



***The Nevada County Astronomers  
Presents***

# **Library Loaner Telescope Program**

## **Quick Start User's Guide**

### **4.5-inch Loaner Scope's 250 Eyes**

Telescopes can be complicated, difficult-to-use instruments. They need not be that way, though. Library patrons now have an opportunity to view the heavens through a telescope with good optics and a basic, easy-to-use design. Without having a great deal of expertise, the patron can obtain clear observations of craters on our Moon, Jupiter and its moons, Saturn and its rings, and the brighter star clusters and nebulae.

This 4.5-inch aperture telescope captures an equivalent amount of light as 250 human eyes. It comes with 2 interchangeable eyepieces, of 20 mm focal length and 6 mm focal length which give a magnification of 22.5 power and 75 power respectively, and shows a large field of view spanning from over 2° at low power, to less than 1°. These telescope and eyepiece combinations give the library patron a good introduction to the wonders that await in the night sky.

*The basics of the Library Loaner Telescope Program were originally conceived by the New Hampshire Astronomical Society and adapted by the St. Louis Astronomical Society. The Nevada County Astronomers appreciate their efforts in establishing a library telescope program. Nevada County Astronomers are also grateful to the Nevada County Superintendent of Schools for their grant to aid in the purchase of the scopes being used by Nevada County Library patrons.*

## Important words of caution: Please read!

1. Do not insert or drop anything into the optical tube.
2. Do not attempt to clean the optics. If dirty, please contact the librarian.
3. Do not touch the mirrors or the eyepiece lens glass.
4. **Do not look at the sun with this telescope, as it is not designed for safe solar viewing. Severe and permanent eye damage will occur if the sun is observed with this telescope!**

## Meet the Loaner Scope!

Unpack the telescope:

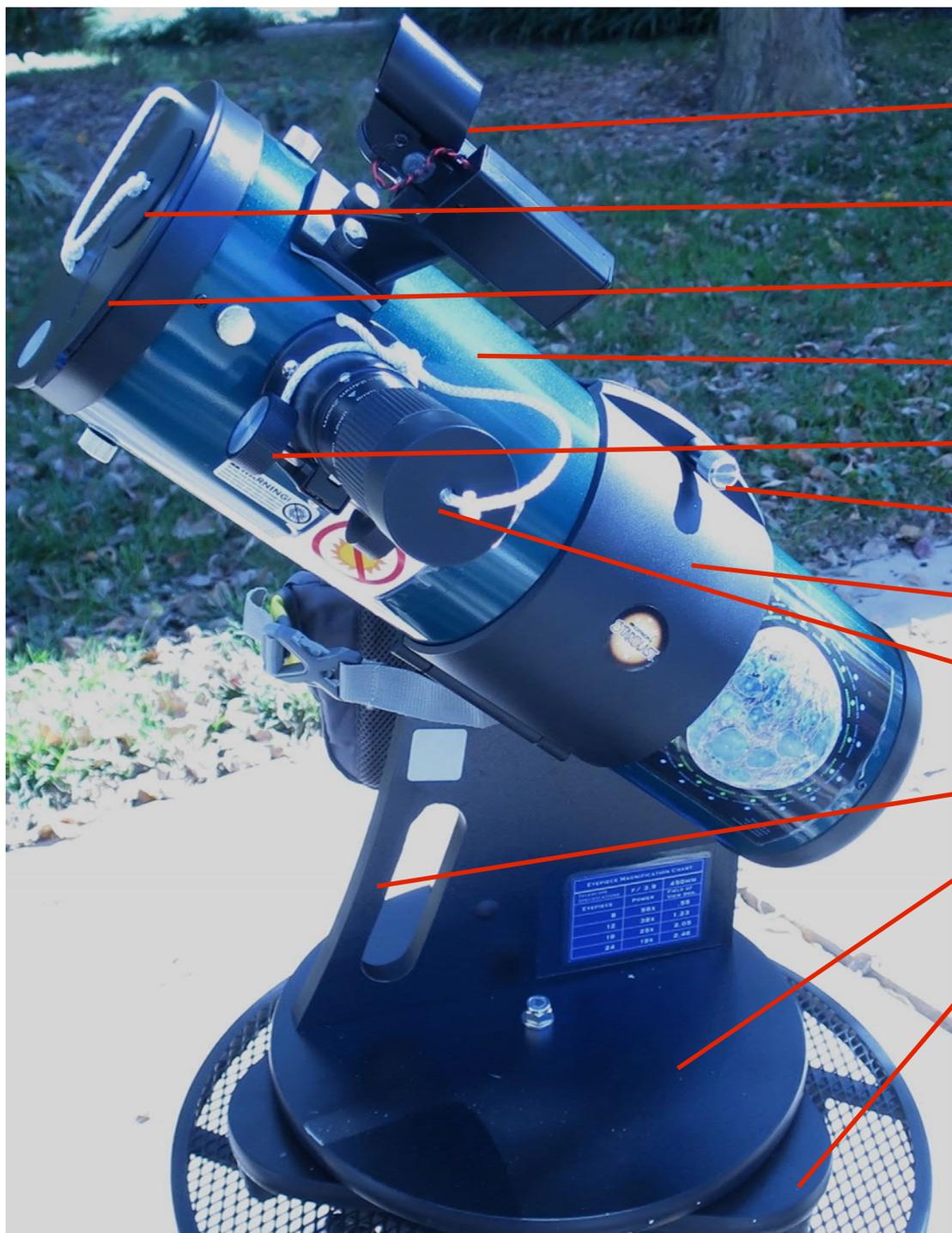
1. Carefully unbuckle the telescope from the seat belt.
2. Gently lift out of the seat. Be careful not to bump the eyepiece focuser or the black finder.
3. Place the scope on a table.
4. Slightly loosen the tube clamp, then move and rotate the tube to a comfortable viewing position.



Tube clamp



### Scope's basic anatomy



Red Dot Finder

Moon port

End cap

Optical tube

Focuser

Tube clamp

Tube collar

Eyepiece

Handle

Platform

Azimuth base

## How to install an eyepiece

- Each eyepiece has a focal length marked on it. **The larger the focal length, the lower the magnification, and the wider the field of view.**
- Remove the dust caps from both ends of the eyepiece and from the focuser.
- Loosen the 2 finger screws just enough to allow the eyepiece barrel to be inserted into the focuser tube. **DO NOT REMOVE THE SCREWS!**
- Insert the eyepiece and snug the screws.
- Use the 20 mm eyepiece to find objects first, then you can switch to the 6 mm.
- Long focal length = low power = wide field of view.

## How to focus

- Turn either one of the two knurled wheels on the focuser.
- Each eyepiece requires a slightly different focus.
- Each person may need a different focus setting.
- If you wear glasses, first try using them when you look into the eyepiece. You may find that you do not need to use them. People with severe astigmatism will generally obtain better views while wearing glasses.

Focal Length (mm)	Magnification
20	22.5x
6	75x

Eyepiece barrel

Focal length



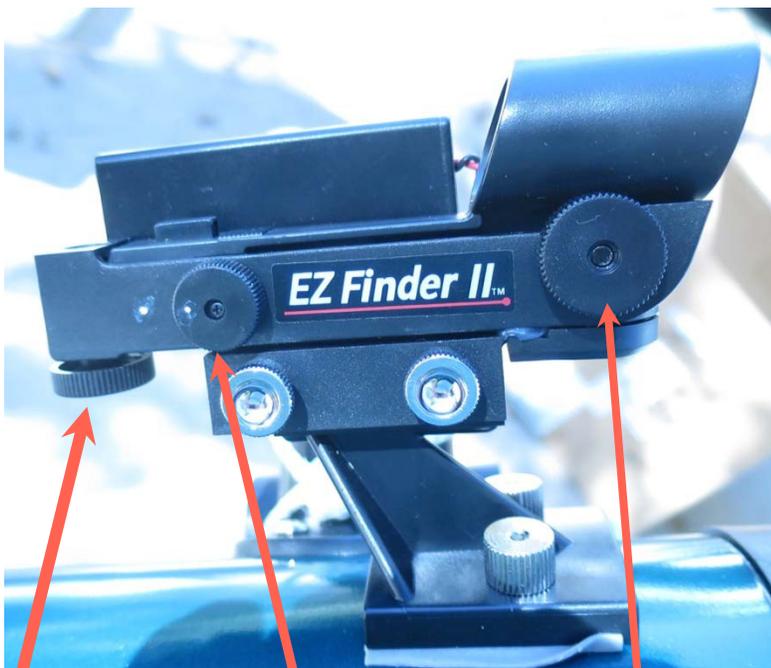
Focusing Knobs

## Using the finder

The Red Dot finder points in the same direction as the main telescope tube. Therefore, when the red dot is centered on an object, that object appears in the scope's eyepiece.

### How to place the sky object in the eyepiece

1. Install the 20 mm eyepiece. This eyepiece has the widest field of view, making it much easier to find an object.
2. Look along the telescope's tube to point the scope in the general direction of an object **ON THE GROUND** such as a distant streetlight.
3. Turn on the EZ Finder using the power knob and turn the dial until the red dot is visible.
4. Move the scope so that the red dot is centered on the object.
5. The object should be in the eyepiece or right outside of its field of view. IF it is not centered, center the object in the eyepiece **FIRST**, then use the vertical and horizontal adjustments on the finder to make sure it is in alignment with the telescope. You are then ready to point your telescope at an object in the sky!
6. Use the EZ Finder to point the telescope at the object in the sky you wish to view.
7. If desired, exchange the 20 mm eyepiece for the 6 mm to obtain higher magnification. Remember, the higher the magnification, the smaller the field of view.



Altitude (vertical)  
adjustment knob

Power and  
brightness knob

Azimuth (horizontal)  
adjustment knob



Power  
knob

Looking up the EZ finder. Use the power knob to make the dot bright enough to see.

## Packing up the Loaner Scope

- Place the eyepiece caps on the eyepieces and the dust cap in the focuser tube.
- Tighten the finger screws so they do not jiggle out
- Place the moon port cover on the end cap
- Place the end cap on the open end of the telescope.
- Turn off the red dot finder.

## Transporting the Loaner Scope by car

- Carry the telescope with one hand using the handle and the other grabbing the platform and base together.
- Try not to bump the focuser or the tube finder.
- Place the telescope on a car seat so that the eyepiece and the black finder do not bump into the seat back or the seat buckle.

