

Instructions

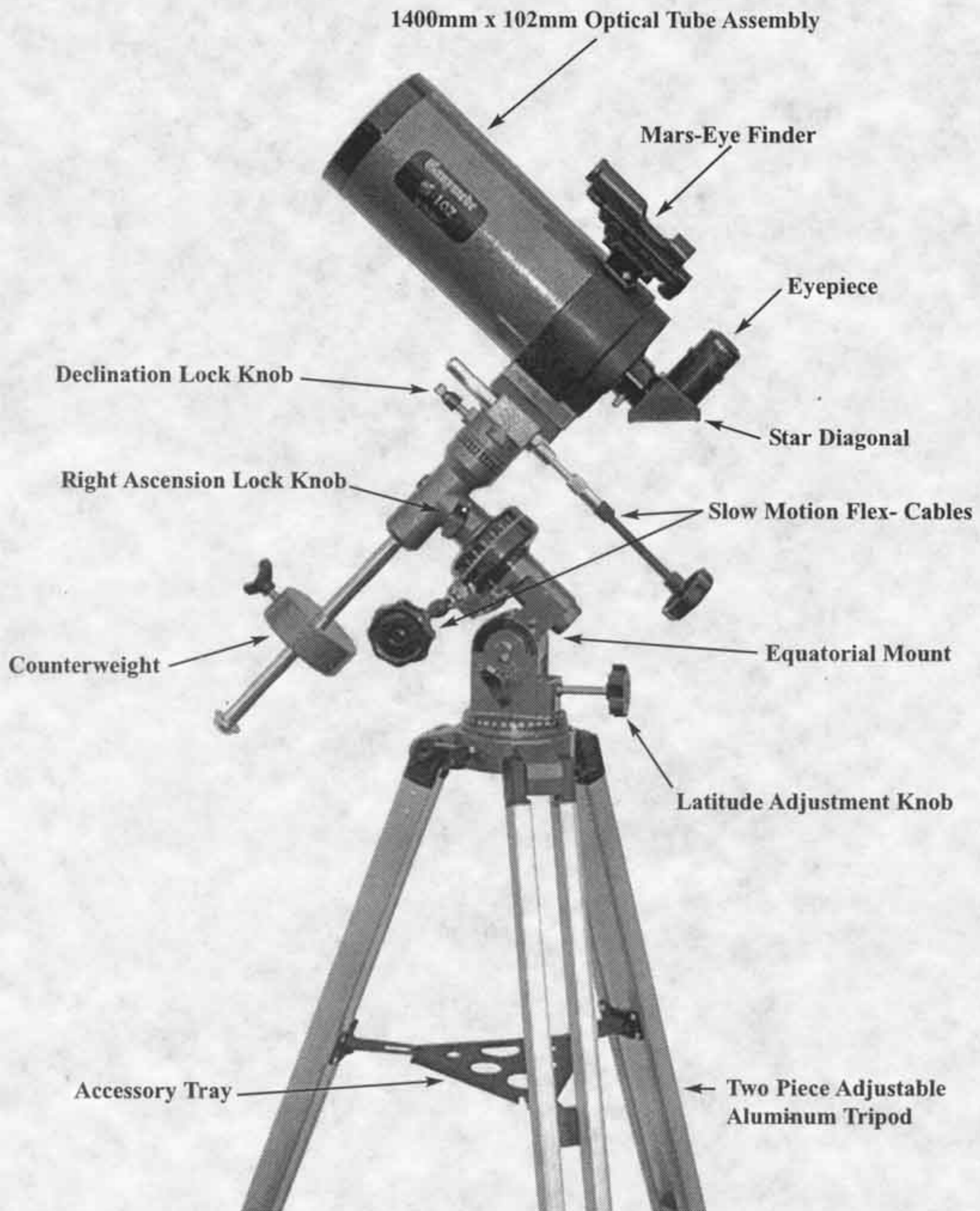
Galileo[®]



1564 - 1642

G-102

Galileo G-102



Galileo

G-102 Maksutov Cassegrain Telescope

CONGRATULATIONS ON YOUR PURCHASE OF GALILEO'S MODEL G-102 MAK-SUTOV CASSEGRAIN TELESCOPE. DUE TO THE FACT THAT YOUR TELESCOPE HAS MANY PARTS AND ACCESSORIES, IT IS VERY IMPORTANT THAT YOU INSPECT ALL OF THE PARTS AND ACCESSORIES PRIOR TO ASSEMBLY.

BY TAKING A FEW MINUTES TO CAREFULLY REMOVE EVERYTHING FROM THE CARTON, YOU CAN BECOME FAMILIAR WITH ALL THE COMPONENTS PRIOR TO ASSEMBLING THE TELESCOPE. YOUR NEW GALILEO TELESCOPE HAS BEEN PRODUCED TO VERY HIGH SPECIFICATIONS IN ORDER TO MAKE THE ASSEMBLY PROCESS AS EASY AS POSSIBLE. REALIZING IT IS OUR INTENTION TO KEEP THE ASSEMBLY PROCESS AS EASY AS POSSIBLE, A LITTLE PATIENCE IS STILL REQUIRED. PLEASE TAKE A FEW MINUTES TO REVIEW THE FOLLOWING INSTRUCTIONS, AND SHOULD YOU HAVE ANY QUESTIONS REGARDING ASSEMBLY PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT AT: 1-800-548-3537

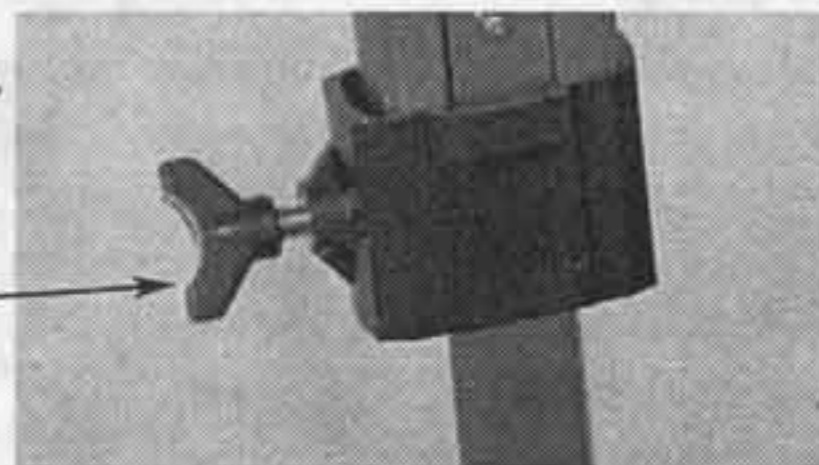
NOTICE: SOMETIMES EMPTY BOXES ARE USED TO FILL SPACE IN THE SHIPPING CARTON IN ORDER TO LIMIT DAMAGE DUE TO HANDLING DURING SHIPMENT.

STEP ONE: REMOVE AND INSPECT ALL PARTS. A COMPLETE LISTING OF ALL PARTS AND ACCESSORIES ARE LISTED BELOW. SHOULD YOU DISCOVER THAT YOU ARE MISSING ANYTHING, PLEASE CONTACT US IMMEDIATELY.

1. 3EA. METAL TRIPOD LEGS
2. 1EA. EQUATORIAL MOUNT
3. 2EA. FLEX CABLES
4. 1EA. COUNTERWEIGHT SHAFT
5. 1EA. COUNTERWEIGHT
6. 2EA. 1.25" EYEPIECES (9MM & 25MM)
7. 1EA. 1.25" STAR DIAGONAL
8. 1EA. MARS-EYE FINDER
9. 1EA. ACCESSORY TRAY W/HARDWARE
10. 1EA. 1400MM OPTICAL TUBE ASSEMBLY W/MOUNTING BRACKET
11. 1EA. MOTOR DRIVE
12. GALILEO PLANETARIUM CD-ROM

STEP TWO:

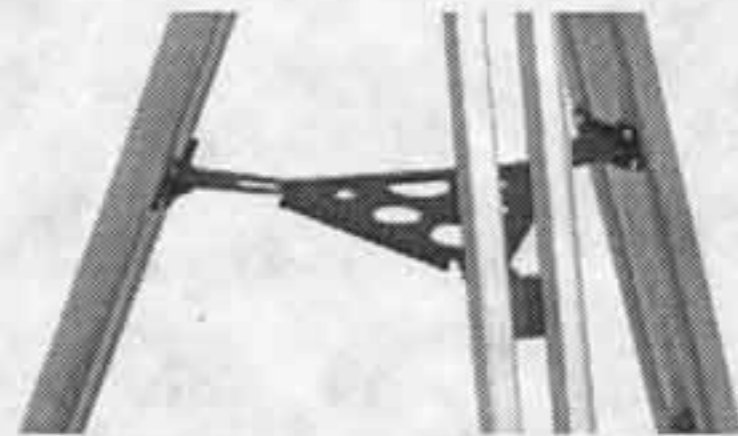
ATTACH THE TRIPOD LEGS TO THE MOUNT. SPREAD APART THE LEGS AND PUT IN THE TRIPOD LOCKING KNOBS IN ALL THREE LEGS AND TIGHTEN TILL SNUG (DO NOT OVERTIGHTEN).



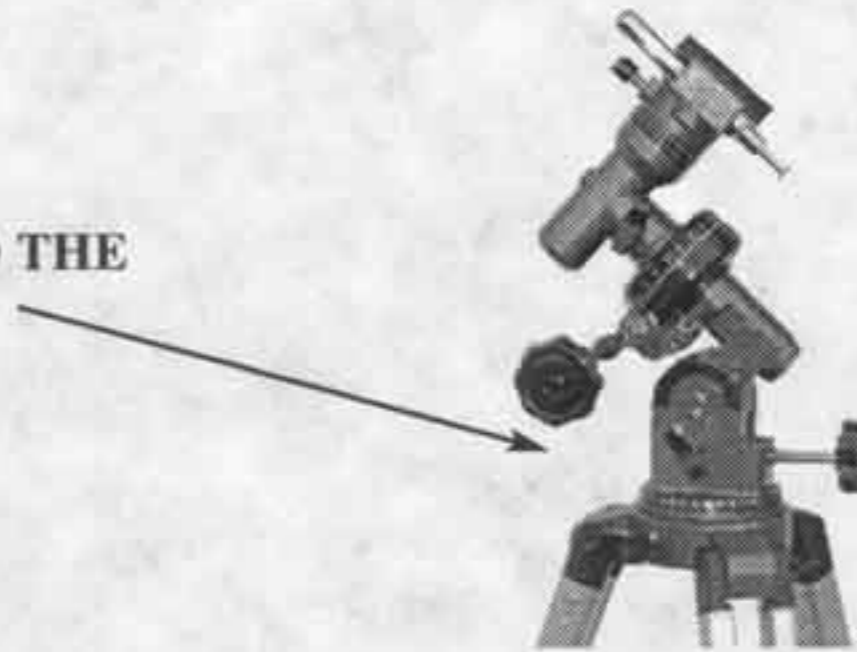
STEP THREE:
ADJUST THE HEIGHT OF THE TRIPOD LEGS TO
THE DESIRED HEIGHT OF THE USER.



STEP FOUR:
ATTACH THE ACCESSORY TRAY TO THE
TRIPOD.



STEP FIVE:
ATTACH THE EQUATORIAL MOUNT TO THE
TRIPOD.

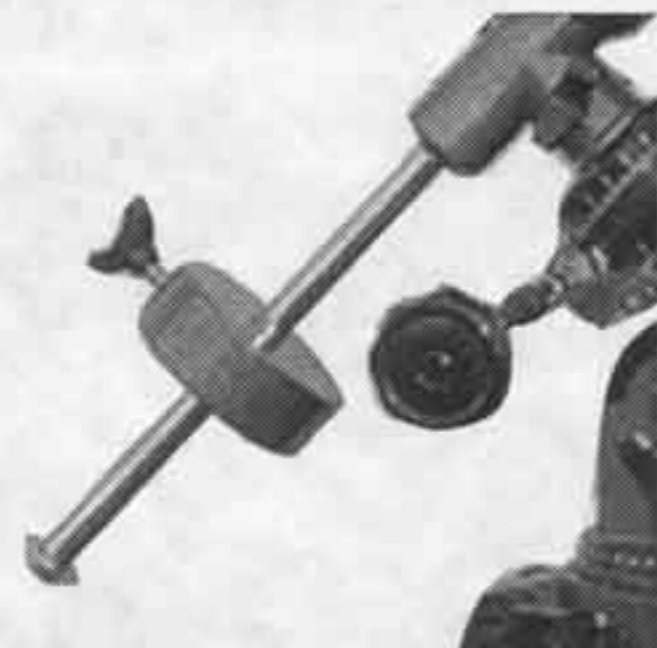


STEP SIX:
ATTACH THE SLOW MOTION CABLES TO THE MOUNT. THE LONGER ONE GOES ON
THE DECLINATION AXIS



STEP SEVEN:
ATTACH THE COUNTERWEIGHT TO THE COUNTER-
WEIGH SHAFT AND INSERT INTO EQUATORIAL
MOUNT.

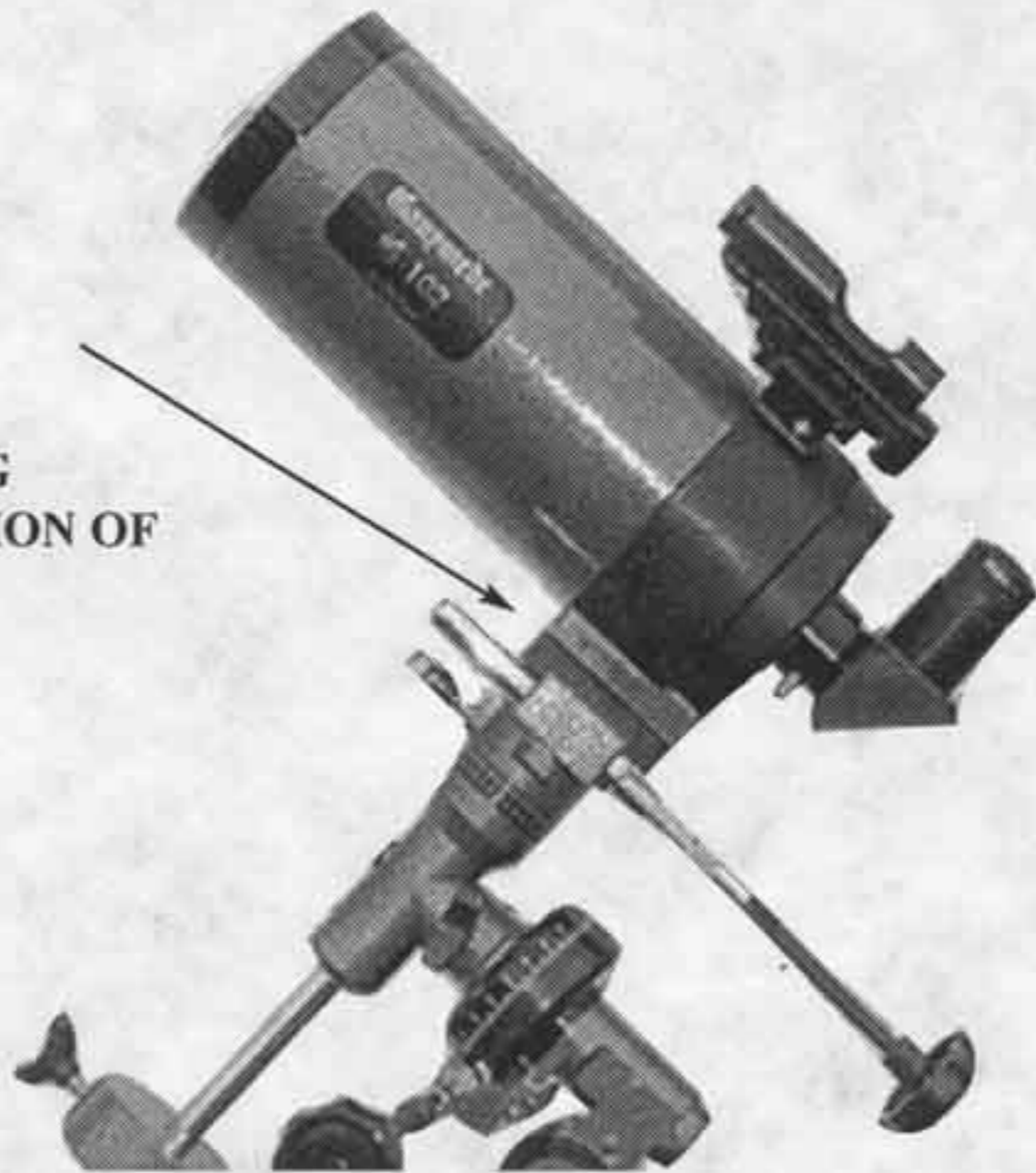
NOTE:
YOU MAY WANT TO ATTACH THE COUNTERWEIGHT
SHAFT PRIOR TO SLIDING ON THE COUNTERWEIGHT.



**STEP EIGHT:
ATTACH TELESCOPE TO
EQUATORIAL MOUNT**

**INSERT TELESCOPE MOUNTING
BRACKET INTO THE TOP PORTION OF**

**ONCE BRACKET IS SET INTO
THE MOUNT, TIGHTEN THE
SETTING BOLT SECURELY**

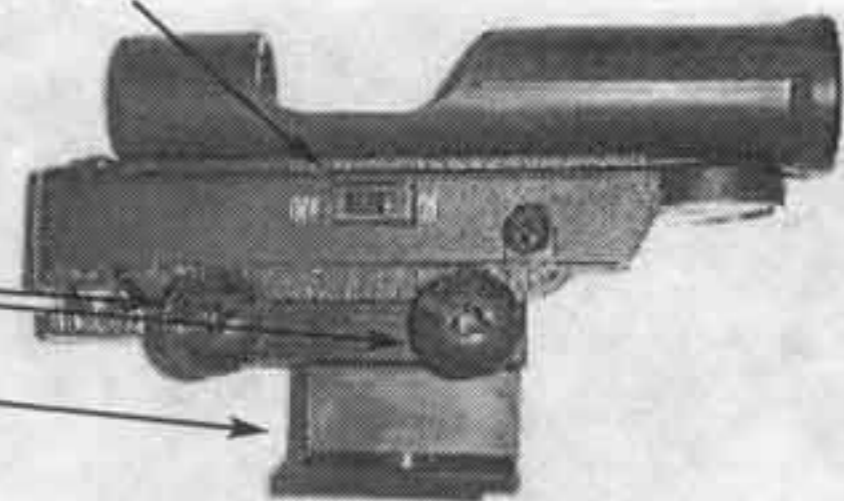


**STEP NINE:
ATTACH MARS-EYE FINDER TO TELESCOPE**

**LOOSEN THESE TWO KNOBS
AND SLIDE FINDER ONTO THE DOVETAIL
MOUNT**

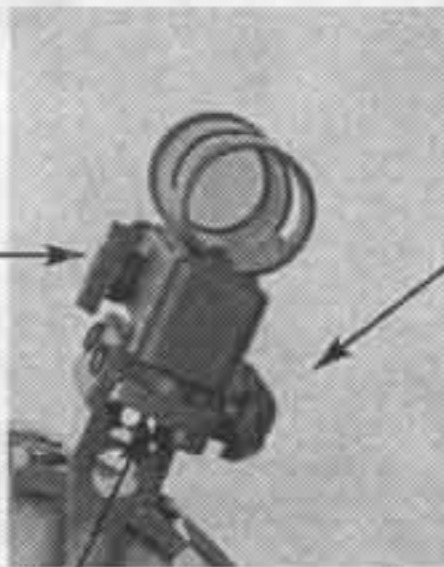
(already mounted to telescope)

On/Off Switch



Adjusting Knobs

Side (windage)



Rear (elevation)

Mars-Eye Finder Mounted on Telescope

Note:

The "Side" adjusting knob moves the Mars-Eye Finder left & right, and the "Rear" adjusting knob moves the Mars-Eye Finder up & down

Adjusting the Mars-Eye Finder

Adjusting your Mars-Eye Finder is quite simple. However, please be patient when you begin.

Once you have experienced how the Red Dot moves when turning the Windage and Elevation knobs, the process will become quite simple.

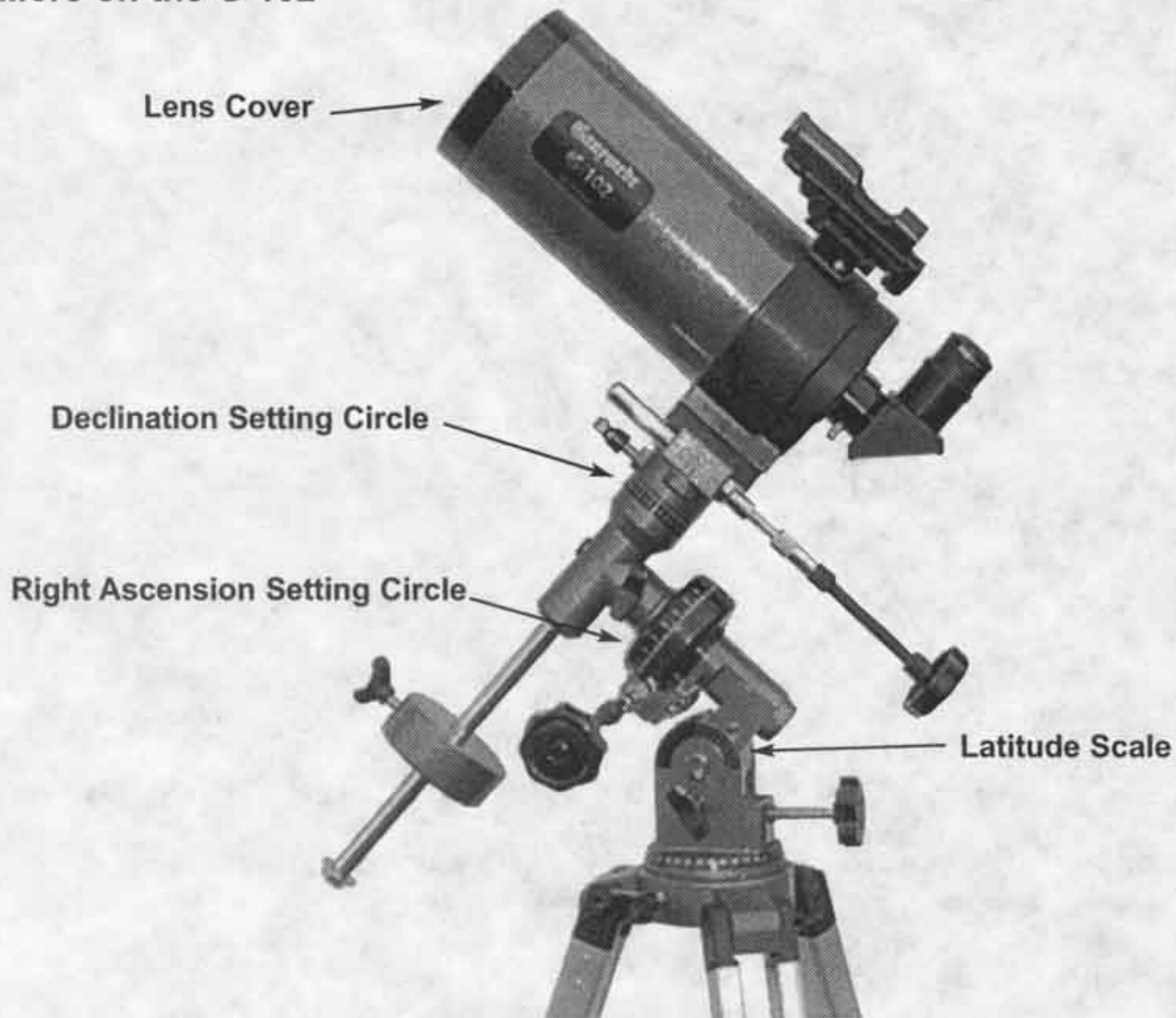
1. The elevation knob is used to move the red dot up and down. It is located at the rear end of the Mars-Eye Finder (below).
2. The windage knob is used to move the red dot left and right. It is located at the front right of the Mars-Eye Finder.
3. The objective is to position the red dot in the Mars-Eye Finder on the same exact object that is being seen through the eyepiece of the main telescope. Note: Always use the 25mm eyepiece when aligning the Mars-Eye Finder.
4. Using the 25mm eyepiece in the telescope, aim at an object around 1/4 mile away (if possible), and center it in the 25mm eyepiece. Note: When aligning the Mars-Eye Finder to the telescope, it is easier if it is being done during the daytime to start with. Use an object like a tall building, water tower etc.
5. Turn on the Mars-Eye Finder. Also, remove the plastic or paper tab which is inserted into the battery slot. The tab is there to save the battery during shipment. The tab **MUST** be removed in order to use the Mars-Eye Finder.
6. Check the object in the eyepiece of the main telescope to ensure that the image is centered.
7. With your eye several inches behind the Mars-Eye finder, look through and locate the dot and notice it's location relative to the object in the eyepiece. You will probably see that the red dot is not centered in the eyepiece. You will need to adjust the position of the red dot so it is located directly on the object in the eyepiece.
8. Simply turn the Windage and Elevation knobs to position the red dot over the object in the eyepiece. As you move the red dot it is a good idea to look through the eyepiece to ensure the object is still centered. It may take a little time to position the red dot over the object but, your patience will be rewarded. Once the red dot is properly positioned, locating objects that you want to view will become easy.

Note:
If your telescope was bumped when moved, or if you recollimate the telescope, you will have to readjust the Mars-Eye Finder.

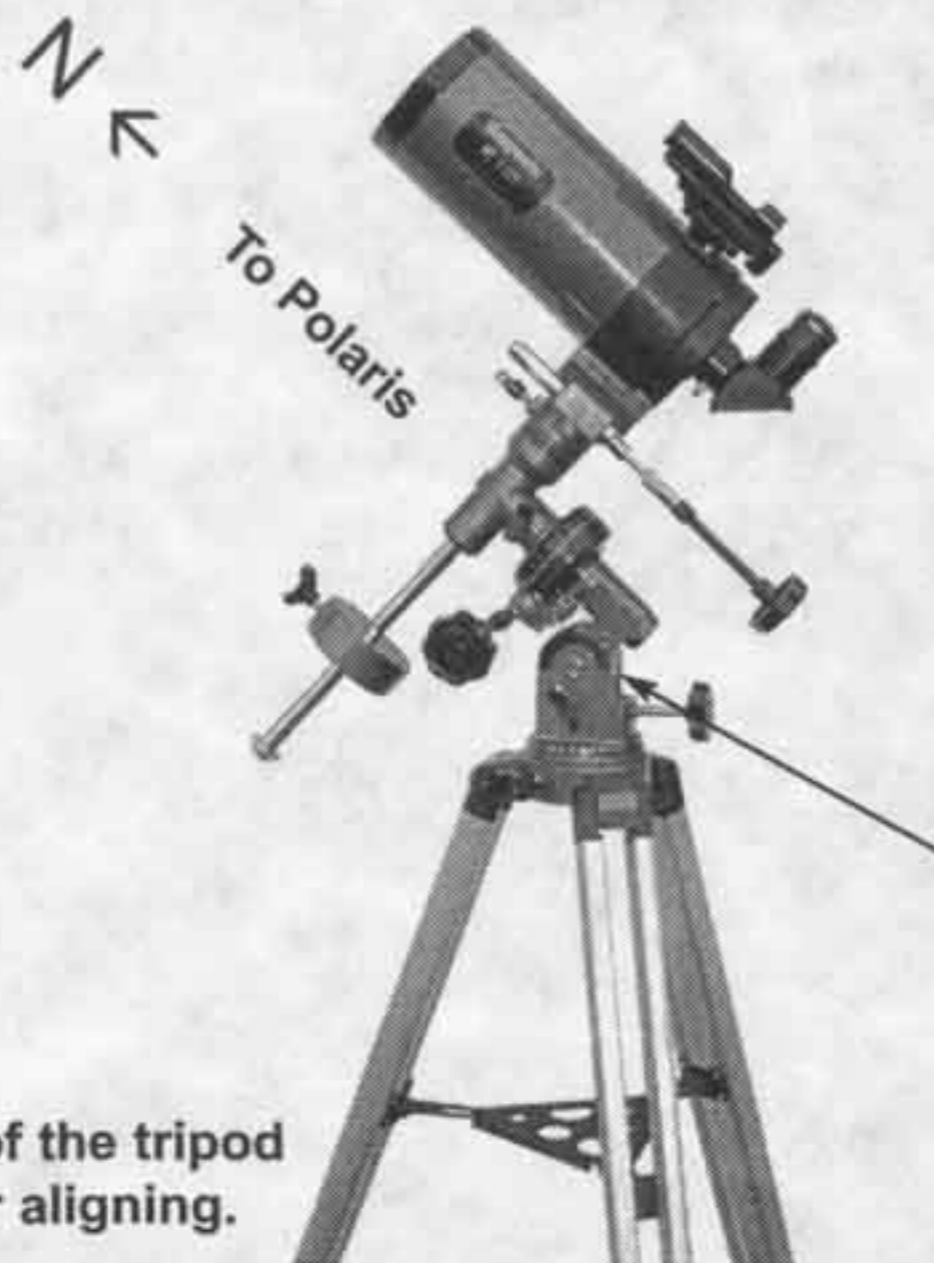
Getting Started

1. Now that you have the telescope assembled take a few minutes and familiarize yourself with the equatorial mount and its workings.
2. Locate the Latitude Scale, Right Ascension & Declination Settings Circles, Pg 8.
3. Loosen the knob that locks the equatorial mount to the tripod and move the equatorial mount until the counterweight shaft is pointing toward the ground and is placed directly over one tripod leg. It doesn't matter which leg.
4. Move the Latitude Adjustment Knob until the Scale is reading the latitude that you're at (see pg 10).
5. Loosen the R.A. lock knob which is right above the R.A. (Right Ascension) Setting Circle, and move the R.A. axis until the counterweight shaft is parallel to the ground. Then retighten the R.A. lock knob.
6. Loosen the Dec. (Declination) lock knob which is right above the Dec. Setting Circle, and move the telescope tube until it is parallel to the ground.
7. Loosen the R.A. lock knob and see if the telescope moves. If it does, move the counterweight until the telescope is balanced, then retighten the R.A. lock knob.
8. Please make sure that the front lens cover is off when balancing the telescope.
9. After the telescope is balanced, take the scope outside during the daytime (around dusk is best), and find an object that's easily seen (tall building, water tower etc.) that's a fair distance away (1/4 - 1/2 mile), and sight along the telescope tube and point the tube at the object, and lock down the R.A. & Dec. lock knobs. Then put the 25mm eyepiece in the focuser, and focus in on the object. Use the slo-motion controls to center the object in the eyepiece.
10. Turn on the Mars-Eye Finder and adjust the finder's adjustment knobs until the red dot is on the same object that's in the eyepiece. Note: When looking through the Mars-Eye Finder place your eye around 12" or more back from the finder front lens. Also, keep both eyes open during this procedure. Now, when you use the telescope at night you will be able to locate object quickly.
11. Take the telescope outside around 30 minutes before you're ready to observe. This will let the telescope cool down to the ambient temperature. This will allow the telescope to perform at its best.
12. Once it's dark you're ready to do a polar alignment. Locate the star Polaris (see pg 9), and point the telescope's R.A. axis toward the star Polaris (see pg 8). To do a polar alignment, the R.A. & Dec. axes must be locked down and must not move. To get Polaris in the eyepiece you must move the mount in azimuth and latitude to center Polaris in the eyepiece. Once this is done, lock the azimuth & latitude lock knobs, and you're ready to observe. Now, to move the telescope to an object (Moon, Jupiter, Saturn etc.) you must only move the telescope in the R.A. & Dec. axes after the polar alignment has been completed. Loosen the R.A. & Dec. axes and move the telescope to an object by looking through the finder (which has already been aligned), and place the red dot on the object. Start observing by using the 25mm eyepiece which gives you the widest field of view and brightest image. As the object moves through the eyepiece turn the slo-motion control in the R.A. axis and follow it. If you need to recenter the object north or south, use the Dec. slo-motion control to move it back. When observing the Moon and planets start out with the 25mm eyepiece. When you want to get a larger image, center the object in the eyepiece, and carefully take the 20mm out and replace it with the 9mm. 13. After your observing session is over, replace the dust covers to keep the optics clean as possible.
14. The G-102 is a very fine optical instrument. Please treat it with care, and it will give you many years of fine service.

More on the G-102



Polar Aligning Tips



NOTE:

In the below configuration with Polaris in the eyepiece of the telescope, the Declination Setting Circle should read 89.2°

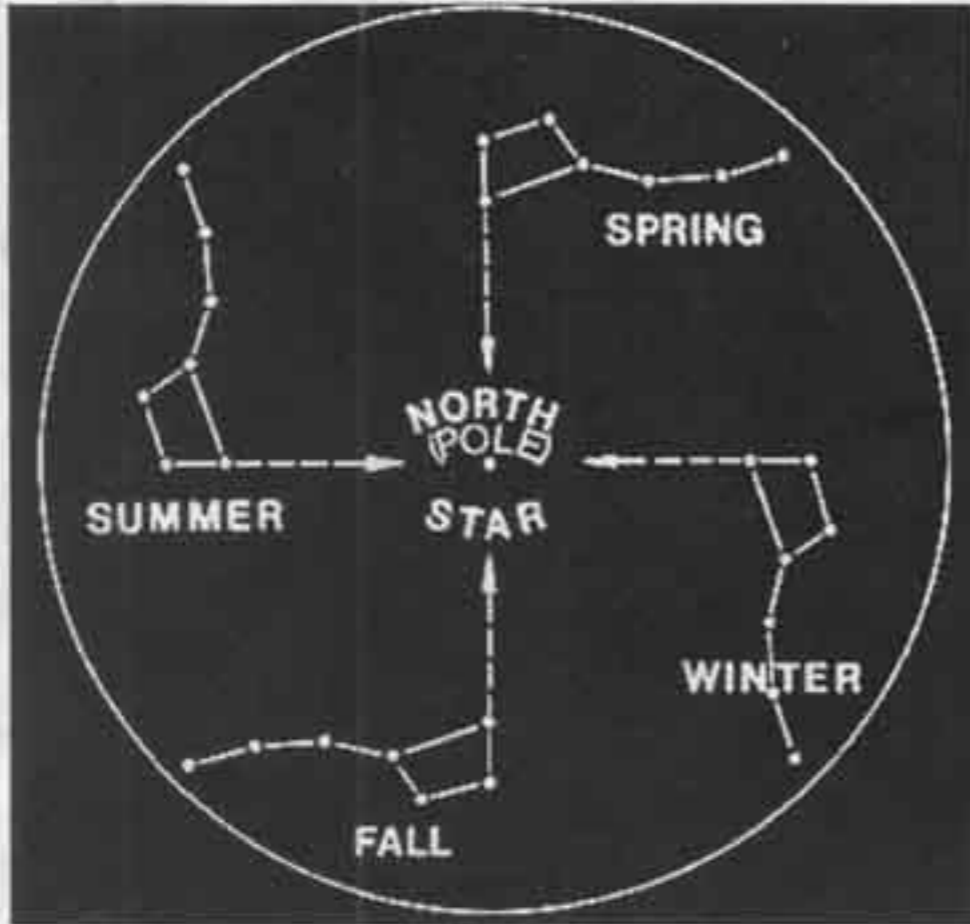
The more accurate the mount is aligned to the north celestial pole, the easier the tracking of astronomical objects will be.

Set Latitude Scale to read the degree your location is above the equator, i.e. Chicago, IL = 41.52°

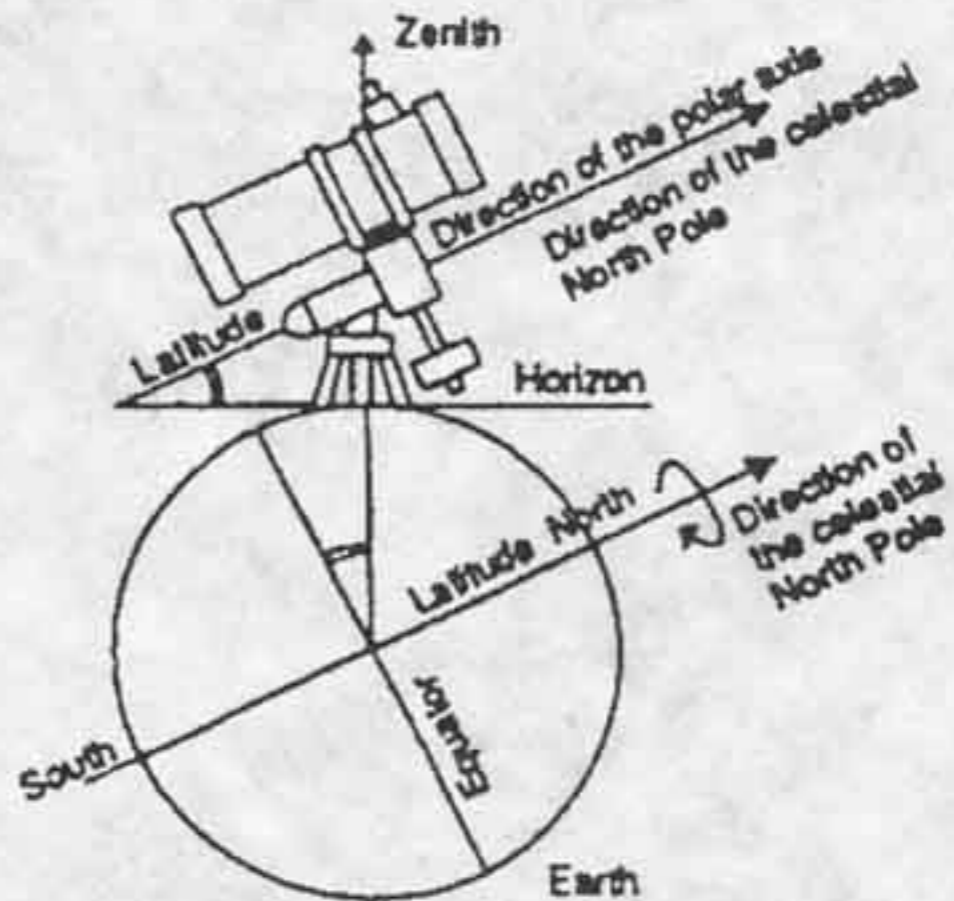
Make sure the top of the tripod is level before polar aligning.

see page 10 for more-locations

Locating the pole star, Polaris



Setting R.A. axis to pole star, Polaris



USING THE SETTING CIRCLES

SETTING CIRCLES ARE DIALS FOR RIGHT ASCENSION & DECLINATION THAT ALLOW YOU TO LOCATE CELESTIAL OBJECTS EASILY FROM THEIR COORDINATES AS LISTED IN A STAR CHART OR ATLAS.

1. THE DECLINATION SETTING CIRCLE IS SCALED IN DEGREES AND THE RIGHT ASCENSION SETTING CIRCLE IS INCREMENTED IN MINUTES. THE CIRCLES WILL GET YOU CLOSE TO YOUR TARGET BUT, NOT DIRECTLY ON IT. ALSO, THE ACCURACY OF YOUR POLAR ALIGNMENT WILL AFFECT HOW ACCURATE YOUR SETTING CIRCLES READ.
2. THE DECLINATION SETTING CIRCLE IS SET AT THE FACTORY AND SHOULD NOT NEED ANY ADJUSTMENT IF IT READS ACCURATELY BUT, CAN BE RESET EASILY IF IT IS ACCIDENTLY MOVED.
3. THE RIGHT ASCENSION SETTING CIRCLE MUST BE ALIGNED. CHOOSE A BRIGHT AND EASY TO FIND STAR IN A STAR CHART AND NOTE THE COORDINATES (RA & DEC). FIND THE STAR AND CENTER IT IN THE FINDER AND THEN IN THE TELESCOPE. NOW, ROTATE THE RIGHT ASCENSION CIRCLE TO MATCH THE COORDINATES OF THE STAR WITH THE INDICATOR MARK.
4. THE RIGHT ASCENSION SETTING CIRCLE DOES NOT MOVE AS THE TELESCOPE MOVES IN RIGHT ASCENSION AND THUS IT MUST BE ALIGNED EACH TIME YOU WANT TO USE IT TO FIND A NEW OBJECT. HOWEVER, YOU DO NOT NEED TO USE A BRIGHT STAR EACH TIME BUT YOU CAN USE THE OBJECT YOU ARE CURRENTLY OBSERVING.
5. NOW, USING A STAR CHART OR ATLAS YOU CAN FIND NUMEROUS OBJECTS. FIRST MOVE THE TELESCOPE IN DECLINATION TO THE CORRECT DECLINATION COORDINATE. THEN MOVE THE TELESCOPE IN RIGHT ASCENSION UNTIL THE INDICATOR POINTS THE THE CORRECT COORDINATE.
6. AFTER MOVING THE TELESCOPE TO THE CORRECT CELESTIAL COORDINATES, LOOK THROUGH THE FINDER TO SEE IF YOU HAVE LOCATED THE OBJECT AND CENTER THE OBJECT. THEN, LOOK THROUGH THE TELESCOPE (WITH A LOW POWER EYEPIECE) AND THE OBJECT SHOULD BE THERE.

ON FAINTER OBJECTS, THEY MAY NOT BE VISIBLE IN THE FINDER AND THUS YOU SHOULD GRADUALLY SWEEP THE TELESCOPE AROUND (WITH THE RIGHT ASCENSION AND DECLINATION CABLES) UNTIL THE OBJECT IS VISIBLE.

Geographical Locations

Place	Latitude	Place	Latitude	Place	Latitude
Akron, Ohio	41°05'	Erie, Penna.	42°07'	Omaha, Nebraska	41°16'
Albany, New York	42 39	Eugene, Oregon	44 03	Paducah, Ky.	37 05
Albuquerque, N.M.	35 05	Evansville, Ind.	37 58	Pensacola, Florida	30 25
Allentown, Penna.	40 36	Fargo, N.D.	46 53	Peoria, Illinois	40 42
Altoona, Penna.	40 31	Fort Wayne, Ind.	41 04	Philadelphia, Penna.	39 57
Amarillo, Texas	35 12	Fort Worth, Texas	32 45	Phoenix, Arizona	33 27
Asheville, N.C.	35 36	Fresno, California	36 44	Pittsburgh, Penna.	40 26
Atlanta, Georgia	33 45	Galveston, Texas	29 18	Portland, Maine	43 40
Augusta, Maine	44 19	Grand Rapids, Mich.	42 58	Portland, Oregon	45 31
Austin, Texas	30 16	Greenville, S.C.	34 51	Portsmouth, Va.	36 50
Baltimore, Md.	39 17	Gulfport, Miss.	30 22	Providence, R.I.	41 50
Bangor, Maine	44 48	Harrisburg, Penna.	40 16	Racine, Wisconsin	42 44
Barrington, N.J.	39 52	Helena, Montana	46 36	Raleigh, N.C.	35 47
Baton Rouge, La.	30 27	Holyoke, Mass.	42 12	Reading, Penna.	40 20
Battle Creek, Mich.	42 19	Houston, Texas	29 45	Reno, Nevada	39 31
Berkeley, Calif.	37 52	Indianapolis, Ind.	39 46	Richmond, Virginia	37 32
Billings, Montana	45 47	Iowa City, Iowa	41 40	Roanoke, Virginia	37 16
Binghamton, N.Y.	42 06	Jackson, Miss.	32 18	Rockford, Illinois	42 16
Birmingham, Ala.	33 21	Jacksonville, Fla.	30 20	Sacramento, Calif.	38 35
Bismarck, N.D.	46 48	Jersey City, N.J.	40 44	Schenectady, N.Y.	42 49
Boise, Idaho	43 37	Johnstown, Penna.	40 20	St. Joseph, Mo.	39 46
Boston, Mass.	42 21	Kansas City, Kansas	39 07	St. Louis, Mo.	38 38
Bridgeport, Conn.	41 11	Kenosha, Wisconsin	42 36	St. Paul, Minnesota	44 57
Brownsville, Texas	25 54	Knoxville, Tenn.	35 58	Salt Lake City, Utah	40 45
Buffalo, New York	42 53	Lansing, Michigan	42 44	San Antonio, Texas	29 26
Burlington, Vermont	44 29	Laredo, Texas	27 30	San Diego, Calif.	33 43
Butte, Montana	46 01	Las Vegas, Nevada	36 10	San Francisco, Cal.	37 47
Cambridge, Mass.	42 22	Lexington, Ky.	38 03	Santa Barbara, Cal.	34 25
Camden, N.J.	39 57	Lima, Ohio	40 45	Santa Fe, N.M.	35 41
Cedar Rapids, Iowa	41 58	Lincoln, Nebraska	40 49	Savannah, Georgia	32 05
Champaign, Ill.	40 07	Little Rock, Arkansas	34 45	Seattle, Washington	47 37
Charleston, W. Va.	38 21	Los Angeles, Calif.	34 03	Shreveport, La.	32 31
Charleston, S.C.	32 47	Louisville, Ky.	38 15	Sioux City, Iowa	42 30
Charlotte, N.C.	35 14	Lubbock, Texas	33 35	Sioux Falls, S.D.	43 33
Chattanooga, Tenn.	35 03	Madison, Wisconsin	43 04	South Bend, Indiana	41 41
Cheyenne, Wyoming	41 08	Marion, Ohio	40 35	Spokane, Washington	47 40
Chicago, Illinois	41 52	Memphis, Tenn.	35 09	Springfield, Illinois	39 48
Cincinnati, Ohio	39 06	Miami, Florida	25 47	Springfield, Mass.	42 06
Cleveland, Ohio	41 30	Minneapolis, Minn.	44 59	Springfield, Missouri	37 13
Colorado Springs, Colo.	38 50	Mobile, Alabama	30 42	Springfield, Ohio	39 56
Columbia, Missouri	38 57	Moline, Illinois	41 31	Superior, Wisconsin	46 43
Columbus, Ohio	39 58	Montgomery, Ala.	32 23	Syracuse, N.Y.	43 03
Concord, N.H.	43 12	Montpelier, Vt.	44 16	Topoka, Kansas	39 03
Dallas, Texas	32 47	Nashville, Tennessee	36 10	Tucson, Arizona	32 13
Davenport, Iowa	41 31	Newark, New Jersey	40 44	Tulsa, Oklahoma	36 09
Daytona Beach, Fla.	29 13	New Haven, Conn.	41 18	Utica, New York	43 06
Denver, Colorado	39 45	New Orleans, La.	29 57	Washington, D.C.	38 54
Des Moines, Iowa	41 35	New York, New York	40 45	Wichita, Kansas	37 42
Detroit, Michigan	42 20	Norfolk, Virginia	36 51	Wichita Falls, Texas	33 55
Dodge City, Kansas	37 45	Ogden, Utah	41 14	Wilmington, Del.	39 45
Durham, N.C.	36 01	Oklahoma City, Okla.	35 28	Winston-Salem, N.C.	36 06

The Geographical Locations list is a small compilation of cities around the U.S. If you do not live in or around one of these cities use a GPS device to locate your present latitude. If you do not have a GPS device contact a airport close by your observing site and ask what their latitude is, and adjust the mounting to read the same.

Telescope Maintenance

With proper care your telescope should rarely need any maintenance work.

A. When not in use, always replace all lens covers to keep dust & contaminants off the optical surfaces.

B. A small amount of dust on any optical surface is OK. If the dust builds up, then use a can of compressed air and then a camel's hair brush to remove the dust.

C. If the mirror need cleaning, they should be cleaned by a professional. Either have your instrument serviced by a telescope repair facility or return it to the factory.

D. Collimation or alignment of the optical system is done at the factory before shipment.

MAGNIFICATION (POWER)

THE MAGNIFICATION (OR POWER) OF A TELESCOPE IS VARIABLE DEPENDING UPON THE FOCAL LENGTH OF THE EYEPIECE BEING USED ALONG WITH THE FOCAL LENGTH OF THE TELESCOPE.

A. YOUR TELESCOPE HAS A FOCAL LENGTH OF 1400MM. TO CALCULATE MAGNIFICATION WE USE THE FOLLOWING FORMULA:

$$\text{MAGNIFICATION} = \frac{\text{FL (TELESCOPE)}}{\text{FL (EYEPIECE)}}$$

WHERE FL(TELESCOPE) IS THE FOCAL LENGTH OF THE TELESCOPE AND FL (EYEPIECE) IS THE FOCAL LENGTH OF THE EYEPIECE. SO, IF YOU USE A 25MM EYEPIECE YOUR MAGNIFICATION IS $1400 \div 25 = 56X$ OR 56 POWER

Galileo Visions



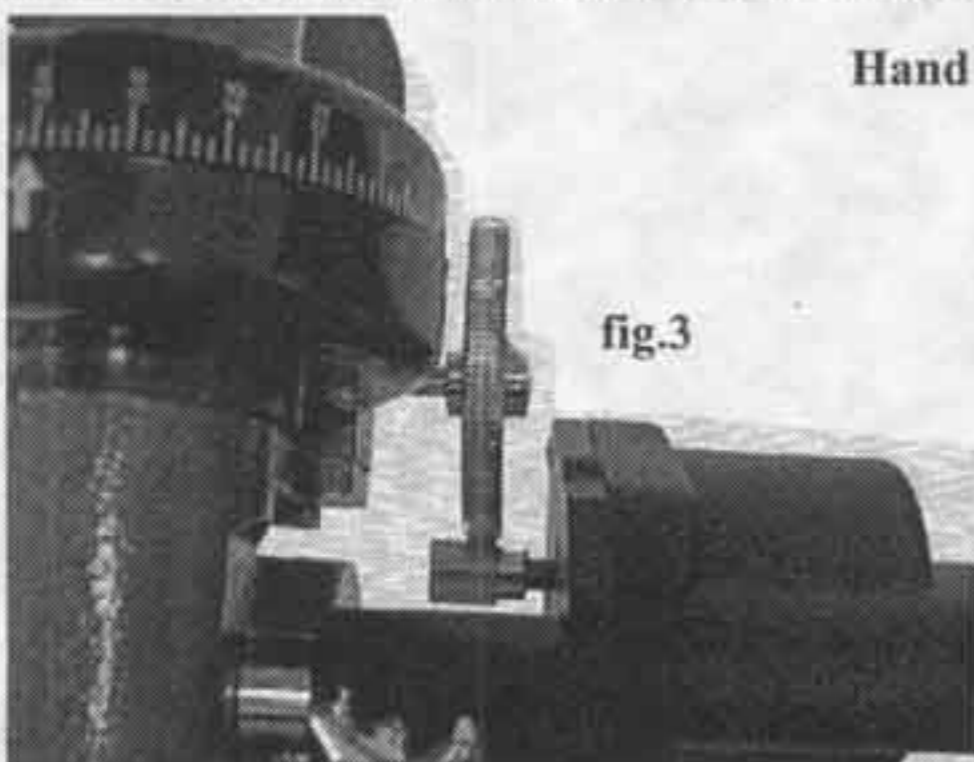
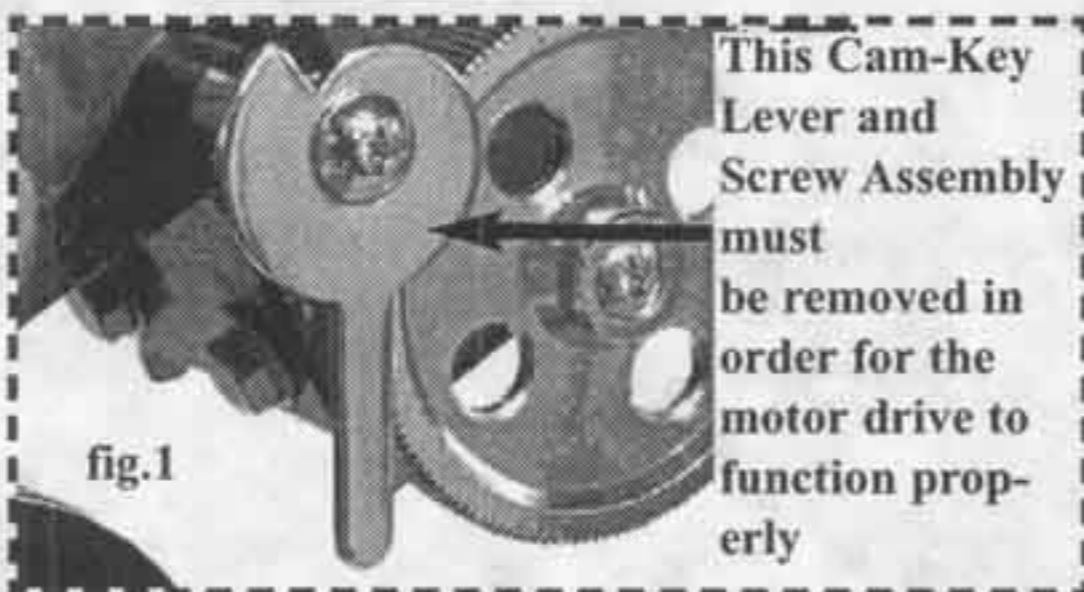
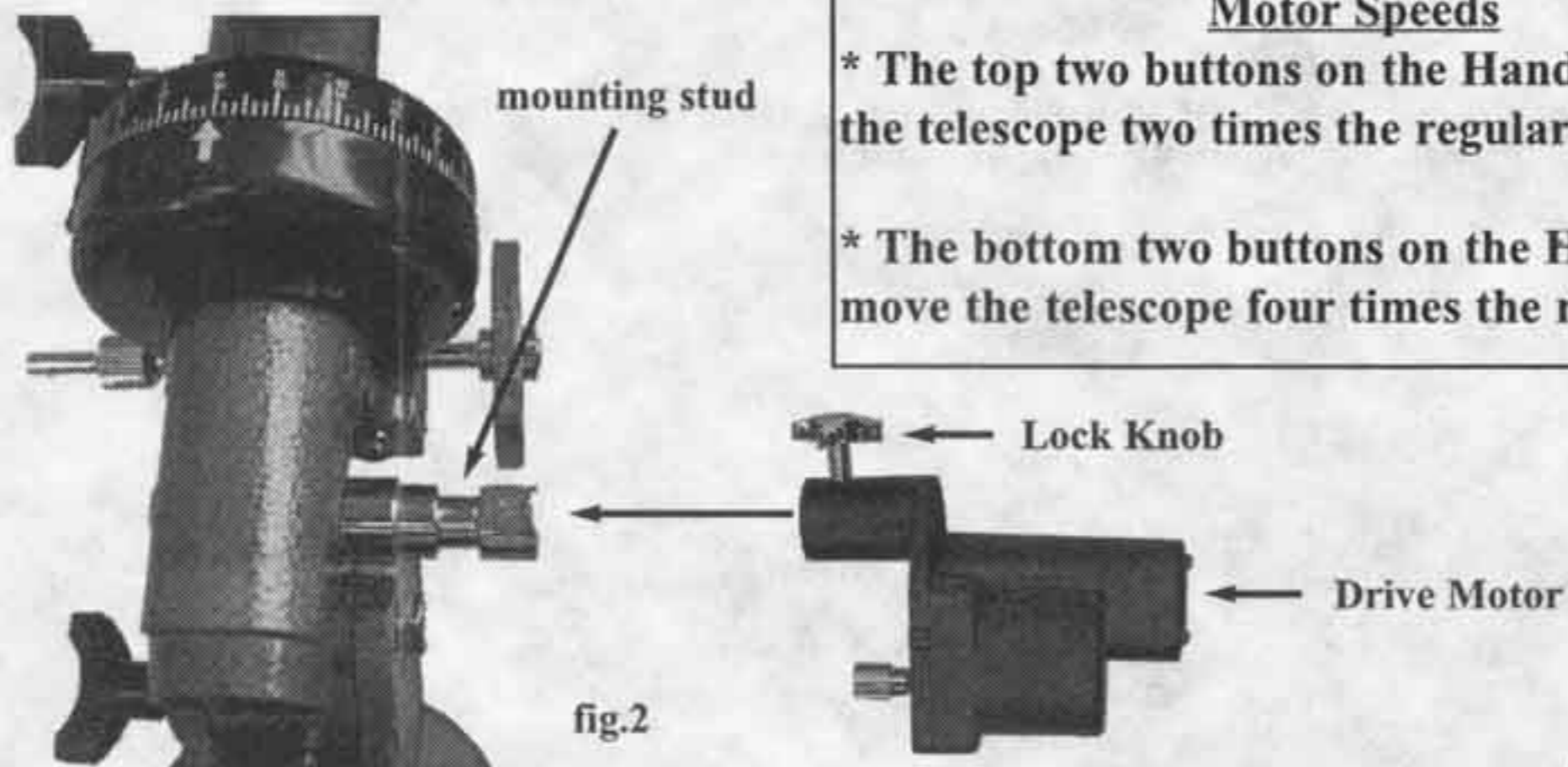
Attaching the Motor Drive to the G-102

1. Locate the Cam-Key Lever & Screw Assy, and remove by unloosening the Phillips Head Screw. (fig.1)
2. Locate the Motor mounting stud. (fig.2)
3. Attach RA Drive Motor to Mounting Stud. (fig.2)
4. Engage RA Drive Motor Gear with Large Gear on Mount, and tighten Lock Knob. (fig.3)
5. Attach the cord from the Hand Box that has the 8-Pin Connector into the RA Motor Drive. (fig.4)
6. Place 4 D-Cell 1.5v Batteries into the Battery Pack and attach DC power cord to Hand Box. (fig.4)
7. Turn the ON/OFF Switch to ON. Note: The switch must be turned UP for the Northern Hemisphere.

Motor Speeds

* The top two buttons on the Hand Box move the telescope two times the regular speed.

* The bottom two buttons on the Hand Box move the telescope four times the regular speed.





Galileo Limited One Year Warranty

We guarantee to replace or, at our option, repair any products or parts thereof which are found defective in material or workmanship during the first year from date from the purchase. Our obligation with respect to such products or parts shall be limited to replacement or repair, F.O.B. Miami, and in no event shall we be liable for consequential or special damages or for transportation, installation, adjustment, or other expenses which may arise in connection with such product or parts. A \$10.00 fee to cover postage and handling is required with the return of the product. No expenses, warranties and implied warranties, whether or not merchantability of fitness for any particular use or otherwise (except as to title) other than these expressly set forth above which are made in writing and signed by executive officer of our corporation.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES, IN NO EVENT SHALL THE MANUFACTURER OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER, BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF THE POSSIBILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

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