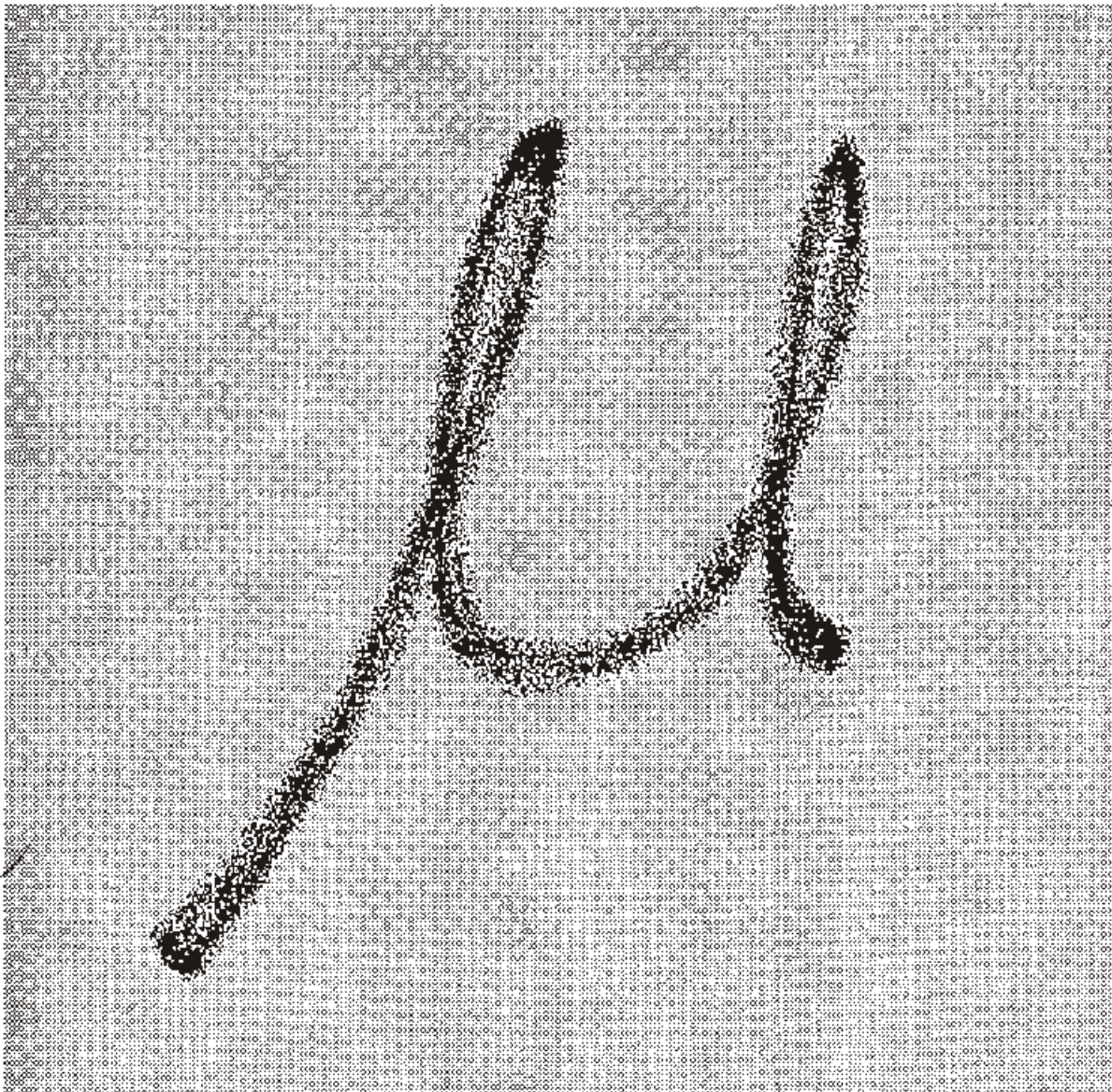


Mewlon

Instruction Manual



TAKAHASHI

Mewlon-180

Unpacking Instruction

The Mewlon-180 carton contains the following:

1. Mewlon-180 tube assembly with 7×50 finder and TSC back
2. 1 ea. 25mm OR MC ocular
3. 1 ea. .965" compression ring adapter
4. 1 ea. 1¹/₄" compression ring adapter
5. 1 ea. dovetail mount coupling and 2 ea. 8mm×16 screws
6. Instruction book
7. Certificate of inspection

NOTE: When purchased as a tube the 25mm ortho is not include.

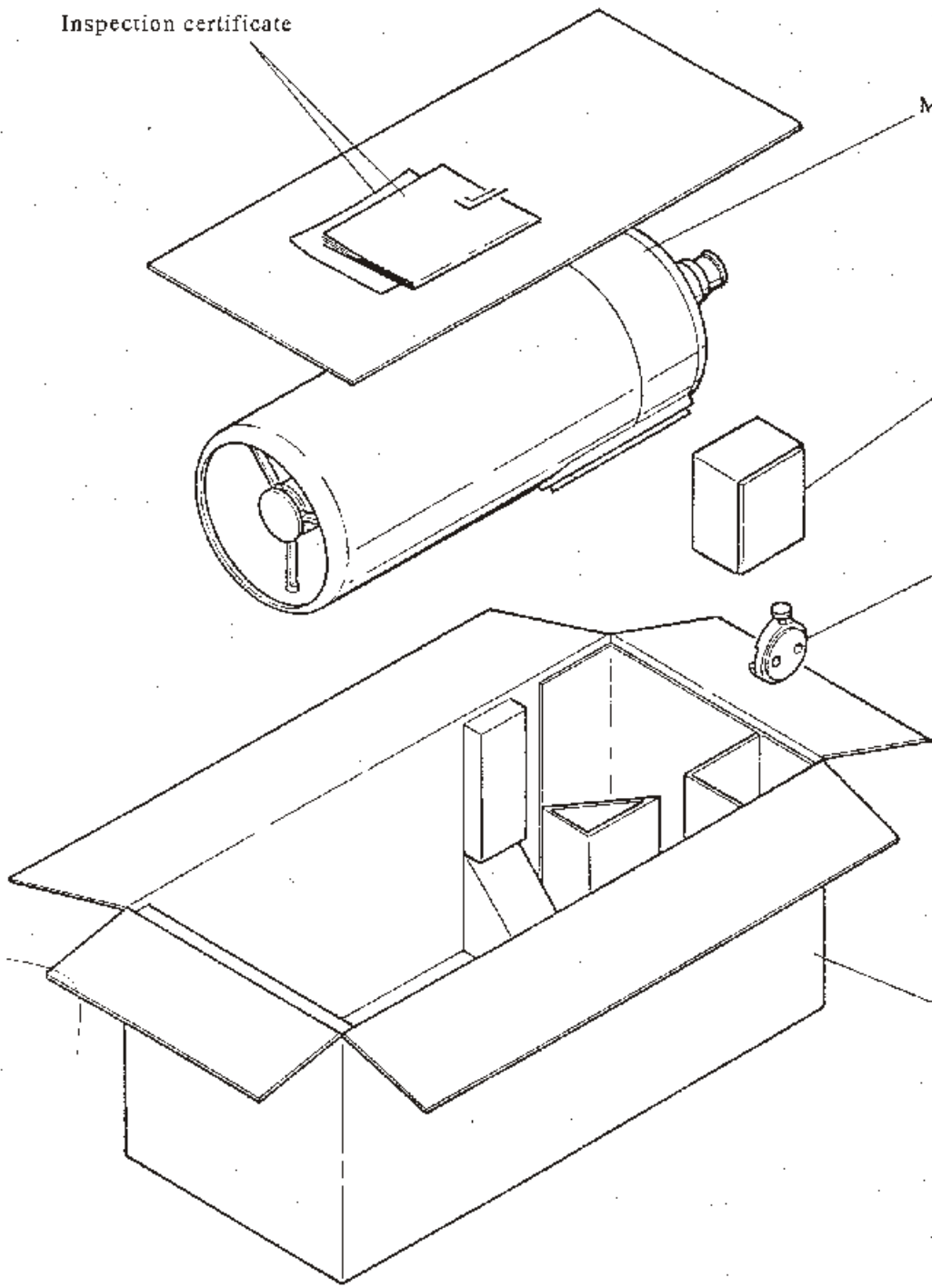
Instruction manual
Inspection certificate

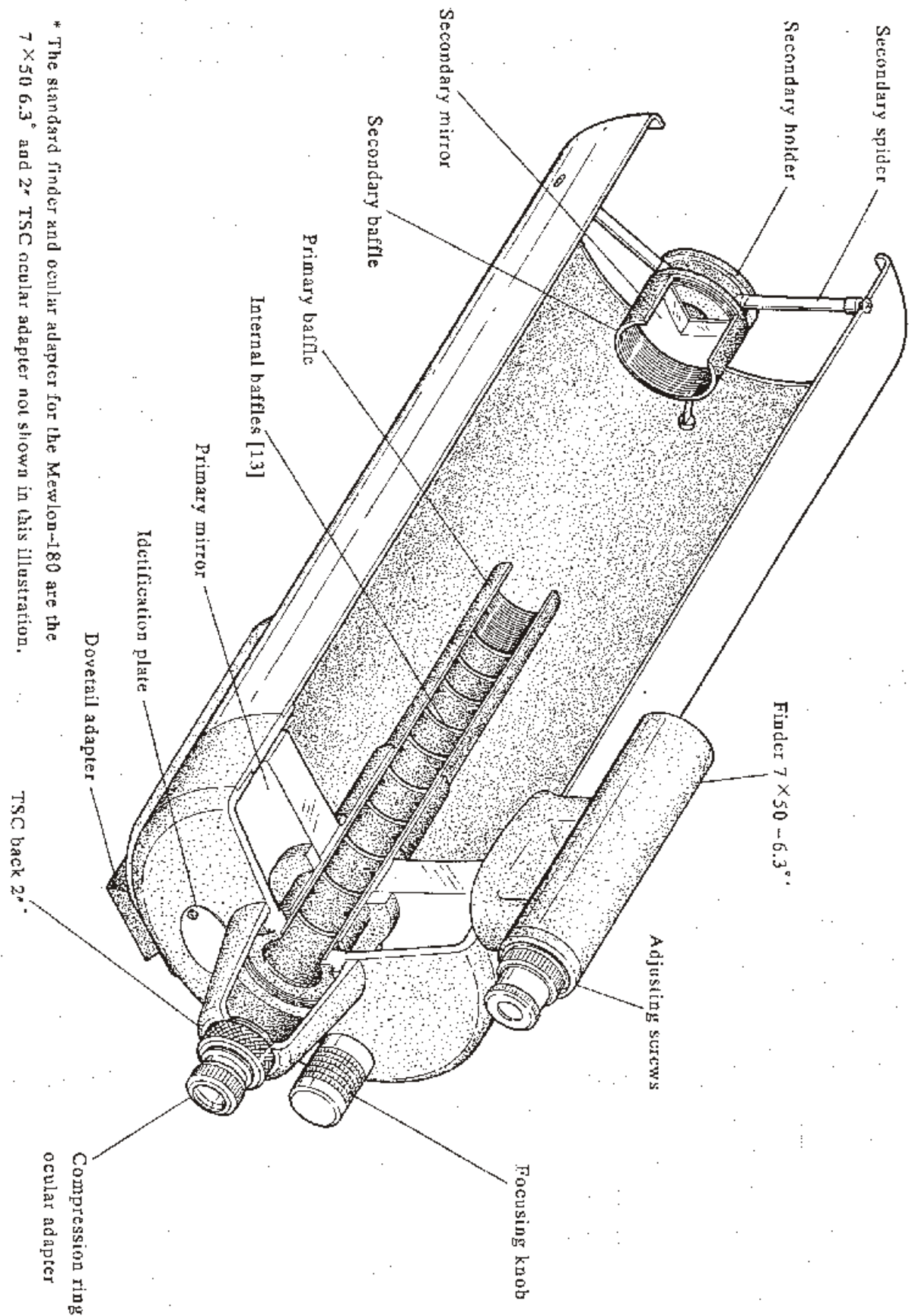
Mewlon-180 tube

Or25mm ocular

Mount adapter

Carton





* The standard finder and ocular adapter for the Mevlon-180 are the 7 X 50 6.3" and 2" TSC ocular adapter not shown in this illustration.

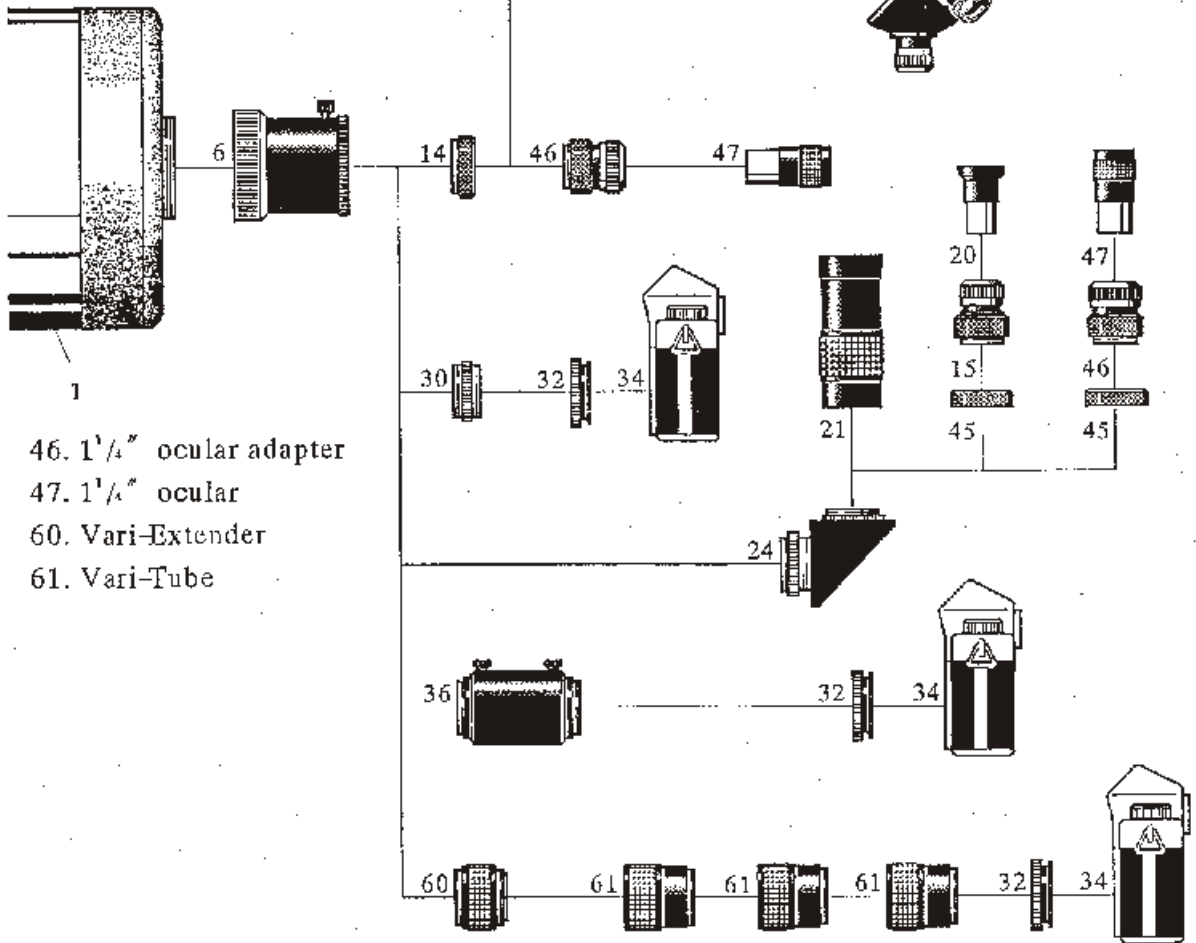
Mewlon-180 Specifications

Effective aperture	-----	ϕ 180mm
Effective focal length	-----	2160mm
Effective focal ratio	-----	F/12
Primary mirror	-----	ϕ 190mm
Focal ratio	-----	F/3
Coating	-----	Multi-layered enhanced aluminum 96% reflectance
Secondary mirror	-----	ϕ 54mm
Focal ratio	-----	F/4
Coating	-----	Same as primary
Resolving power	-----	0.64"
Limiting magnitude	-----	13.0
Tube diameter	-----	ϕ 210mm
Tube length	-----	630mm
Tube weight	-----	6kgs -13.2lbs.
Number of internal baffles	-----	13
Focus mode	-----	Main mirror movement
Finder	-----	7x50 -6.3°
Optical guarantee	-----	Lifetime

Specifications subject to change without notice.

Mewlon-180 System Chart

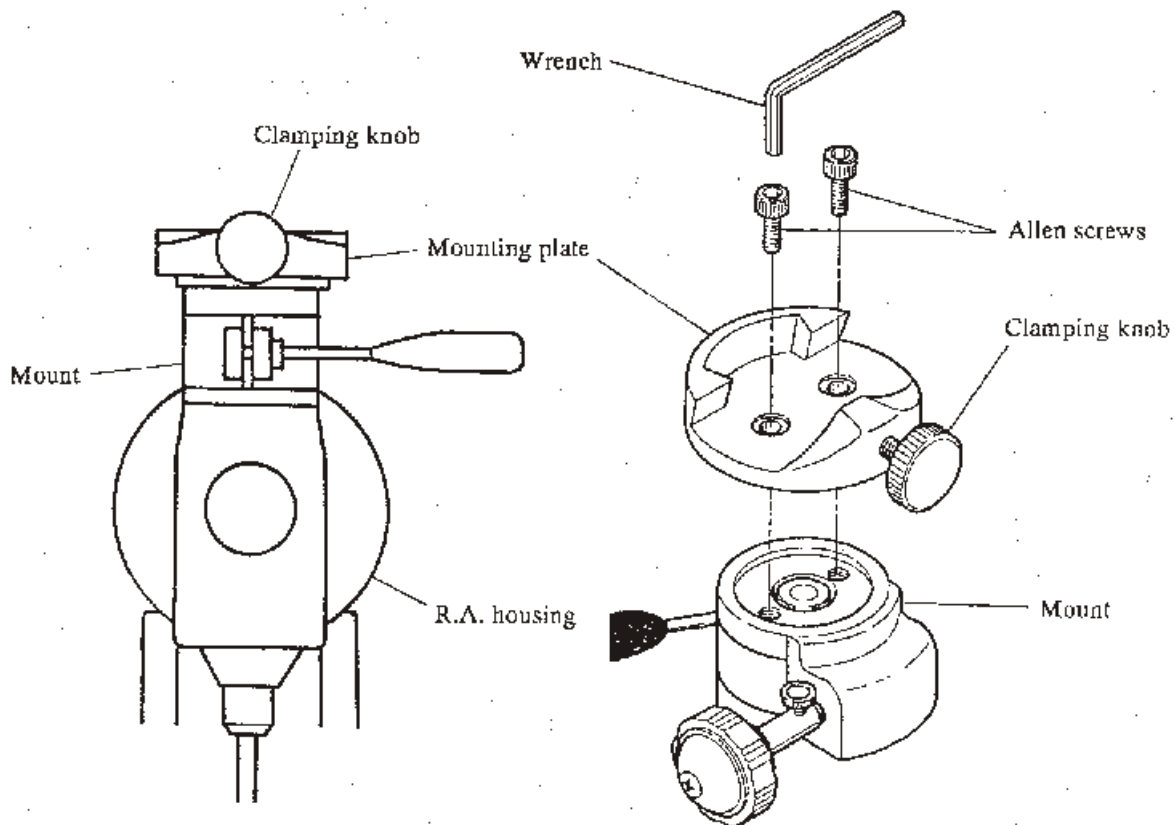
- 1. Mewlon-180 tube assembly
- 6. TSC visual adapter
- 14. Coupling, universal
- 15. 24.5mm ocular adapter
- 20. 24.5mm ocular
- 23. Small diagonal prism
- 24. Large diagonal prism
- 27. Quadruple turret
- 30. Prim focus ring
- 32. T-ring
- 34. 35mm SLR camera
- 36. Camera adapter
- 37. NCA New Camera Adapter
- 45. Large diagonal prism coupling



- 46. 1/4" ocular adapter
- 47. 1/4" ocular
- 60. Vari-Extender
- 61. Vari-Tube

Mounting The Mewlon-180

The Mewlon-180 uses a dovetail plate. This type of mounting system makes the tube balancing a matter of moving the Mewlon forward or backward. the dovetail assembly attaches to the mount with the allen screws and wrench provided. It may be attached with the knob on either side of the mount.

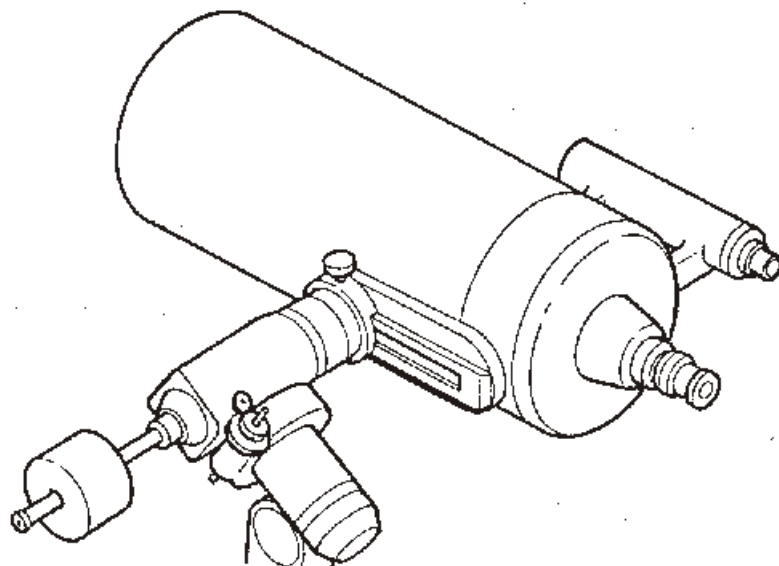


When placing the Mewlon on the mount, be certain that the mounting clamp is parallel to the ground; the counterweights have been attached, and the R.A. and Dec. clamps are tightened.

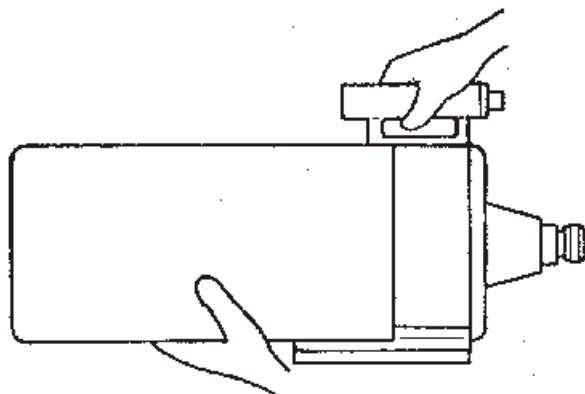
1. Loosen the clamping knob.
2. Place the Mewlon in the dovetail assembly and then tighten the knob. Now the clamp may be loosened very slightly to permit the Mewlon to be moved in either direction for proper Dec. balancing. Now, retighten the clamp, holding the Mewlon.
3. When the Mewlon is to be removed once again make the mounting parallel to the ground and lift the Mewlon out of the dovetail.

Mounting The Mewlon-180

The illustration below shows the Mewlon-180 attached to the dovetail plate.

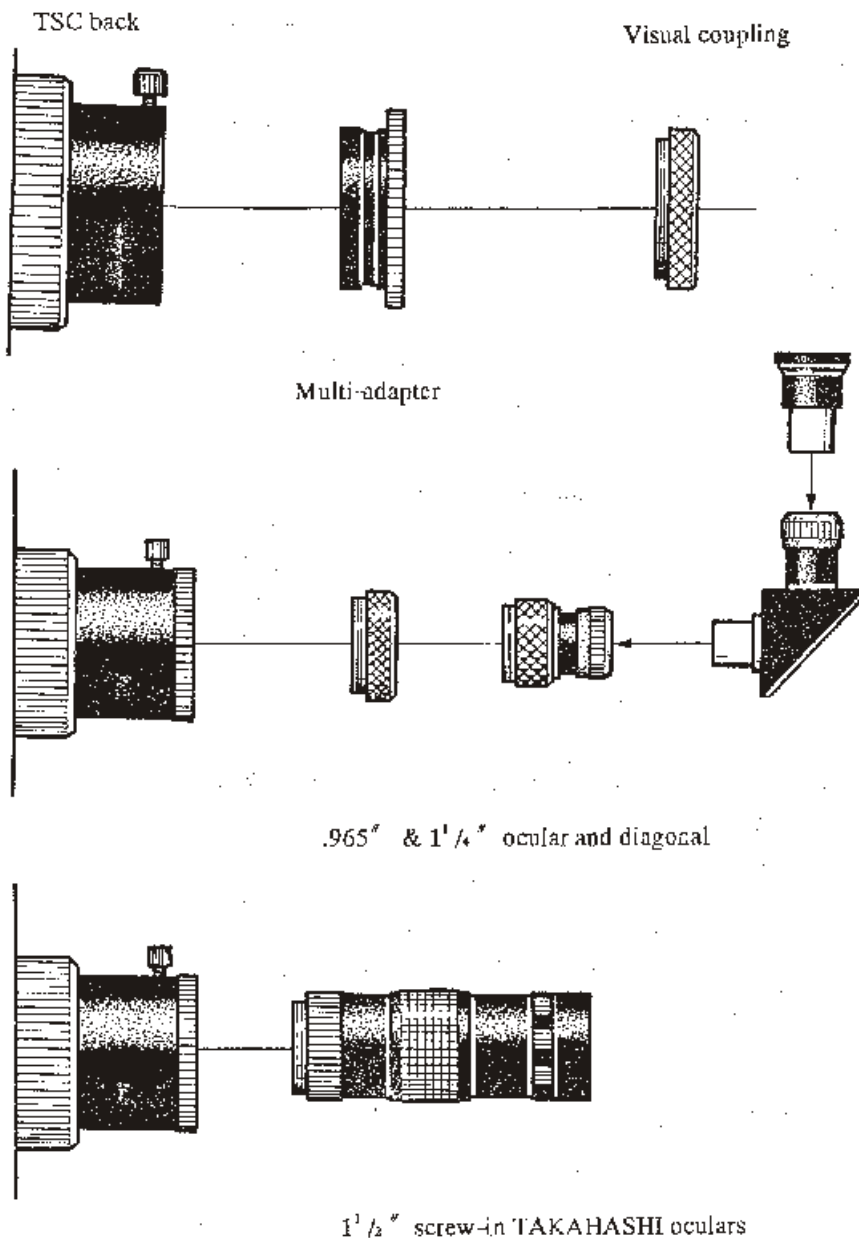


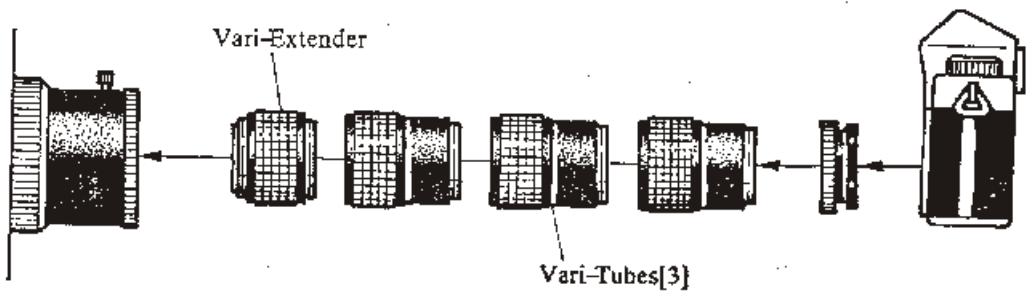
Finally, when lifting the Mewlon firmly grasp the finder and tube as shown.



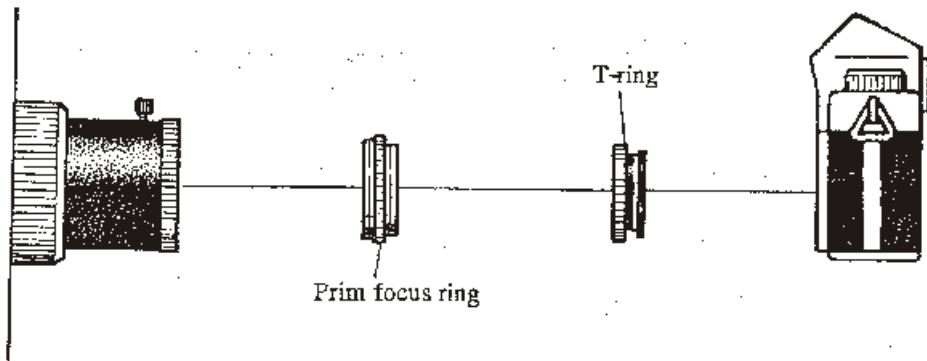
Photo/Visual Diagrams For Mewlon-180

Listed below and on the following page are diagrams for visual and photographic use for the Mewlon-180. The Mewlon-180 is supplied with the TSC back. This back will accept 2", 1 1/4" and .965" oculars. Additionally, it will further accept TAKAHASHI 1 1/2" screw-in oculars.





Projection photography using the Vari-Extender



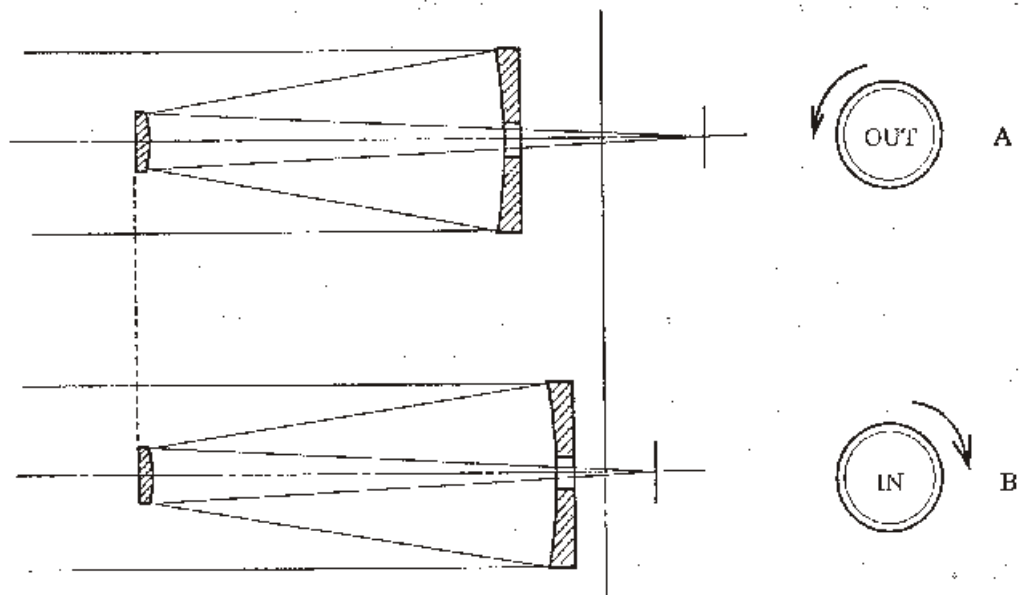
Prime focus photography using the prim focus ring

Focusing

The Mewlon is focused by moving the main mirror in and out. The focus knob located on the right side of the mirror cell when turned moves the main mirror. The knob is labelled **IN** and **OUT**. The **IN** and **OUT** refer to the direction in which the focal plane moves when the knob is turned in the direction indicated.

In diagram A, the focus knob is turned counter-clockwise. This moves the main mirror closer to the secondary mirror, which in turn moves the focal plane further out.

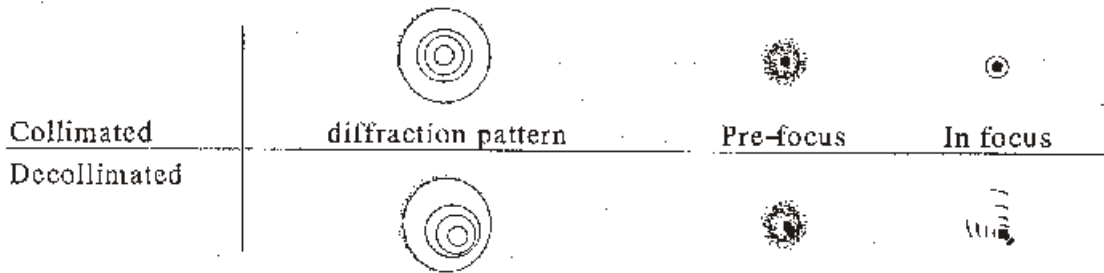
In diagram B, the focus knob is turned in the clockwise direction. This moves the main mirror further away from the secondary mirror, which in turn moves the focal plane closer to the mirror cell.



Collimation

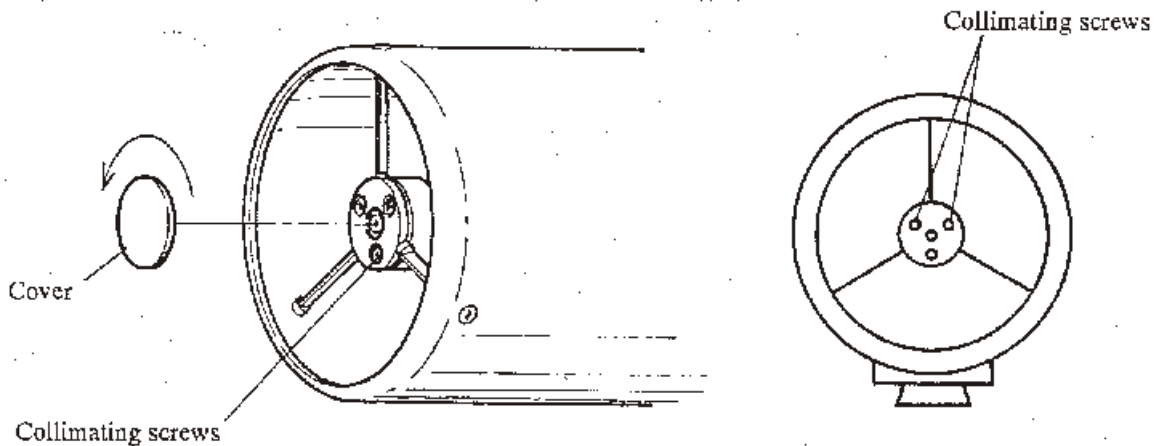
The Mewlon is collimated before it is shipped. Nonetheless, it is possible that if the tube is hit hard enough the optics will decollimate.

Testing the collimation requires that the Mewlon be focused on a bright star at high magnification. The diagram below illustrates the appearance of a collimated (top) and decollimated image. The first image is the diffraction pattern of a perfectly collimated instrument. The second set shows what a decollimated image looks like when viewed through an ocular.



The following is the collimating procedure for the Mewlon.

1. Remove the collimating cover by turning it counter-clockwise as shown. Be careful that, as the cover is removed, the instrument is parallel to the ground to insure that if the cover is dropped it does not strike the main mirror.



Collimation Continued

The first thing to bear in mind when collimating the Mewlon is, Never under any circumstances is the center screw to be loosened or tightened. If the center screw is loosened, the secondary could tilt, or fall into the primary. There is never a circumstance under which the center screw should be loosened.

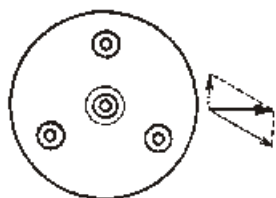
Place a bright star in the center of the field, and defocus the image. This will show whether diffraction pattern which should look like a bullseye with a dark bullseye in the center. If the bullseye is not precisely in the center, then the collimation process should be initiated. Tilting the secondary mirror with the three screws will place the shadow of the secondary precisely in the center of the diffraction pattern.

A 2.5mm allen wrench is provided for collimation. Please keep in mind, that, when collimating, as one screw is loosened, the screw in the opposite direction should be tightened, the opposite is also true if one is tightened, its opposite should be loosened. This procedure permits the secondary shadow to be moved more precisely.

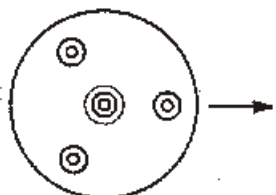
The image of the secondary shadow will move in the same direction in which the collimating screw that corresponds to its position is tightened. If the image is shifted between two screws, then the two must be tightened to make the image shift in that direction. Study the illustrations on the next page. They show the direction in which the image of the secondary shadow will move when the collimating screws are either loosened or tightened. As the each adjustment is made to the secondary shadow, the image in the field of view will decenter. Recenter the image after each adjustment.

Finally, after the final adjustment is made, be certain that all of the collimating screws are as tight as possible. This procedure insures that the collimation will hold for many trips into the field.

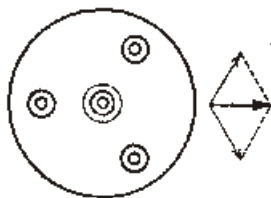
The illustrations below graphically shows the direction in which the image will move when combinations of collimating screws are loosened and tightened.



- #1. The image must be shifted to the 3 o'clock position. In order to accomplish this: the screw on the left side is loosened, then the one to the right is tightened, and the one at the top is tightened slightly. The vector diagram to the right of the screw pattern demonstrates the force that must be applied.



- #2. The image must be shifted to the 3 o'clock position. In order to accomplish this: the two screws to the left side must be loosened, and the one to the right must be tightened. The vector diagram demonstrates the force necessary to accomplish the movement of the image.



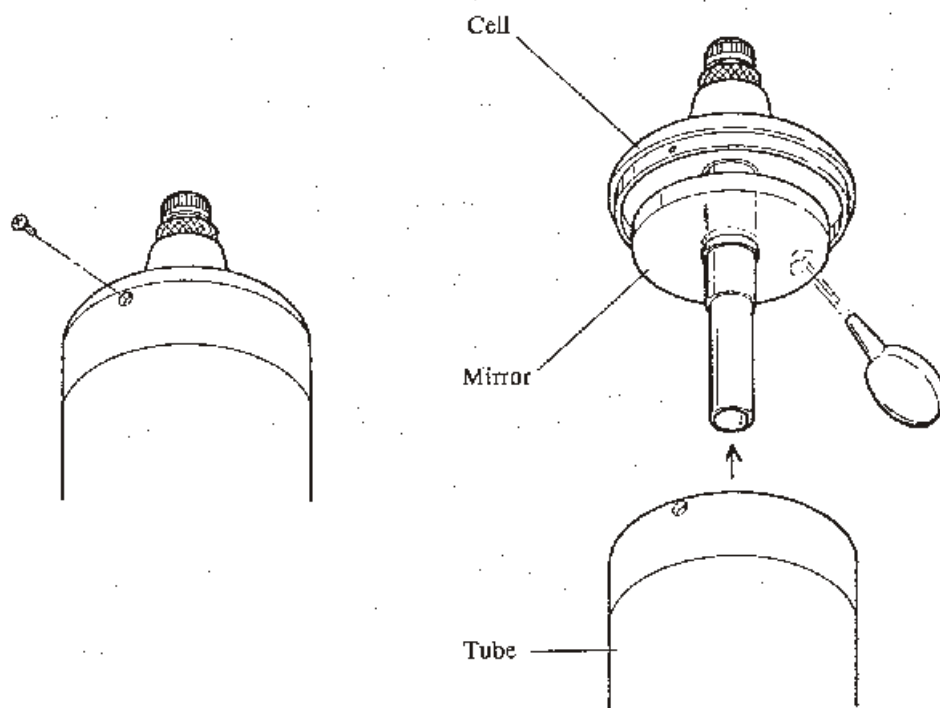
- #3. Once again, 3 o'clock movement. The left side screw is loosened, and the two on the right must be tightened evenly. The vector diagram shows the force.

Collimating may require combinations of these adjustments. Once collimation is achieved, be certain that all of the collimating screws have been tightened with the same firm pressure.

Finally, check the diffraction pattern in the Mewlon for a last check.

Cleaning The Main Mirror

From time to time after many observing sessions the primary mirror of the Mewlon may have some particulate matter on the surface of the mirror. The procedure that will follow permits the main mirror to be removed and blown off with clean air. Under no circumstances should the particulate matter be brushed off or wiped. This will cause the coating and mirror to become scratched. If it becomes necessary to clean the primary, it can be cleaned in its cell. Contact your dealer before attempting any cleaning of the mirror.



Mirror Removal

1. Set the Mewlon on its front and surround the tube so that it cannot tip over.
2. Remove the three screws holding the mirror cell to the main tube. Carefully remove the mirror cell from the tube.
3. Firmly holding the mirror cell upright, use canned air or an manual air source to remove the particulate matter.