# MEADE INFINITY 76 USER'S GUIDE

**WARNING!**

***Never use a Meade telescope to look at the Sun! Looking at or near the Sun will cause instant and irreversible damage to your eye. Eye damage is often painless, so there is no warning to the observer that damage has occurred until it is too late. Do not point the telescope at or near the Sun. Do not look through the telescope or viewfinder as it is moving. Children should always have adult supervision while observing.***

## INTRODUCTION

Your telescope is an excellent beginner's instrument and is designed to observe objects in the night sky and also on land. It can be your personal window on the universe or allow you to intimately study the behavior of nesting birds on a distant hillside. The telescope is shipped with the following parts:

- 76mm Optical tube
- Red Dot finder
- Yoke-style mount
- Software disk
- Aluminum tripod with accessory tray
- Two 1.25" Eyepieces: 20mm Erect-Image, H9mm
- Cell phone holder
- Carry bag
- Instruction sheet

## ASSEMBLY

The tripod is the basic support for your telescope and comes pre-assembled from the factory; except for the accessory tray. In order to use the scope a small amount of assembly is required. Follow the below steps to assemble the telescope.

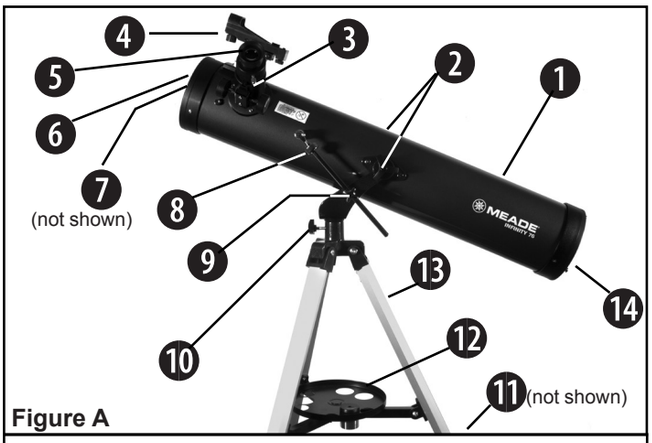


Figure A

| | | | | | |
|---|---|---|---|---|---|
| 1. | Optical Tube Assembly (OTA) | 6. | Front Dust Cap | 10. | Horizontal motion lock knob |
| 2. | Vertical Motion Lock Knob | 7. | Secondary Mirror Alignment Screws | 11. | Tripod leg locks |
| 3. | Focusing Knob | 8. | Slow-Motion Control Rod | 12. | Accessory tray |
| 4. | Red-dot Viewfinder | 9. | Slow-Motion Control Lock Knob | 13. | Tripod legs |
| 5. | Eyepiece | | | 14. | Primary Mirror Alignment Screws |

Note: Number in brackets, e.g., (3), refer to the item numbers in Fig. A.

1. To setup the tripod, spread the legs out evenly and place on solid ground. Loosen the leg lock knobs and extend the inner legs to desired height. Do this for each leg until the top of the tripod is approximately level. Re-lock the leg lock knob.
2. Attach the accessory tray to the tripod by threading it into the center nut between the tripod legs.

## ATTACHING THE OPTICAL TUBE ASSEMBLY (OTA)

1. Remove the two lock knobs (2) from the optical tube mount.
2. Slide the Slow-motion control rod (8) into the slow-motion control lock knob hole (9).
3. Place the optical tube (1) between the forks of the mount, oriented as shown.
4. Thread a lock knobs (2) through each of the holes in the forks of the mount and tighten to a firm feel.

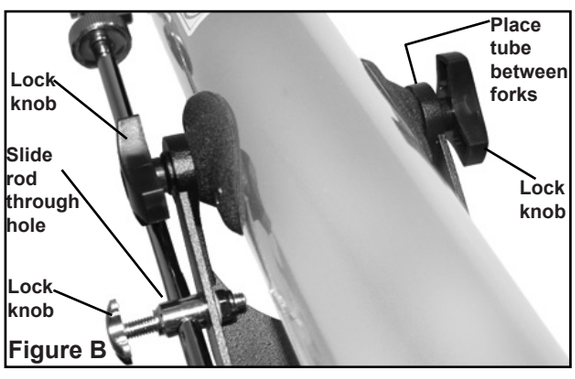


Figure B

## ATTACHING THE RED-DOT FINDER

A viewfinder (4) has a wider field of view, which makes it easier to locate objects. The viewfinder has a red dot to make it easier to line up more precisely with a target.

1. Note the two thumbscrews threaded onto two bolts (see Fig. C) on the optical tube. Remove the thumbscrews from the tube.

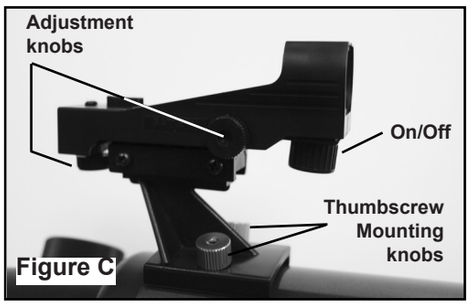


Figure C

2. Line up the two holes on the viewfinder bracket over the two bolts. Slide the bracket over the bolts. See Fig. C.
3. Replace the thumbscrews onto the bolts and tighten to a firm feel.

## REMOVING THE DUST COVERS

1. Remove dust covers(6) at the front of the scope by pulling the cover away from the telescope.
2. Remove the dustcover from the focuser by pulling it out of the focuser drawtube.

## INSERTING THE EYEPIECE

1. Slide the 20mm eyepiece (4) into focuser drawtube.
2. Tighten thumbscrew to hold the eyepiece in place.

## ALIGNING THE RED-DOT FINDER

Perform the first part of this procedure during the daytime and the last step at night.

1. Point the telescope at an easy- to-find land object such as the top of a telephone pole or a distant mountain or tower. Look through the eyepiece and turn the focuser knob (3) until the image is sharply focused. Center the object precisely in the eyepiece's field of view.
2. Turn on the red-dot viewfinder by rotating the large knob under the viewfinder lens clockwise (see Fig. C). Turn the knob to adjust the intensity of the red dot as desired.
3. Look through the viewfinder. Turn one or both of the viewfinder's alignment screws (see Fig. C) until the red-dot is precisely over the same object as you centered in the eyepiece.
4. Check this alignment at night on a celestial object, such as the Moon or a bright star, and use the viewfinder's alignment screws to make any necessary refinements.
5. When finished, turn off the viewfinder by turning the large knob under the viewfinder lens counter- clockwise until it clicks.

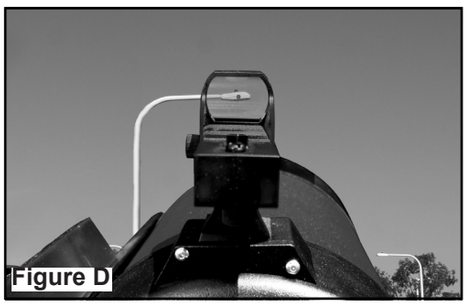

Figure D

## MOVING THE TELESCOPE

Your telescope is alt-azimuth mounted. Alt-azimuth is just a complicated way of saying that your telescope moves up and down and from side to side. Other telescopes may be mounted in different ways.

1. Slightly loosen both of the star-shaped vertical control knobs (2) and slow-motion rod lock knob (9). Loosening these knobs allow you to move the telescope up and down.
2. Slightly loosen the horizontal lock knob (10). Loosening this lock allows the telescope to be moved from side to side.
3. Once an object is found, re-tighten the control knobs. You can then turn the slow motion control knurled knob(8) to make smooth and precise movements as you can follow (or "track") an object vertically as it moves in the eyepiece.
4. To use the slow motion control feature (8) aim the telescope at an object and tighten the control knobs (2,9). Then lock the altitude lock knob (2) and rotate the slow motion control (8) to follow the target in the vertical direction.

**A NOTE ABOUT THE TELESCOPE**

The Meade 76mm reflecting telescope uses mirrors to achieve focus and is designed primarily for night-sky viewing where image orientation is not important. However when looking at daytime objects often image orientation is important. For daytime terrestrial use, Meade has included a 20mm erect-image eyepiece for correcting the image orientation. Please note the included 9mm eyepiece does not have this feature and objects will not be correctly orientated. This is normal. When locating objects always start with the 20mm erect-image eyepiece as it has a larger viewing field.

**CARING FOR YOUR TELESCOPE**
Your telescope is a precision optical instrument designed for a lifetime of rewarding viewing. It will rarely, if ever, require factory servicing or maintenance. Follow these guidelines to keep your telescope in the best condition:

Avoid cleaning the telescope's optics. A little dust on the mirror or lens surfaces of the telescope will not cause loss of image quality. When absolutely necessary, dust on the lens or mirrors should be removed with very gentle strokes of a camel hair brush or blown off with an ear syringe (available at most pharmacies).

Fingerprints and organic materials on the optics may be removed with a solution of 3 parts distilled water to 1 part isopropyl alcohol. You may also add 1 drop of biodegradable dish washing soap per pint of solution. Use soft, white facial tissues and make short, gentle strokes. Change tissues often. **CAUTION:** Do not use scented or lotioned tissues or damage could result to the optics. DO NOT use a commercial photographic lens cleaner.

**COLLIMATION (ALIGNMENT) OF OPTICS**
All Meade reflecting telescopes are optically aligned at the factory prior to shipment. It is unlikely that you will need to align, or collimate, the optics after receipt of the instrument. However, if the telescope received unusually rough handling in shipment, it is possible that the optics must be re aligned for best optical performance. In any case this alignment procedure is simple, and requires only a few minutes the very first time the telescope is used. Take the time to familiarize yourself with the following collimation procedure, so that you will recognize a properly collimated instrument and can adjust the collimation yourself, if necessary.

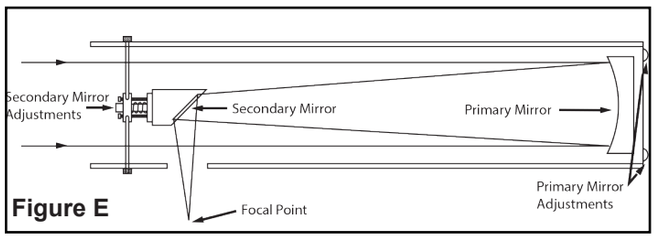

Figure E

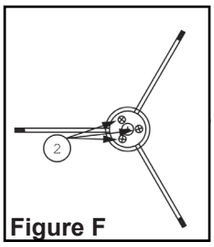

Figure F

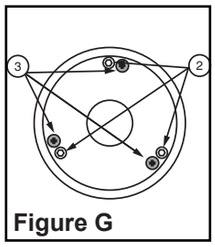

Figure G

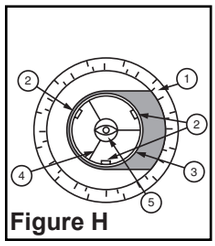

Figure H

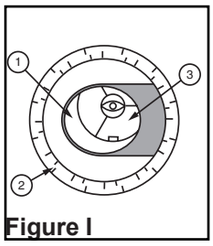

Figure I

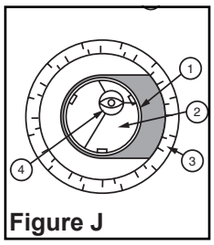

Figure J

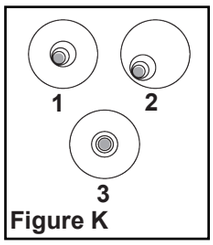

Figure K

**1. CORRECT COLLIMATION**
The properly collimated (aligned) mirror system in the Meade telescope assures the sharpest images possible. This occurs when the primary mirror and secondary mirror are tilted so that the focused image falls directly through the center of the focuser draw tube. These mirror tilt adjustments are made with the secondary mirror assembly and the primary mirror cell (Fig. E,F,G) and will be discussed later.
To inspect the view of the mirror collimation, look down the focuser draw tube with the eyepiece removed. The edge of the focuser drawtube (1, Fig. H), will frame the reflections of the primary mirror with the 3 mirror clips (2, Fig. H), the secondary mirror (3, Fig. H), the spider vanes (4, Fig. H), and your eye (5, Fig. H). Properly aligned, all of these reflections will appear concentric (i.e., centered) as illustrated in Fig. H. Any deviation from the concentric reflections will require adjustments to the secondary mirror assembly and/or the primary mirror cell (Fig. F,G).

**2. SECONDARY MIRROR HOLDER ADJUSTMENTS**
If the secondary mirror (1, Fig. I) is centered in the draw tube (2, Fig. I), but the primary mirror is only partially visible in the reflection (3, Fig. I), one or more of the 3 secondary mirror collimation screws need adjusting. First, unthread each of the secondary mirror collimation screws slightly to the point of where you can tilt the secondary holder from side-to-side. By grasping the secondary holder with your hand, tilt the secondary mirror holder until you see the primary mirror become as centered in the reflection of the diagonal mirror as possible. Once you are at the best position, thread in the 3 secondary mirror collimation screws to lock the holder in place. Then, if necessary, make adjustments to these 3 screws to refine the tilt-angle of the secondary mirror until the entire primary mirror can be seen centered within the secondary mirror reflection. When the secondary mirror is correctly aligned, it will look like Fig. J (Note: The primary mirror is shown out of alignment).

**3. PRIMARY MIRROR ADJUSTMENTS**
If the secondary mirror (1, Fig. J) and the reflection of the primary mirror (2, Fig. J) appear centered within the draw tube (3, Fig. J), but the reflection of your eye and the reflection of the secondary mirror (4, Fig. J) appear off center, you will need to adjust the primary mirror tilt screws of the primary mirror cell (2, Fig. G). These primary tilt screws are located behind the primary mirror, at the lower end of the main tube. The long screws lock the mirror in place where the shorter screws perform the adjustment.

To adjust the primary mirror tilt screws (2, Fig G), first turn by several turns, the primary mirror cell lock knobs (3, Fig. G) that are next to each primary mirror tilt screw. The three primary mirror cell locking screws are Phillips head screws and are longer than the adjustment screws.
Then by trial-and-error, turn the short primary mirror tilt screws (2, Fig. G) until you develop a feel for which way to turn each knob to center the reflection of your eye. Once centered, as in Fig. H, turn the 3 long primary mirror cell locking screws (3, Fig. G) lightly to re-lock the tilt-angle adjustment.

**4. STAR TESTING THE COLLIMATION**
With the collimation performed, you will want to test the accuracy of the alignment on a star. Use the 20mm eyepiece and point the telescope at a moderately bright (second or third magnitude) star, then center the star image in the telescope's field-of-view. With the star centered follow the method below:
• Bring the star image slowly out of focus until one or more rings are visible around the central disc. If the collimation was performed correctly, the central star disk and rings will be concentric circles, with a dark spot dead center within the out-of-focus star disk (this is the shadow of the secondary mirror), as shown in Fig. K3. (An improperly aligned telescope will reveal elongated circles (Fig. K1), with an off-center dark shadow.)
•If the out-of-focus star disk appears elongated (Fig. K1), you will need to adjust the primary mirror adjusting tilt screws of the primary mirror cell (3, Fig. G)
•To adjust the primary mirror tilt screws (3, Fig. G), first unscrew several turns the 3 hex-head primary mirror cell locking screws (2, Fig. G), to allow free turning movement of the tilt knobs.
•Using the flexible cable controls move the telescope until the star image is at the edge of the field-of-view in the eyepiece, as in Fig. K2.
•As you make adjustments to the primary mirror tilt screws (3, Fig. G), you will notice that the out-of-focus star disk image will move across the eyepiece field. Choose one of the 3 primary mirror tilt screws and slightly move the shadow to the center of the disk. Then slightly move the telescope using the flexible cable controls to center the star disk image in the center of the eyepiece.
• If any further adjustments are necessary, repeat this process as many times as needed until the out-of-focus star disk appears as in Fig. K3, when the star disk image is in the center of the eyepiece field.
• With the star testing of the collimation complete, tighten the 3 hex-head primary mirror locking screws (2, Fig. G)

**CHANGING THE VIEWFINDER BATTERY**
If the viewfinder red dot does not illuminate, verify the viewfinder is on by rotating the knob below the viewfinder lens clockwise. If the red dot does not illuminate, the battery may need replacing. To replace the battery, press the left side of the viewfinder housing labeled "push". The battery compartment will slide out on the right side of the viewfinder (see Fig. L). Replace the battery with a Lithium CR-2032 battery with the positive side up. Then push the battery compartment back into the viewfinder and power on.

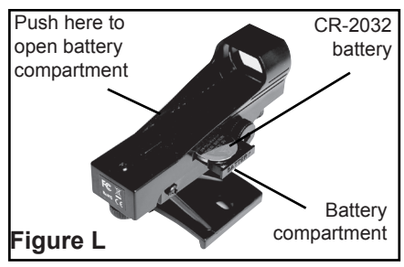

Figure L

**MEADE LIMITED WARRANTY**
Every Meade telescope and telescope accessory is warranted by Meade Instruments Corp ("Meade") to be free of defects in materials and workmanship for a period of ONE YEAR from the date of original purchase in the U.S.A. Meade will repair or replace a product, or part thereof, found by Meade to be defective, provided the defective part is returned to Meade, freight-prepaid, with proof of purchase. This warranty applies to the original purchaser only and is non-transferable. Meade products purchased outside North America are not included in this warranty, but are covered under separate warranties issued by Meade international distributors. RGA Number Required: Prior to the return of any product or part, a Return Goods Authorization (RGA) number must be obtained from Meade by writing, or by calling (800) 626-3233. Each returned part or product must include a written statement detailing the nature of the claimed defect, as well as the owner's name, address, and phone number. This warranty is not valid in cases where the product has been abused or mishandled, where unauthorized repairs have been attempted or performed, or where depreciation of the product is due to normal wear-and-tear. Meade specifically disclaims special, indirect, or consequential damages or lost profit which may result from a breach of this warranty. Any implied warranties which cannot be disclaimed are hereby limited to a term of one year from the date of original retail purchase. This warranty gives you specific rights. You may have other rights which vary from state to state. Meade reserves the right to change product specifications or to discontinue products without notice. This warranty supersedes all previous Meade product warranties.

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