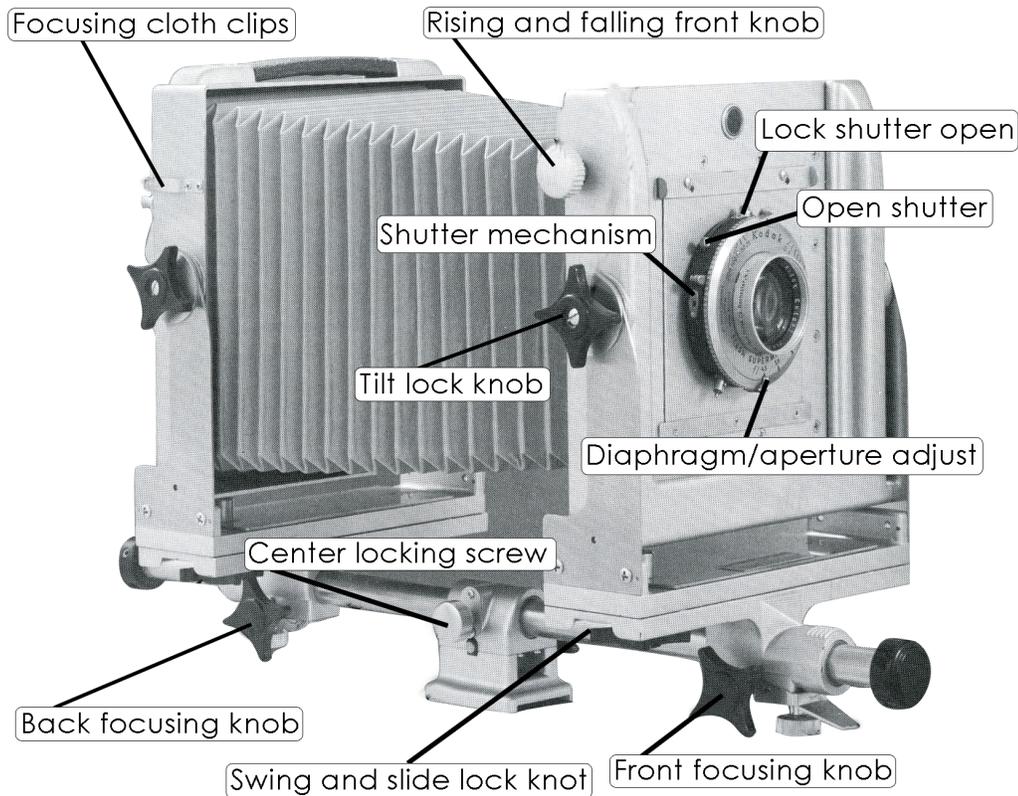


# CALUMET 4X5 VIEW CAMERA

Media Loan Operating Guides are available online at [www.evergreen.edu/medialoan/](http://www.evergreen.edu/medialoan/)

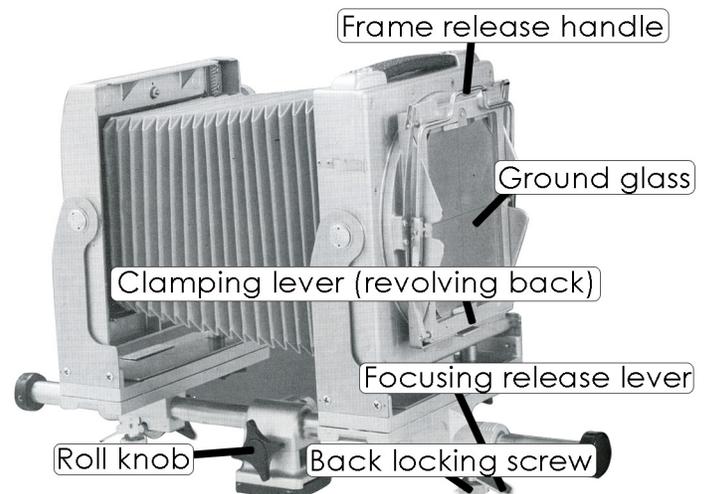


View cameras are usually tripod mounted and lend themselves to a more contemplative style than the more portable 35mm and 2 1/4 formats. The Calumet 4x5 Standard model view camera is a lightweight, portable tool that produces superior, fine grained images because of its large format and ability to adjust for a minimum of image distortion.

Media Loan's 4x5 cameras come equipped with a 150mm lens which is a slightly wider angle than normal. It allows for a 44 degree angle of view, while the normal 165mm lens allows for a 40 degree angle of view. Although the controls on each of Media Loan's 4x5 lenses may vary in terms of placement and style, the functions remain the same. Some of the lenses have an additional setting for strobe flash or flashbulb use. On these lenses, use the X setting for use with a strobe flash (It's crucial for the setting to remain on X while using the studio) and the M setting for use with a flashbulb (Media Loan does not support flashbulbs).

Patrons also may check out two types of film holders for the 4x5 cameras - sheet film holders and Polaroid film holders.

When checking out a 4x5 camera from Media Loan, patrons will need to obtain a tripod, a light meter, one or both types of film holders, and a changing bag for sheet film loading. Each sheet holder can be loaded with two sheets of film, a process that must be done in total darkness. The Polaroid holders can only be loaded with one sheet of film at a time, but each sheet is light protected.



SETTING UP AND FOCUSING ON THE IMAGE

Set the camera on the tripod, attach a cable release to the shutter mechanism, level the camera and return all controls to their zero-neutral (centered) position. Open the shutter for viewing by cocking it and pressing the small, adjacent locking lever on the top, outer rim of the lens. Open the aperture to allow maximum light through the aperture for focusing.

Frame your subject at first by centering the image on the groundglass in the rear of the camera. The glass has a grid inscribed on it which can be used to aid positioning. The image will be reversed from top to bottom as well as from side to side.

Use the control knobs to center the image - the back of the camera will move from side to side and the front lens board will move up and down or side to side. Before attempting to move any camera part, be sure to loosen the associated thumb screw or clamp. After making adjustments, tighten the thumb screw or clamp finger tight. See the section later in this document entitled "How to Perform Camera Movements" for information on which knobs control specific functions.

You will need to adjust the focus of your image as you compose. This is done by sliding either the back of the camera or the lens board in front until the image appears sharpest. To do this, loosen the front and back locking screws, then adjust the focus with either the adjacent focusing knobs or by lifting up the focusing knob release lever and sliding the front or back of the camera along the rail.

If you move the back of the camera, the lens-subject relationship will remain constant. If you move the front, lens to subject distance change appreciably. Final focus is done by moving the back of the camera.

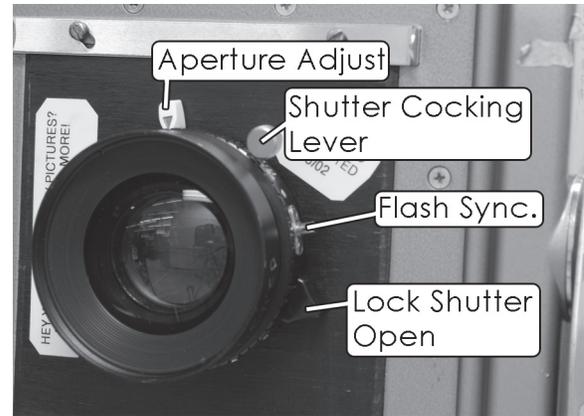
The reflective quality of the groundglass on the rear of the camera sometimes makes it difficult to see your image to focus it. If needed, fasten the black focusing cloth in its clips on the back of the camera and drape it over your head and the back of the camera in a tent like fashion. This will exclude most extraneous light, making the image easier to see. While focusing use a loupe to make sure the image is sharp.

The pebbled texture of the glass also makes it difficult to find the sharpest focus. The point of sharpest focus is where the converging light rays from the image come together. So it is sometimes easier to focus for image brightness than for image sharpness.

A final point in focusing is to check the depth of field. This is done by stopping down the aperture while looking at the image on the groundglass. You will need to be under the focusing cloth while you're stopping down the lens or it will be practically impossible to see the differences in the depth of field.

As with any other lens, the overall depth of field of the view camera lens will be controlled by the size of the aperture: the smaller it is, the greater will be the depth of field. Select a point approximately one-third of the way into the subject on which to focus. The resulting area of sharpness will be twice as deep behind the point of focus as in front of it.

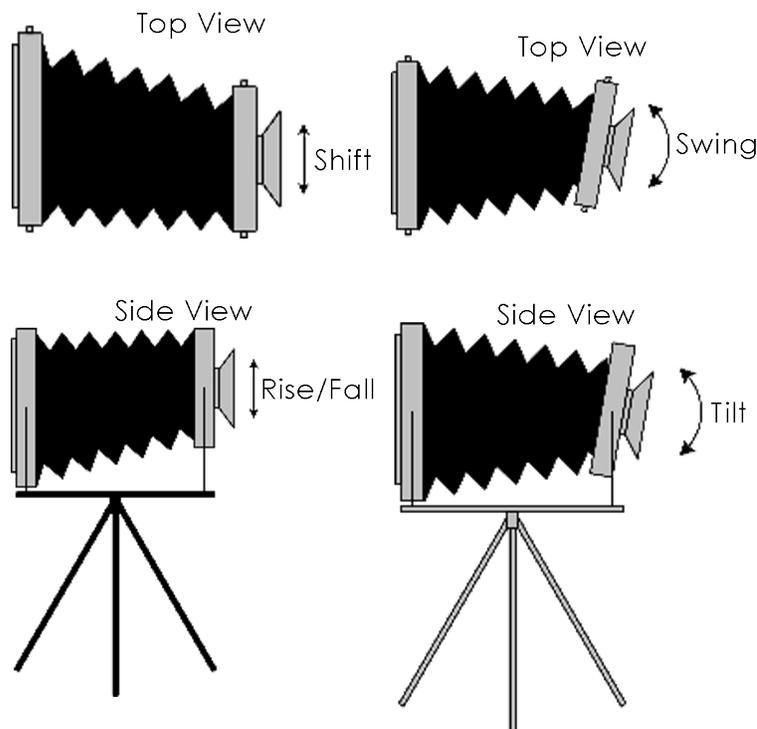
THE LENS



HOW TO PERFORM CAMERA MOVEMENTS

To tilt the front or back of the camera, loosen the appropriate locking knob and pivot the front or back of the camera up or down. (The spring-pressed ball catches indicate centered positions on both horizontal and vertical movements.) To swing the front or back of the camera, loosen the swing lock knob, and rotate as desired. To slide the front or back of the camera, loosen the swing lock knob and slide the carriage horizontally. Tighten the lock knob when the carriage is correctly located. To raise the front, press in and turn the rising front knob counter-clockwise. To lower the front, press in and turn the knob clockwise. The front stays in position when you release the knob. To rotate back, release the clamping lever and turn the back to the position you want. It can be locked at any point with the clamping lever. The spring pressed ball catches show normal vertical and horizontal position.

ⓘ **CAUTION:** If movements are too extreme the bellows can block light from hitting the negative!



### CAMERA MOVEMENTS - HOW THEY AFFECT THE IMAGE

The tilts, swings, slides, and rising and falling front of the 4x5 camera allow the photographer to correct converging or diverging lines in a composition or to deliberately distort an image. Tilt and swing refer to the movements of the front or back of the camera at an angle. Tilting moves the front or back around a horizontal axis. Swing is the movement around a vertical axis - it twists the front or back to the left or right.

Tilting the camera's back will elongate or correct distortion of the image horizontally; swinging the back will elongate or correct distortion of the image vertically and will also affect the focus. The farther the groundglass is from the lens, the larger the image will be. The part of the groundglass that moves away from the lens will become larger, while the part of the groundglass that moves closer to the lens will become smaller.

Tilting the front of the camera affects the focus because the focal plane of the lens moves. Swinging the front of the camera swivels the lens to the left or right and, as a result, skews the focal plane of the lens to one side or the other. The general effect is to create a sharply defined zone of focus that travels at an angle across an object.

Slide, rise, and fall move the entire front or back of the camera on a flat plane. Slide moves the front or back to the left or right; rise moves the front straight upward; fall moves the front straight downward. These movements will allow the angle between the planes of film, lens, and subject to remain the same but will change the placement of the image on the film.

A slide of either the back or front of the camera produces similar results - image shape does not change with a back slide, but it changes slightly with a front slide. Rise or fall of the front causes a change in the point of view (or the space relationship) between any objects in the frame as well as a slight change in shape.

### FILM LOADING

After you've made the final adjustments to your image composition, you're ready to load film into the camera. As mentioned earlier, Media Loan can provide two types of film holders for the Calumet 4x5: a 4x5 sheet film holder and a 4x5 Polaroid pack film holder.

Before loading film into the sheet film holder, the holder must be cleaned. Remove the slides and open the flaps at the bottom of the holder. Brush out the entire interior of the holder on both sides. (A small bristle paintbrush works well.) Use a soft cotton cloth to wipe the slides clean.

### SHEET FILM LOADING

The film sheets must be loaded into the holder in complete darkness. Load the sheets with the emulsion side facing out. For positive identification of the emulsion side of the film while working in the dark, there are a series of notches in the corner of the sheet. When the film is held in the right hand with the thumb and index finger at the lower right hand corner, if the index finger is resting on the notches, the emulsion side is facing up.

Use the left thumb and forefinger to help guide the edge of the film and push completely into place. Slip a fingernail under the end to try and lift it up. If it lifts up, the film hasn't actually slid into the grooves.

Finally, close the flap at the bottom of the holder and insert the dark slide with the lighter edge (silver or white) out - indicating the film is unexposed. The light colored side has a series of notches which will facilitate the process in the dark. After exposing the film, this slide will be reinserted with the dark side out to indicate the film has been exposed. Two sheets of film may be inserted into one holder, one on each side. Save your empty film boxes and packaging for storing your exposed film. Be sure to clearly mark "exposed" on the appropriate package to eliminate confusion later. To load the filled holder into the camera, first make sure all adjustment knobs have been tightened down so the loading procedure won't disturb your composition. Then pull out on the frame release handle on the back of the camera until it extends at a right angle and the small rollers rest in the depressions. Insert the film holder in the space behind the groundglass, making sure the bottom of the holder rests on the protruding stops. Release the frame release handle to close up the camera back.

### POLAROID FILM LOADING

To load film into the Polaroid holder follow the instructions on the holder and film sheets. Loading the Polaroid film packs doesn't need to be done in darkness, as the packaging protects the photosensitive surface.

The Polaroid holder must be clean to operate properly, but doesn't need cleaning with each use as do the film sheet film holders. Check the rollers for an accumulation of chemical residue and follow the cleaning instructions on the holder.

Before inserting the Polaroid film packets, check to make sure the operating lever moves the catch at the end of the holder which must grab the metal strip on the end of the film packet. Also, when removing the center of the film packet to expose the film, don't remove it all the way as it will then be impossible to reinsert. Finally, when you're ready to process the Polaroid sheet, make sure the operating lever is pushed all the way to the P and not caught on an adjacent lever.

### EXPOSING THE FILM

After you've taken a light meter reading, you must also compute how much to increase the exposure based on the length of the bellows. This is called adjusting for the bellows factor and is computed using the following formula:

$$\frac{\text{Bellows Length}}{\text{Focal Length}} = \text{Exposure Increase}$$

The lens focal length is noted on the lens itself. (Media Loan's Calumet lenses have a six inch focal length.) Obtain the bellow length by measuring with a ruler from the lens to the film plane.

Close the camera shutter and then adjust its speed for the appropriate exposure based on the preselected diaphragm setting. Cock the shutter and remove the dark slide from the film holder. Now you must wait until any vibrations of the camera resulting from these procedures have had a chance to subside. Finally, use a cable release to open the shutter; pressing the shutter release button by hand could generate enough movement to dull the image sharpness.

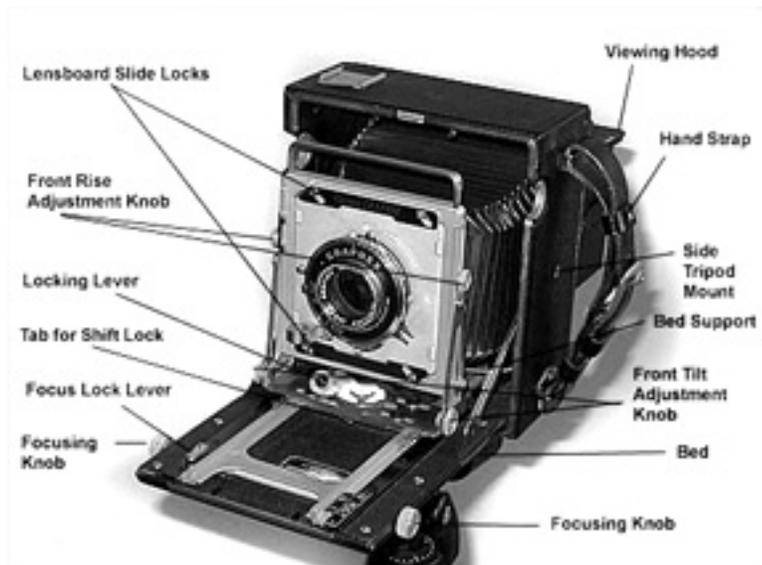
After exposing your film, replace the dark slide with the dark edge out and turn the latches on the end of the holder to make certain the slide won't be accidentally pulled out.

### GRAFLEX

A lightweight 4x5 camera designed for hand-held use. Downsides to the Crown Graphic as a field camera stem from its original design as a press camera. These include: lack of many front movements customarily used by landscape photographers, no back movements, and a non-reversible back that is permanently fixed in the horizontal position.

### OPENING THE CAMERA

To open the cover/camera bed, find a raised bump under the leatherette on the top of the camera's left side. Pressing the button releases the bed. Although the button is hard to find initially, once you know where it is, it is easy to locate by feel. When the bed is released, push it down until it locks into place. You will know it is locked when it snaps into place with a loud click. To extend the front standard, loosen the locking lever at the standard's base by rotating it until it points directly away from the back of the camera. Then pull the lever (and thus the standard) forward. To lock the standard in place, just move the locking lever to either side until it can move no further.



### SHOOTING VERTICALLY

There is a side tripod mount on the camera for shooting vertically. The camera back does not rotate.

### FOCUSING

The locking lever can be used to move the front standard to the distance required for focus. The front standard does not have to be pulled out completely.

### FLASH COMPATIBILITY

The Crown Graphic is compatible with the sync cables available at Media Loan. (PC sync cables).

### VIEWING HOOD

The viewing hood protects the ground glass and is delicate. Be careful opening and closing it.

### MOVEMENTS

The Crown Graphic is a press camera. To use the drop bed, press down on the two bed supports while also applying downward pressure on the bed. The bed drops into place. To close the bed press on the two bed supports and it will pop up. REMEMBER! The front standard needs to be returned completely into the camera's body before it can be closed. There is a small handle on the front standard that can be used to help make movements on the camera.

**Front Rise:** The easiest and most intuitive of the movements to use is the front rise - Just loosen the two knobs on either side of the front standard, raise the standard, and tighten the knobs.

**Front Tilt:** The front standard does not tilt forward. It does, however, tilt backward. This might seem odd, but is easily explainable. The back tilt works in conjunction with the drop bed. After the bed is dropped, the formerly vertical front standard will point downward. In effect, this is a severe front tilt combined with a front fall. To correct this situation, apply the full amount of back tilt, which brings the front standard into alignment with the camera back. Application of some front rise might also be appropriate at this point.

**Front Fall:** Similarly, it is possible to apply front fall by dropping the bed, applying front tilt backward to align the front standard with the back (thereby applying the maximum amount of front fall), and raising the front standard until you reach the desired amount of front "fall."

**Front Shift:** There is a small amount of front shift. To do this, release the locking lever that you use to extend the front lensboard from inside the camera body. Press down on the small tab just below the lever. Then slide the standard to the left or the right.

**Front Swing:** There is no front swing.

**Back Movements:** The Crown Graphic was designed without any back movements. However, it is also possible to achieve a sort of back tilt by combining some of the front movements with an adjustment of your tripod head. First, tilt your tripod head back slightly. The degree that you tilt the head back will be based on your experience, because you won't be able to see the effect of your movements for a little while. Next, drop the bed. Then, apply any necessary front rise. Finally, tilt the front standard backward until it is where you want it. Once you have completed all of these movements, you will be able to see the results of your "back tilt" and can make any fine adjustments.

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# CALUMET 4X5 CAMERA

## WRITTEN TEST

Complete this written portion on a separate sheet of paper  
before arriving for your operational proficiency.

1. What size lens do Media Loan's Calumet 4 x 5s come equipped with? What is the angle of view for this lens?
2. Name at least three other pieces of equipment patrons will need to check out with the 4 x 5 camera.
3. What initial procedures must be performed to aid focusing and framing of the image on the groundglass?
4. Describe how to perform tilts, swings, slides, rises and falls and how these procedures will affect the image.
5. Where should you set the adjustment controls when beginning to frame the subject? Before moving a camera part, what should be done?
6. What part of the camera does one move to perform the final focus?
7. Describe the cleaning procedures for the two types of film holders. How often should they be cleaned? How can you tell if you've loaded film sheets correctly?
8. Before loading the film holder into the camera and then before exposing your film, what should you do to keep from disturbing your image composition?
9. How do you adjust exposure for the length of the camera bellows?
10. What is the extent of your financial responsibility when you've checked out this camera?

## OPERATIONAL PROFICIENCY

(to be done during your scheduled appointment)

- A. Identify all the parts and controls on the camera.
- B. Mount the camera on the tripod and attach any necessary equipment.
- C. Demonstrate focusing and framing of the subject.
- D. Demonstrate procedures for adjusting tilt, swing, slide, rise and fall.
- E. Load a film holder into the camera. Demonstrate the procedure for exposing the film.