light, n.a. 0.40, work. dist. 4.50mm

77025 DLL 40x, dark contrast, light, retractable, n.a. 0.65, work. dist. 0.54mm

77027 DLL 100x oil, dark contrast, light, retractable, n.a. 1.25, work. dist. 0.16mm

77029 DM 40x, dark contrast, medium, retractable, n.a. 0.65, work. dist. 0.54mm

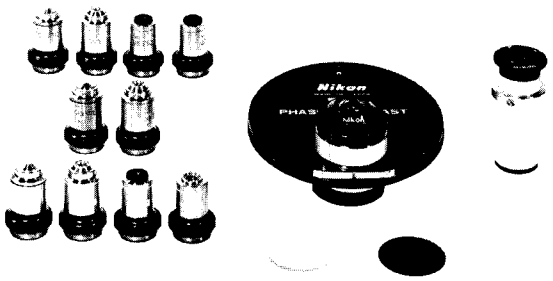
77031 DM 100x oil, dark contrast, medium, retractable, n.a. 1.25, work. dist. 0.16mm

77032 BM 10x, bright contrast, medium, n.a. 0.30, work. dist. 6.40mm

77034 BM 20x, bright contrast, medium, n.a. 0.40, work. dist. 4.50mm

77037 BM 40x, bright contrast, medium, retractable, n.a. 0.65, work. dist. 0.54mm

77039 BM 100x oil, bright contrast, medium, retractable, n.a. 1.25, work. dist. 0.16mm



The complete sets of objectives listed below are furnished with centering telescope, turret phase condenser, green filter and heat absorbing filter in fitted case.

Phase contrast sets are arranged for convenience in ordering.

77018 SET TYPE A: Achromat DLL 10x, DLL 20x, DLL 40x and DLL 100x objectives

77019 SET TYPE B: Achromat DLL 10x, DLL 20x, DLL 40x, DLL 100x oil, DM 40x, DM 100x

77045 SET TYPE C: Achromat DLL 10x, DLL 20x, DLL 40x, DLL 100x oil, BM 10x, BM 20x, BM 40x, BM 100x oil

77021 SET TYPE D: Complete set of 10 Achromat objectives (4DLL, 2DM, 4BM)

Long-working-distance phase objective

77809 DML 40x Long-Working-Distance Phase, n.a. 0.60 dark contrast; medium, with correcting collar, work. dist., 2.0mm

Flat Field Phase Objectives

77174 Plan Achromat, DLL 40x, dark contrast, light, retractable, n.a. 0.65, work. dist. 0.24mm

77175 Plan Achromat, DLL 100x oil, dark contrast, light, retractable, n.a. 1.30, work. dist. 0.12mm

77178 Plan Achromat, DM 40x, dark contrast, medium, retractable, n.a. 0.65, work. dist. 0.24mm

77179 Plan Achromat, DM 100x oil, dark contrast, medium, retractable, n.a. 1.30, work. dist. 0.12mm

77182 Plan Achromat, BM 40x, bright contrast, medium, retractable, n.a. 0.65, work. dist. 0.24mm

77183 Plan Achromat, BM 100x, oil, bright contrast, medium, retractable, n.a. 1.30, work. dist. 0.12mm

Apochromat Phase Objectives

77162 Apochromat DLL 40x, dark contrast, light, retractable, n.a. 0.80, work. dist. 0.19mm

77163 Apochromat DLL 100x oil, dark contrast, light, retractable, n.a. 1.40, work. dist. 0.10mm

77166 Apochromat DM 40x, dark contrast, medium, retractable, n.a. 0.80, work. dist. 0.19mm

77167 Apochromat DM 100x oil, dark contrast, medium, retractable, n.a. 1.40, work. dist. 0.10mm

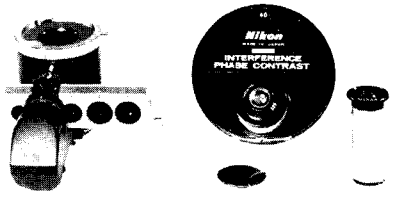
77170 Apochromat BM 40x, bright contrast, medium, retractable, n.a. 0.80, work. dist. 0.19mm

77171 Apochromat BM 100x oil, bright contrast, medium, retractable, n.a. 1.40, work. dist. 0.10mm

Interference Phase Attachment

A unique form of Nikon microscopy that utilizes polarization to introduce interference colors into phase contrast, enabling the user's eye to distinguish ultrafine details. Must be used with standard achromat objectives.

77000 Includes intermediate piece, short centering telescope, turret phase-interference condenser, green and heat absorbing 33mm filters in fitted case



Miscellaneous Accessories

Micrometers

76951	Filar eyepiece micrometer, internal reading, 10x, scale 10mm/.01
76952	Micrometer eyepiece, Kellner-type, 10x
76954	Stage micrometer A, 1mm/scale length divided in 100 parts
76955	Stage micrometer B, 0.2mm/400 squares

Projection Accessories

78162	Projection Mirror Prism Attachment (for use on trinocular S-Ke or L-Ke for short-distance micro-projection with Quartz-Halogen illuminator). Mounting requires universal eyepiece adapter
77111	Universal eyepiece adapter
78164	3.2x projection eyepiece with adapter collar for projection mirror

Microscope Cases

76974	Fitted Hardwood Cabinet, S-Ke and L-Ke
77523	Fitted Hardwood Cabinet, S-Kt and POH-3 monoc
77529	Fitted Hardwood Cabinet, S-Cb
77410	Plastic case for S-Cb and Classic

Miscellaneous Accessories

76997	Lens cleaning tissue 4" x 6" book, 50 sheets
76999	Immersion oil (non drying) in plastic oiler, 8cc. (PCB free)
76970	Swing-out filter holder for Su, S-Ke, L-Ke
76973	"A" Type filter holder for use with achromat/aplanat condenser
77735	Dust cap for nosepiece objective hole (RMS thread)
77901	Stage clips, paired (replacement)
76960	Eyepiece pointer
76968	Polarizing set: filter polarizer and analyzer in fitted case

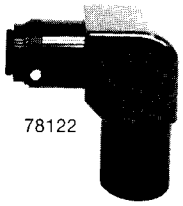
Vinyl Dust Covers

77900	Type 102	Fits basic binocular and monocular CL Classic; S-Cb/D115; S-Cb/115; S-Cb/D6; S-Cb/D6QH; Kt Compact
76972	Type 104	Fits binocular and trinocular S-Ke; L-Ke and POH-3; trinocular S-Kt; all models with teaching head attachments, EPI illuminators, Differential-Interference Type R, or SPO attachment, MSE
77332	Type 109	Fits MULTIPHOT and Ke Photoscope on Photo stand types 2 or 3 with Microflex and 1.3x cone
76486	Type 107	Fits APOPHOT and MICROPAN
76568	Type 103	Fits MS inverted with diascopic illuminator
78043	Type 108	Fits MS diascopic with attached Microflex
76501	Type 111	Fits Model M inverted with side mounted photo attachment
78508	Type 106	Fits FL-200 and FT-200 fluorescence microscopes

TV Adapter

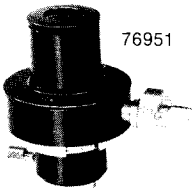
78122	T.V. Adapter with 90° prism for horizontal use, with C mount collar for T.V. camera, with ¼x projection lens
78123	Adapter to mount T.V. camera on Cine/Photo stand

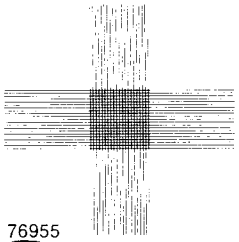

78123


78122


76966


76952


76951


76955

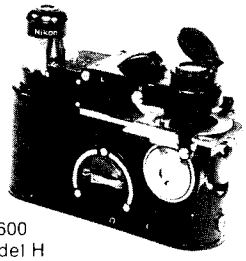

76954

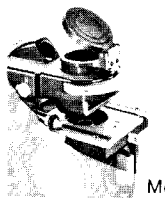
Model H Portable Microscope

76600	Model H Portable Microscope with 4x, 10x, 40x and 100x objectives, powered by 2AA batteries for field use, in leather case
76612	Model H-3 for Phase Contrast Microscopy equipped with HK 10x eyepiece, phase achromat objectives, dark-light contrast, DLL 10x, DLL 20x, DLL 40x and DLL 100x (oil), phase turret condenser with annular diaphragm, centering telescope, neck strap and leather case

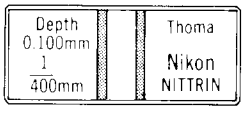
Model H Accessories

76614	Hole glass slide with cemented cover slip
76625	Achromat 20x Objective, Model H
76616	Achromat 40x N.C.G. objective for uncovered slides
76619	Table clamp with swivel head
76620	Transformer for Model H (battery eliminator)
76624	Hemacytometer (Blood Counting Chamber) (Thoma type) for Model H specially modified
76613	Polarizing set for Model H
76617	Illuminator bulb 2.2v penlight (replacement)

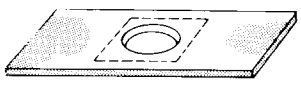

7600
Model H


76612
Model H-3

76624




76619


76614

System of Photo-/Cinemicrographic Equipment

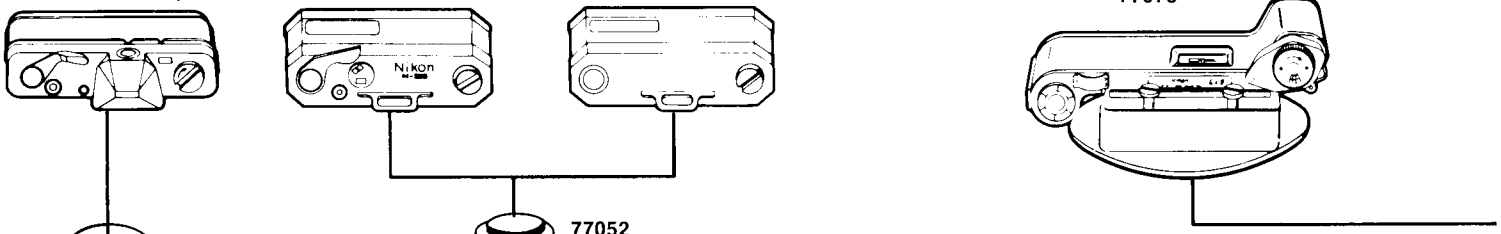
This self-explanatory "family-tree" shows how the basic attachments and accessories combine together and interchange with one another to make a complete system.

Nikon F, F2 or Nikkormat FTn or EL Body

35mm Dark box M-35S **77137**

Auto Dark box M-35A (Control Box not shown) **77128**

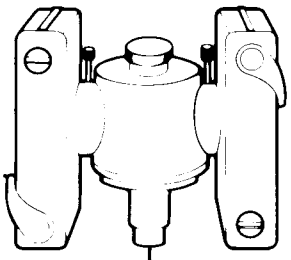
Roll film adapter **77075**



77052 Camera adapter for M-35S/M-35A Leica screw thread (included with PFM-B, EFM-B & AFM-B)

77050 Camera adapter for Nikon F bayonet (included with PFM-B, EFM-B & AFM-B)

77092 ½ x relay/projection lens (included with all Microflexes except CFMA)

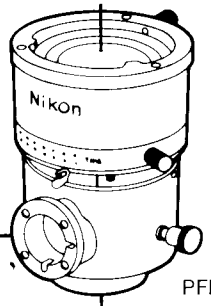


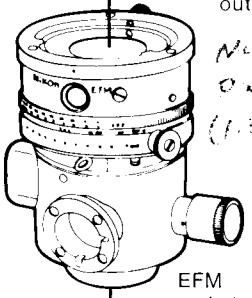
PA-D 77089

Bicam (double camera) adapter shown with two No. 77127 M-35D dark boxes (replaces ½ x relay lens =77092)

77070 (complete PFM-B outfit)

77085 (complete EFM-B outfit)





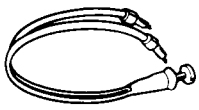
77057 Ocular viewfinder (included with all Microflexes)

77055 Viewing screen (7x magnifier not shown) (included with AFM; optional for EFM & PFM)

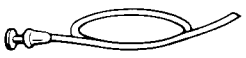
PFM main body **77072**

EFM main body **77088**

77130 Double cable release



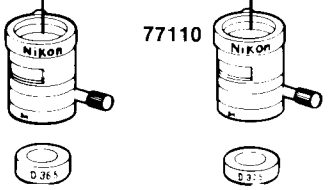
77129 Cable release



(included with all Microflexes)

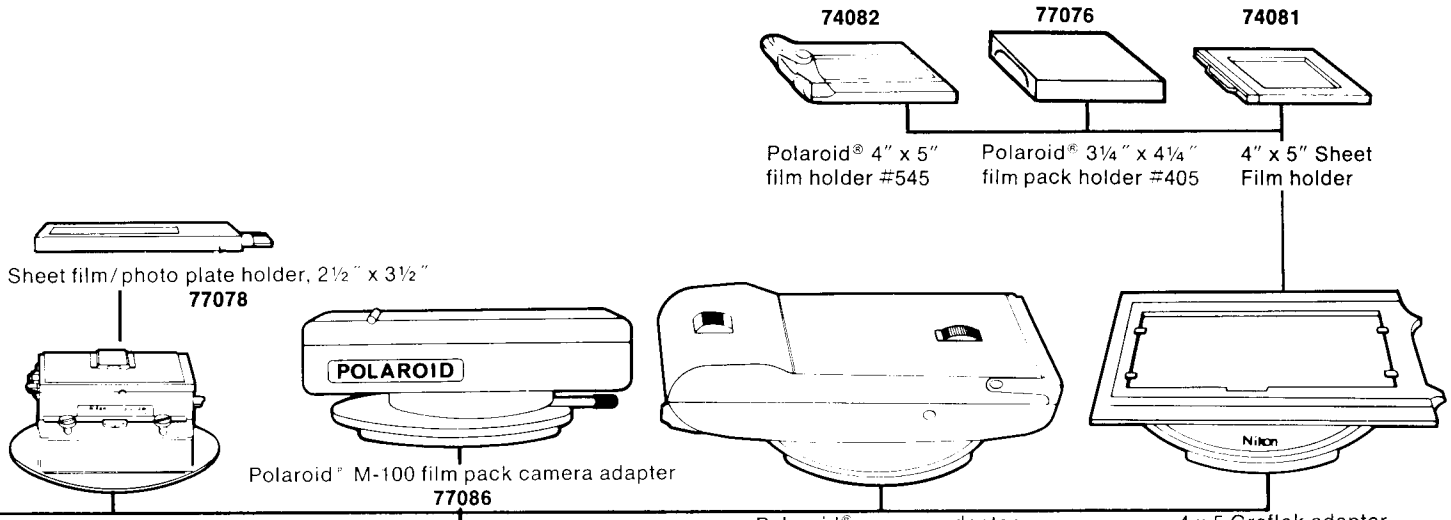
77109

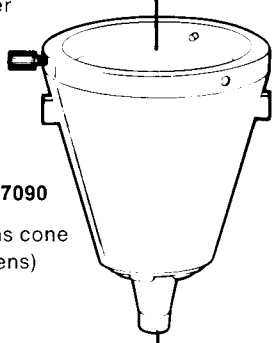
77110



Eyepiece adapters for stereoscopic microscopes (for 32.5mm and 36.5mm outside diameter tube)

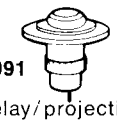
(replaces =77111 in Stereo PFM Microflexes 76072 & 76074)





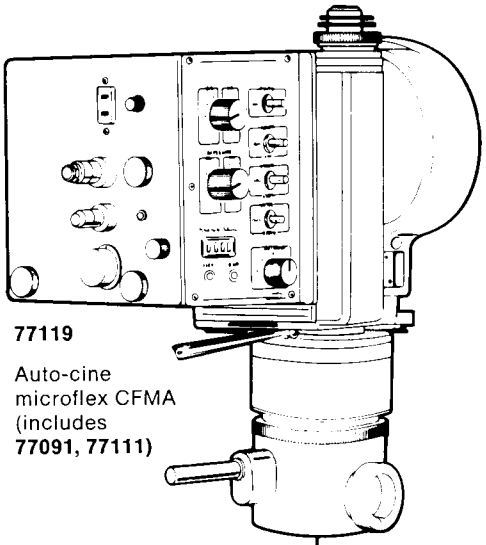
77090

1.3 x relay/projection lens cone
(replaces ½ x relay lens)



77091

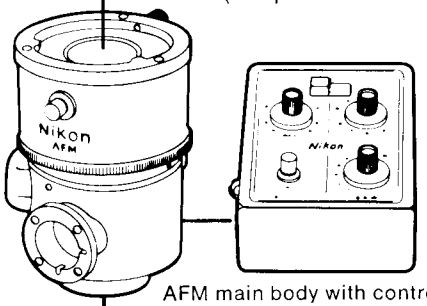
¼ x relay/projection lens in C-mt. cine adapter (included with CFMA)



77119

Auto-cine microflex CFMA (includes **77091, 77111**)

77060 (complete AFM-B outfit)

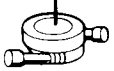


AFM main body with control box **77076**
(connecting cable not illustrated)



77111

Eyepiece adapter for standard microscopes
(for 25mm outside diameter)
(included with all Microflexes)



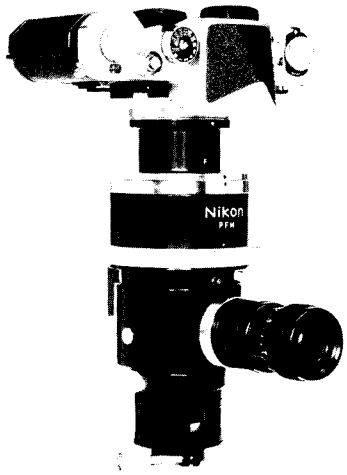
77113

Eyepiece adapter for 33mm outside diameter tube
(for POH-3 IP Body Tube)

"Polaroid" is the Registered Trademark of Polaroid Corporation, Cambridge, Mass., U.S.A.

Photomicrographic Equipment

Model PFM: A standard prism reflex Microflex attachment with a built-in leaf-type shutter with speeds from 1/250 second to 1 second, plus T and B. Its full-reflecting mirror transmits all the light to the finder for focusing, and swings out of the optical path at the moment of exposure. The model has a built-in X-synchronization contact.



Standard Microflex PFM

77070	Standard Microflex, Model PFM-B consisting of: main body with swingout prism, ½x projection lens, ocular viewfinder, universal eyepiece adapter, cable release and camera adapter for M-35S, (case available as option)
77071	Standard Microflex, Model PFM-F, same as above except with Nikon F/Nikkormat camera adapter
77081	Plastic carrying case for Microflex

PFM shown with Nikon F2 camera.

Model EFM: A semi-automatic Microflex attachment with a built-in match-needle exposure meter. The shutter speed setting is cross-coupled with the meter in the 1/250-1 second range. Exposure reading down to 32 seconds. The meter has a built-in 1.3-volt mercury battery which eliminates the need for a power cord or AC power source.



Semi-Automatic Microflex EFM

77085	Semi-automatic Microflex Model EFM-B with built-in CdS exposure meter; consisting of: main body, ocular finder, ½x projection lens, camera adapter for M-35S, universal eyepiece adapter, cable release, in plastic case.
77084	Semi-automatic Microflex Model EFM-F, same as above except with Nikon F/Nikkormat camera adapter

EFM shown with M-35S camera back.

Model AFM: A fully automatic Microflex attachment with a built-in transistorized shutter that sets correct exposure time automatically. Its sensitive CdS cell measures light levels as low as 10-minute exposure times; it can thus be used for bright- or dark-field microscopy, interference phase, polarizing and fluorescence work.

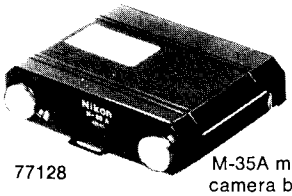


Automatic Microflex AFM

77060	AFM-B Auto-Microflex consisting of: main body, control unit, ½x projection lens, ocular view finder, viewing screen with 7x magnifier, universal eyepiece adapter, cable release and camera adapter for M-35S, in plastic case.
77061	AFM-F Auto-Microflex, same as above but with Nikon F/Nikkormat camera adapter
77062	A.C. adapter for AFM. Replaces batteries with 115v Transformer.
77066	Pilot bulb for AFM body (replacement)
77126	M-35A-AFM 6v DC Adapter to power AFM from M-35A power pack

AFM shown with M-35A motorized 35mm camera back. (AFM and M-35A control boxes not illustrated).

Interchangeable Accessories for PFM, EFM, AFM



77128 M-35A motorized camera back with control box.

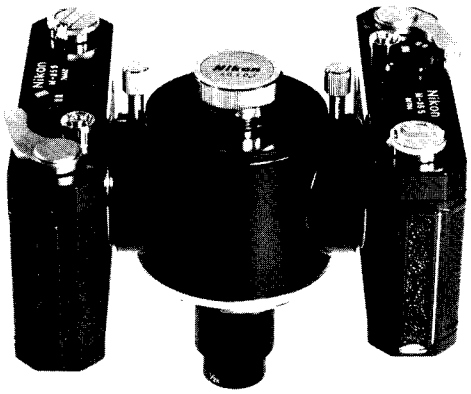


35mm Format

77050	Camera adapter only for Nikon F/Nikkormat (replacement)
77052	Camera adapter only for M-35S camera back (replacement) thread mount
77092	½x projection lens (replacement)
77137	Camera Back M-35S with full 35mm and ½ frame capability
77128	M-35A Motorized Camera Back for full-frame 35mm; automatic film advance, with control box

35mm Format (Continued)

77089	"BICAM" Double head camera adapter (permits the mounting of 2 each M-35D camera backs for color and black and white) with built-in ½x projection lens, fitted case; complete, less cameras (a unique Nikon accessory)
77127	M-35D Camera Back similar to M-35S, but especially for use with "BICAM" Head



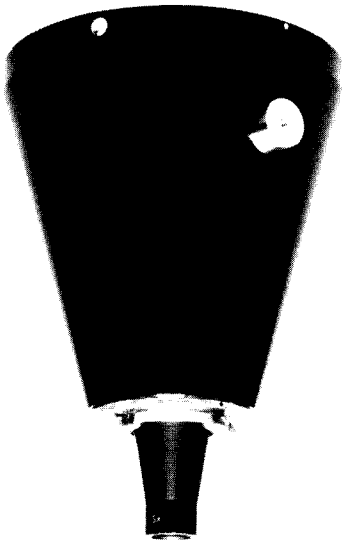
"Bicam" with 2 #77127 M-35D camera backs
77089

Large Format Photography

▲77090	**Camera cone with built-in 1.3x projection lens (required for the following accessories)**
77086	(M-100) camera adapter Polaroid 3¼" x 4¼" Film Pack
77077	Polaroid roll film camera adapter for series 40, 3¼" x 4¼"
77075	Roll film adapter (6cm x 9cm) No. 120 film
77078	Cut film adapter 2½" x 3½"
77079	Set of 6 cut film plate holders (2½" x 3½")
▲77080	**Graflok** 4" x 5" adapter (requires 77090 cone)
▲74081	4" x 5" Sheet film holder for Graflok back
▲74082	4" x 5" Polaroid 545 holder for 4" x 5" Polaroid sheet film
▲77076	#405 Polaroid 3¼" x 4¼" Film Pack adapter for Graflok back

▲ These items comprise the most versatile combination for large format photomicrography. 3¼" x 4¼" film pack and 4" x 5" Polaroid film may be used, in addition to 4" x 5" sheet film, such as the new Kodak 2483 color photomicrography film.

NOTE: The above listed backs may also be used on the Multiphot photomacrographic stand, but require #77319 ring adapter.



Camera Cone
77090

General Accessories For Photomicrography

77055	Viewing screen with hood and 7x magnifier (supplied with AFM, but can be ordered as accessory for PFM and EFM—For low power photomicrography
77057	Ocular viewfinder (furnished with all Microflexes.
77111	Microflex eyepiece adapter — Universal (diam. 25mm)
77109	Microflex eyepiece adapter — for Models SMZ and SM5 Stereo microscopes (diam. 36.5mm)
77110	Microflex eyepiece adapter — for Model SM stereo microscope (diam. 32.5mm)
77113	Microflex eyepiece adapter — for Model POH polarizing microscope with IP monoc body tube (diam. 33mm)
77124	Camera adapter to convert Leica type screw to Leica "M" bayonet mount (suggested for use with PFM only.)
77129	Single cable release for Microflex and M-35S (replacement)
77130	Double cable release for Microflex and M-35S
77054	**Air bulb release** (replaces cable for extra smooth shutter release)
77140	S & M Photometer with eyepiece body tube adapter (for 23.5mm I.D.)
76551	**Photo stand** type 3 (recommended for extra stability, especially when #77090 cone is used with large format backs)
76537	Vertical T.V. adapter with C mount for Photo stand

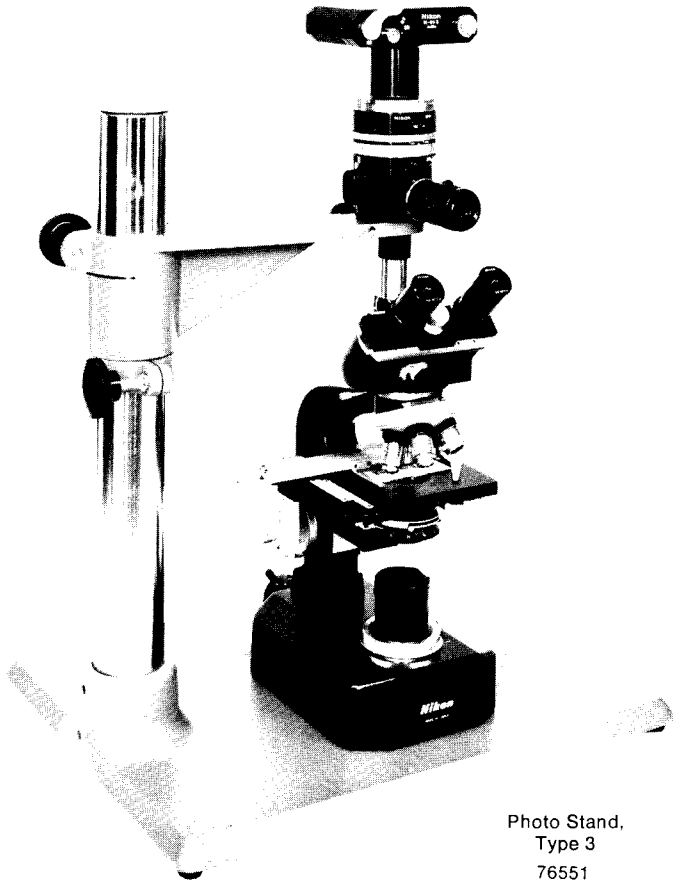


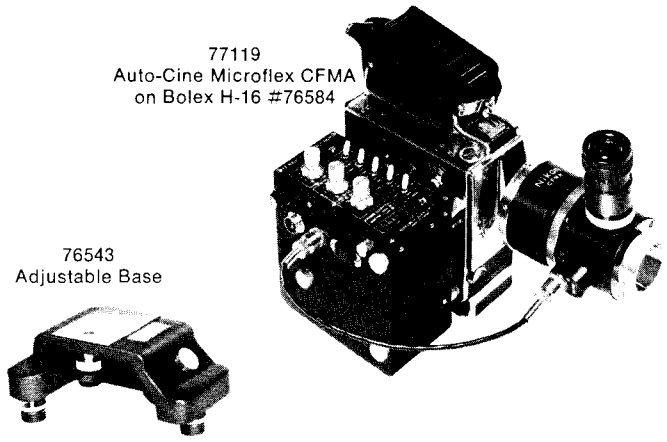
Photo Stand, Type 3
76551

Cinemicrographic Equipment

The unique Nikon Model CFMA employs an intervalometer, motor drive, and automatic exposure control to provide fully automatic continuous time-lapse cinemicrography with the Bolex H-16 cine camera. Continuous shooting is possible at up to 200 frames per minute. When used on an upright microscope, the #76551 photo-stand accessory is available to reduce the effects of environmental vibration. Automatic exposure settings from 1/5 second to 15 seconds. Film ASA settings 12 to 400. Standard exposure times: 1/4, 1/2, 1, 2, 4, and 8 seconds. Continuous or shutter-synchronized film advance and a 1/4x relay projection lens and a frame counter are other features that lend themselves ideally to cinemicrography of tissue culture specimens, isolated unicellular organisms, crystal formation as well as such analogous time-lapse applications as observing slow changes in microorganisms.

Auto Cine-Microflex CFMA

77119	Automatic cinemicrographic attachment Model CFMA: consisting of main body with built-in photometer, ocular finder, universal eyepiece adapter, ¼ x projection lens and control box (price does not include camera)
76584	Bolex H-16 M5 Camera, less lens
76585	Bolex H-16-J Camera, less lens (industrial model)
76543	Adjustable base for Bolex used with CFMA on Model M
76471	Cine bracket for Apophot and Multiphot support rail



Functions of Filters

1) Daylight blue — simulate daylight and reduce red and infrared rays that cause eye fatigue.
2) Diffusing — eliminate bulb filament shadow at low magnification.
3) Neutral density — reduce intensity of illumination without effecting color.
4) Light balancing — balance color temperature of light for "indoor" type color film.
5) Conversion — balance color temperature of light for "daylight" type color film. 820B and 840B for Polacolor.
6) Heat absorbing — absorb infrared to keep specimen cool.
7) Dark green, 2mm thick — recommended for phase contrast. Dark green, 1mm thick — recommended for interference phase.
8) Didymium — enhance red color saturation of eosin and fuchsin stained specimens for color films, especially Kodachrome.
9) Color contrast sets — especially useful for biological specimens: green enhances red, yellow enhances violet, orange enhances blue.
10) Wratten No. 58 — for high resolution monochrome photography with achromat objectives.

Filters

33mm. Diam. to fit condenser filter retaining ring and swing-out filter holders: S-Cb, S-Kt, S-Ke, L-Ke

76909	Interference 546 nm, high transmission
76910	Light blue, clear, for "classic"
76914	Daylight, clear blue
76915	Lemon skin diffusing high transmission filter
76918	Neutral density, 10% transmission
76920	Neutral density, 25% transmission
76922	Neutral density, 50% transmission
76924	Light balancing, 82B
76926	Light balancing, 82C
76927	Conversion filter, 80A
76923	Conversion filter, 80B
76925	Conversion filter, 80C
76929	Conversion filter, 820B
76921	Conversion filter, 840B
76928	Heat absorbing
76930	Dark Green, 2mm thick
76931	Dark Green, 1mm thick
76932	Didymium
76934	Diffusing, blue frosted
77133	Contrast filters, set of 3, Green, Yellow, Orange
78654	Wratten No. 58 Green

16mm Diam. to fit EPI Illuminator

77242	Daylight, clear blue
77243	Green
77244	Yellow

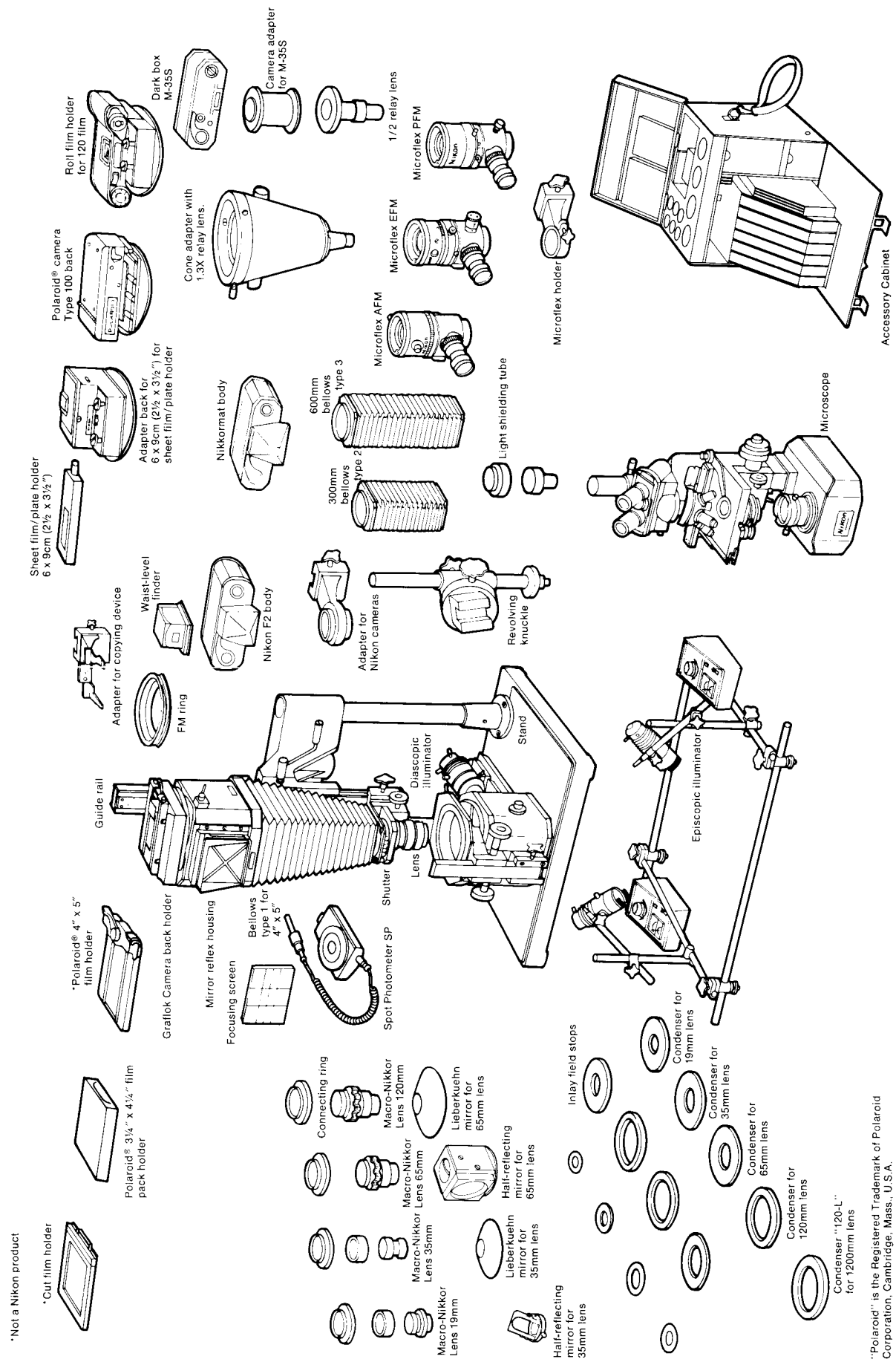
45mm. Diam. to fit Universal Microscope Lamp, Inverted Microscopes M, MS; Apophot, S-Ke & L-Ke, Kt & CL lamp condensers.

76941	Daylight, clear blue
76935	Lemon skin diffusing, high transmission
76912	Neutral density, 10% transmission
76917	Neutral density, 25% transmission
76919	Neutral density, 50% transmission
76936	Light balancing, 82B
76939	Light balancing, 82C
76942	Conversion filter, 80A
76943	Conversion filter, 80B
76944	Conversion filter, 80C
76946	Conversion filter, 820B
76947	Conversion filter, 840B
76940	Heat absorbing
76937	Dark green, 2mm thick
76948	Didymium
76945	Wratten No. 58 Green

Special Fluorescence Filters

78516	FITC Excitation, 45mm
78517	Barrier, #12 deep yellow, 28mm for use with #78516

Multiphot Universal Photographic System



"Polaroid" is the Registered Trademark of Polaroid Corporation, Cambridge, Mass., U.S.A.

Multiphot Universal Photographic Stand

The MULTIPHOT is an extremely versatile camera with a full range of components and accessories that enables it to span the gap between the magnification ranges covered by close-up cameras and the microscope. Both 4 x 5 and 35mm formats and Polaroid are included in the system; the magnification range is from 1/3x to 40x.

The MULTIPHOT stand, with its double support columns and "H" rail mounting for bellows, is rock-steady. A revolving knuckle joint permits the entire camera assembly to revolve a full 90° in either direction.

For transmitted light photomacrography, the MULTIPHOT utilizes a superbly designed diascopic transilluminating base assembly with a low voltage lamp for extremely even homogeneous illumination of transparent specimens. Built-in mirror rotation also permits oblique and dark-field illumination. The matched focal length condenser lenses utilize a unique double lens system. The condensers match the 4 Macro Nikkor lenses designed especially for the MULTIPHOT.

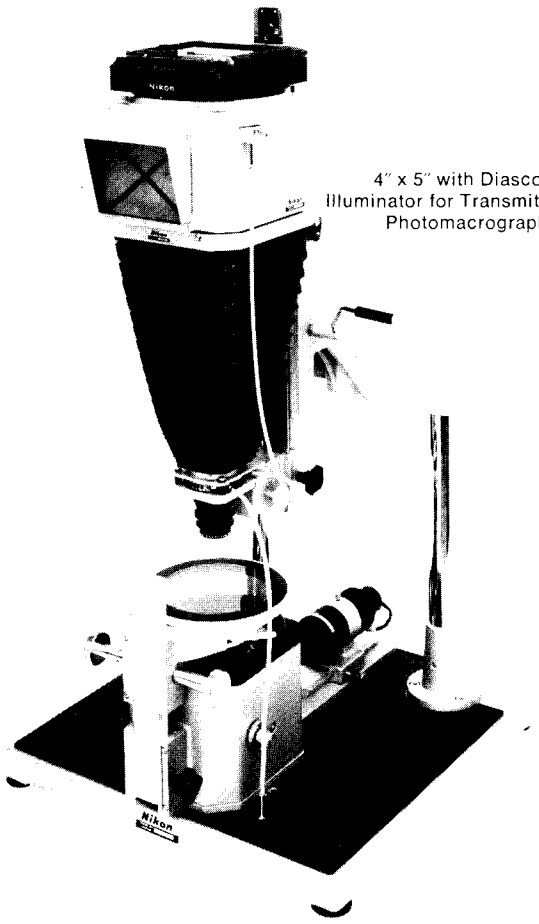
The Macro Nikkor lenses have built-in iris diaphragms to control contrast and depth of focus for reflected light photomacrography.

The MULTIPHOT is designed as a part of the Nikon System; an adapter is available for Nikon F, F2 and Nikkormat camera bodies. With Nikon lenses, such as the 55mm Auto Micro Nikkor, the MULTIPHOT becomes a rock-steady photocopying stand.

NOTE: Often, inferior photographs are traceable to the influence of environmental vibrations. In such cases, please inquire about the EPOI Vibration Isolation Systems.

77300	Multiphot stand including large base plate with anti-vibration pad, guide rail on dual column adjustable in height by rack and pinion
77302	Camera Bellows 4" x 5" with bracket and mount
77304	Self-cocking shutter, 1 sec. to 1/125 and bulb, anti-vibration mounted with fine focus drive on bracket
77306	Mirror Reflex Housing with two interchangeable focusing screens and cable release to open shutter while focusing; 7x focusing magnifier
77305	Coupling Long Cable Release: mirror reflex housing to shutter (replacement)
77308	4" x 5" Graflok Back for use with film holders on p. 31: Nos. 74081, 74082, 77076
77345	Macro-Nikkor Lens, 19mm f/2.8, with 77316 & 77318 adapters
77346	Macro-Nikkor Lens, 35mm f/4.5, with 77316 & 77318 adapters
77347	Macro-Nikkor Lens, 65mm f/4.5, with 77316 adapter
77348	Macro-Nikkor Lens, 120mm f/6.3, with 77316 adapter
77316	Adapter to fit Macro-Nikkors to shutter bracket
77318	Adapter to fit microscope objectives (RMS thread) to No. 77316 adapter
77330	Direct reading spot Exposure Meter
77322	Revolving Knuckle Joint with post, allows rotation of camera assembly
77319	Ring Adapter for mounting No. 77075, 77077, 77078 and 77086 camera attachments to mirror reflex housing (see page 31)
77331	Filter, 50mm square, green
77333	Filter, 50mm square, 1/8 neutral density
77343	Half reflecting mirror for 35mm Macro-Nikkor
77344	Half reflecting mirror for 65mm Macro-Nikkor
77315	Wooden Fitted Accessory Cabinet for Multiphot Bellows, lenses, condensers, etc.
77637	Fiber Optic Quartz-Halogen 150w illuminator with power supply and mounting bracket assembly
77645	Telescoping Table Stand for #77637 illuminator
77914	Universal Microscope Lamp, 6v/30w, with iris diaphragm, continuously variable transformer with voltmeter, 2 bulbs (#77904)

NOTE: **For additional available camera backs see pages 28 to 31.**



4" x 5" with Diascopic Illuminator for Transmitted Light Photomacrography

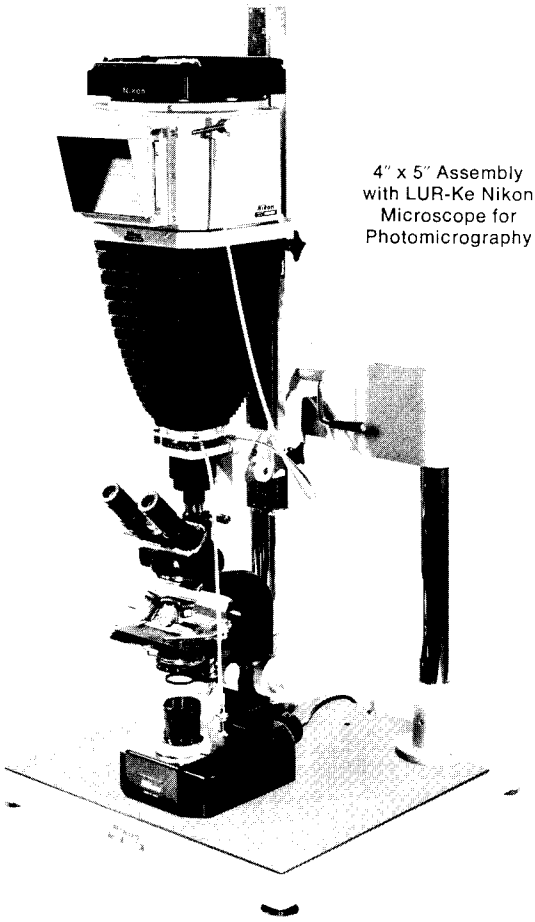
Accessories for Transmitted Light Photomacrography

77320	Diascopic illumination assembly with variable field diaphragm, supplementary condenser and 6v/30w lamp with 2 bulbs No. 77904 and transformer with meter
77321	Inlay ring field diaphragms (set of 8) drilled and tapped for microscope mechanical stage
77784	Attachable mechanical stage, top control, 66mm x 28mm travel for 1 x 3 microscope slides. For use on #77321
77323	Condenser lens, 19mm
77324	Condenser lens, 35mm
77326	Condenser lens, 65mm
77328	Condenser lens, 120mm
77311	Lieberkuehn Mirror, matte surfaced, for 35mm Macro-Nikkor
77313	Lieberkuehn Mirror, matte surfaced, for 65mm Macro-Nikkor

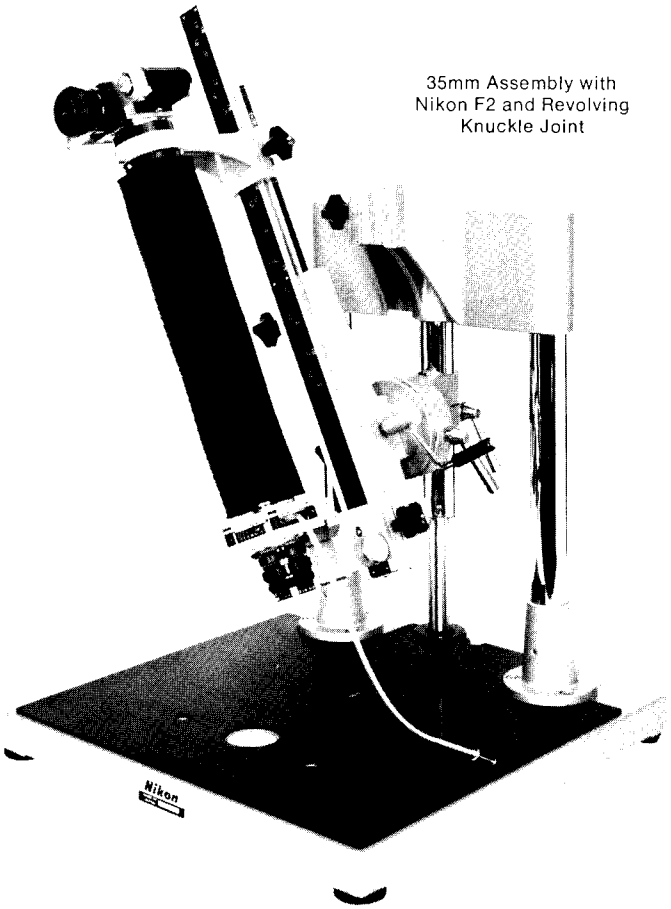
NOTE: Above condensers should be ordered with Macro-Nikkor lenses of corresponding focal length.

Accessories for 35mm. Photomacrography and Photomicrography

77334	Narrow Bellows, type 2 (short)
77336	Narrow Bellows, type 3 (long)
77329	120L Condenser lens for ⅓x to 2x magnification for use with 35mm camera on diascopic illumination base
77338	F Bracket for mounting Nikon F camera body and narrow bellows
77340	FM Bracket for mounting Microflexes
77341	Photocopying adapter for Nikon F2, or Nikkormat
77342	Light excluding collar for coupling to microscope
76471	Cine bracket for support rail
76472	Microflex cone bracket for support rail



4″ x 5″ Assembly with LUR-Ke Nikon Microscope for Photomicrography



35mm Assembly with Nikon F2 and Revolving Knuckle Joint

Suggested Multiphot Configuration for Large-Format Transmitted Light Photomacrography (full 1x to 40x magnification range):

77300	Multiphot stand
77302	4″ x 5″ camera bellows
77304	Shutter, self-cocking leaf type, in bracket
77306	Mirror reflex housing
77308	4″ x 5″ Graflok back
74082	Polaroid 545 holder, 4″ x 5″
77345	19mm Macro-Nikkor lens w/adapters
77346	35mm Macro-Nikkor lens w/adapters
77347	65mm Macro-Nikkor lens w/adapter
77348	120mm Macro-Nikkor lens w/adapter
77320	Diascopic illumination assembly
77323	19mm condenser lens
77324	35mm condenser lens
77326	65mm condenser lens
77328	120mm condenser lens
77321	Inlay diaphragm ring set (8), drilled and tapped for mechanical stage
77784	Mechanical Stage for 77321
77311	35mm Lieberkuehn mirror (for opaque specimens)
77313	65mm Lieberkuehn mirror (for opaque specimens)
77331	Green filter, 50mm square
77333	1/8 neutral density filter, 50mm square
77330	Exposure meter, spot type, direct reading
77315	Wooden fitted accessory cabinet

Suggested Multiphot Configuration for 35mm Reflected Light Photomacrography (full 1/3x to 40x magnification range):

77300	Multiphot stand
77322	Revolving knuckle joint
77338	"F" bracket to mount camera
1600	Nikon F2 camera body (chrome)
2317	Nikon 6x focusing viewfinder for F2
2333	"C" focusing screen for F2
77334	35mm bellows, type 2 (short)
77336	35mm bellows, type 3 (long)
77304	Shutter, self-cocking leaf type, in bracket
77345	19mm Macro-Nikkor lens, with adapters
77346	35mm Macro-Nikkor lens, with adapters
77347	65mm Macro-Nikkor lens, with adapter
77348	120mm Macro-Nikkor lens, with adapter
77343	35mm half-reflecting mirror
77344	65mm half-reflecting mirror
77330	Exposure meter, spot type, direct reading
77315	Wooden fitted accessory cabinet
77914	Universal microscope lamp, 6v/30w, with metered transformer. (Two required for dual side lighting)
	or
77637	Fiber optic illuminator (150 watt quartz-halogen). (Two required for dual side lighting)
77645	Telescoping stand for fiber optic illuminator. (Two required for dual side lighting)

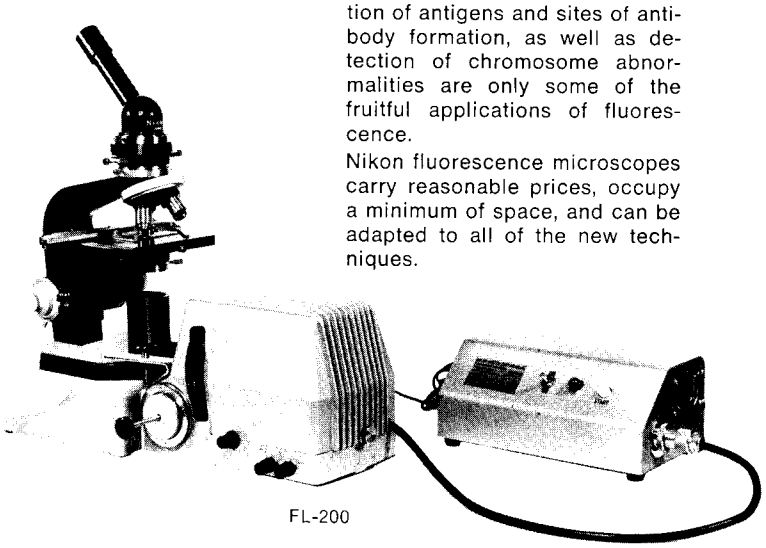
Optional Copy Equipment

77341	Photocopying adapter bracket for Nikon F2
62	F2 Photomic exposure meter/viewfinder for through-the-lens metering
924	55mm Auto-Micro-Nikkor f/3.5 lens for F2

Nikon High Intensity Fluorescence Systems

The use of fluorescence microscopes in medical and biological research is growing daily. Diagnosis of disease-causing bacteria, protozoa and viruses, detection of antigens and sites of antibody formation, as well as detection of chromosome abnormalities are only some of the fruitful applications of fluorescence.

Nikon fluorescence microscopes carry reasonable prices, occupy a minimum of space, and can be adapted to all of the new techniques.



FL-200



#78583

FT-200

FL-200

78506 **FLUORESCENCE ILLUMINATOR, FL 200 (HIF)** consisting of: Lamp housing with cooling fan and base for microscope; centering and focusing controls for mercury burner; Arc centering accessory; light path change over knob; Light shielding tube; Two filter turrets with 8 interchangeable exciter filters; Arm rests; High pressure 200 watt mercury burner; 115v A.C. Power Supply with starter; Intermediate attachment with barrier filter slider and turret including 6 filters; Tungsten Illuminator, 6v/30w with 1 red and 1 green filter, continuously variable transformer with 2#77904 bulbs;Turret aplanat condenser, n.a. 1.4 with focusing telescope and 4 fluorescence/phase annular diaphragms in fitted case for combined phase-fluorescence studies

Accessories for FL-200

78521 **SIR-F Microscope for FL-200** equipped for fluorescence microscopy with the following: Inclined monocular tube, HKW-10x eyepieces, RS spiral-grooved mechanical stage, achromat objectives: 10x, 20x, 40x retractable, 100x (oil) with iris

77747 Monocular-Monocular (A) photo head No. 77747 can be *substituted* for inclined monocular (I) body tube at additional cost.

77896 Ultra Darkfield Condenser

FT-200

78520 **BASIC FLUORESCENCE ILLUMINATOR, FT-200,** consisting of: Lamp housing with base for microscope; centering and focusing controls for mercury burner, arc centering accessory; Filter box containing excitation filters, interchangeable by push-pull rods; 1 UV and 2 BV excitation filters; 1 UV absorbtion and 1 BV absorbtion eyepiece barrier filters; High pressure 200 watt mercury burner; 115v A.C. Power Supply with starter attached **SIR-F Microscope** equipped for fluorescence microscopy with the following: Inclined monocular tube, HKW-10x eyepiece, RS spiral-grooved mechanical stage, achromat objectives: 10x, 20x, 40x retractable, 100x (oil) with iris (requires #77896 Condenser)

77896 Ultra Darkfield Condenser

NOTE: Model FT-200 does not have provision for tungsten illuminator or exciter filter turret as does the FL 200.

Special Phase Objectives for FL-200 Combined Phase Fluorescence

78540 DLL-F 10x Achromat, n.a. 0.25, work. dist. 7.10mm

78541 DM-F 100x oil, Achromat with iris diaphragm, n.a. 1.25, work. dist. 2.0mm

Accessories for Both FT-200 and FL-200

77896 Ultra Dark Field Condenser, n.a. 1.20-1.40 with centering screws (Required for FT-200 optional for FL-200)

78575 Intermediate attachment with filter slider and turret including 6 barrier filters

78590 High pressure mercury burner 200w (replacement)

78513 Fluorescence Test Slide

78583 Comparison photometer for preparatory measurement of UV radiation intensity. Consisting of: meter with CdS sensor on coil cord; special eyepiece; check plate with 4 pin holes for different magnifications

Suggested Fluorescence System for Antigen Antibody Technique

78520 Basic FT-200 illuminator with SIR-F Microscope

77896 Ultra Darkfield Condenser

78590 Spare Burner

Suggested Fluorescence System for combined Fluorescence Phase studies as well as Antigen Antibody Technique

78500 FL-200

78521 SIR-F Microscope

77896 Ultra Dark Field Condenser

78590 Spare High Pressure Burner

Both systems are also provided with exciter and barrier filters for blue-green fluorescence such as for acridine orange method.

The NIKON High Intensity Fluorescence systems will accept a wide variety of additional accessories, including photomicrographic and cinemicrographic attachments. See listings pages 28 to 32.

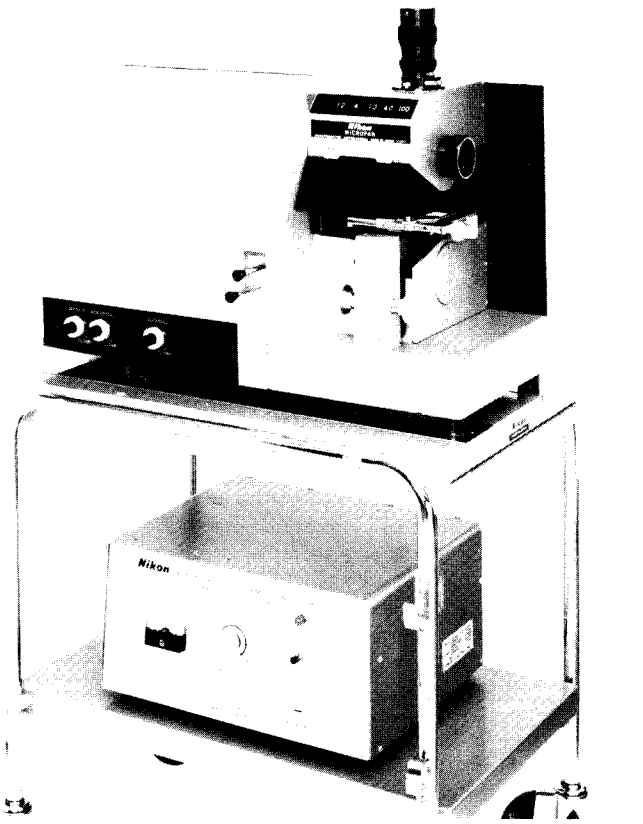
Low Voltage Fluorescence

The new FITC technique (fluorescene isothio cyanate) has been made possible by the development of high transmission interference filters and the so-called ultra-darkfield condensers. The FITC technique has expanded the use of fluorescence microscopes by making possible a compact instrument at much lower cost through use of the simple tungsten-halogen (quartz-iodine) low-voltage illuminator instead of the mercury vapor arc burner. This light source is also ideal for normal brightfield and phase contrast microscopy, making possible new economical multi-purpose microscopes with the single illuminator.



NOTE: See L-Ke FITC option. Page 9

76726	Quartz-halogen illuminator, 12v/100w; for S-Ke and L-Ke; power supply; 76513 bulb
78516	FITC excitation filter, 45mm
78517	FITC barrier filter, #12 deep yellow, 28mm (for use with 78516)



Micropan Microprojector

The Nikon MICROPAN is an advanced microprojector that combines maximum image brightness with superb resolution and unprecedented ease of operation. It utilizes a 450w Xenon-arc ozone-free burner and a special optical system capable of projecting microscopic specimens with critical sharpness at auditorium distances. Its special heat filtration system virtually eliminates the slide bleaching and melting that has historically been the drawback of such intense illumination sources.

All of the MICROPAN's operating controls face the operator for easy accessibility. A single large rotating knob simultaneously changes the objective turret and its gear-coupled condenser turret. Flat-field 1.2x, 4x, 10x, fluorite 40x, and 100x oil objectives and a matched condenser for each are standard. An electro-luminescent panel lights-up to display the objective in use. All lamp alignments and adjustments are accomplished by only three knobs facing the projectionist.

The MICROPAN zoom projection eyepiece is specially designed to match the image size to the screen at varying projection distances. It contains three built-in reticles: an arrow pointer, a micrometer scale, a center circle. This center circle, when projecting with the 10x objective encloses the area of the specimen that will comprise the entire field of view with the 40x objective.

For critical projection when intra-cellular detail and brightness is required, such as blood or bone marrow smear haematology, a fixed-focus 3.2x projection eyepiece is available to provide maximum definition. The MICROPAN is normally supplied with a coaxially controlled rectangular mechanical stage. An optional round stage with joystick control is also available.

The 115v A.C. power supply has an adjustable range of 13a to 30a. Power supply and lamp can be instantly re-started with no "cooling-down" time required. Average lamp life is 600 to 1,000 hours.

A special rigid all-metal rolling **projection table** with locking casters, utility shelf, and hooks for cord storage is a basic accessory.

78157
Zoom Eyepiece
with 78102
Projection Mirror



78164
3.2X
Eyepiece
with Mirror
Prism Collar





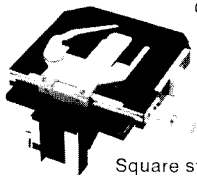


Eyepiece holder
#78158

78153

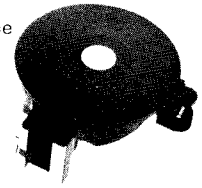


450 Watt Xenon-Arc Burner



Square stage
78156

Gliding Stage
78152



78150	MICROPAN Zoom Microprojector including: Main body with 2.5x-5x zoom projection lens head with built-in pointer, micrometer and central circle reticles; 5 flat field objectives including 1.2x, 4x, 10x and 100x plan achromats and 40x plan fluorite, each with coupled matching condenser; rectangular mechanical stage, graduated, with coaxial controls; power supply; 450w Xenon Arc ozone-free lamp; dust cover, complete with safety goggles for lamp replacement
78160	MICROPAN Microprojector as above, less zoom projection lens head, but with eyepiece holder and 3.2x projection eyepiece
78151	Projection table on wheels for microprojector and power supply
78153	450W Xenon Arc ozone-free lamp (replacement)

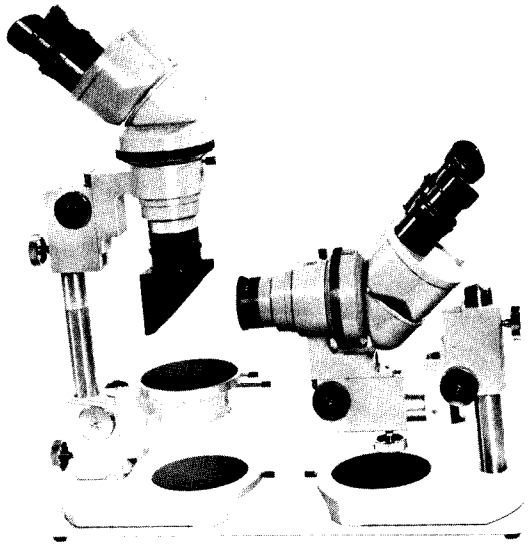
NOTE: The following projection heads and stages may be interchanged on either model.

78157	Zoom Eyepiece with 2.5x-5x magnification range; built-in pointer, micrometer and central circle reticles
78164	3.2x Projection Eyepiece with collar to mount projection mirror (Requires 78158 holder)
78158	Projection Eyepiece Holder
78156	Rectangular Mechanical Stage, graduated with coaxially controlled X (75mm) and Y (25mm) travel
78152	Circular Gliding Stage with joystick control
78162	Projection Mirror Attachment for 78157 and 78158

Nikon Stereoscopic Microscopes

"Compound" microscopes, whether equipped with monocular or binocular viewing tubes, have only one objective. Stereo microscopes, however, actually have two separate optical systems; i.e., each eyepiece is paired with its own objective. These two systems are focused to converge at a specific point at which their images overlap, thereby giving the user a three-dimensional or "stereoscopic" view of the specimen. By virtue of its design, the stereo microscope must be precisely collimated and its dual optical systems matched. Nikon uses prisms, not mirrors, and the superb quality of its stereo optics allows prolonged use of the microscope without eye strain or fatigue.

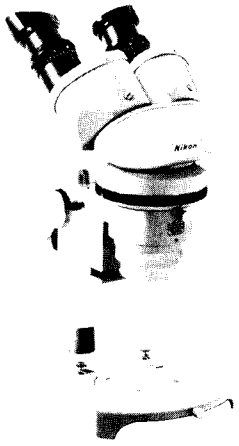
76002 SMZ-TEACHING UNIT includes 2 SMZ zoom stereos with 0.5x objectives; half reflecting mirror; base plate; special stage, etc. (less stereo illuminator)



SMZ-2

This 45° inclined stereo-zoom microscope features continuously variable magnification, with a 5x zoom ratio (objective magnification range: 0.8x to 4x). Magnification range with 10x eyepieces: 8x to 40x; with 15x eyepieces: 12x to 60x; with 20x eyepieces: 16x to 80x. In addition, a variety of attachable auxiliary objective lenses is available. The 0.4x, 0.5x, and 0.7x reduce the magnification in order to achieve greater working distance and depth of field. The 1.5x offers a 50 percent magnification increase, without changing eyepieces.

SMZ-6 is similar to the SMZ-2, except its head is inclined at 30° from the vertical; its zoom ratio is 4.4 (zoom objective magnification is 0.9x to 4x). Magnification range with 10x eyepieces: 9x to 40x; with 15x eyepieces: 13.5x to 60x; with 20x eyepieces: 18x to 80x.



SMZ-2 #76000

SM-5

Similar in styling and quality to the SMZ, this is a fixed magnification non-zoom stereo microscope with 2x objectives. Magnification can be varied by changing the eyepieces or by using auxiliary attachable objectives. The inclination is 45°. Magnification range: With 10x eyepieces is 20x. With 15x eyepieces is 30x. With 20x eyepieces is 40x.



SM-5 #76010

Model SMZ-2 (45° Inclination)

76000 SMZ ZOOM STEREO, 45° inclination from vertical), with Plain Stand, opal/black stage plate insert, 1 pair of wide field eyepieces (10x, or 15x or 20x), 1 pair plastic eyecups, vinyl cover, less case

76005 SMZ-AU as above, less Plain Stand but with Universal Table Stand Type 3

76006 SMZ-AU4 as above, less Plain Stand but with Rack & Pinion Universal Table Stand Type 4

76009 SMZ-A STEREO MICROSCOPE HEAD, with focusing mount (less stand), with 1 pair of wide field eyepieces (10x, or 15x or 20x), 1 pair plastic eyecups and vinyl cover; for use with Universal Table Stand or for mounting optical head on other types of equipment

Model SMZ-6 (30° Inclination)

76001 **SMZ-6** ZOOM STEREO (30° inclination from vertical) with Plain Stand, opal/black stage plate insert, 1 pair of wide field eyepieces (10x, 15x or 20x), 1 pair plastic eyecups, vinyl cover, less case

Model SM-5 (45° Inclination)

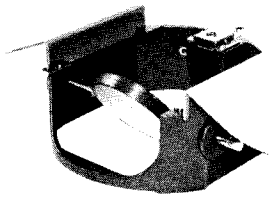
76010 SM-5 STEREO MICROSCOPE with Plain Stand, opal/black stage plate insert Disc, 1 pair of wide field eyepieces (10x or 15x or 20x), 1 pair plastic eyecups, vinyl cover, less case

76015 SM-5AU as above, less Plain Stand, but with Universal Table Stand Type 3

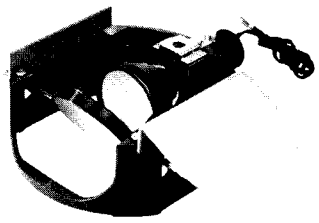
76017 SM-5AU4 as above, less Plain Stand but with rack & pinion Universal Table Stand Type 4

76020 SM-5A STEREO MICROSCOPE HEAD (less stand) with focusing mount, 1 pair of wide field eyepieces (10x or 15x or 20x), 1 pair plastic eyecups and vinyl cover for use with Universal Table Stand or for mounting optical head on other types of equipment

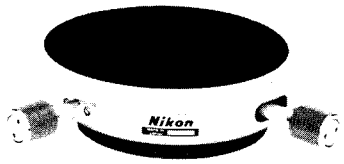
Interchangeable Accessories for All Stereo Models



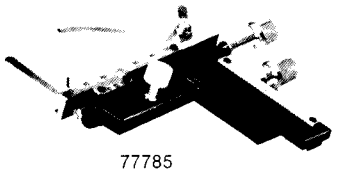
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76147



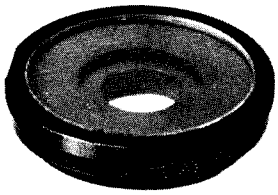
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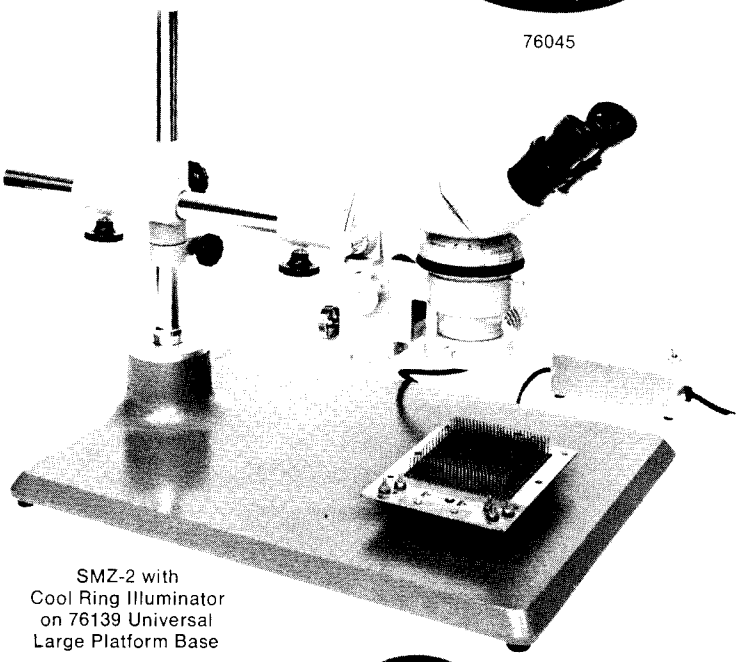
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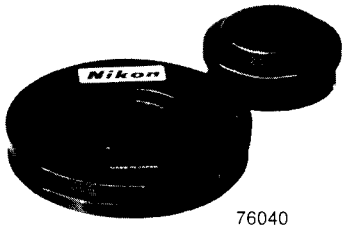
76175



76045



SMZ-2 with
Cool Ring Illuminator
on 76139 Universal
Large Platform Base



76040

Substage Bases for Diascopic Transillumination of Transparent Specimens.

76145	Substage Base for SMZ-SM5 Microscope; with mirror, clear glass plate, arm rests, with provision for rear mounting of illuminator
76147	Substage Base for SMZ-SM5; with mirror, clear glass plate for transmitted illumination, arm rests and rear lamp housing (requires socket assembly and transformer listed below)
76160	Socket Assembly only for substage illumination base, with 2 6v/18w bulbs, No. 76907
76171	Transformer, solid-state, continuously variable with on/off switch, 6v/20w

Stages

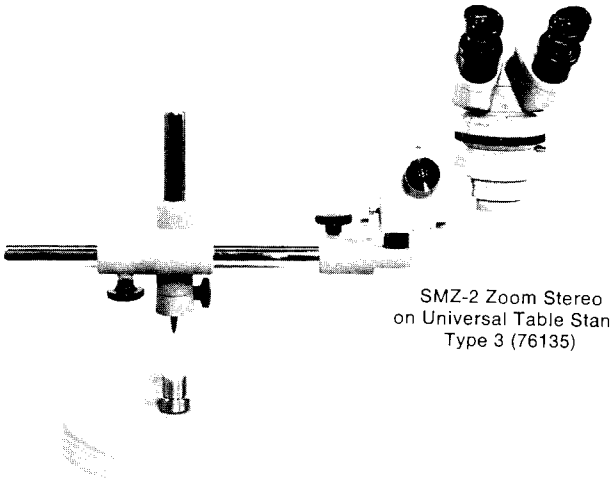
76045	Circular Gliding Stage
77785	Attachable Mechanical Stage
76168	Opal black plate (replacement)
76169	Clear Glass plate for substage (replacement)
76178	Stereo Stage Clips (pair)
75628	Cross travel stage, 5/8″ x 5/8″, rotatable

Eyepieces and Objectives

76100	10x paired wide field eyepieces with plastic eyecups
76105	15x paired wide field eyepieces with plastic eyecups
76110	20x paired wide field eyepieces with plastic eyecups
76119	0.4x attachable auxiliary objective
76115	0.5 attachable auxiliary objective with extension post for Plain Stand
76120	0.5x attachable auxiliary objective
76125	0.7x attachable auxiliary objective
76130	1.5x attachable auxiliary objective
76175	Half reflecting mirror attachment
76176	Half reflecting mirror only (replacement)
76162	Eye shields (pair)
76040	Polarizing Set for all model stereos consisting of filter polarizer and analyzer
76250	Objective glass protector (screw in) prevents objects from damaging objective lenses.

Stands, Cases and Covers

76013	Stereo Plain Stand
76135	Universal Table Stand Type 3 (plain)
76140	Universal Table Stand Type 4 (with rack and pinion motion for boom arm extension control)
76139	Universal Table Stand Type 3 on Large Platform Base
77900	Vinyl cover for all Stereo (Type 102)
76164	Large vinyl cover for SMZ Teaching and AU Stand
76065	Polished fitted hardwood case for SMZ, SMZ-6 & SM-5, SM-6
76012	Focusing Mount only: for SMZ, SMZ-6 & SM-5, SM-6



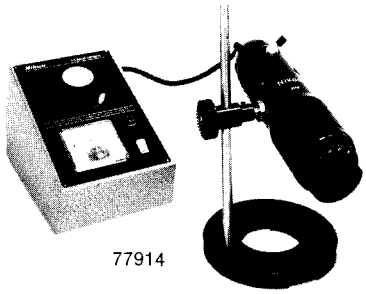
SMZ-2 Zoom Stereo
on Universal Table Stand,
Type 3 (76135)

Illuminators and Accessories

76153	Stereo illuminator, Model 2, including 6-step variable transformer 6v/20w, with on/off switch; mounting bracket and 2 bulbs. No. 76907
76156	Spotlight attachment for Stereo Illuminator
76160	Socket Assembly only for Stereo Illuminator and for substage illumination, with 2 bulbs, 6v/18. No. 76907
76171	Transformer, solid-state continuously variable with on/off switch, 6v/20w 6v/20w
76907	Bulb, 6v/18w bayonet base, round, for Stereo Illuminator Model 2 & Substage Base
77914	Universal Microscope Lamp 6v/30w, with iris diaphragm, continuously variable transformer with voltmeter, and 2 bulbs. (No. 77904)
77637	Fiber Optic Illum. Complete w/Bracket Assembly
77645	Telescoping Stand to mount Fiber Optic
76495	Cool Ring Illuminator (cold cathode) with transformer
76493	Cool Ring lamp only with reflector (replacement)
76494	Transformer only (replacement) for Dual & Cool Ring
76491	Dual Ring with transformer (76494 has twice the illumination of the Cool Ring)
76492	Dual Ring lamp only (replacement)
76489	Dual Ring reflector only
76167	Oversized Focusing Knob, slipover, with set screw

Slip-on Filters for Stereo Illuminator

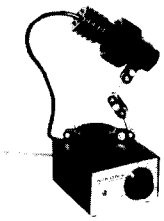
76230	White Diffusing
76232	Clear Blue
76234	Diffusing Blue
76236	Yellow
76238	Green
76240	Orange



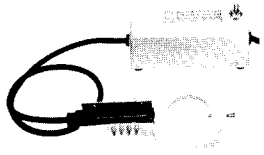
77914



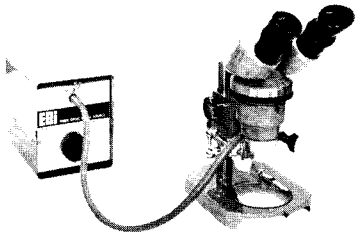
76491



76153



76494



77637 with SMZ Zoom Stereo #76000

Photomicrography

76072	Microflex Model PFMB Photomicrographic attachment with main body, viewing screen with 7x magnifier, adapter for M-35S or Leica Camera with screw mount (specify Model Stereo: SMZ, SM-5 or SM)
76074	Microflex Model PFMF, same as above, except with camera adapter for Nikon F/Nikkormat cameras
77109	Stereo adapter only for SMZ or SM-5 eyepiece tube (diam. 36.5mm)
77110	Stereo adapter only; for use with 32.5mm outer diameter eyepiece tube
77137	Camera Back M-35S with full 35mm frame and ½ frame capability
76541	Photo Stand Type II with swivel point, to support Microflex on all Nikon Stereos. Especially recommended for formats larger than 35mm

For additional accesories and other models of Photomicrographic attachments, see pages 28-31.

Microscope Reticles

Simplified Reticle Ordering System

In the past, we have listed the same eyepiece reticles under several different product numbers, according to the reticle scale at specific magnifications. This new system, utilizing prefixes for specific identification, should eliminate all confusion.

KEY

SO	21mm reticles
AO	21mm reticle in adapter to 24mm
FO	21mm reticle in 24mm adapter with reticle holder
MO	24mm reticle
HO	24mm reticle with reticle holder

RETICLE DIAMETER:	FITS MICROSCOPE MODELS:
21mm	S-Cb, S-Kt COMPACT, S, S-Ke, L-Ke, APOPHOT, M, MS, EPI Darkfield, CL CLASSIC, POH-3 Trinocular, EPOI/Nikon Forensic
24mm	SMZ, SM-5, SM-1 Stereos, POH-3 Monocular

NEW NO.	DESCRIPTION	OLD NO.
SO 75950	0.1″ Scale	76957
AO 75950	Length. 100	76216
FO 75950	graduations	
MO 75951	0.4″ Scale	NONE
HO 75951	Length. 200 graduations	

NEW NO.	DESCRIPTION	OLD NO.
MO 75952	0.6″ Scale	76205
HO 75952	Length. 200 graduations	76210
SO 75955	0.5″ Scale	76201
AO 75955	Length. 100	76202
FO 75955	graduations	76195 76200 76959
MO 75956	0.5″ Scale	
HO 75956	Length. 50	NONE
MO 75957	0.6″ Scale	76203
HO 75957	Length. 40	76204 76206 70805
SO 75960	5mm Scale	
AO 75960	Length. 100	NONE
FO 75960	graduations	
SO 75961	10mm Scale	
AO 75961	Length. 100	76956
FO 75961	graduations	
SO 75962		
AO 75962	1mm Squares	76963
FO 75962		
SO 75963	0.5mm Squares	
AO 75963		76961
FO 75963		
MO 75965	Cross Line and	76220
HO 75965	30°, 60°, 90°	70817
SO 75966	Cross Line 90°	76962
SO 75967	Whipple disk	

This general survey has been designed to furnish only the most basic facts about Nikon Microscopes and Accessories.

Comprehensive catalogs, fully detailing each piece of equipment, are available. To receive full information, please detach card and indicate the areas of your interest.

OTHER NIKON PRODUCTS

Photographic Equipment:
NIKON F2, F2 Photomic cameras
NIKKORMAT EL camera
NIKKORMAT FT2 camera
NIKONOS **II** all-weather camera
NIKON SUPER 8 movie camera
NIKKOR interchangeable lenses
NIKON accessories including the
NIKON electronic flash system

Optical Measuring Instruments:
PROFILE PROJECTORS
SURFACE FINISH MICROSCOPE
MEASURESCOPE
MASK ALIGNMENT MICROSCOPE
AUTOCOLLIMATOR
High Temperature MICRO HARDNESS TESTER

Ophthalmic Instruments:
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ASPHERICAL OPHTHALMOSCOPIC LENSES
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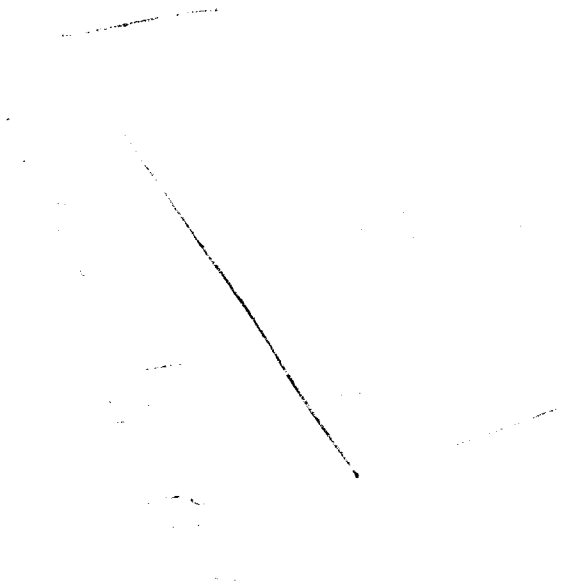
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