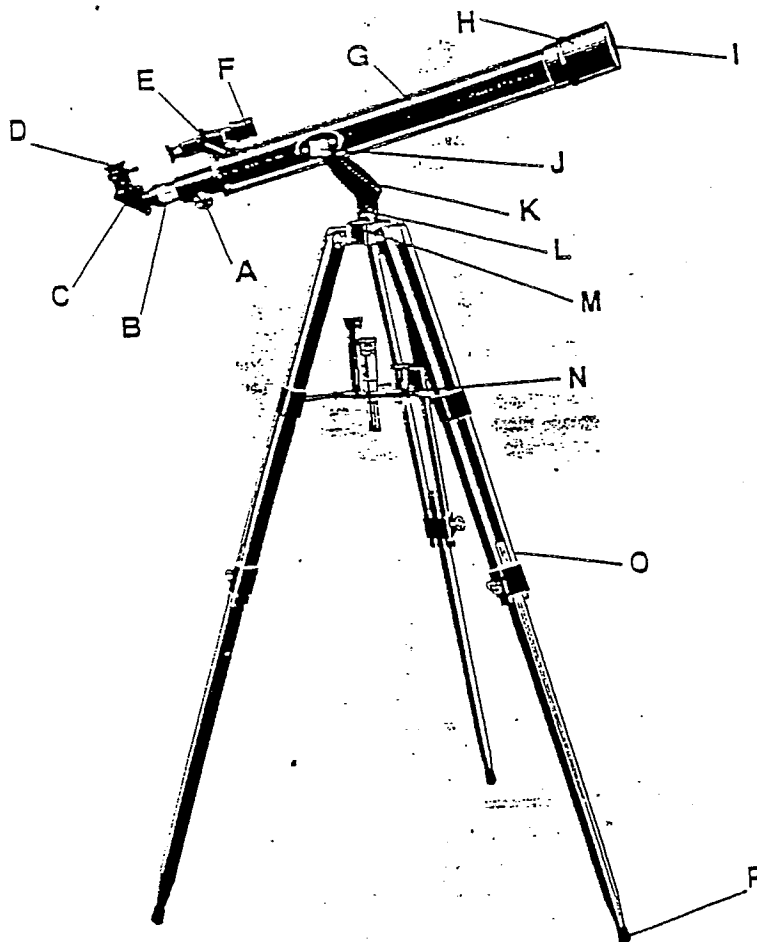


INSTRUCTION M A R S 60
Refractor

- A. Focus Knob
- B. Focus Tube
- C. Diagonal
- D. Eye piece
- E. Finderscope Bracket
- F. Finderscope
- G. Telescope Main Body
- H. Sun Shade
- I. Objective Lens (not shown)
- J. Yoke Locking Knob
- K. Yoke
- L. Azimuth Lock
- M. Tripod Head
- N. Accessory Tray
- O. Tripod Leg
- P. Rubber Tipped Feet



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INTRODUCTION

Welcome to the world of amateur astronomy! The 60 mm scope is a classical refracting telescope, which has a 60 mm objective lens. Its light gathering power is about 175 times that of the unaided human eye. With your scope 60 you will be able to study the craters on the moon, watch the moons of Jupiter and see the rings of Saturn. But your scope is not limited to astronomical viewing alone. It can also be used for terrestrial viewing to study the world around you. All you need to do is taking the time to familiarize yourself with your 60 mm telescope and its operation.

A Word of Caution!

Your scope 60 is designed to give you hours of fun and rewarding observations. However, there are few things to consider before using your telescope that will ensure your safety and protect your equipment.

NEVER LOOK DIRECTLY AT THE SUN WITH THE NAKED EYE OR WITH A TELESCOPE. NEVER POINT YOUR TELESCOPE AT THE SUN UNLESS YOU HAVE THE PROPER SOLAR FILTER. PERMANENT AND IRREVERSIBLE EYE DAMAGE MAY RESULT.

NEVER USE YOUR TELESCOPE TO PROJECT AN IMAGE OF THE SUN ONTO ANY SURFACE, INTERNAL HEAT BUILD-UP CAN DAMAGE THE TELESCOPE AND/OR ANY ACCESSORIES THAT MAY BE ATTACHED TO IT.

NEVER LEAVE THE TELESCOPE UNSUPERVISED, ESPECIALLY WHEN CHILDREN ARE PRESENT. THIS ALSO HOLDS TRUE FOR ADULTS WHO MAY NOT BE FAMILIAR WITH THE CORRECT OPERATING PROCEDURES OF YOUR TELESCOPE.

NEVER USE AN EYE PIECE SOLAR FILTER OR A HERSHEY WEDGE. INTERNAL HEAT BUILD-UP INSIDE THE TELESCOPE CAN CAUSE THESE DEVICES TO CRACK OR BREAK OR DAMAGE YOUR TELESCOPE.

ALWAYS COVER THE FINDER WHEN USING YOUR TELESCOPE WITH THE CORRECT SOLAR FILTER. ALTHOUGH SMALL IN APERTURE, THIS INSTRUMENT HAS ENOUGH LIGHT GATHERING POWER TO CAUSE PERMANENT AND IRREVERSIBLE EYE DAMAGE. THE IMAGE PROTECTED BY THE FINDER IS HOT ENOUGH TO BURN SKIN OR CLOTHING.

THE SCOPE 60 REFRACTOR

The scope 60 is a classical two element refracting telescope that comes on an altazimuth mount. The telescope is 60 mm in aperture and has 700 mm focal length. This section instructs you on the proper assembly and use of your scope 60 telescope. The scope 60 is shipped in one box that contains all the parts you need to assemble it. Below is a list of what's included:

- A. Tripod
- B. Tripod accessory tray and brackets
- C. Altazimuth mount
- D. Telescope tube (f/11.7) including:
 - 1. Lens shade and caps
 - 2. Altitude adjusting rod
 - 3. Rack and pinion focuser
 - 4. Finder (5x24) and bracket
- E. Visual accessories including:
 - 1. Two 96" Eye pieces (20 mm & 6 mm)
 - 2. 96" 90° diagonal
- F. Assembly hardware
 - 1. Tripod leg bolt pack
 - 2. Accessory tray bolt pack
 - 3. Tripod adjustment bolt pack

When setting up the telescope, find a large, clear area where the parts can be laid out without fear of losing them. Remove the contents of the box and place them neatly on your work surface. Once your refractor has been unpacked and assembled, you will not need the boxes for everyday storage and transportation. However, you should save the box in case you decide to ship your telescope via a common carrier.

Setting Up The Tripod

When setting up the tripod, locate the altazimuth mount, the tripod legs and the tripod bolt pack.

1. Orient the tripod legs so that the brackets that hold the accessory tray are on the inside.
2. Slide the top portion of the tripod leg over the flange on the altazimuth mount.
3. Remove the wing nut and one washer from the screw.
4. Slide the screw through the tripod leg and mount until the screw extends out the other side.
5. Slide the washer and wing nut over the screw and tighten completely.
6. Repeat this process for the remaining two legs.

Once done, the tripod will stand by itself.

Installing the Tripod Adjustment Wing Nute

To hold the tripod legs at a given height, the scope 60 comes standard with three wing nuts that hold the tripod legs in place.

To install the wing nuts:

1. Locate the tripod adjustment wing nuts
2. Find the threaded holes in the base of each tripod leg.
3. Throad the wing nuts in - one at a time until snug.

Attaching the Accessory Tray

Start by locating the accessory tray.

1. Remove the wing nut and one washer from each screw.
2. Slide one corner of the accessory tray over a bracket hanging from the tripod leg.
3. Insert a screw -with washer- down through the accessory tray and bracket.
4. Slide the washer and wing nut over the screw.
5. Tighten the screw completely.
6. Repeat this procss for the remaining two corners of the accessory tray.

Installing the Telescope

Start by finding the telescope tube.

1. Slide the altitude slow motion rod through the adjustment hole.
2. Place the telescope inside the altazimuth mount.
3. Insert the altitude adjustment screws (star-shaped handies) through the mount and thread into side of the telescope.
4. Repeat this process for the other side.
5. Remove the lens cap from the telescope.

Attaching the Finder

1. Remove the two (2) small thumbscrews toward the back of the telescope tube.
2. Place the finder bracket over the two holes in the telescope tube. The finder should be 'leaning back' when done correctly.
3. Insert the thumbscrews through the finder bracket and thread into the telescope tube
4. Remove the lens caps from the finder.

Attaching the Eye Pieces

1. Remove the caps from the focuser and the diagonal.
2. Insert the chrome end of the diagonal into the focuser.
3. Luck in place by tightening the set screws on the focuser.
4. Remove caps from the eye piece (ocular) and place into the star diagonal.
5. Lock in place with the set screw.

Alining the Finder

1. Point the telescope at a stationary object (i.e. a stop sign) at least 100 yards away. Focus on the object by turning either of the focus knobs. Carefully center the object.
2. Look through the finder at the object. If it needs to be centered, adjust two of the screws at a time (tighten one/loosen the other), until the crosshairs are on the same object centered in the main telescope. Tighten the set screws and check alignment again.

Finding Objects

1. Loosen the altitude and azimuth locks and move the telescope in the desired direction.
2. Look through the finder and pan the telescope until the object appears in the field. Once in the field, tighten the altitude and azimuth locks.
3. To center the object in the finder, use the fine adjustment ring on the base of the altitude rod.

Focusing

Once you have found an object in the telescope:

1. Turn the focusing knob until the image is sharp.
2. To focus on another object that is closer than your current target, turn the focusing knob toward the eye piece (i.e. so that the focusing tube moves away from the objective lens). For more distant objects turn the focusing knob in the opposite direction.
3. To achieve a truly sharp focus, never look through glass or across objects that produce heat waves (like asphalt parking lots).

Image Orientation

When observing with a diagonal the image will be right-side-up, but reversed from left to right. When observing straight through (i.e. with the eye piece inserted directly into the telescope) the image will be inverted. Also the image in the finder is inverted.

Optional Accessories

DÖRR offers a complete line of optional accessories for your scope 60. Please consult DÖRR GmbH.

One of the best things you can buy to get started with this hobby is a set of good star charts (maps).