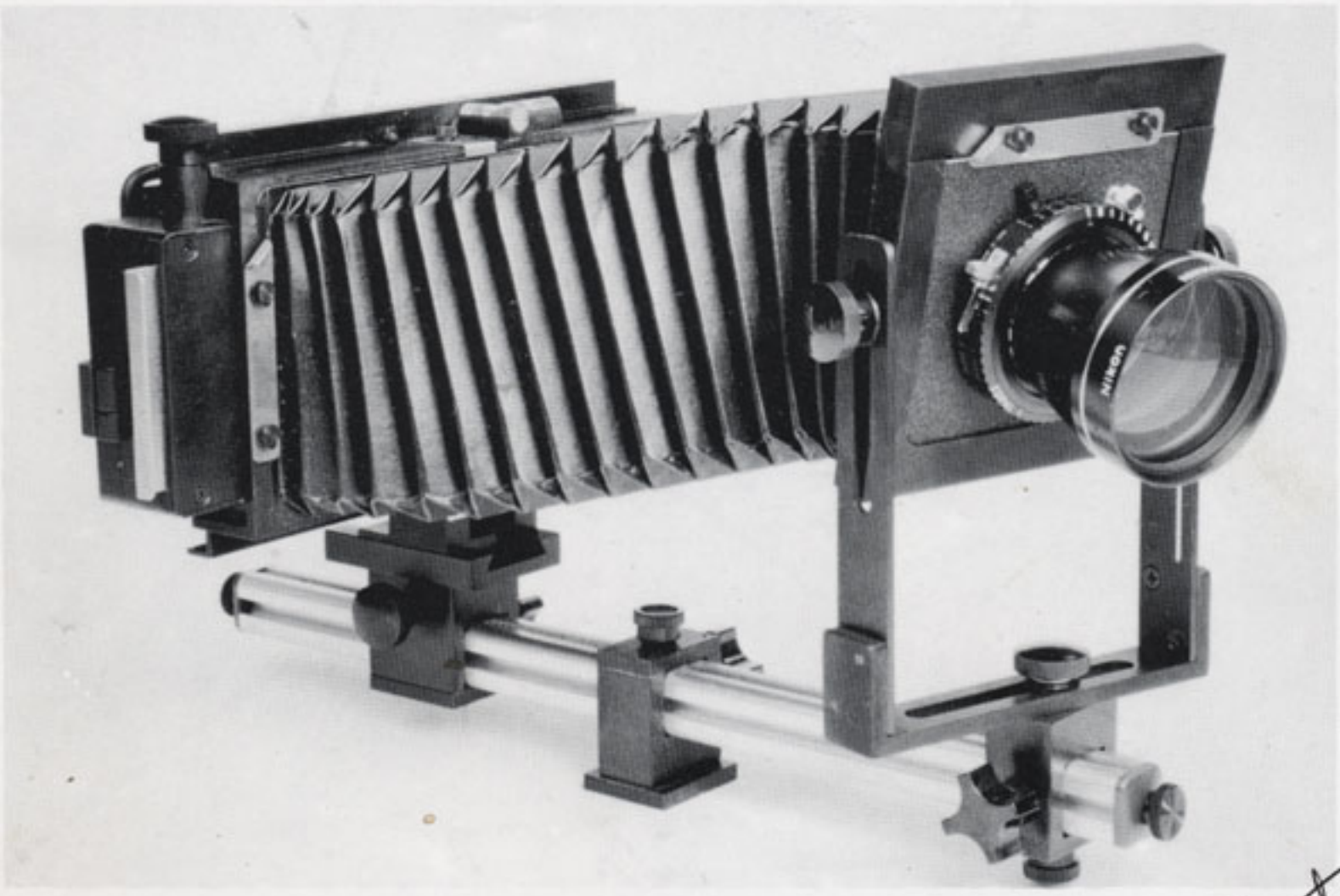
V-PAN 617

PANORAMIC

Mark III 6x17 cm. Modular View Camera

INSTRUCTION MANUAL



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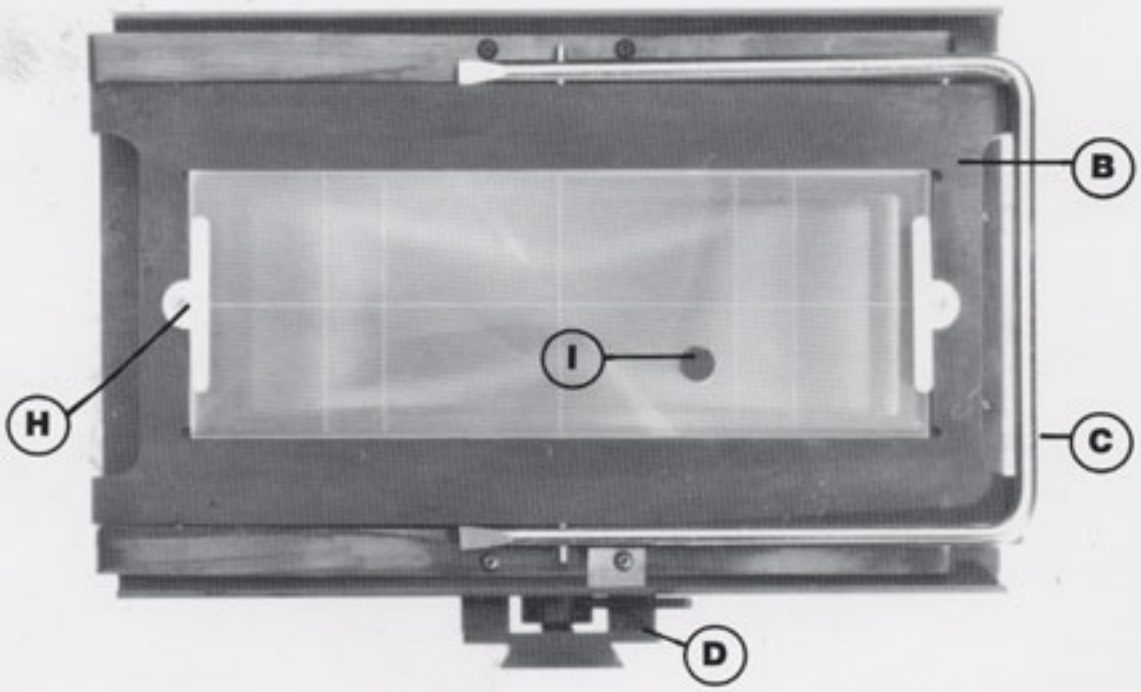
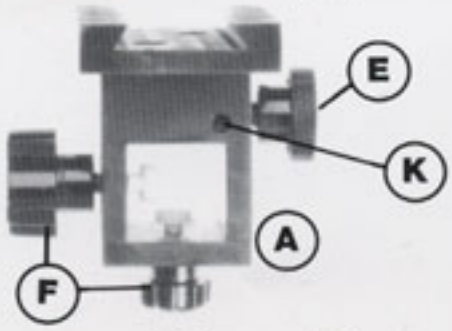
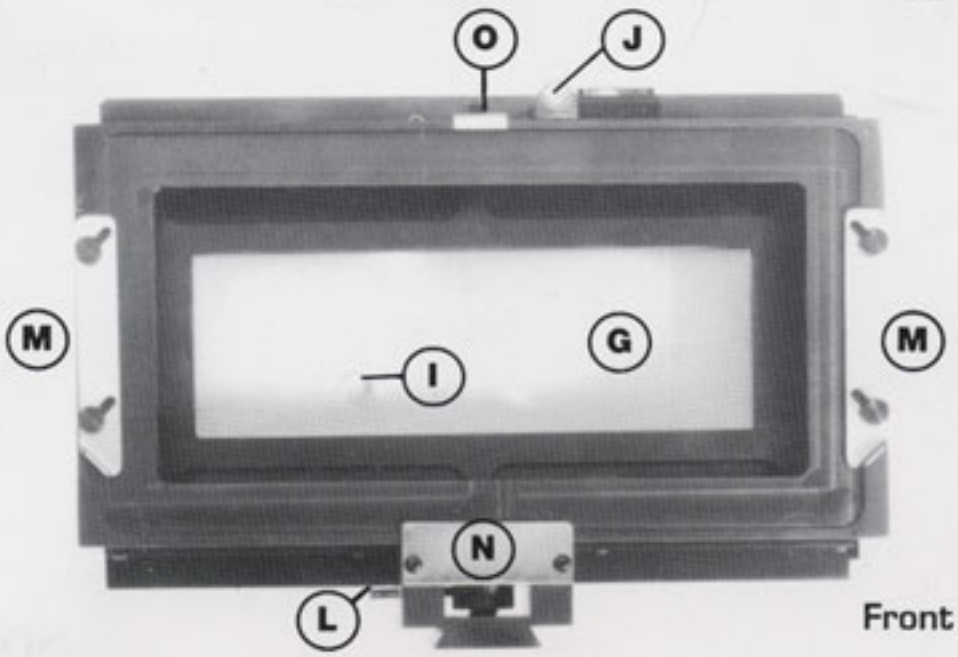
Nomenclature





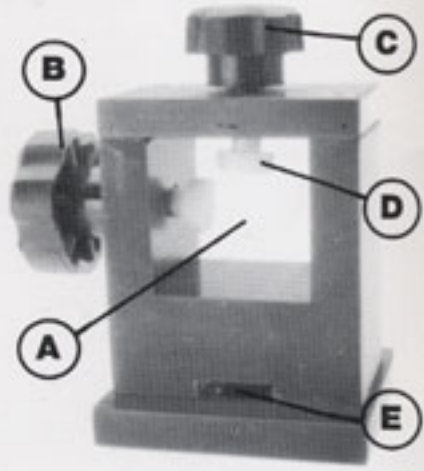
Rear View



Front View

Rear Standard Assembly

A — Mounting Block
B — Film Magazine Receiver
C — Film Magazine Release Lever
D — Detachable Dovetail Mounting Block
E — Focusing Knob
F — Locking Knobs
G — Ground Glass
H — Ground Glass Retaining Clip
I — Film Viewing Window
J — Levels
K — Focusing Knob Tension Adjustment Screw
L — Dovetail Slide Release Lever
M — Sliding Bellows Plate Retainer Bar
N — Fixed Bellows Retainer
O — Top Bellows Retaining Clip

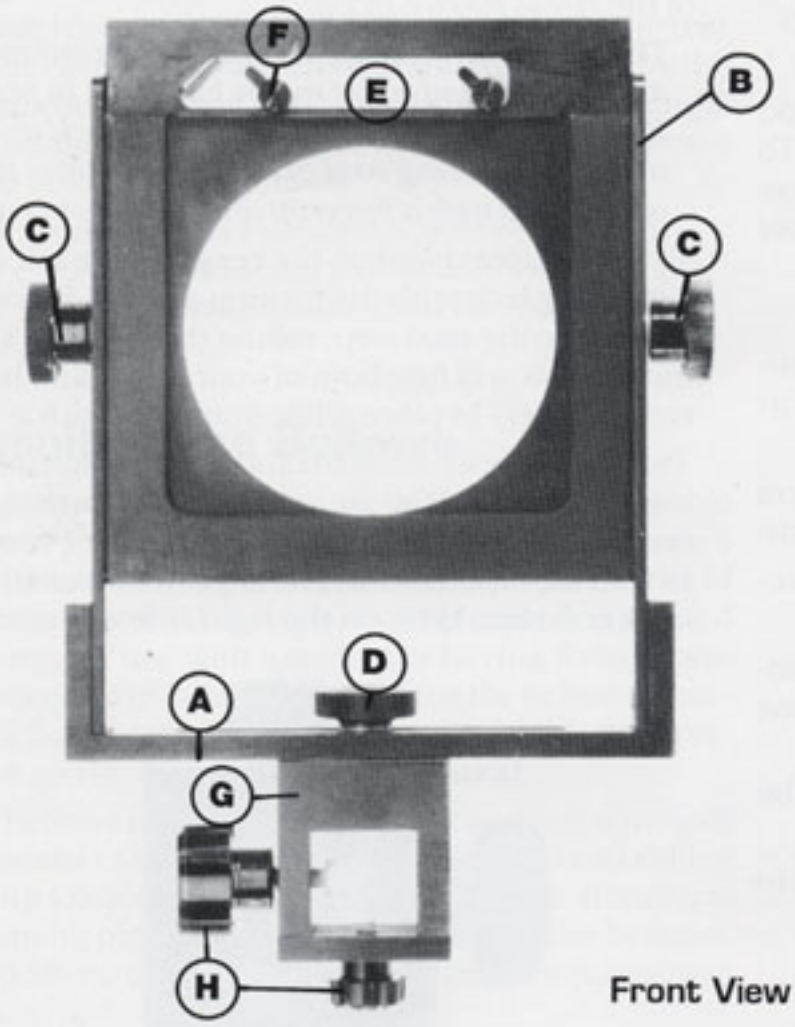


Tripod Mounting Block

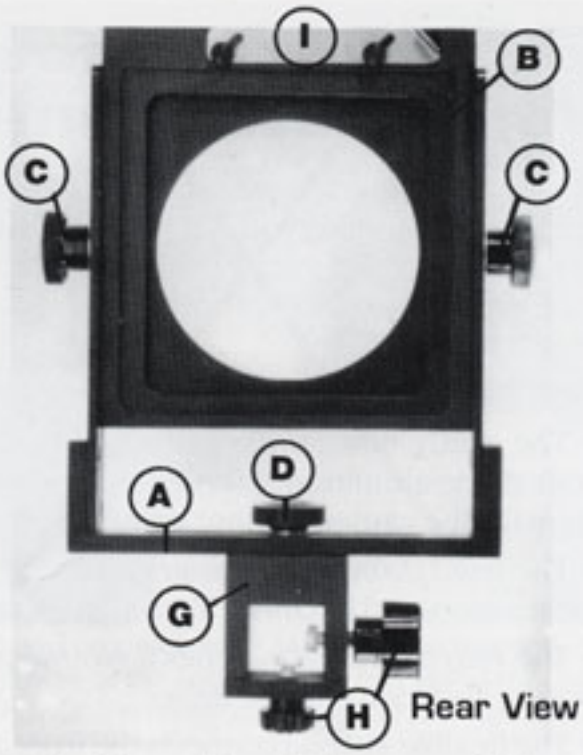
A — Rail Channel
B — Locking Knob
C — Locking Screw
D — Nylon Pressure Bushing
E — Tripod Threads

Monorail

A — Focusing Rack
B — End Cap
C — Thumbscrew



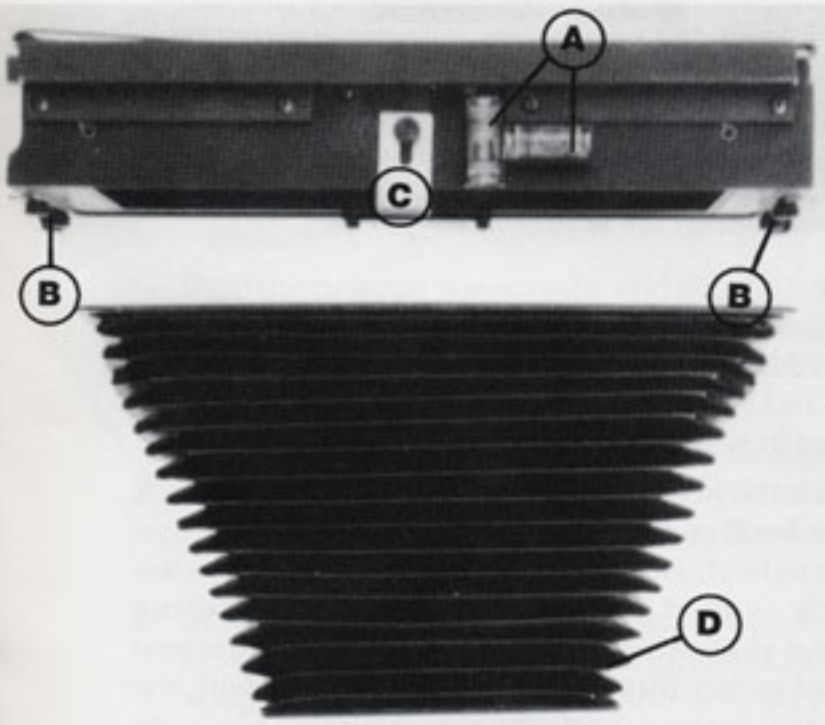
Front View



Rear View

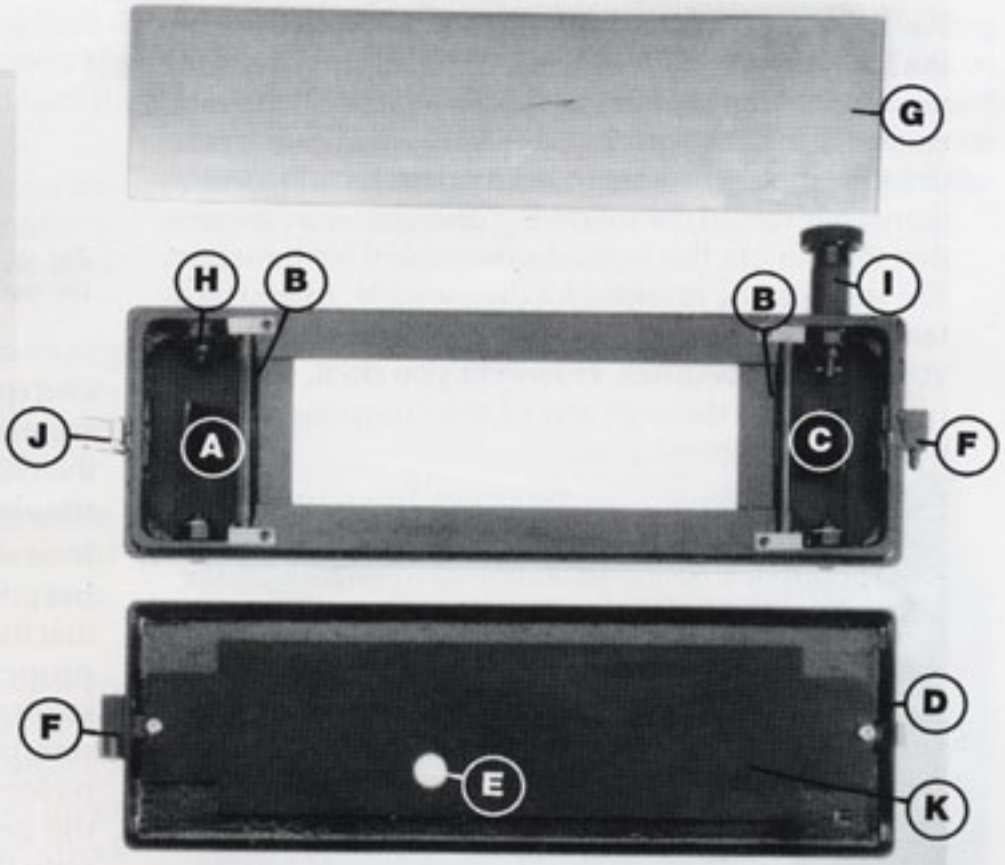
Front Standard Assembly

A — Front Standard
B — Lens Board Frame
C — Release Knobs for Tilt, Rise & Fall
D — Release Knob for Swing and Shift
E — Sliding Lens Board Retaining Bar
F — Thumb Screw
G — Mounting Block
H — Locking Knob
I — Sliding Bellows Plate Retaining Bar



Rear Standard and Bellows (Top View)

A — Levels
B — Bellows Sliding Bars with Thumbscrews
C — Bellows Top Retaining Clip
D — Standard 16" Pleated Bellows



Film Magazine

A — Film Compartment
B — Film Roller
C — Film Take-up Compartment
D — Removable Back Cover
E — Film Viewing Port
F — Back Hinge
G — Dark Slide
H — Film Retaining Button
I — Film Advance Knob
J — Latch
K — Pressure Plate

Getting to Know Your New Camera

The V-Pan camera is simple to use, especially if you are already familiar with view camera operation. To get the most from your new panoramic tool, please take the time to review these suggestions for proper care and use.

First, take a look at the camera's components:

- The sturdy *monorail* is a precision extrusion of aircraft-grade aluminum that serves as a mounting platform for the camera's other components.
- The *front standard* is designed to hold view camera lenses mounted in Linhof Technika-type lens boards.
- The *rear standard* includes a ground glass for composing and focusing the image.
- The flexible *bellows* connects the front and rear standards, allowing them to be moved independently along the rail.
- The *tripod mounting block* permits the camera to be secured to a tripod.
- The *film magazine* inserts into the rear standard to make four 6x17 cm. images on 120 roll film.

Disassembly and Set-up

The V-Pan camera is easy to disassemble and set-up. For field use you may partially disassemble the camera for transport by removing the standards from the rail and folding them flat. In this configuration the camera will fit in a briefcase or camera bag. With some practice you should be able to set it up on location in less than a minute. In the following discussion we assume that the camera has been disassembled for transport. The steps can be reversed for disassembly. As you grow familiar with your V-Pan you will probably develop your own procedures. However you do it, take care not to drop or damage any of the components, particularly the ground glass.

TIP: *Always make sure the ground glass protective cover is in place when the camera is not in use, particularly when disassembling or setting up the V-Pan and during transport or storage.*

To set up the camera, first pick up the monorail and identify the back end (it's the one with the brass focusing rack). The camera must be assembled with the rack on the top side. Remove the monorail end caps by unscrewing the thumbscrews and set them aside.

Pick up the tripod block and orient it so that its large locking knob will be on the left side of the camera. Slide the front end of the rail partway into the square channel in the rear of the tripod block. Looking into the channel from the open (front) end, adjust the locking knobs if necessary until the nylon pressure bushings slide freely into the channels on the top and side of the rail as shown in Fig. 1.

TIP: *Avoid turning the locking screws out too far, as this may cause the nylon bushings to pop off. If this happens, first turn the screw back in, then align the bushing and press it firmly onto the tip of the screw with a fingertip until it snaps into place.*

Slide the tripod block to the center of the rail and secure it in place with the locking screws. Before proceeding to the next step, mount the rail onto a sturdy tripod. This will free both of your hands and hold the camera safely in place while you work with it

Pick up the front standard and slide the square opening in the *rear* of the *front standard mounting block* over the front of the rail, following the same procedure as with the tripod block. The large front standard locking knob should be on the right side of the camera.

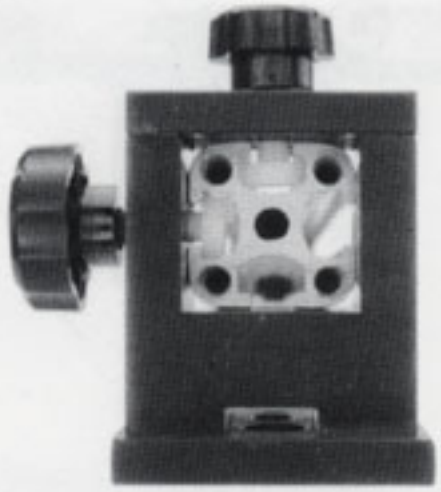


Fig. 1— To mount components on the monorail, make sure the nylon bushings are aligned in the grooves.

Once the nylon bushings are aligned, slide the front standard back several inches toward the center of the rail and finger tighten the locking screw to hold the standard in place on the rail.

Next slide the front of the rear standard mounting block over the back end of the monorail, again making sure that the nylon bushings on the rear locking screws are properly aligned in the grooves. Turn the focusing knob in a clockwise direction while pushing the rear standard gently forward to engage the rack with the pinion gear housed inside the rear mounting block. As the gear engages, the standard will move smoothly onto the rail. Rack it forward several inches and lock the standard into place by finger tightening the rear locking screw with the knob on the left side of the mounting block. Replace the monorail end caps and tighten them into place with the thumbscrews.

The rear standard also may be unlocked from its

mounting block for removal or fore-and-aft adjustment in its dovetail groove. To release it, move the slide release lever to the right. This feature allows the rear standard to be advanced over the tripod mounting block when working with extremely short focal length lenses, and provides extra extension with long lenses at the limits of the monorail.

TIP: *Because of its lever-action positive locking feature, some V-Pan users find it convenient to use the sliding dovetail connection for fine focusing the camera.*

Installing the Bellows

As a fully modular camera, the V-Pan has a removable bellows that can be interchanged. (Options include a bag bellows for use with lenses with focal lengths of 150mm or less. Also available is an extended pleated bellows for use with long lenses having flange focal distances up to 26 inches.) Installing the bellows is easiest if the camera is assembled as described in the previous section and mounted on a tripod.

The bellows is mounted to the front and rear standards by means of fixed retainers at the bottom and sliding spring loaded bars. The bars engage the aluminum mounting plates attached to each end of the bellows. In addition, the rear standard features a top retaining clip.

Let's start by attaching the bellows to the rear standard. First, slide the spring loaded bellows retaining bars to the outward position (Fig. 2). Next, loosen the thumb screw on the top bellows retaining clip until the clip can be rotated 90 degrees to one side.

TIP: *If necessary, you can adjust the tension on the spring loaded bellows retaining bars by tightening or loosening the round headed screws with an allen wrench.*

Hold the bellows horizontally and slip the bottom edge of the mounting plate downward from the top behind the fixed retainer at the bottom of the bellows recess on the front of the rear standard.

TIP: *To protect your bellows from damage, make certain none of the pleats of the bellows material become caught under the retainer, the sliding bars, or the top retaining clip.*

Seat the bellows plate completely in the bellows recess, then move the sliding bars inward as far as they will go to secure the edges of the bellows plate.

Finally, rotate the top retaining clip so that its lip engages the top of the bellows mounting plate, checking again to assure the bellows material is not caught under the clip. Slide the clip all the way to the rear and finger tighten the thumb screw.

Follow a similar procedure to attach the bellows to the front standard. In this case only one sliding bar at the top must be loosened (Fig. 3). Engage the front bellows mounting plate into the retainer at the bottom of the front bellows recess and fully seat the bellows mounting plate. Finally, move the sliding bar down over the top edge of the bellows mounting plate, again making sure none of the pleats are caught under the retainer or bar.

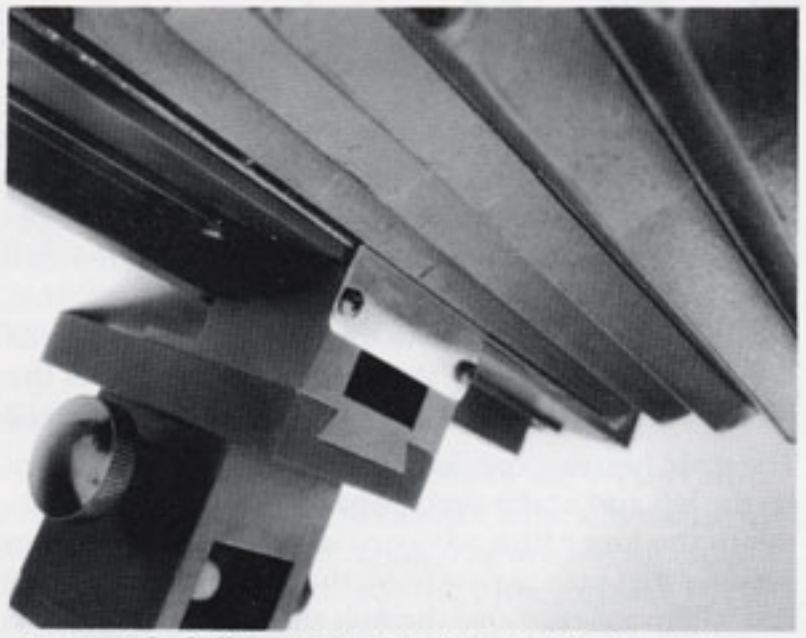


Fig. 2 — The bellows mounting plate must be inserted behind the flange at the bottom of the rear standard. Side retainer bars and a retainer clip complete the installation.

To remove the bellows, reverse the procedures outlined above. With practice, one bellows can be removed and another installed in just a minute or two You can leave the bellows installed when breaking down or setting up the V-Pan. In this case you must keep the front and rear standards together, and remove and install the standards and tripod block in sequence from the front of the rail. Use extra care to avoid damage to the bellows.

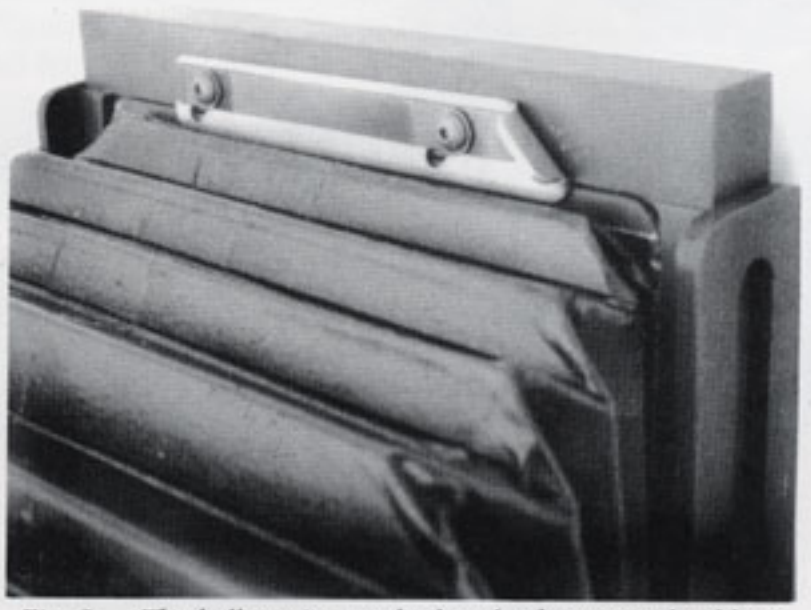


Fig. 3 — The bellows is attached to the front standard by a fixed retainer at the bottom and a sliding top retainer bar.

The Film Magazine

The V-Pan film magazine consists of two main components, a housing and a removable back plate. Both are made of precision machined aluminum castings.

The back plate is a quick-release design that removes completely for convenient loading. To remove it, unsnap the latch at the left end of the magazine, swing the back away and to the right until it is clear of the magazine housing, then slide it down off of the hinge stud.

The main housing contains a film supply compartment on the left and a take-up compartment on the right beneath the large film advance knob. (All references assume that you are viewing the magazine from the rear.) Film rollers move the film smoothly through the magazine.

A stainless steel dark slide fits into a slot on the right side of the magazine. The dark slide slot features a spring-loaded light trap.

The removable back cover contains a spring-loaded pressure plate to assure film flatness. The film viewing port, consisting of openings through the back cover and pressure plate, allows precision film advance simply by aligning the appropriate numbers on the paper film backing in the viewing port. A tiny flexible bellows between the film port in the back cover and the port in the pressure plate keeps stray light from entering the magazine.

Loading the Magazine

Loading the V-Pan film magazine is simple and straightforward. Follow these steps:

• Remove the back cover and set it aside. Check to make sure the dark slide is installed and fully seated.

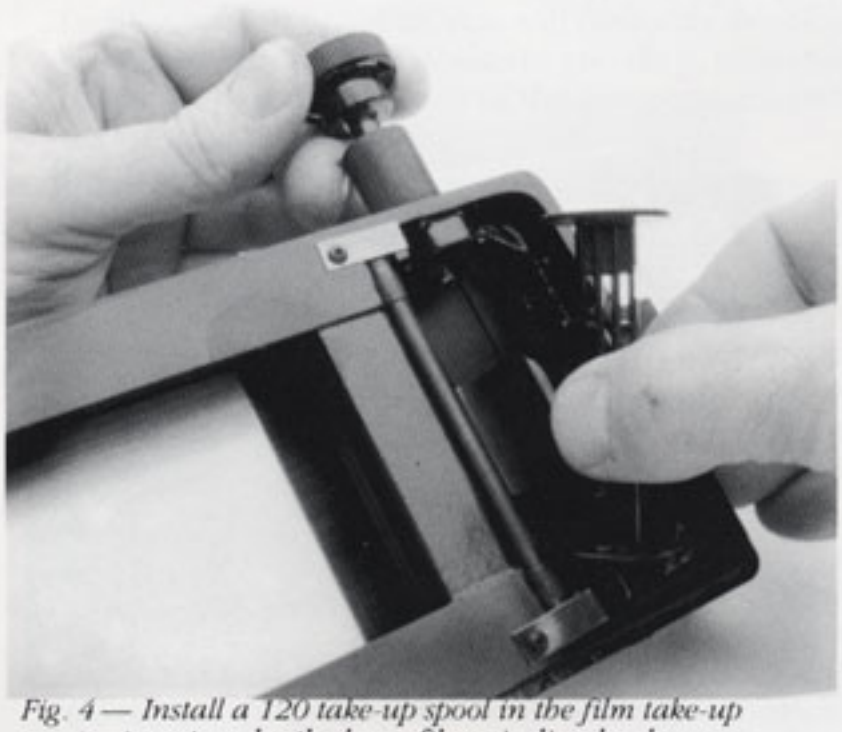


Fig. 4 — Install a 120 take-up spool in the film take-up compartment under the large film winding knob.

Fig. 5 — A roll of 120 film is installed in the compartment on the left. The film unwinds from the top and to the right.

• Lift the spring-loaded film advance knob and install an empty 120 spool in the film take-up compartment at the right side of the magazine (Fig. 4). Engage the bottom end of the spool over the stationary stud in the bottom of the compartment. Tilt the spool into the compartment and release the film advance knob to lock the spool into place, engaging the prongs on the top winding shaft with the slots in the spool.

TIP: *Turn the film advance knob gently while maintaining light finger pressure on the film spool to assure that the spool is properly seated and aligned.*

• Install a roll of 120 film in the film supply compartment (Fig. 5). The roll must be oriented so that film will unwind from the top and toward the right. Push up on the spring-loaded film retaining button from inside the compartment, then hold the button in the retracted position from the outside. Seat the bottom end of the film spool over the fixed stud in the bottom of the compartment, tip the roll into the compartment, and allow the spring loaded film retaining button to snap into the spool. To make sure it is well seated at both ends give the roll of film a few turns with your finger.

• Break the seal on the film and gently unroll the paper backing across the back of the magazine until the end tab reaches the take-up spool. Make sure the paper rides smoothly over the film rollers at each end of the magazine. Insert the end of the tab in the slot on the take-up spool. Maintaining light finger pressure on the film as it winds onto the spool, slowly turn the film advance knob *just enough* to place tension on the paper and to take up any slack. Note that since film advance is manual, there is no need to align starting arrows on the film back. A special one-way clutch makes it impossible to turn the film advance knob

Fig. 6 — Make certain film is aligned straight across the back of the film magazine without any kinks, and that it is centered on the take-up spool.

backward. Make sure the paper is aligned straight across the magazine without any kinks, and that the paper is *centered* on the take-up spool (Fig. 6).

• Re-attach the removable back cover. First, slip the hinge onto the hinge stud on the right end of the magazine. Carefully swing the back cover onto the film magazine and make sure it is seated all around. This brings the pressure plate into contact with the paper film backing. Finally, engage the latch and snap it shut.

TIP: *The back cover should close smoothly. Do not attempt to force it into place. If you encounter resistance, remove the back cover and determine what is causing the problem.*

• To advance the film to the first frame, observe the markings on the paper backing through the film viewing port. To make the first of four exposures in the 6x17 cm. format, advance the film until the figure 2 appears in the port. You also can advance the film while the magazine is mounted on the camera by looking through the window in the ground glass. To expose frame number two, advance to the figure 6 on the film backing; for frame number three, advance to figure 10; and for frame number four advance to figure 14. As a reminder, this sequence—2-6-10-14—appears on the nameplate above the ground glass of your V-Pan camera.

That's it—your film magazine is ready to go. With a little practice you should be able to load the V-Pan magazine about as quickly as any other roll film camera.

TIP: *To remove film spools, first retract the top spring-loaded retaining button or winding shaft, than press at a downward angle on the lip at the bottom of the spools. They should easily tip forward out of the chamber.*

Working with the V-Pan

As a monorail view camera, the V-Pan system allows a great deal of flexibility in composing panoramas. These techniques of image-making will be familiar to view camera users. If you lack experience working with view cameras, don't despair! Following is a review of the basic knowledge you need to create a wide range of images with the V-Pan camera.

Using View Camera Lenses

An important key to the versatility of the V-Pan camera is its ability to use view camera lenses, which are available in many focal lengths. These lenses include some of the finest photographic optics made. They contain built-in shutters and are fitted in lens boards, flat plates that mount onto the front standard of the camera. The V-Pan will accept all Linhof Technika-type lens boards.

Note that while virtually any view camera lens can be mounted on the V-Pan, not all lenses have image circles or circles of even illumination sufficient to give full coverage in the 6x17 format. To do so a lens must have a minimum image circle with even illumination equal to the diagonal of the film frame, or 181 mm. (Of course, such minimum coverage would not allow for camera movements.)

TIP: *With most lenses the circle of even illumination is the same as the image circle, but some lenses may require center filters to prevent light fall-off at the corners of the image. This is particularly true with the shorter focal length Schneider Super-Angulon and Rodenstock Grandagon lenses, and to some degree with the wider Nikkor-SW designs.*

In practice, any lens rated to cover the 5x7 in. format will easily accommodate the 6x17 format, and *most* lenses that will cover the 4x5 in. format will also do so. The exceptions include the 65mm ultra-wide-angle lenses available from major lens makers. With their 170mm image circles, these lenses will just cover the 4x5 format, but will vignette at the corners in 6x17. Long lenses can be used if they have adequate image circles and a flange focal distance less than your longest V-Pan monorail and bellows combination (up to 26 in. with optional long rail and bellows).

TIP: *In general we recommend using telephoto-type lenses for focal lengths longer than 210 mm. These retrofocus designs are more compact and have flange focal distances about one-third shorter than their nominal focal length ratings. This translates into less bellows draw and greater camera stability, particularly in windy conditions. Telephoto designs have smaller image circles, however, so if maximum camera movements are required you may prefer long lenses of conventional design.*

Mounting Lenses on the V-Pan Camera

To mount a lens, loosen the two thumb screws on the sliding lens retaining bar on the front standard until the bar can be freely moved. Seat the bottom of the lens board (the edge with bevels on each corner) into the fixed retainer at the bottom of the lens board recess. Slide the lens retaining bar up, tip the lens board into the recess until it is fully seated, then slide the retaining bar down to engage the top edge of the board. Finger tighten the thumb screws to secure the lens board in place.

TIP: *View camera lenses are meant to be used with a cable release. Air releases are a good alternative. A relatively long release (18-20 in.) will let you make the exposure from behind the camera while watching the subject. It's a good idea to keep a spare release in your camera case.*

Making a Photograph

Now that your camera is assembled, the film magazine loaded, and a lens chosen and mounted on the camera—it's time to make a panoramic photograph. Here are some suggested procedures.

Level the Camera

As soon as you have mounted your V-Pan on a tripod and aimed it at the subject, make it a habit to level the camera before making any other adjustments. There may be occasions when you will want to tilt the camera up or down, but for most situations it will pay to compose and shoot with a level camera. To simplify this important step the V-Pan is equipped with a pair of levels, one for the lateral axis and the other to measure front-to-back tilt.

Focus the Image

Now it's time to compose and focus the image on the ground glass. Open the lens by moving the lever on the side of the shutter barrel. Open the diaphram to its widest setting for a bright image on the ground glass.

TIP: *For best results, it is advisable to use a dark cloth of some kind to block extraneous light from the focusing screen. This is especially helpful when side-lighting conditions would otherwise allow light to enter the side of the rear standard through the film magazine receiver and create glare on the ground glass. Even a lightweight jacket can serve as an effective dark cloth.*

Next, adjust the standards to bring the image into focus on the ground glass so that you can study and adjust the composition. Don't panic at the fact that the image is upside down. This is a fact of life with all view cameras and you will soon grow accustomed to it. (Many experienced view camera shooters believe that the inverted image actually makes it easier to pre-visualize their final composition.)

TIP: *A 4X or 6X magnifier is a useful aid to accurate focusing. Choose one that has a soft base that will not scratch your ground glass. A neck strap is another good feature to look for.*

Make Your Composition

Now you can use the many versatile features of the V-Pan camera to refine your composition. For example, at this point you may conclude that a different lens is appropriate for a tighter or wider composition. If so, install the new lens and refocus.

Once the desired focal length has been determined, you can use the movements on the front standard to control subject framing, perspective, and plane of focus. In this discussion we will consider only rise and fall, the camera movements most commonly used in the field. (For a brief discussion of other movements, see the next section, *Advanced V-Pan Camera Techniques.*)

Camera rise and fall are achieved by moving the lens board frame up or down in the front standard. The V-Pan allows up to 2 inches of rise and 1 inch of fall. The lens board frame has click-stop zero detents for rise, fall, and tilt, making it easy to return to the neutral settings.

Let's say that you are making a panoramic photograph of a skyline with tall buildings. With the camera completely level there will be no keystoning (the buildings won't look like they are falling over), but with the lens in a neutral position the horizon will be in the middle of the image. If you want to emphasize more sky (or foreground) in the composition, use front rise (or fall) to shift the image. Loosen the two release knobs on either side of the front standard until the lens board frame can be moved. Grasp the frame at the top and move it up or down while viewing the composition on the ground glass. Since the camera has remained level, the buildings will remain straight. When you have attained the desired composition, tighten the knobs to lock the lens board frame in place.

TIP: *If you are not using lens tilts, to assure you haven't inadvertently tilted the lens frame place light pressure on the frame prior to tightening to see that the tilt detent stops are engaged.*

If you are using a polarizer or other special effect filter, screw it onto the lens and adjust it for the desired effect. Some filters will cause focus to shift, so check

your focus one last time. Now it's time to make your panoramic photograph.

Make the Exposure

Before inserting the film magazine, *be sure to close the lens to prevent light from fogging your film.*

Determine your exposure and set the appropriate shutter speed and f-stop on the lens. Cock the shutter.

Pull the film magazine release lever up and to the left until it engages the stop. This will retract the spring loaded ground glass carrier to allow insertion of the film magazine. Slide the film magazine into the receiver from the right all the way into the receiver. You should feel the magazine go into place as the ridges of its double light trap engage with the slots in the receiver. Return the release lever to the closed position so that the ground glass carrier locks the film magazine into place.

TIP: *Until you become completely familiar with your V-Pan, double-check to make sure the light traps are engaged. Grasp the magazine and gently pull back and forth. You should not be able to slide or rock the magazine in the receiver.*

Draw the dark slide completely out of the film magazine and make your exposure.

Advance the film to the next frame. You can now make a second exposure, or replace the dark slide and remove the film magazine to compose and focus the next image.

Advanced V-Pan Camera Techniques

Like all view cameras, the V-Pan mkIII offers a variety of image controls. We will touch briefly on some of these techniques. If you want to learn more about general view camera principles and practices, there are many reference works on the subject.

A few suggestions include: *View Camera Technique*, by Leslie Strobel; *The View Camera: Operations and Techniques*, by Harvey Shaman; *The Camera*, by Ansel Adams (Book 1 of the Ansel Adams Series); and *Photography With Large-Format Cameras*, published by Eastman Kodak Co. Most of the techniques covered in these volumes can be applied to the V-Pan camera.

Tripod Selection

View cameras like the V-Pan must be used on a sturdy tripod, one stable enough to support the camera without wobbling or vibration. If you're used to working with small or medium format cameras, chances are the tripod you have isn't heavy enough or sufficiently rigid to give you optimum results with the V-Pan. This is particularly true when working with long lenses or exposure times.

As a rule-of-thumb, choose a tripod rated at least for 4x5 cameras. When weight is a factor, such as for backpacking, some compromise will be required—but in all cases it's a good idea to use the heaviest tripod you can.

TIP: *If you must use a lighter 'pod, it can be made more stable by adding weight to it. You can hang a shot bag or camera case from the tripod, for example. A practical alternative for backpackers is to carry a net bag that can be filled with rocks or other heavy objects and suspended from the tripod.*

Your choice of a tripod head is of equal importance. Again, use the heaviest one you can to assure a stable shooting platform for your panoramic image-making.

Depth of Field

You may be used to using the depth of field scales on conventional camera lenses. With view camera lenses, the techniques are somewhat different. First, there are two ways to control depth of field with a view camera such as the V-Pan:

- By focusing at infinity or at the hyperfocal distance and stopping down the lens until the necessary depth of field is obtained.
- By using the Scheimpflug Principal to control the plane of focus itself through the use of lens tilt and swing.

The Stop Down Method

For distant scenes it will usually suffice to focus on objects at infinity, then stop down the lens as necessary to obtain sufficient focus on near objects. You can refer to depth of field tables provided by lens manufacturers, but in practice view camera photographers most often determine the appropriate f-stop by trial and error, simply by examining the ground glass to determine whether desired subjects are sharp. Here is a suggested procedure for general scenes:

- With the lens wide open, focus on a distant object. Then, stop down the lens while examining the image with a magnifier until closer objects also appear sharp.

TIP: *Since the ground glass image grows darker as the lens is stopped down, it is sometimes difficult to tell when an image is precisely sharp. When you must be assured that all parts of a scene are in acceptable focus, stop down one or two more stops after the image appears sharp to your eye.*

When greater depth-of-field is required, you will need

to focus the lens at the hyperfocal distance—the nearest point at which objects at-infinity remain in focus at a given aperture. When camera focus is adjusted to a hyperfocal point, near objects to as close as one-half the hyperfocal distance will remain sharp.

Again, depth-of-field tables can be used but trial-and-error is perhaps the most practical method. Here's a suggested approach:

- With the lens wide open, watch on the ground glass as you focus alternately on the nearest and farthest objects that you wish to be sharp in the final image. Set the focus at about the mid-point between these two settings.
- As above, stop down the lens while observing the image on the ground glass until both near and far objects within your desired depth-of-field appear sharp. Stop down one or two more stops as insurance.

In some circumstances you may need to change your focus point and repeat this procedure. In general, the hyperfocal distance will be at about the one-half point when depth of field is relatively small, such as when working with long lenses, wide apertures, and close subject distances. When depth-of-field is large, the hyperfocal distance is about one-third of the way into the scene.

Using the Scheimpflug Principal

This method of focus control depends on using the axial tilts and swing movements on the camera's front standard. These movements change the plane of sharp focus from the straight, vertical orientation at a fixed distance from the camera that results when lens board and film plane are parallel. Tilts rotate the plane of focus in a top to bottom direction, and swings rotate the plane from left to right. The two movements can also be used in combination.

Using Scheimpflug on the V-Pan by tilting the lens down, for example, can give you sharp focus on a nearby subject (i.e., a bed of flowers) in the close foreground while more distant objects (i.e., a range of mountains) in the upper portion of the photograph also remain in focus. This effect is independent of the f-stop setting, and results from the fact that tilt (and swing) selectively move areas of the image to different lens-film distances. It's like being able to focus separately for the top and bottom (or left and right) portions of the photograph.

TIP: *The rule to remember is that for overall sharp focus, the plane of the film, the plane of the lens board, and the plane of the subject must either be parallel to each other (as in a conventional camera); or meet at a single point (the Scheimpflug effect). Understanding and applying this rule makes it easier to adjust the camera for Scheimpflug.*

An example of the Scheimpflug principal is diagrammed in Fig. 7.

Keep in mind that the Scheimpflug method will not work with scenes in which the major elements are not positioned near a common plane. For example, a distant scene framed by nearby foliage at both top and bottom involves two separate planes of focus—one for the nearby foliage and one for the far subject. In

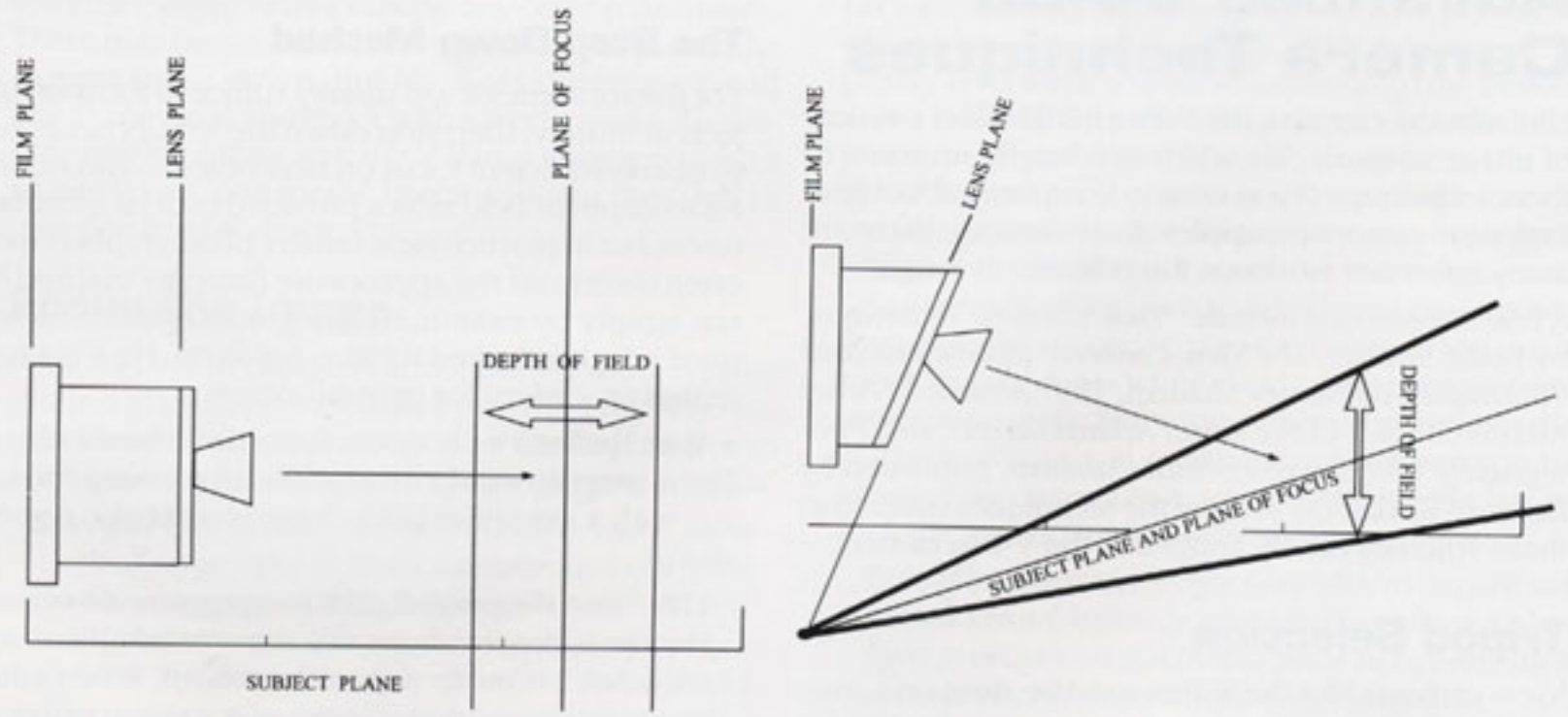


Fig. 7— In the Scheimpflug effect, the subject will be in focus when the plane of the subject, the plane of the lens board, and the plane of the film meet at a common point.

this case, only the stop down method can be used to control depth of field.

Also, since few scenes have all of their elements precisely arranged near a single plane, in practice you will need to use the stop-down effect in conjunction with Scheimpflug to attain overall image sharpness. First adjust the camera tilt or swing for the Scheimpflug effect, then stop down while examining the ground glass until all areas are in sharp focus.

TIP: *When you plan to use camera movements, be sure to choose lenses with large image circles. This is true because front standard camera movements change the position relative to the film of the image circle projected by the lens, which may cause vignetting of the image area.*

Perspective Controls

Besides controlling the plane of focus, the front standard camera movements of the V-Pan camera allow extensive control of perspective, or the shape of objects as they appear on film. We have seen a basic example in the previous section, where front rise or fall was used to compose a panorama of a city skyline without the keystoning effect that would result if the camera were simply pointed up or down. Perspective controls are most useful when photographing architectural subjects such as this, but can also play a role in creating images of natural scenes (i.e., keeping forest trees vertical).

The camera movements that affect perspective are rise, fall, and shift. In field use, you are likely to rely primarily on rise and fall, which suffice to keep the sides of buildings parallel and eliminate keystoning. Remember to always begin with the camera level. When you need to take in more area at the top of the picture, use the front rise to re-frame the scene. Vertical lines all across the picture area will remain parallel.

If you are shooting from a high angle or wish to include more foreground in your composition, use the fall to maintain parallel perspective rather than tilting the camera down.

Just as rise and fall maintain vertical lines in parallel, camera shifts can control horizontal line divergence or convergence. For example, if you are shooting a front view of a building from an angle other than straight on, its horizontal lines will appear to converge away from the camera. By turning the camera until the film plane is parallel with the front of the building, then using lateral shift to re-frame the scene, this convergence is eliminated.

In scenes such as this, a combination of rise or fall and lateral shift may be used to maintain overall control of perspective. In addition, tilts or swings may be used to control the plane of focus as described above.

Shooting in the Vertical Format

It is also possible to use the V-Pan's camera movements to make photographs in the vertical format.

TIP: *For vertical shots,* rotate the camera on the tripod to the left *so that the film magazine will be inserted from the top. Before releasing the camera, be sure the tripod is capable of supporting it in this position. The configuration may be unstable and could cause the tripod to tip over. For maximum stability, position the tripod so that one leg is directly below the camera.*

When shooting in vertical format the camera movements create different effects than they do when the camera is in a horizontal position. Specifically, the lateral shift and rise/fall movements switch their roles, with the shift movement now resulting in rise and fall and rise/fall movements providing shift. Similarly, the axial swing and tilt movements also swap roles. The swing movement produces the effect of tilts, and the tilt movements produce swing. This may seem complicated, but in practice once you are accustomed to using front standard movements these transpositions will come naturally when the camera is tipped to allow vertical compositions. Use the appropriate movements just as you do to make horizontal images.

Using Filters

A real advantage of the V-Pan system is that it allows unrestricted use of filters, including polarizers, gels, color and neutral density graduated filters, and special filters to create starbursts, rainbows, and other dramatic effects. Be sure to take the filter factors into account when determining your exposures.

Polarizers are perhaps the most important alternative, with their ability to reduce reflections and intensify color saturation. Just as with a conventional reflex camera, you can rotate the polarizer while observing the effects on the ground glass. This is best done as the final step before taking a picture.

When true color rendition is desired, color correction (CC) and light balancing (LB) filters and gels can also be used with the V-Pan. Because of their economy and versatility, gels may be a better choice than screw-in filters. You might choose a set of four-inch gels and a gel holder with step-down rings to fit the front of all of your lenses. Three-inch gels work well with rear-mounted gel holders such as the Xenophon system from Calumet Photographic, Inc.