

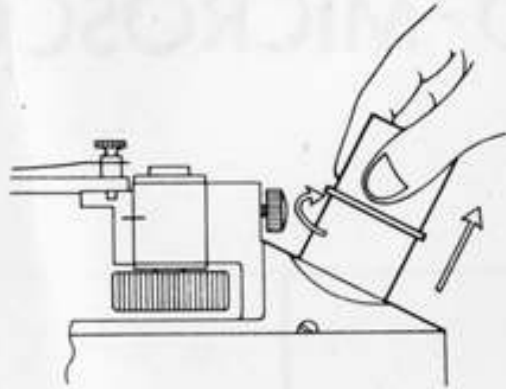
USE AND CARE OF SWIFT SERIES
FM-31
FIELD-MICROSCOPE



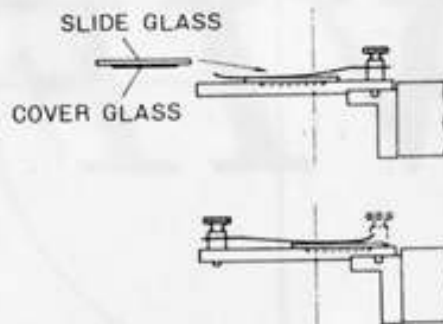
SWIFT®

INSTRUCTIONS FOR USE

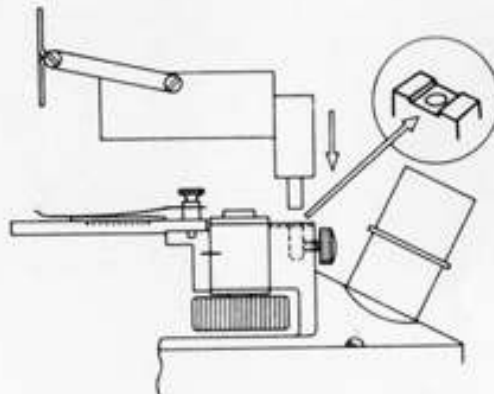
1. Grasp **EYEPIECE TUBE FLANGE** and pull out as far as it will travel. Then twist to the right (locking position).



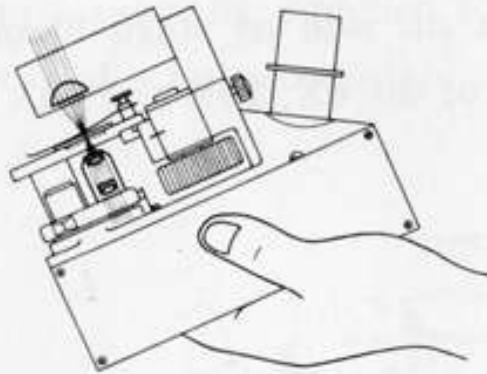
2. Place (inverted) specimen slide on stage (specimen or cover glass down).



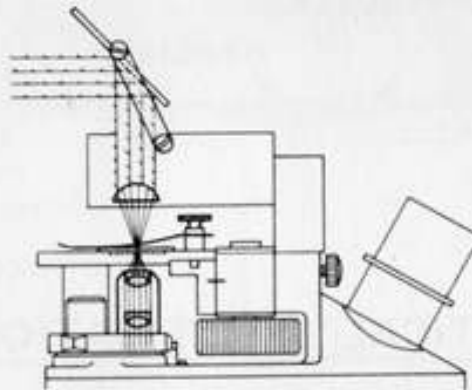
3. Position **ILLUMINATOR BRACKET** and secure by **KNURLED SCREW** in line with the countersunk groove.



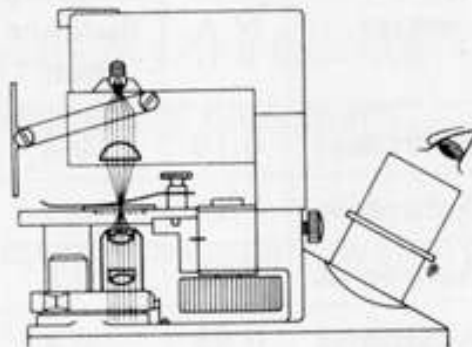
4. Direct CONDENSER towards the light.



5. Use the MIRROR if better control of the light is desired.

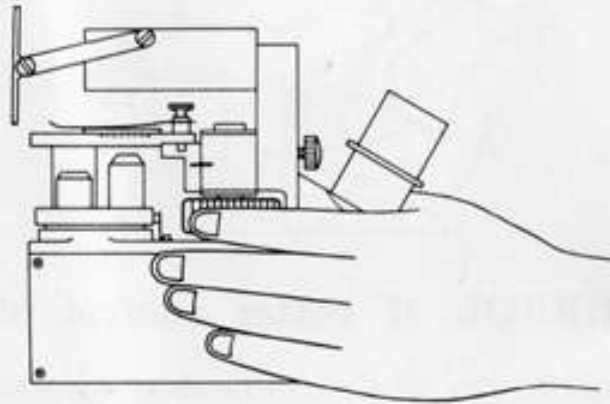


6. Use BATTERY ILLUMINATOR, if necessary.



7. To focus on the specimen turn the horizontal positioned focusing knob.

Indexing lines on side of stage block indicate par-focal position of the 4X, 10X and 40X objectives.



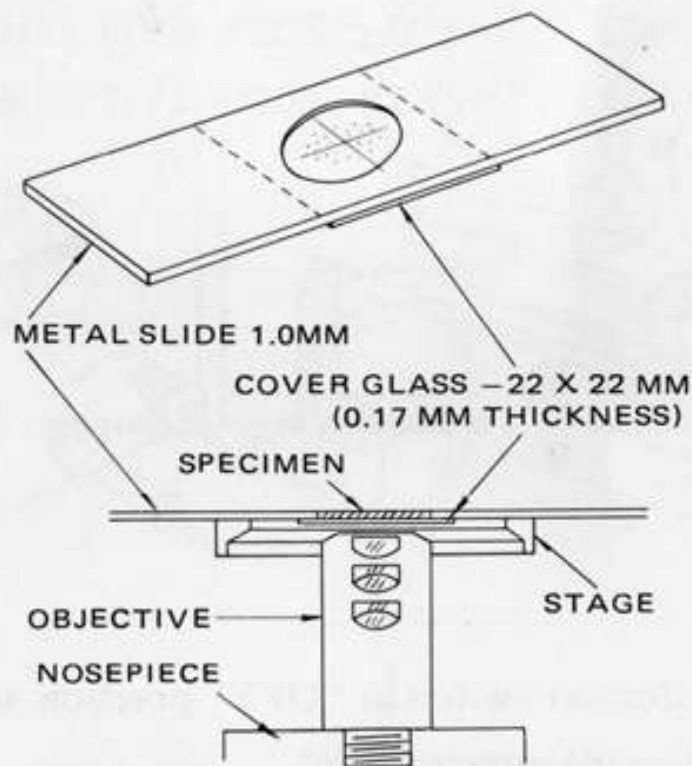
OPTICAL SPECIFICATIONS

Cat. #	Eyepiece	Field of view	Focal length
MA749	W10X-15.5mm	18.0mm	25.0mm
MA740	W15X-13mm	15.2mm	16.7mm

CAT. #	Objective	N.A.	Working distance mm	Focal length mm	Field of view mm
FMA-611	4X-Achromat	0.10	15.2	28.7	4.5
FMA-612	10X-Achromat	0.25	6.7	15.6	1.8
FMA-613	40X-Achromat	0.65	0.5	4.3	0.45
FMA614	60X-Achromat	0.85	0.4	2.9	0.3

METAL SLIDE CAT #FMA 111

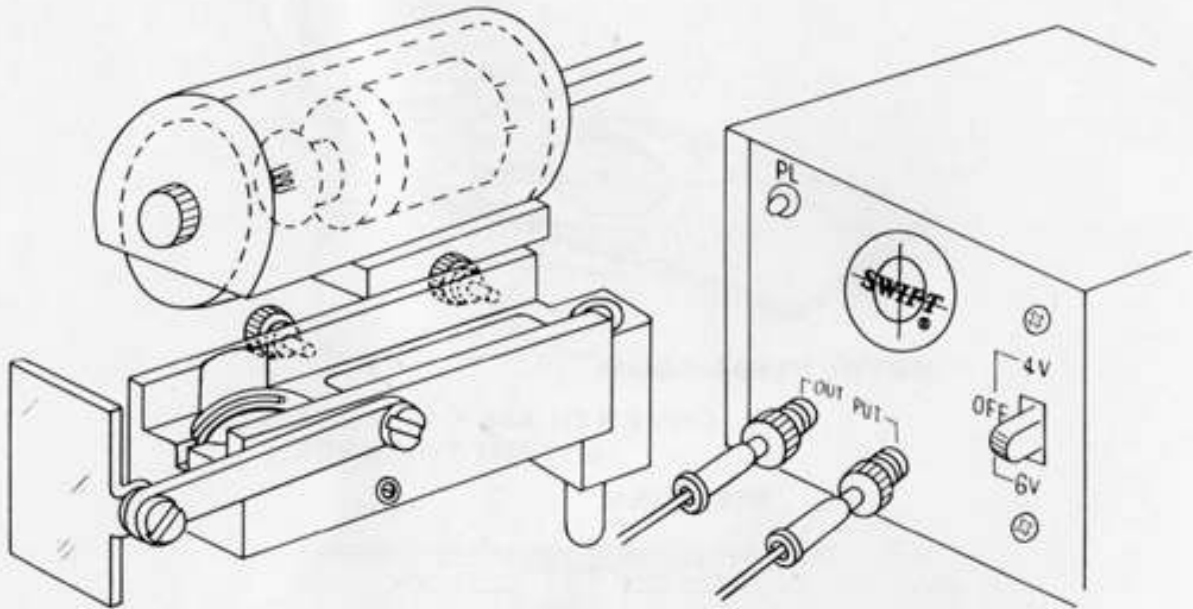
This metal slide is specially designed to be used with this field microscope and is quite useful.



1. Place a No. 1, 22 or 24 mm square cover glass over the opening in the metal slide — A very thin glue may be used for permanency or a thin coating of Vaseline may be used for temporary placement.
2. A solid or liquid specimen can now be placed in the cavity.

HIGH INTENSITY ILLUMINATOR CAT #FMA 112
(Replacement bulb CAT # 113)

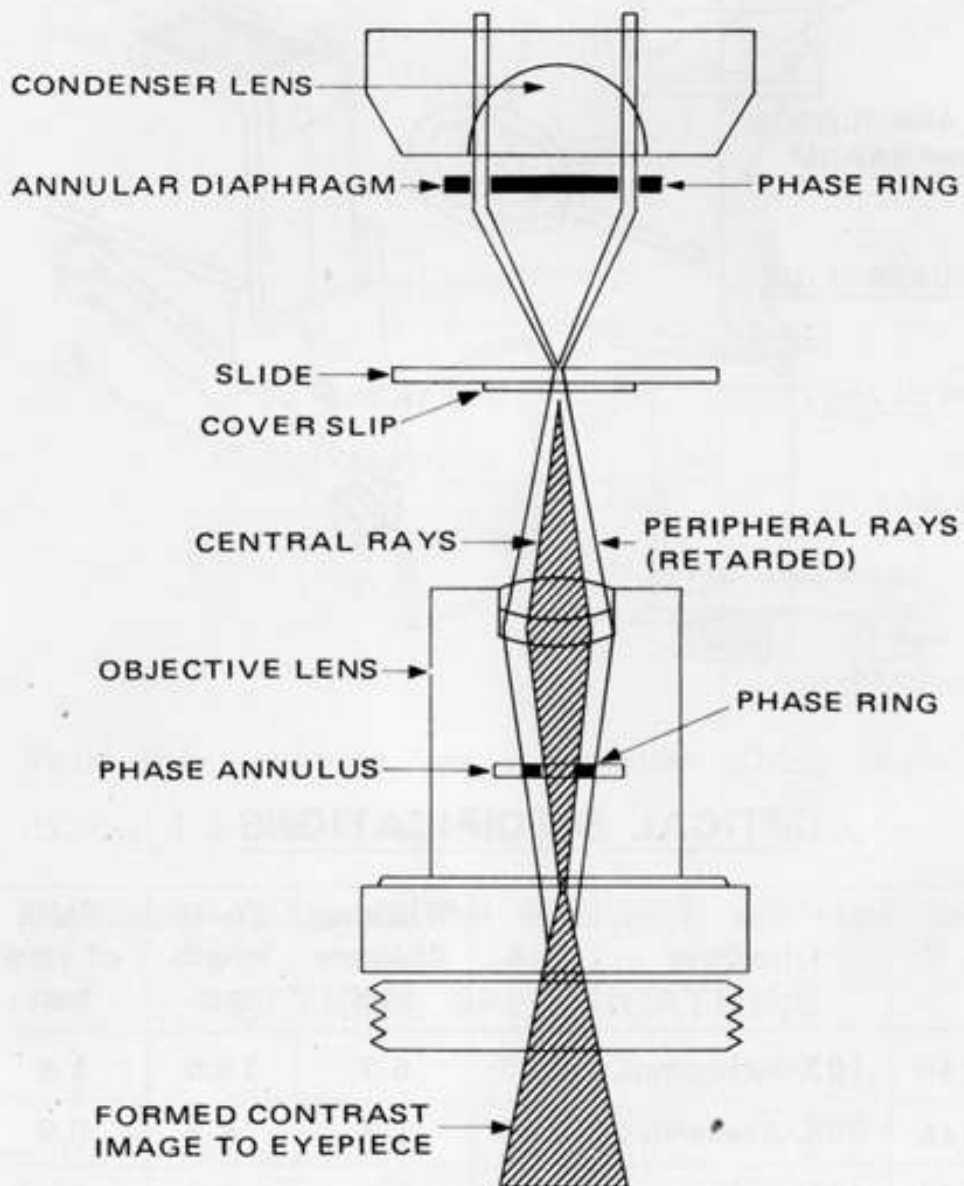
This high intensity illuminator, 4-6V — 8-12W, is useful for Phase Microscopy and Micro-photography.



1. Put transformer switch in "OFF" position and connect line cord to receptacle outlet.
2. Remove battery illuminator and position the high intensity illuminator in its place.
3. Insert the banana plugs of the illuminator into the output sockets of the transformer and position the switch to the 4V or 6V "ON" position.
4. To obtain optimum or suitable light, move the illuminator back or forward and secure with the set screws.

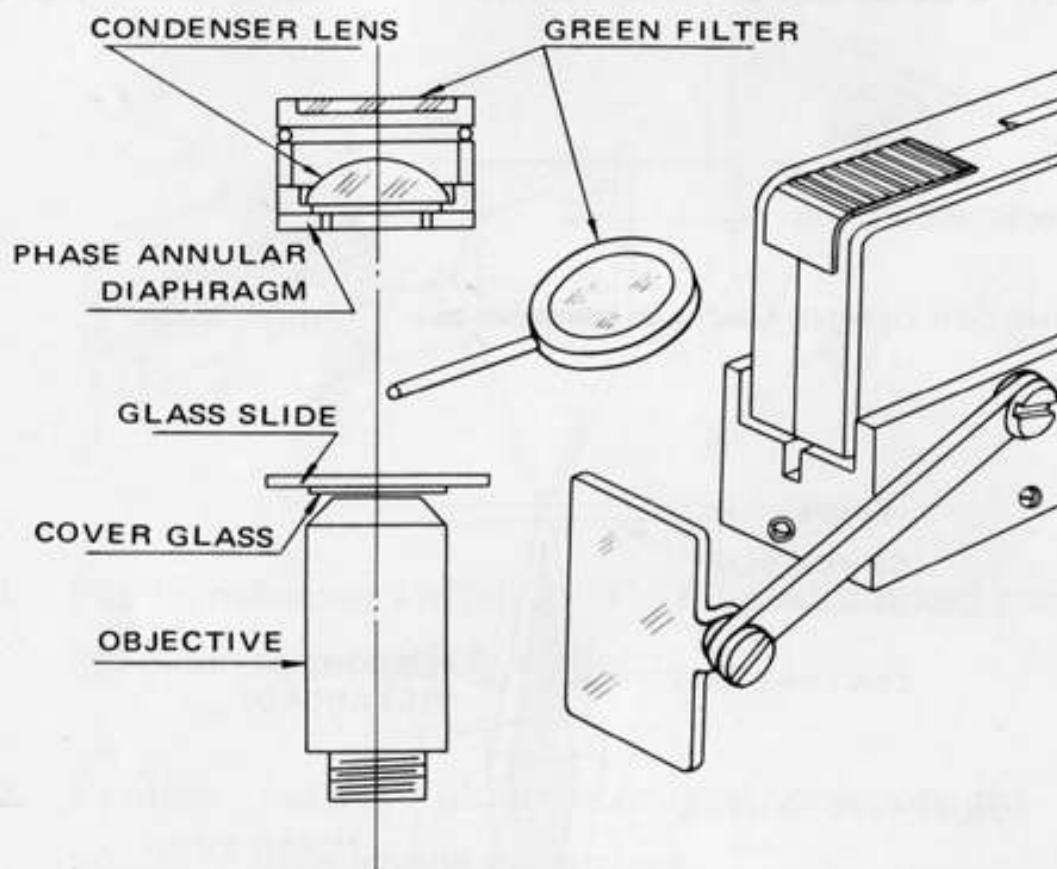
PHASE MICROSCOPY

PHASE CONDENSER/ILLUMINATOR	CAT #FMA-747
PHASE OBJECTIVE P10X	CAT #FMA-746
PHASE OBJECTIVE P20X	CAT #FMA-745
PHASE OBJECTIVE P40X	CAT #FMA-744
PHASE OBJECTIVE P20X LWD	CAT #FMA-108
PHASE OBJECTIVE P40X LWD	CAT #FMA-109



This phase system provides an image of hard-to-see specimens in their natural, living condition, by a method of optical staining.

1. Insert the GREEN FILTER as indicated in the sketch.
2. Use HIGH INTENSITY ILLUMINATOR, as required.



OPTICAL SPECIFICATIONS

CAT. #	Objective	N.A.	Working distance mm	Focal length mm	Field of view mm
FMA746	10X-Achromat	0.25	6.7	15.6	1.8
FMA745	20X-Achromat	0.40	1.4	8.3	0.9
FMA744	40X-Achromat	0.65	0.5	4.3	0.45

LONG WORKING DISTANCE OBJECTIVES

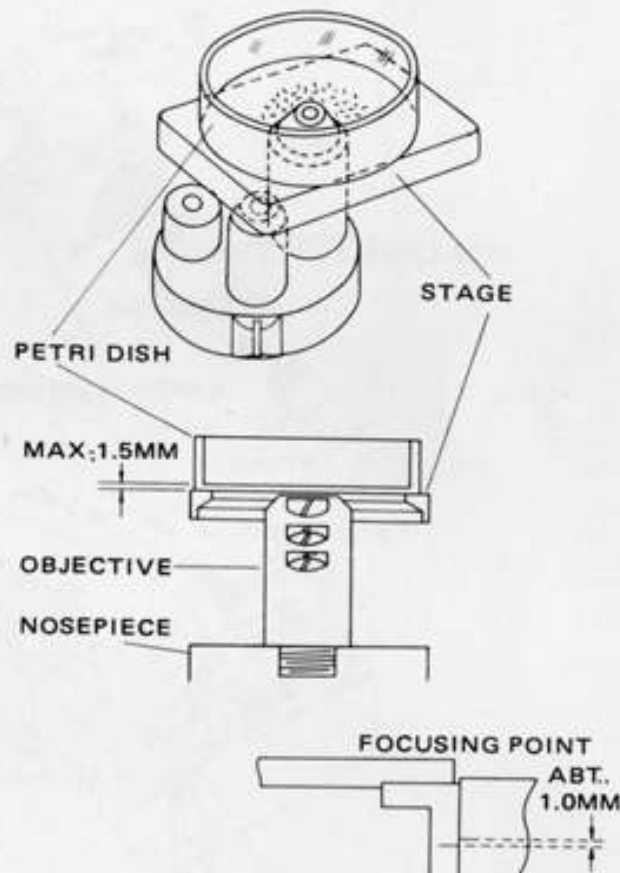
LWD 20X CAT #FMA-105

LWD 40X CAT #FMA-106

LWD P20X CAT #FMA-108

LWD P40X CAT #FMA-109

Long working distance objectives are useful in examining liquids or cultures.



1. Petri-dish, culture, or concavity slides should not exceed 1.5 mm thickness.
2. Focusing plane will be slightly lower than indexed.

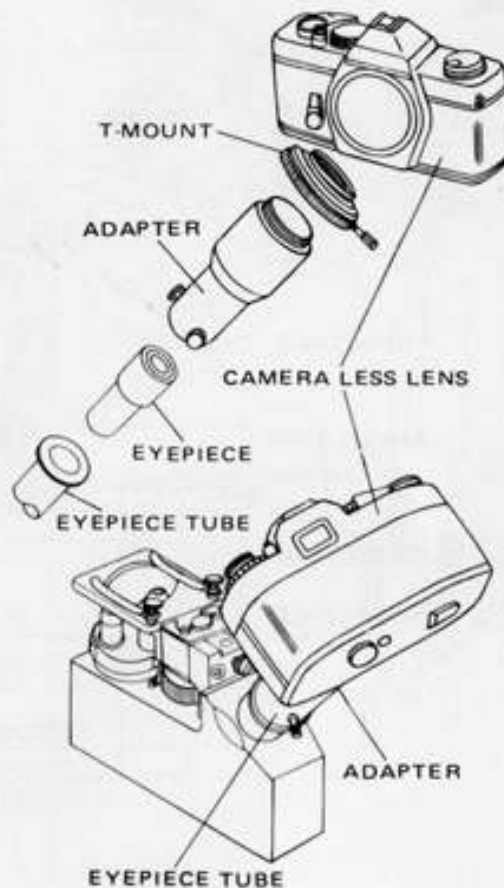
OPTICAL SPECIFICATIONS

Cat. #	Objective	N.A.	Working Distance	Focal length	Field of view
FMA105	20X-Achromat	0.40	2.2 mm	8.1mm	0.9mm
FMA106	40X-Achromat	0.65	2.0 mm	4.2mm	0.45mm

FMA-108 and 109 are same as #105 and #106 but PHASE objectives.

Another CAMERA ADAPTER (CAT #MA872D) is also available to be used with an ordinary full-size single lens reflex camera.

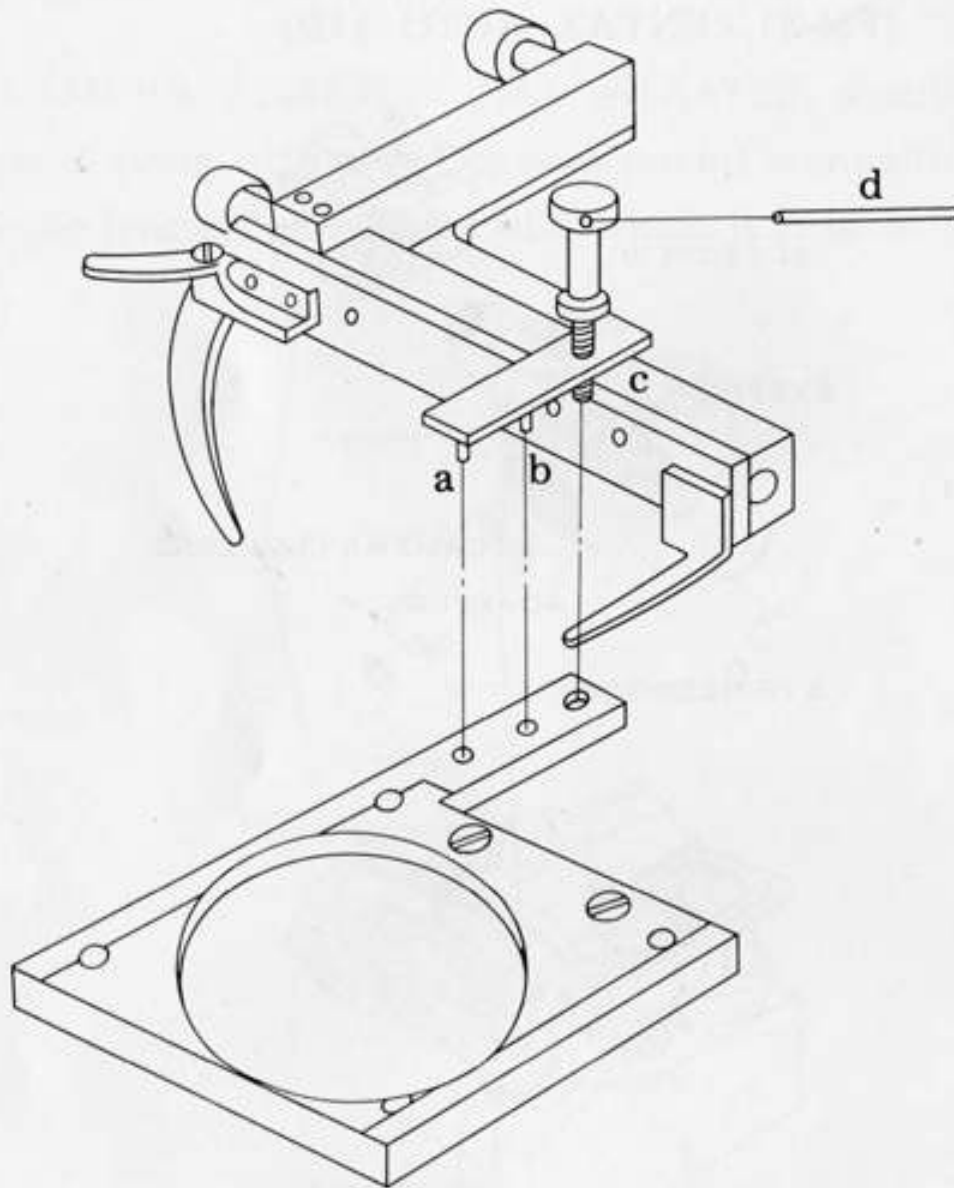
This CAMERA ADAPTER, CAT #MA872D, should be purchased along with a "T" system mount compatible to the single lens reflex camera with which it is to be used.



POPULAR "T" mounts are listed as follows:

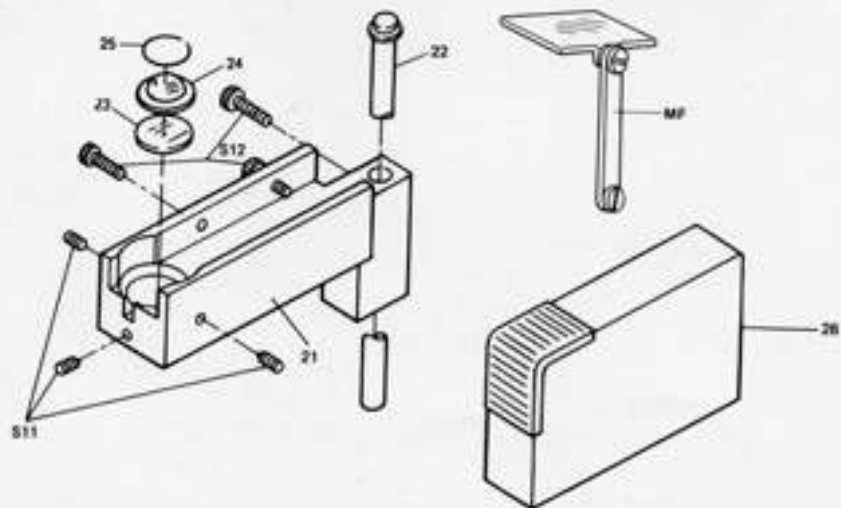
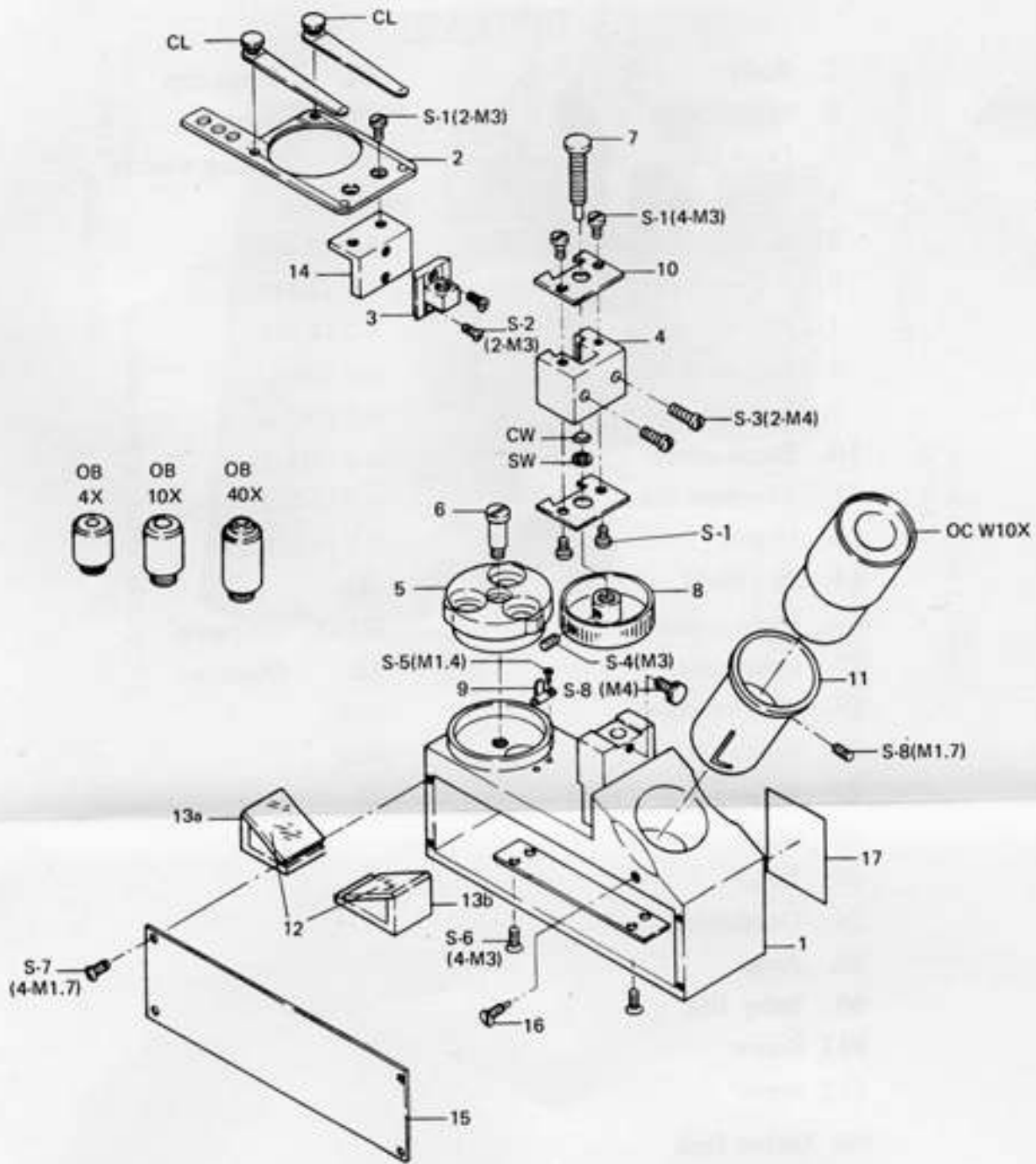
- | | |
|--------------------------|--------------------------------|
| T-1 ... Praktica, Pentax | T-14 ... Leicaflex |
| T-2 ... Exakta, Topcon | T-15 ... Olympus OM |
| T-3 ... Miranda | T-16 ... Pentax K&M, Richo |
| T-4 ... Minolta | T-17 ... Leica M |
| T-5 ... Nikon | T-18 ... Yashica, Contax RTS |
| T-6 ... Canon | T-19 ... 16mm Cine, ITV Camera |

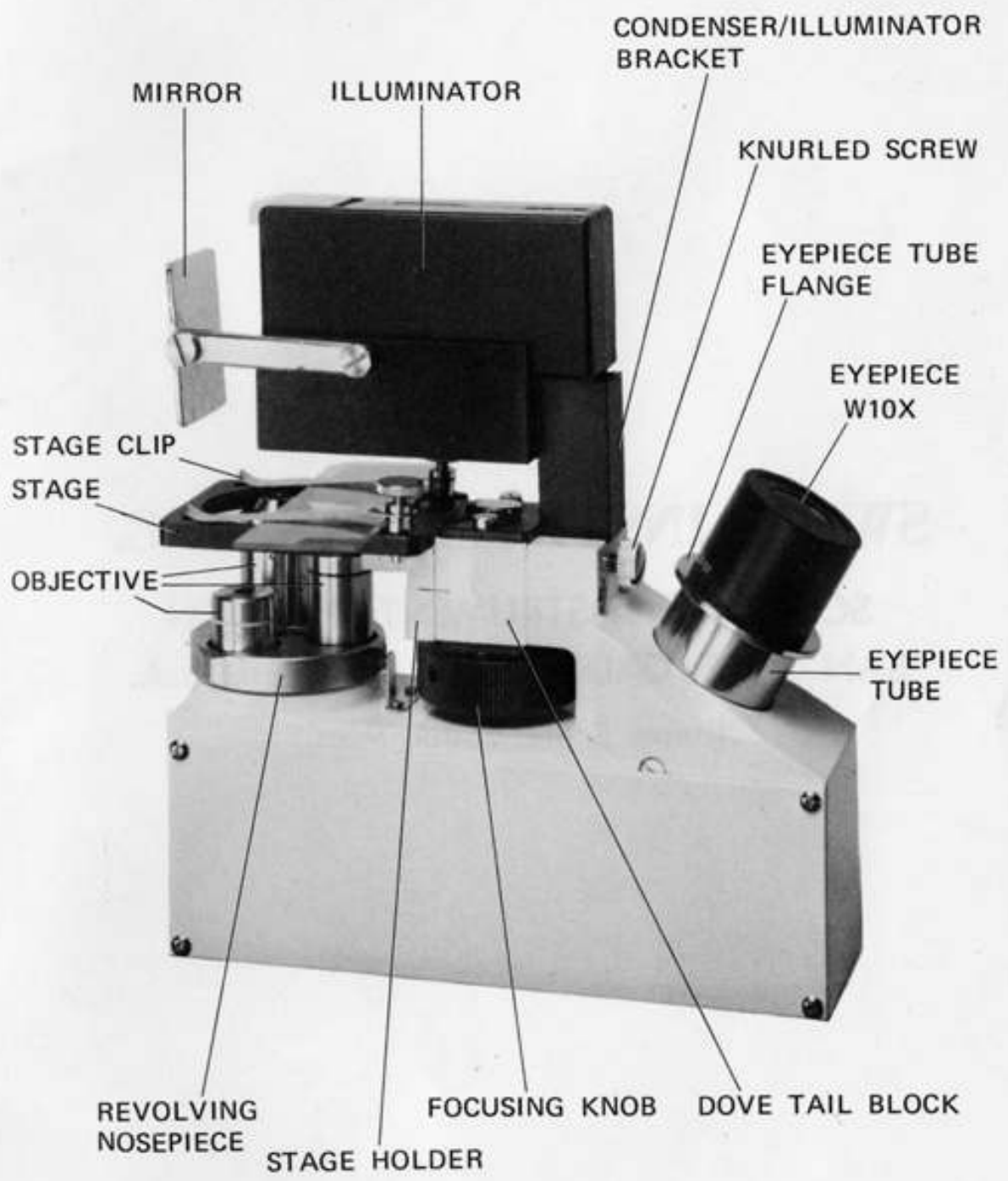
MECHANICAL STAGE #FMA114



This mechanical stage is specially designed to be used with this field microscope and is quite useful.

1. Insert the guide pins a and b of mechanical stage into holes on stage.
2. Screw in the fixing screw c lightly by hand.
3. Then firmly fix it by turning the rod d clock-wise.





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