

INSTRUCTIONS FOR ATTACHING AND USING THE UNIVERSAL CAMERA MOUNTING ADAPTER



INTRODUCTION:

The Universal Camera Mounting Adapter [Patent Pend.] is an all-purpose camera adapter, and it is primarily suited for afocal photography. It allows the use of any type of camera or imaging device with a telescope. Any type of slr camera, digital camera, video camera, digital video camera, and ccd camera can be used. With previous camera adapters, attaching the camera to the telescope required removing the camera lens and then attaching a camera adapter to the camera. And with conventional camera adapters the use of eyepieces was limited to the 1¼" size. The Universal Camera Mounting Adapter will accept any type of camera system, even ones that have fixed lenses [lenses that do not come off]. All that is required for the camera is that it have a ¼-20 mounting hole, or what is known as a tripod adapter.

In addition any type or size of eyepiece may be used. The Universal Camera Mounting Adapter readily accepts the 2.0" size eyepiece, and using 2" to 1¼" eyepiece adapter, 1¼" size eyepieces can be used also. And using a 2.0" to .965" eyepiece adapter, .965" eyepieces can be used.



UNIVERSAL CAMERA MOUNTING ADAPTER:

The Universal Camera Mounting Adapter is a kit that is composed of 3 basic items. The First item is the Camera Mounting Adapter itself. The Second item is a black nylon cloth hood. The hood is used when stray light maybe a problem, i.e. street lights, etc. The Third item is a set of tools. These are small ball drivers that allow centering and adjustments to be made to the Universal Camera Mounting Adapter.



The Universal Camera Mounting Adapter is composed of four basic parts.

Telescope Brace

Telescope Rear Cell Adapter

Camera Platform

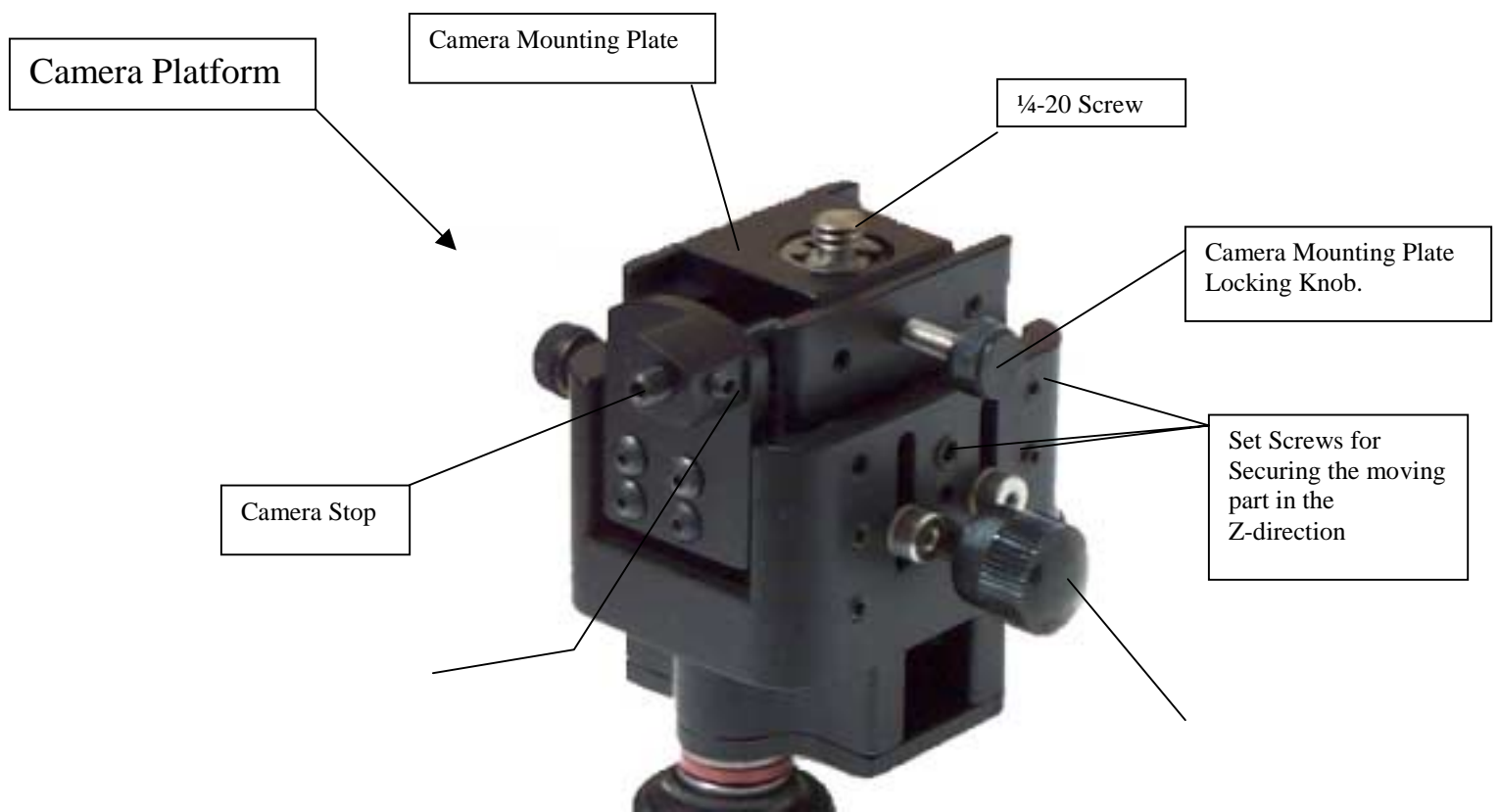
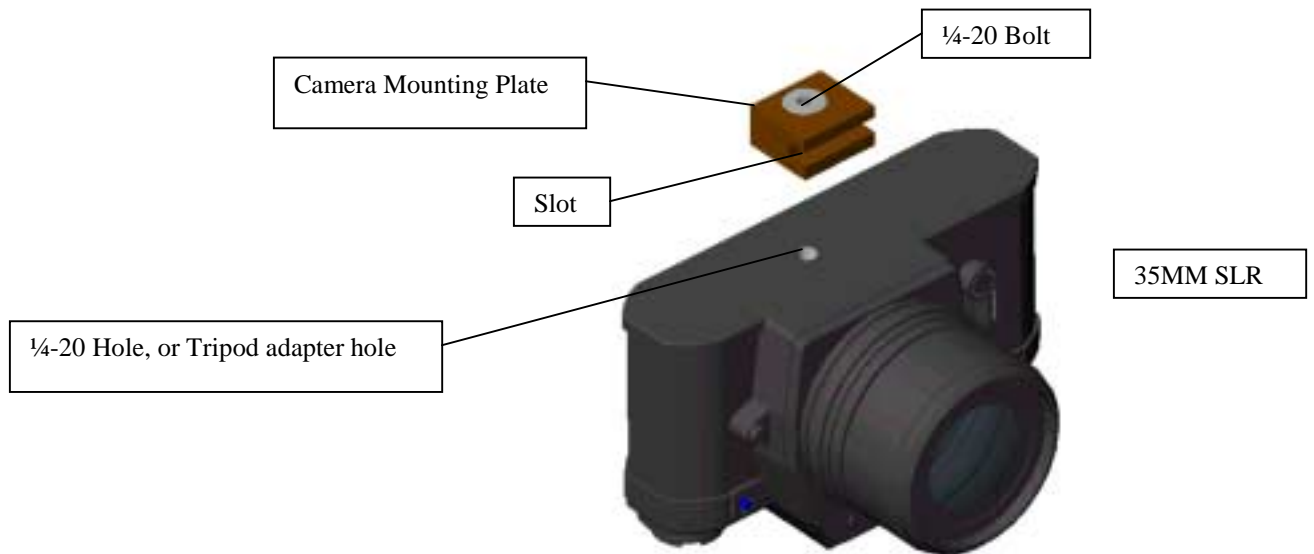


Standard Rail

PREPARING CAMERA

In order to use any camera on the Universal Camera Mounting Adapter, you must attach a small mounting plate to the camera. This mounting plate [Camera Mounting Plate] has a channel on one side, and a 1/4-20 bolt in it. Bolt the Camera Mounting Plate onto the camera, with the channel or slot facing the front of the camera. When doing this you will need the largest ball driver tool [that came with unit], and tighten screw. Do not over tighten, you will need to be able to align the edge of the Camera Mounting Plate with that of the camera. For aligning the Camera Mounting Plate just use your hand and twist the Camera Mounting Plate.

Adequate alignment can be done by eyesight



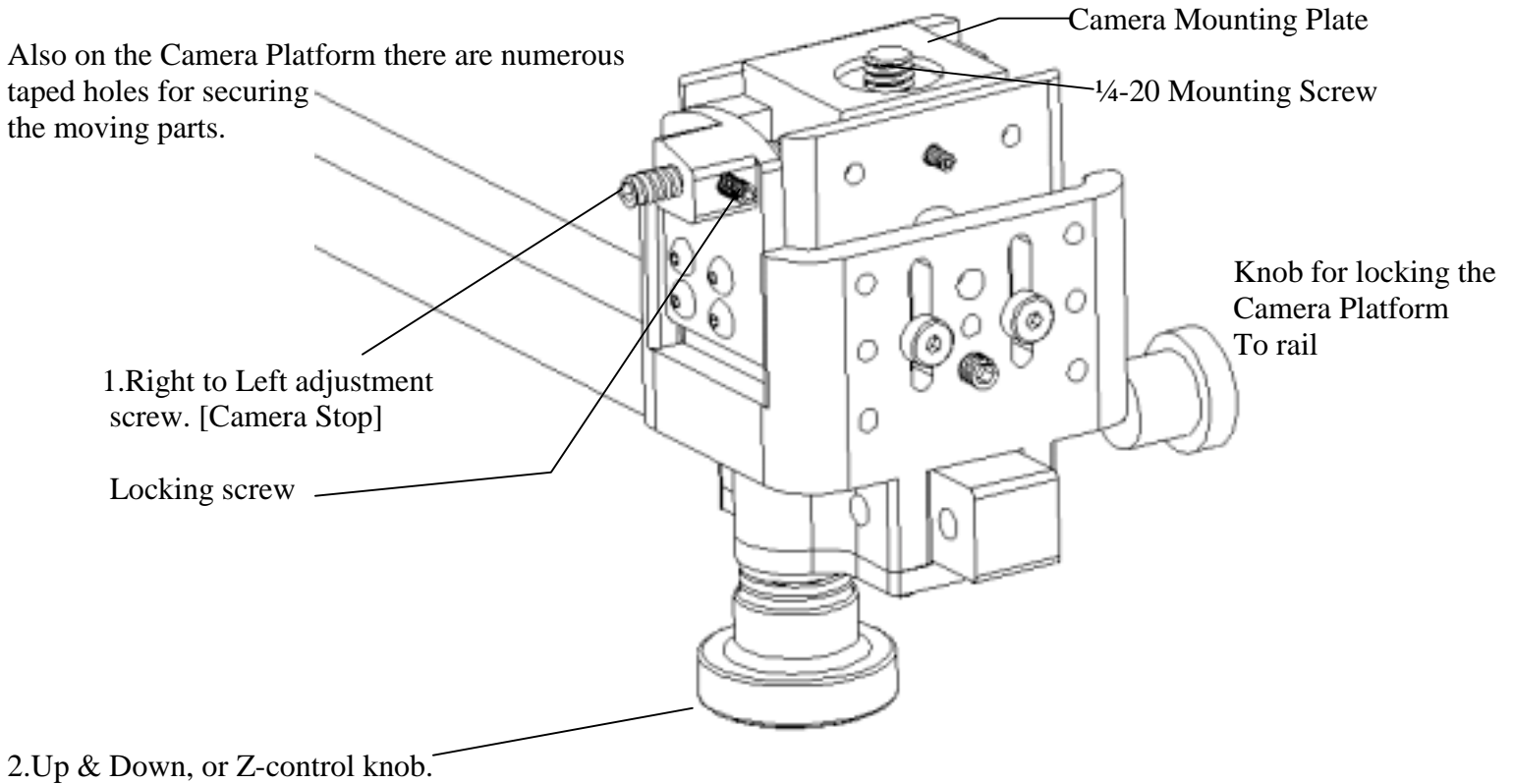
Locking screw for
Camera Stop

Z-Axis Securing Knob

FEATURES OF THE CAMERA PLATFORM:

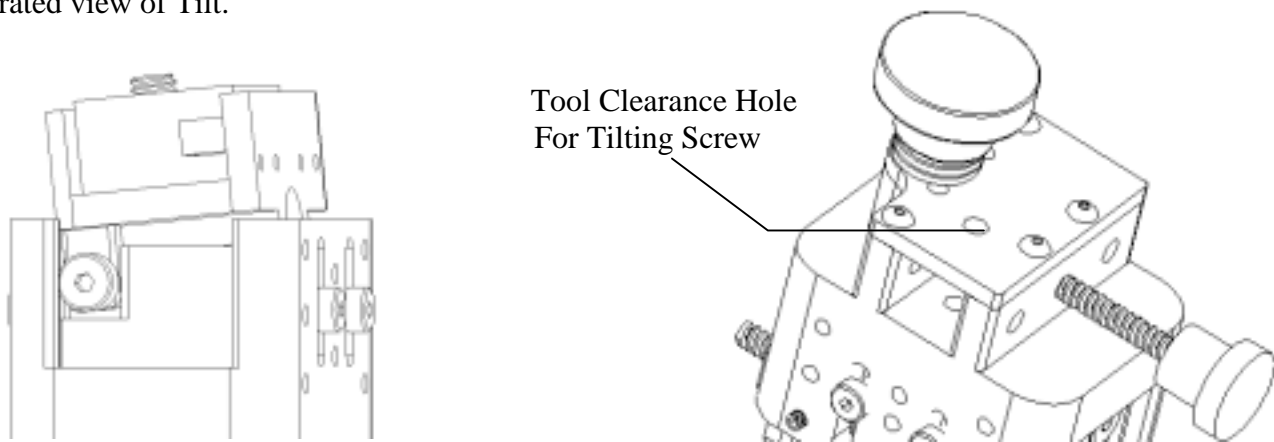
The device that the camera sits on is called the Camera Platform. On the camera platform there are 3 motions or directions that one can position the camera, or center the camera.

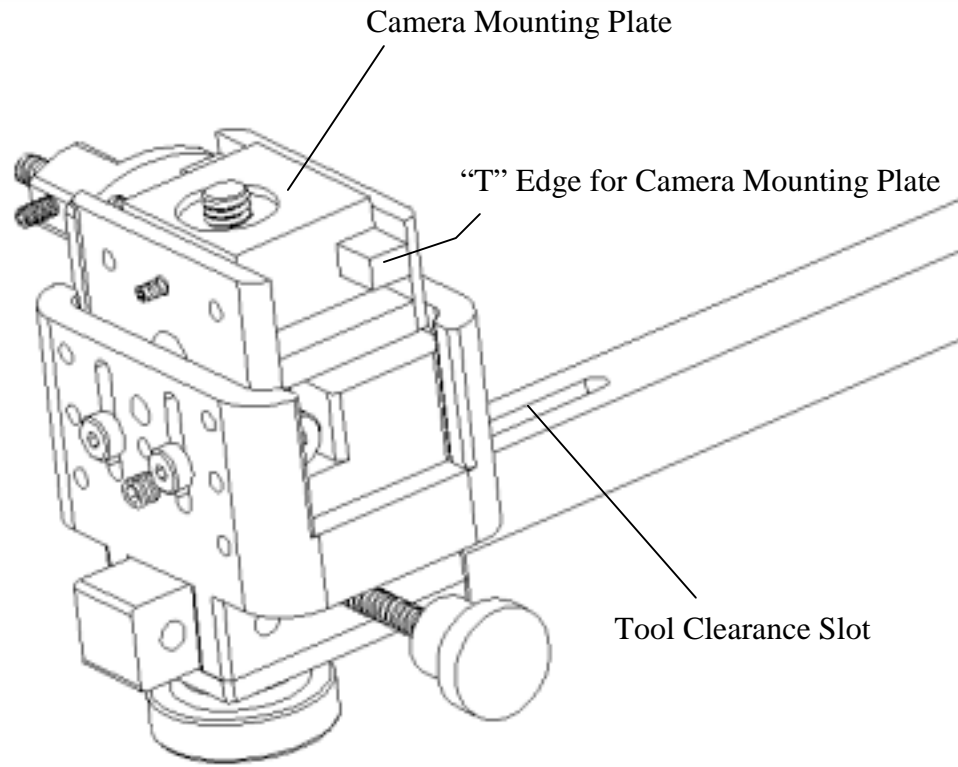
Also on the Camera Platform there are numerous taped holes for securing the moving parts.



The Universal Camera Mounting Adapter has a 3rd adjustment that is very handy in aligning a camera to the telescope. This is called the Tilt Adjustment. Located on the underneath side of the Camera Platform is a hole for using a tool [ball driver] for adjusting the screw that will control the amount of tilt. Also on the Rail, there is a clearance slot, for reaching the tilting screw.

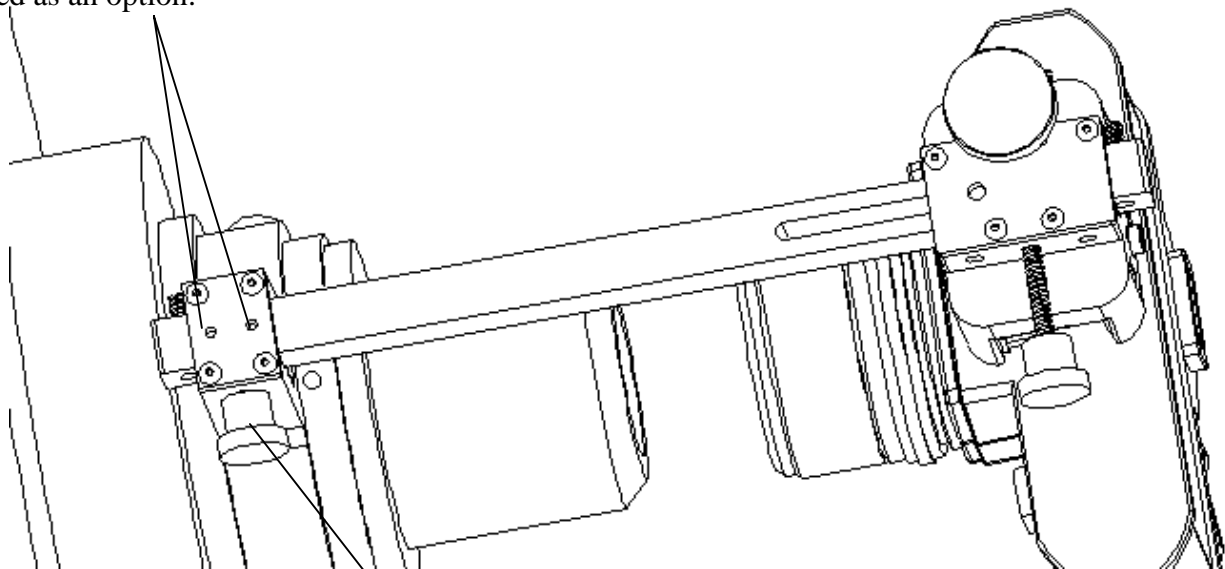
Exaggerated view of Tilt.





Bottom View of Universal Camera Mounting Adapter.

2 set screws are provided for additional securing of Rail. These set screws are not required to secure the Rail but they are provided as an option.

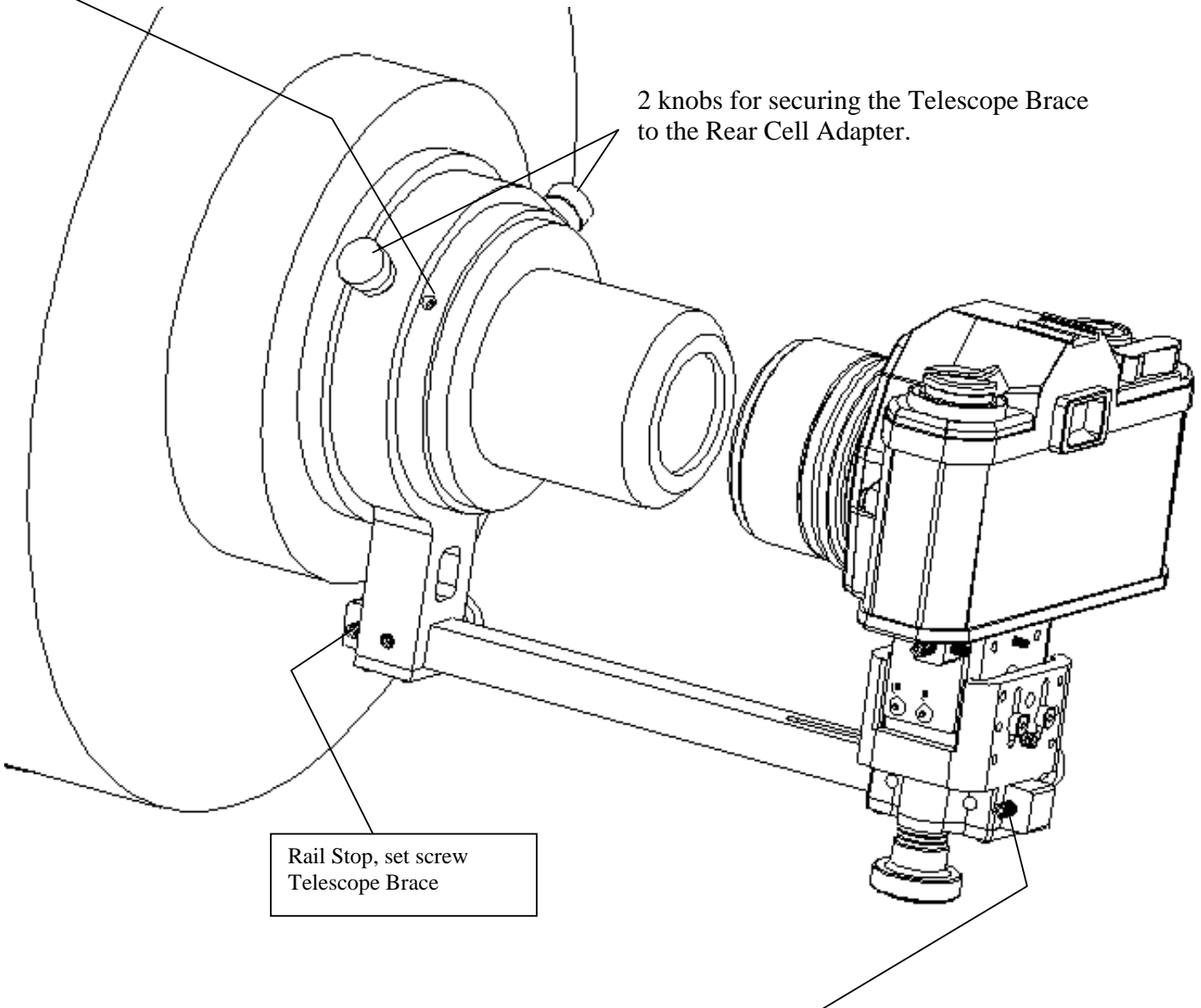


Knob for clamping the Telescope Brace to Rail.

3 Eyepiece securing screws, located on the Rear Cell Adapter.

2 knobs for securing the Telescope Brace to the Rear Cell Adapter.

Rail Stop, set screw
Telescope Brace



Camera Platform-Rail Stop. [Set screw]
It's purpose is to prevent the Camera
Platform from unintentional or
accidental removal from the Rail.

ATTACHING THE UCMA TO THE TELESCOPE



Figure 1. Attach the Rear Cell Adapter to Telescope



Figure 2. Insert eyepiece, and focus



Figure 3. Attach the Telescope Brace



Figure 4. Attach the Rail



Figure 5. Attach the Camera Platform.



Figure 6. Attach the camera, or imaging device. Or another way of attaching the camera, is to mount it onto the Camera Platform, then slide the Camera Platform onto the Rail. At this point it will be necessary to center the camera. After the camera has been centered, tighten all the securing screws. Then move the Camera Platform up and down the Rail, while viewing, to get the desired Field Of View. Then lock the Camera Platform into position on the Rail.



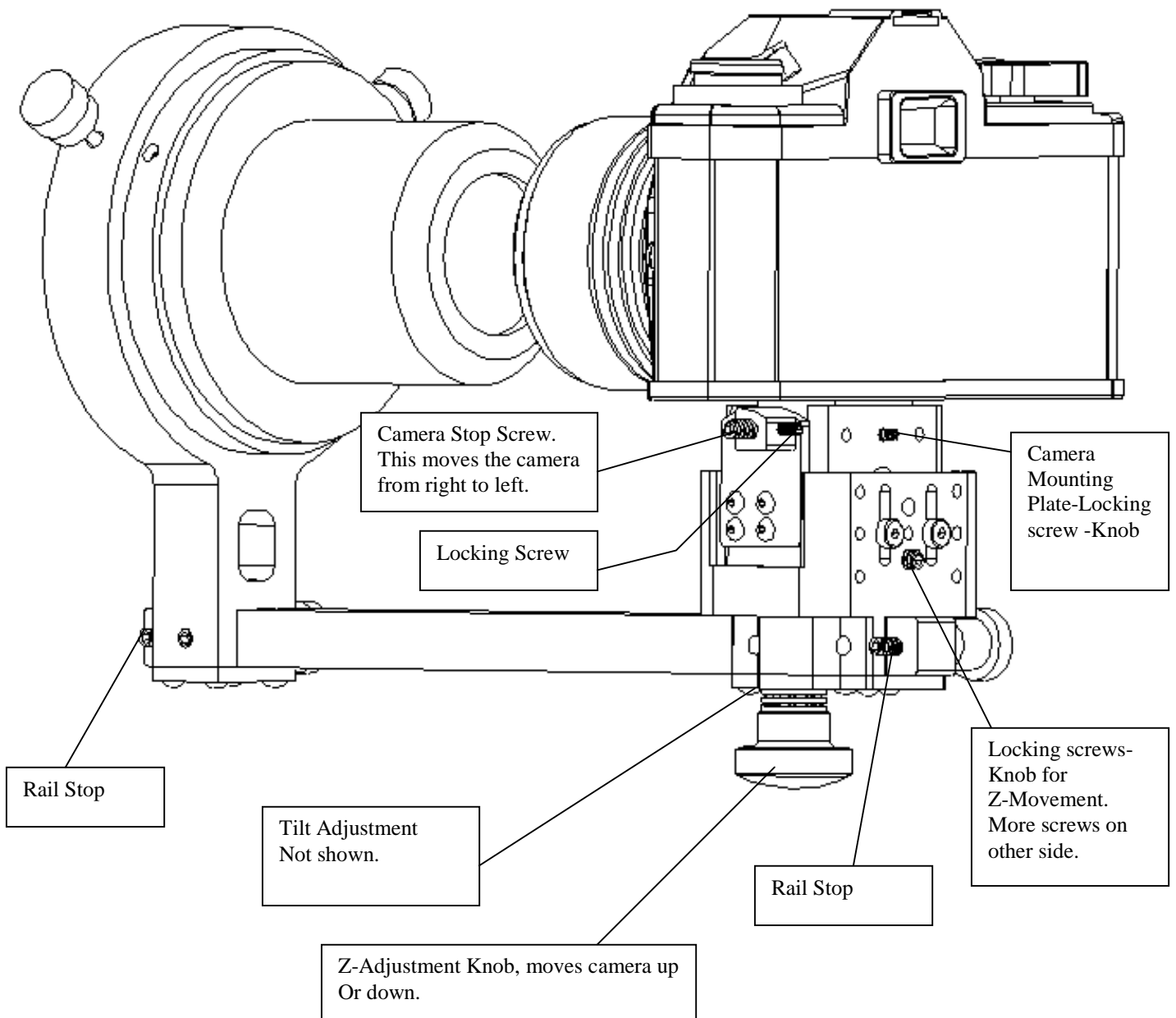
Figure 7. Next attach the Cloth Hood, if necessary. Using the wires on the Cloth Hood, wrap the wires around the Rail. Then [in most cases] the Cloth Hood can be draped over the eyepiece and camera.

Next, Take Pictures

TIPS ON CENTERING:

The most important task prior to using the Universal Camera Mounting Adapter, is centering the camera or imaging device. Centering the camera lens to the telescope [eyepiece] is simple. And can be done on the telescope just prior to a photography session. [A small flashlight will be needed] The idea is to get the eyepiece and camera lens concentric. Slide the Camera Platform near the eyepiece. Using the Z-Adjust knob move the camera up or down. Then use the camera stop screw and position the camera laterally across the Camera Platform. Next use the Tilt Adjust Screw, to level the camera relative to the eyepiece. Once the camera has been centered, tighten all of the set screws, and knobs. Once the UCMA has been centered, it will not have to be re-centered again for that particular camera. But if two or more [different] cameras are to be used then it will be necessary to re-center the Camera Platform for each camera.

Another way to set up [center the camera platform], the UCMA to the telescope is during the day. Actually you can set the fork mount of your telescope on a solid surface such as a table. [The fork mount, with the tube assembly] Use a large 2" size eyepiece. then begin to center the camera. Once this is done, lock all of the set screws and knobs, then remove the camera. Leave the Camera Mounting Plate attached to the camera. Now it is ready for a photographic session.



USING THE UNIVERSAL CAMERA MOUNTING ADAPTER

Afocal photography is a little bit different than either prime focus, or projection photography. Afocal photography is where the use of an eyepiece and a camera lens is employed. In most cases focusing through the eyepiece is all that is required to achieve a well focused image, [or at least a good place to start] either on film or on a computer. First start out with a good focused image in the eyepiece. Next with the camera on the UCMA, set the camera lens to infinity. Then look through the camera at an object like the Moon, [to begin with, to get the feel for afocal photography]. With low power eyepieces [55mm Plossls, 40mm Widefields, and the like] it is necessary to move the camera up and down the rail. Too close to the eyepiece and some vignetting will occur, too far back and the field of view will be very small. But once the approx. place is found, lock down the Camera Platform and begin taking pictures. For high power eyepieces, it is necessary to place the camera lens almost right up next to the eyepiece. And for high power eyepieces, again focus through the eyepiece and have the camera lens set to infinity. If the focus of the image needs to be “tweaked”, then adjust the camera lens focus. Slightly move it back away from infinity. However with so many variations of cameras-lenses and digital equipment, some fine tuning [focusing] may be required. For achieving a good or perfect focus, it is best to do some experiments, trial and error.

When using the UCMA [Universal Camera Mounting Adapter] it may be necessary to change the eyepiece or the camera lens that was being used. For changing eyepieces, just unlock the knob that secures the Camera Platform to the Rail, and slide it back till it hits the Rail Stop set screw. Then re-tighten the securing knob on the Camera Platform. Proceed to exchange eyepieces. Or remove the Camera Platform from the Rail. And then change out the eyepieces. When changing eyepieces it will be necessary to re-focus the telescope, depending upon the camera being used, [focusing through the camera for example] it will be easier to remove the Camera Platform, and visually focus through the eyepiece.

For changing camera lenses, or video lenses, one can either unlock the knob that holds the Camera Mounting Platform, and then remove the camera and change the camera lens, or one can remove the Camera Platform, and then change the camera lens. It is best to remove the camera from the Camera Platform, when changing lenses.

For using more than one camera or different types of cameras, it is highly recommended that one have more than one Camera Platform. These are designed to be modular. Having one ‘centered’ for a particular camera is a real time saver when photographing an object, that requires using different types of film, or changing from film to digital camera.

While afocal photography may not be as well known as prime focus or projection photography is, it offers more variations than the prime focus or projection methods. All that limits one is the number and types of eyepieces and camera lenses that one has at one’s disposal. Not only can one photograph at low power, [wide fields of view] but also at high power. And afocal photography is not just for the Moon and planets. Deep Sky objects are well within the capability of afocal photography, and at optional fields of view, and f/rs.

ACCESSORIES:



1. Camera Platform [for additional cameras]
2. Telescope Brace [for using 2 or more Video Cameras, that are not the same centering distance]
3. Camera Mounting Adapter [for additional cameras, that are the same type, same centering]
4. Tall Camera Mounting Adapter [for short cameras]
5. Spacer, for Telescope Brace [to use with Brace Extensions]
6. Thick Spacer, for Telescope Brace [to use with Brace Extensions]
7. "H" Brace Extension [for Tall Video Cameras, or Tall Digital Cameras]
8. "C" Brace Extension [for Tall Video Cameras, or Tall Digital Cameras]
9. 12" Rail [for long Video Cameras, or Digital Cameras]

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