



# Meade Instruments Corporation

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## Operating Instructions

### Meade® ETX Field Tripod

For Use With the ETX Astro Telescope

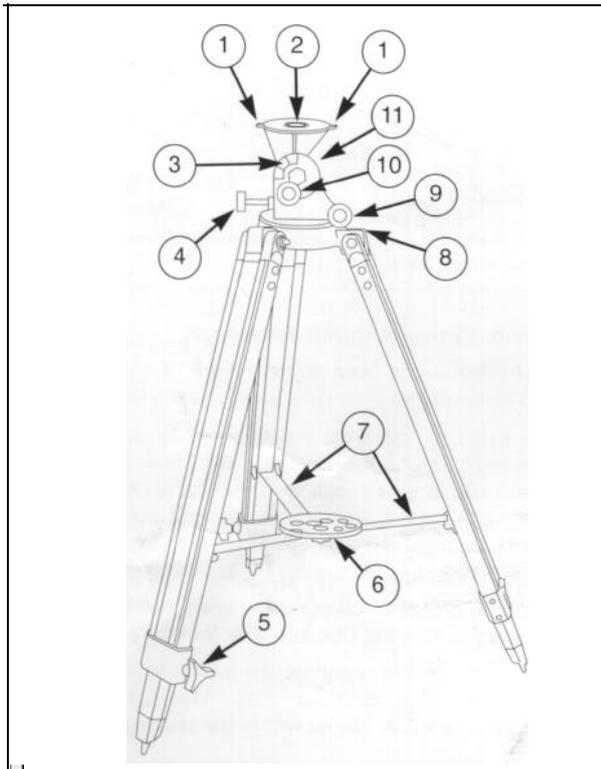


Fig. 1: ETX Field Tripod. (1) Mounting Slots; (2) Mounting Plate; (3) Latitude Scale; (4) Fine Latitude Adjustment Knob; (5) Height Adjustment Knob; (6) Accessory Tray; (7) Extension Strut System; (8) North-Pointing Tripod Leg (marked "N" at position of arrow); (9) Fine Azimuth Adjustment Knobs; (10) Latitude Lock Knob; (11) Latitude Lock Lever (opposite side).

### PARTS LISTING AND ASSEMBLY

When opening the packing box for the first time, note carefully the following parts included with the ETX Field Tripod:

- Tripod
- 2 Attachment Knobs
- Accessory Tray

#### 1. Preparing the Tripod For Use

The ETX Field Tripod (Fig. 1) is simple to set up and easy to use. Users need only attach the accessory tray and adjust the tripod to the desired observing height.

##### a. Extending the Tripod:

Remove the tripod from the shipping box and stand it upright. Grasp two of the tripod legs, leaving the full weight of the tripod on the third leg. Gently pull the legs apart to a full open position.

##### b. Attaching the Accessory Tray:

Remove the round accessory tray (6) Fig. 1, from the shipping box. Remove the black, star-shaped lock knob from the threaded rod on the bottom of the accessory tray. Attach the tray to the tripod by inserting the threaded rod through the central hub of the extension strut (7) Fig. 1. Rethread the lock knob onto the accessory tray.

##### c. Varying the Tripod Height:

Loosen the black, star-shaped height adjustment knob (5) Fig. 1 at the base of each tripod leg.

Slide the three top tripod leg sections to the desired height.

Tighten the three height adjustment knobs, (5), Fig. 1, to a "firm feel". Do not overtighten.

##### d. Collapsing the Tripod for Storage:

Remove the accessory tray (6) Fig. 1, from the tripod. Grasp the top of the tripod with one hand, and with the other hand, pull up on the central hub of the extension strut (7) Fig. 1 where the accessory tray was attached. This action will cause the tripod legs to move inward to a collapsed position.

#### Important Notes on using ETX Field Tripod:

- Remove the accessory tray before attempting to collapse the tripod.
- If the tripod does not extend or collapse easily, do not force the tripod legs in or out. By following the above instructions the tripod will function properly. Forcing the tripod into an incorrect position may damage the extension strut system.
- Do not overtighten the three star-shaped height adjustment knobs on the tripod legs. "Firm feel" tightening is sufficient.

#### 2. Attaching the ETX Astro Telescope to the Tripod

a. Confirm that the latitude lock lever (11) Fig. 1 is in the locked position by rotating the lever clockwise until tight. Also confirm that the N/S switch on the base of the ETX Astro Telescope is set for the correct hemisphere

b. In the side of the ETX drive base, locate the two attachment holes, Fig. 2. (These holes are normally used with the fixed legs of the table tripod.) Position the ETX on the Field Tripod so that the "N" tripod leg (8), Fig. 1, is between these two attachment holes.



Fig. 2: ETX Drive Base, showing attachment holes.

c. Then, align the two holes in the base of the ETX with the mounting slots (1) Fig. 1 on the mount plate (2), Fig. 1.

- d) Thread the two provided 1/4-20 threaded attachment knobs through the mounting slots into the ETX base. Tighten to a firm feel only. Do **not overtighten or damage to the threads may occur.**

The ETX Astro Telescope can be used for land or celestial observing. To track celestial objects, polar alignment is required, along with the motor drive system of the ETX. (See the *Motor Drive section of the ETX instruction manual.*)

### POLAR ALIGNMENT

Polar alignment is the process of lining up the telescope's polar axis with the North Celestial Pole (or South Celestial Pole if observing from the southern hemisphere).

With a polar aligned ETX, tracking celestial objects is possible simply by turning on the drive motor in the base of the telescope. The motor counteracts Earth's rotation, keeping objects in the field of view. Also, with a polar aligned telescope, the ETX's Dec and R.A. setting circles may be used to locate faint objects directly from their catalogued coordinates.

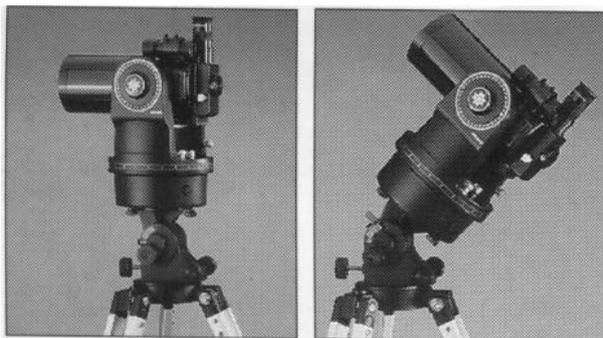


Fig. 3. (left) The ETX Astro Telescope on Field Tripod oriented for land viewing; (right) The polar-aligned ETX, ready for astronomical viewing.

#### 1. Polar Alignment Procedures

Make sure the ETX is firmly attached to the tripod, as described above in this instruction sheet, with latitude lock knob (10) and the latitude lock lever (11) Fig. 1, firmly locked.

Step (a) below is equivalent to pointing the telescope's polar axis due north (or due south for observers in the southern hemisphere). Step (b) is equivalent to making the telescope's latitude angle equal to the latitude angle of your observing location.

- a. On top of one of the tripod legs, locate the letter "N" (8), Fig. 1. This represents the north leg of the tripod. Pick up the entire telescope-and-tripod and orient the tripod so that the leg marked "N" points due north. For observers in the southern hemisphere (e.g., Australia), the leg marked "N" should point due south.
- b. Determine the latitude of your observing location by checking a road map, atlas, or refer to pages 12-13 of the ETX manual. To set the latitude of the tripod to your observing location, loosen the latitude lock knob (10) Fig. 1. Turn the fine latitude adjustment knob (4) Fig. 1, clockwise or counterclockwise until the latitude pointer indicates the correct latitude on the latitude scale (3) Fig. 1. It may be necessary to loosen the lock nut on the fine latitude adjustment knob (4) Fig. 1, to allow enough movement of the mount to achieve the latitude of your location. Once the desired latitude has been set, tighten the lock nut until it is flush against the mount. Tighten the latitude lock knob (10), Fig. 1 as well.

Note: The fine azimuth adjustment knobs (9), Fig. 1 which move the telescope horizontally without moving the tripod itself, may be used to aid in the alignment procedure.

**Note:** By following the procedures listed above, the ETX telescope is polar aligned for most celestial observing applications. See Figure 3. Approximate polar alignment is sufficient in the great majority of these applications. Do *not allow a time-consuming effort at precise polar alignment to interfere with your basic enjoyment of the telescope, as such precise alignment is, in general, not required.*

Using the North Star, Polaris, to find North aids in the polar alignment procedure. Polaris can be found in relation to the Big Dipper by projecting a line from the so-called "pointer stars" of the Big Dipper. For southern hemisphere alignment, locate south by using the faint star Sigma Octans (the South Star)

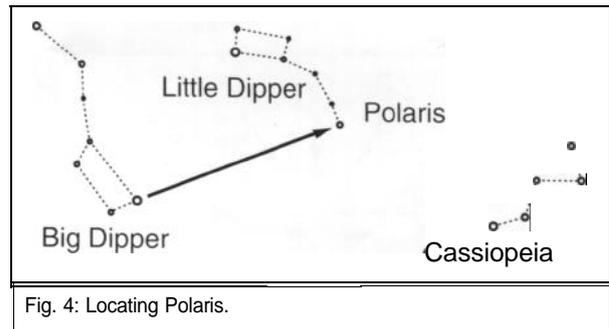


Fig. 4: Locating Polaris.

#### 2. Using a Polar Aligned Telescope

Once the telescope is polar aligned, the ETX motor drive will keep a celestial object in the field of view of the telescope.

- a. To center a celestial object within a polar aligned telescope, unlock the Dec and R.A. lock levers of the telescope (see the *Locating Astronomical Objects section of the ETX instruction manual.*) Do not move the tripod or adjust the latitude angle when centering an object in the telescope, as this will destroy the polar alignment.
- b. Once a celestial object has been centered in the telescope, lock the Dec and R.A. lock levers.
- c. Locate the On/Off switch on the bottom of the ETX drive base and turn on the motor drive. **The motor drive will keep the celestial object within the telescope's field of view.**

**Note:** Depending on the accuracy of the alignment procedure, it may be necessary to use the R.A. and Dec Slow Motion Controls to make minor adjustments to keep the celestial object in the field of view.
- d. The motor drive disengages when the R.A. and Dec lock levers are unlocked and re-engages when the lock levers are locked, making it possible for the motor drive to remain on during the entire observing session.
- e. At the end of an observing session, remember to turn off the motor drive.

#### 3. Terrestrial Use of the Field Tripod

In land viewing applications, the three legs of the Field Tripod may be positioned in an arbitrary orientation. The telescope mounting, however, should be placed in a horizontal position: (Fig. 3) by turning the fine latitude adjustment knob (4) Fig. 1 to read 90° unlocking and re-locking the latitude lock knob (10), Fig. 1, to accomplish this adjustment. The ETX's motor drive should be turned off in terrestrial applications. Use the telescope's R.A. and Dec slow-motion controls for fine motion in horizontal and vertical.

If you have any questions regarding the use of the ETX Field Tripod, please call Meade Customer Service at (949) 451-1450.