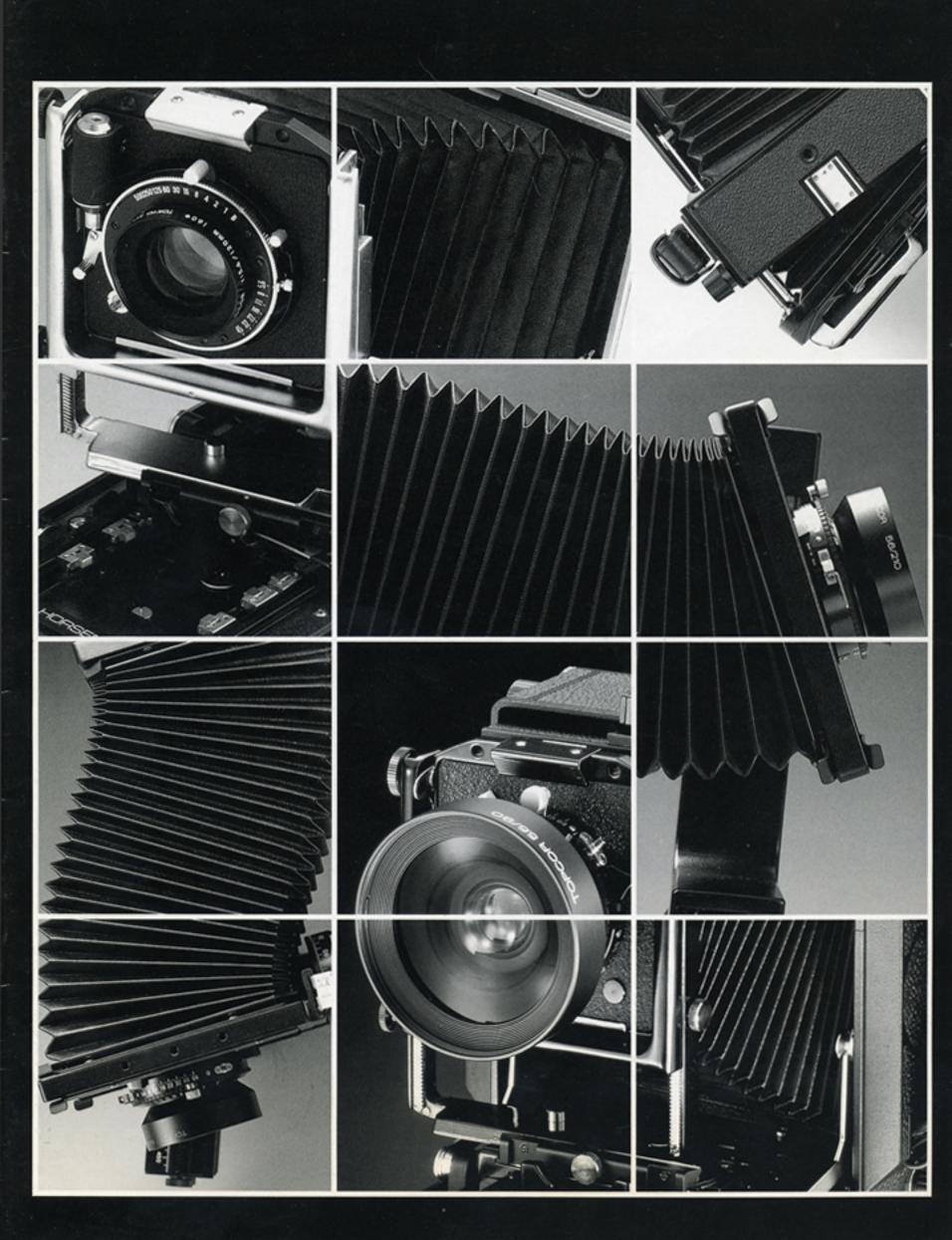
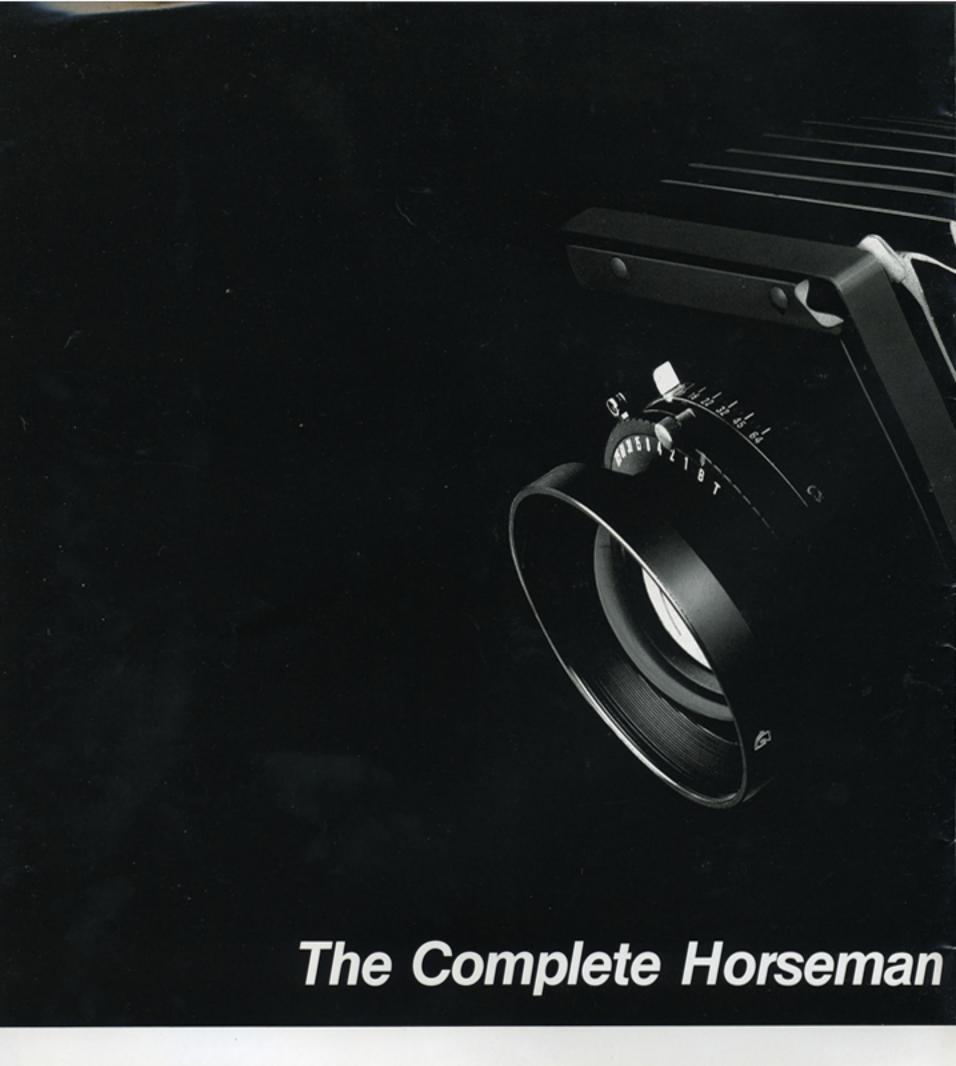
HORSΕΙΛΑΓΙ Photographer's Catalog No. 2





Look to Horseman, for superior technology.

That a large format camera for professional use is made with the highest degree of optical and mechanical precision can be taken for granted; what is not to be taken for granted, however, is the ease of operation which professionals should and do demand. All Horseman systems are designed and built with functional ease in mind, from our 6×7 cm format to our — still surprisingly manageable — 8×10 inch system.

A comprehensive range of lenses and accessories, in most cases compatible with several formats, help the photographer respond to all possible situations. Flexible tools for the demanding professional, built to the highest standards of precision. Every Horseman system camera is a reflection of these design goals that have made Horseman respected the world over.



Program

Professional Equipment to Meet The Highest Demands

\sim	A NI	TE	NI7	rc.
C	JIN	TE	N	0

CAMERA BODIES	
Horseman VH	2-3
Horseman VH-R	4-5
Horseman ER-1	6-7
 Horseman 45HF 	8-9
Horseman 45FA	10-11
Horseman 450	12-13
Horseman 450 EM II	14-15
Horseman 450B	16
 Horseman 570 	17
● Horseman 810	17
ACCESSORIES	
Super ER Lenses	18-19
Topcor Lenses	20-21
Topcor Lenses Film Holders	22
Lisco Film Holders	

Prontor Professional System	
• Accessories	.26-31
SPARE PARTS Spare Parts	.32-33
EXTRA ACCESSORIES	
Extra Accessories	.34-35
Universal Zoom Finders	36
LF Teleconverter	37
Horseman Light Panel System	38
TECHNICAL GUIDE	
 Conversion Table of Focal Length. 	39
Image Circle	
Exposure Factor for	
Close-up Photography	39

Rotary Backs24

Coordinating Editor : Jin Yamaguchi
Art Director : Kozo Kawakami
Chief Photographer : Masanori Miyawaki
Contributing Editor : Peter Recklin
Technical Translator : Claus Regge
Technical Coordinator: Hans J. Simonis

Entire contents by Komamura Photographic Co., Ltd. Material in this publication may not be reproduced in any form without the express consent of the publisher.



Horseman VH.
A genuine technical camera based on the

6 × 9cm format, but easily adaptable to formats from 6 × 7cm to 4 × 5 inch by choosing from among the wide range of Horseman accessories. High precision engineering permits a variety of swing and tilt functions as well as close-up and macro photography to be performed with ease. The lightest in this class of cameras, the Horseman VH also is eminently suitable for portable and field work. As focusing is done with the graticule on the groundglass screen, exact picture composition in landscape work, e.g., becomes very easy. The Horseman VH. A versatile system for the mobile photographer.

Focusing: by ground glass screen Camera
Movements: Camera Bed=Drop 15 degrees, Lens
Standard=Rising 28mm (15mm when wide angle lens is
used), Swing 15 degrees L/R, Tilt 10 degrees Forwards,
15 degrees Backwards, Lateral Shift 30mm L/R (15mm
when wide angle lens is used) Camera Back=Swing
10 degrees L/R, Tilt 11 degrees Forward/Backward.
Revolving Back System: 90 degrees Rotation Track
Extension: 72mm Bellows Extension: Front=249mm
Rear=23mm Tripod Sockets: Provided top, bottom and
side. Dimensions: 157 × 160 × 97 (when folded)
Weight: 1.7kg

[Example Systems: See page 40]

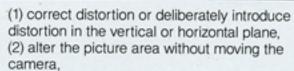
The Lightweight, Compact 6×9cm Workhorse



Complete Freedom with Swing and Tilt

Smooth movements of the lens standard, bellows and all other movable parts are assured by Horseman's precision engineering. The lens standard and film plane have been given the greatest possible degrees of freedom in order to permit operations such as swing and tilt with unhampered ease. The camera bed can be tilted 15 degrees downward. With these convenient features, the photographer can





(3) adjust the depth of field to suit his intentions and

(4) perform a multitude of other jobs for truly creative work.

6×9cm 35mm





6×9cm Format: the Negative is Five Times Larger than 35mm

The left and right photographs show the actual film sizes for the 6 × 9cm and 35mm formats respectively. Since a 6 × 9cm negative is about five times larger than a 35mm negative, its advantages when making enlargements are obvious.

For High Resolution Macro and Repro Work

Macro and Repro photography are two areas in which a technical camera excels. As the bellows can be extended over a wide range, no extension tubes or the like are required. With the 65mm wide angle lens, macro photography with up to 2.7 times magnification becomes easily possible. Tripod sockets are provided on the side, bottom and top, which permits easy response to all situations including low-angle photography.

The Smallest, Lightest

In terms of weight and compact size, the Horseman VH is the undisputed leader among all technical cameras of this format. It nevertheless offers all professional possibilities such as swing and tilt, close-up, macro

and repro photography.
The VH — a truly
professional tool in a
surprisingly compact,
lightweight disguise.





Tilt Front (10 degrees down)



Tilt Front (15 degrees up)



Swing Front (15 degrees L/R)



Rising (28mm) 15mm when wide angle lens is used



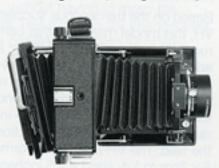
Lateral Shift (30mm) 15mm when wide angle lens is used

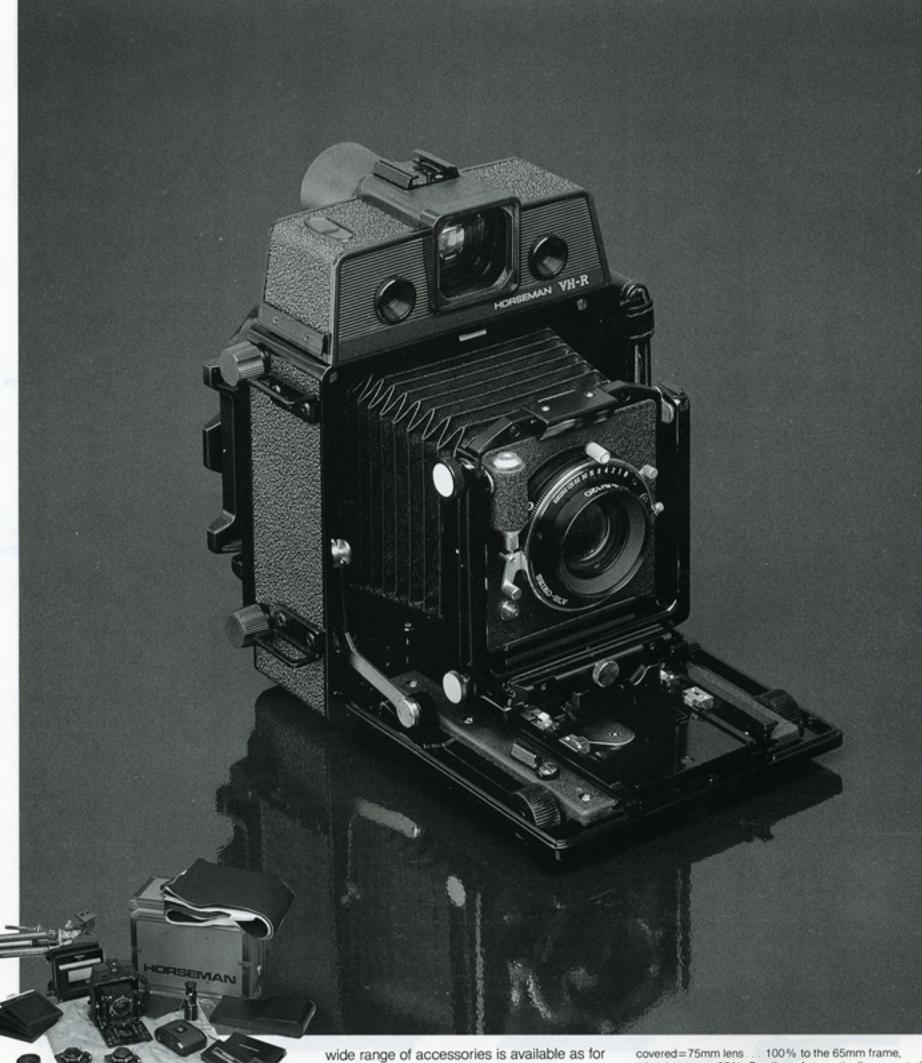


Tilt Back (11 degrees up/down)



Swing Back (10 degrees L/R)





Horseman VH-R

Based on the tremendous success of the VH, this model maintains that camera's rugged functionality and mobility and adds additional features for genuine all-around versatility. The built-in viewfinder rotates for direct viewing of horizontal and vertical formats. Together with the built- in coupled rangefinder, it permits quick-action shots in the field. The VH-R supports formats from 6 × 7cm to full- sized 4 × 5 inches. The same

wide range of accessories is available as for the VH. The Horseman VH-R. For all large format work where mobility and flexibility really count.

Specifications

Rangefinder: cam coupling double image coincidence type (Base=70mm, Ratio=1:1) Coupling Range=65, 75, 90, 105mm...tm — inf. 120, 150, 180mm...2m — inf. Cam=supplied with lens except for 75, 105, 180mm lenses which come with camera body Focusing=by Rangefinder, Manual setting, Ground glass Viewfinder= Universal, brilliant type, polyfocus optical viewfinder (Ratio=1:0.4) Revolvable viewfinder frame Field of view=Bright frames for 65, 90, 105, 150 & 180mm lenses. Dots at the four corners for 120mm lens. Ratio of the field of view to the area

covered=75mm lens... 100% to the 65mm frame, other lenses... 85%, Parallax=Automatically corrected on all lenses. Camera Movements: Camera Bed=Drop 15 degrees, Lens Standard=Rising 28mm (15mm when wide angle lens is used), Swing 15 degrees L/R, Tilt 10 degrees Forwards, 15 degrees Backwards, Lateral Shift 30mm L/R (15mm when wide angle lens is used) Camera Back= Swing 10 degrees L/R, Tilt 11 degrees Forward/Backward. Revolving Back System: 90 degrees Rotation Track Extension: 72mm Bellows Extension: Front=249mm Rear= 23mm Tripod Sockets: Provided bottom and side. Dimensions: 192 × 160 × 97 (when folded) Weight: 2.0kg

[Example Systems: See page 41]

The All-Around Pro System Designed for Ease of Use and Mobility



For Unimpeded Mobility

Mobility and quick response are the big catchwords describing model VH-R. Basically identical with model VH, it additionally features a built-in viewfinder and a coupled rangefinder for quick-action shots. The rangefinder with a base of 70mm is coupled to all seven lenses available for the ER-1. Together with the revolving viewfinder, it makes for quick response in hand-held work. The VH-R versatility and mobility are the strong points of this precision technical camera.



Effortless Conversion to 4×5" Format

The Horseman VH and VH-R accept four different roll film holders (6×9 and 6×7 cm. for 120 and 220 film lengths) and a 6 x 9cm sheet film holder. By attaching the 4 x 5inch back, these compact cameras easily convert to large format 4 x 5" photography. A Horseman VH or VH-R is actually two cameras in one. Horseman also makes available a 6 x 12cm roll film holder for panoramic photography.





Revolving Viewfinder

The built-in optical viewfinder of model VH-R can easily be switched from horizontal to vertical format by simply rotating its frame. This is done by raising or lowering a lever. A time-saving mobility feature appreciated by all professionals who desire quick response to changing situations.















Rangefinder coupling cams perform the crucial task of linking the ER lens and the rangefinder on the camera body. These coupling cams are manufactured with the highest precision and are accurate to within 1/100mm.







Revolving Back for Greater Efficiency

Horizontal and vertical formats are chosen by simply rotating the camera back through 90 degrees, without having to move the camera at all. This allows quick changeovers and saves a considerable amount of time.



Horseman ER-1

Ever since its establishment in 1960, Horseman has created professional cameras and systems that represented real, tangible progress. The new ER-1 marks another milestone in the evolution of technical cameras: its Electro-Remote system provides full protection against errors, freeing the photographer for his creative, compositional tasks. For the first time in a 6 × 9cm technical camera, an electronic monitoring system prevents double exposures and warns the photographer to remove the dark slide. High technology at the service of the demanding professional that is what Horseman and the ER-1 are all about.

Specifications

Rangefinder: cam coupling double image coincidence type (Base=70mm, Ratio=1:1) Coupling Range=65, 75, 90, 105mm...1m — inf. 120, 150, 180mm...2m — inf. Cam=supplied with lens except for 180mm lens which

comes with camera body Focusing=by Rangefinder, Manual setting, Ground glass. Camera Movements: Camera Bed=Drop 15 degrees, Lens Standard=Rising 28mm (15mm when wide angle lens is used), Swing 15 degrees L/R, Tilt 10 degrees Forwards, 15 degrees Backwards, Lateral Shift 30mm L/R (15mm when wide angle lens is used) Camera Back= Swing 10 degrees L/R, Tilt 11 degrees Forward/Backward. Revolving Back System: (90 degrees Rotation) Track Extension: 72mm Bellows Extension: Front=249mm Rear=23mm Tripod Socket: Provided at bottom. Dimensions: 145 × 152 × 96 (when folded) Weight: 2.0kg

[Example Systems: See page 41]

The Performance Camera That Improves The Photographer's Performance, Too.



High Performance ER Monitoring System

ER (Electro-Remote) system provides full protection against missed shots by preventing double exposures and warning the user to pull out the dark slide. Slight pressure on the shutter button will activate one or more LED indicators on the ER Grip, keeping the user fully informed of the camera's operating status. For example, a green "OK" LED lights to show the camera is ready to shoot, a red "WF" LED indicates that the film must be advanced, while another red LED marked "DS" will light when the dark slide has not yet been removed.

OK

Ready to shoot.

OWF

OBW

Wind Film. Once you wind the film, this LED goes off and OK comes on.

Dark Slide. Pull out dark slide. Once the dark slide is removed, this LED goes off and OK comes on

and OK comes on.

Battery Warning. Replace with new





ER Grip [See page 27]

The heart of the ER-1's electronic monitoring system is located inside the ER Grip, and monitors lens and film holder status via an interface on the grip's mounting place. The dedicated ER Grip is very quickly attached to the ER-1 body, and is adjustable through four different holding angles.



Super ER Lenses [See page 18]

The new seven-lens line-up features HMC (Hard Multi Coating) and reliable Seiko #0 shutters (1"-1/500"), and all come mounted on special Horseman lensboards which have built-in micro-solenoids and gold-plated contacts for interfacing with the ER Monitoring system.



Universal Zoom Finder [See page 36]
Used on the ER-1, the Universal Zoom
Finder will give automatic parallax correction.
Via an optional adapter, the finder can be
mounted to any camera's flash shoe, but
parallax correction is then carried out manually with the distance ring. The 6 × 9cm
format mask can be replaced with an
optional one for the 4 × 5" format.



ER Roll Film Holders [See page 22]
The new film holders are available in both the 6×7 and 6×9cm formats, and couple to the ER Monitoring system for LED indications of whether or not the film has been advanced and whether or not the dark slide has been removed. Windows on the holders also show film advance status and an exposure counter. A dark slide storage slot is provided for added convenience, as is an erasable memo area.







30

300mm



Horseman has been engaged in the design and engineering of 4 × 5" field cameras since 1960 when our model 960 was introduced, a rugged yet high precision field camera for professional applications. This tradition is now continued in model 45HF, a photographic system that offers every possibility a photographer could hope for. For example, all kinds of swing and tilt operations are easily performed. Nevertheless, the 45HF is surprisingly lightweight

and compact. If a Prontor Professional Shutter (with adapter) or Copal Press Shutter is used, shutter opening and closing can be automatically coupled to the removal and insertion, respectively, of the sheet film holder — a time-saving convenience (That's uniquely Horseman). Hand held operation is easily possible by attaching a view finder. Formats covered include 6×7, 6×9 and 6×12cm as well as 4×5"

Specifications

Focusing: by ground glass, measurement scale (scale for 65, 90, 120mm on front side and 75, 105, 150mm

on rear side of the measurement scale) Camera Movements: Camera Bed = Drop 15 degrees, Lens Standard = Rising 28mm (15mm when wide angle lens is used), Swing 15 degrees L/R, Tilt 10 degrees Forwards, 15 degrees Backwards, Lateral Shift 30mm L/R (15mm when wide angle lens is used) Camera Back = Swing 10 degrees L/R, Tilt 11 degrees Forward/Backward. Track Extension: 72mm Bellows Extension: Front = 249mm Rear = 23mm Lens Panel: 80 × 80mm Tripod Sockets: Provided top, bottom, side and camera bed. Spirit Level: top and side Dimensions: 167 × 183 × 97 (when folded) Weight: 1.7kg

[Example Systems: See page 41]

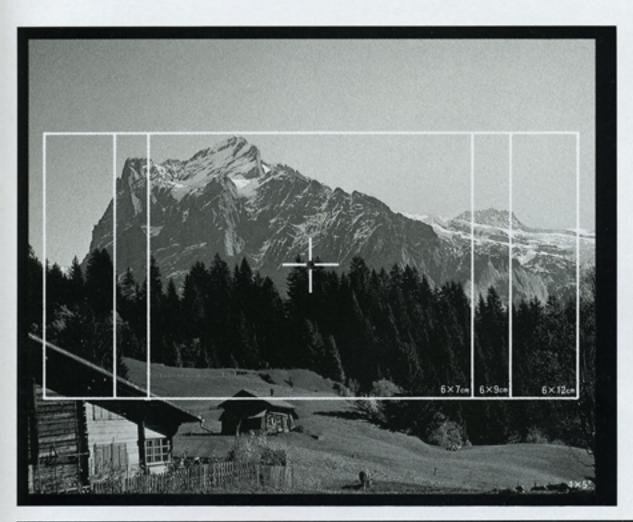
Horseman 45HF 21103

(Camera body only, includes 10mm grid pattern ground glass, fresnel lens and hand strap.)

Horseman 45HF

Superb Engineering in a 4×5" Technical Field Camera

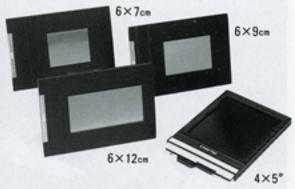




High Image Quality in a Variety of Formats

The appeal of the $4\times5''$ format is, of course, the superb sharpness, rich tonal gradations, color saturation, etc., obtainable even in extreme enlargements. In addition to this format, the 45HF accepts accessory Horseman backs for 6×7 , 6×9 , and even a panoramic 6×12 cm format, using convenient roll films. A film and format to match any photographic situation.

[See page 22-23]



- Nominal size/6 x 7cm = Actual size/56 x 68mm
- Nominal size/6 × 9cm = Actual size/56 × 82mm
- Nominal size/6 × 12cm = Actual size/56 × 112mm
- Nominal size/4 × 5 " = Actual size/97 × 120mm

World's Lightest 4 × 5" Camera Body

The 45HF body weighs a mere 1.7kg (approx. 3 lbs. 12 ozs.), making this the lightest metal body 4 × 5 field camera in the world. In size, it is comparable to the Horseman VH series, which means that it is eminently suitable not only for studio work but also for outdoor assignments.



The "HF" Stands for 'Handy Field'
There's not much that the Horseman 45HF
can't do — by attaching an Universal Zoom
Finder, it converts into a hand-held camera,
a field in which its light weight will be
especially appreciated.



A Technically Mature, Flexible System

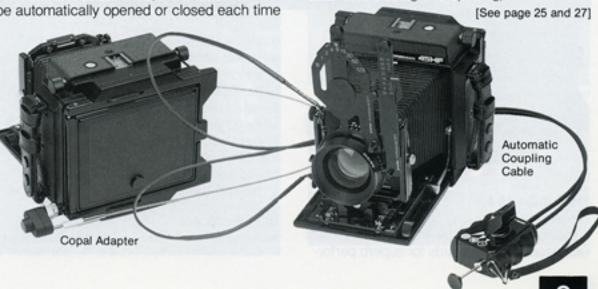
All manner of swing and tilt operations can be easily carried out for maximum flexibility. The whole range of accessories available for the Horseman 450 camera back will also fit the 45HF, making this the heart of a versatile system.

*Lenses mounted on Linhof panels can be used without changing lens boards with the help of a Linhof standard HL adapter.

[See page 26]

You Can't Forget to Close the Shutter. Horseman Does It for You.

The 45HF camera back is equipped with a receptacle for plugging in the cable from a Prontor Professional or Copal Press shutter. With this link established, the shutter will be automatically opened or closed each time a sheet film holder is removed or inserted. This practical Horseman system guards against inadvertent exposure of film and helps speed up studio work. (Prontor Shutter: automatic closing only; Copal Shutter: automatic closing and opening)





Horseman 45 FA
Presenting the exciting new Horseman 45FA, a precision photographic instrument that sets unprecedented standards for superb perfor-

technical camera class. Thoroughgoing attention to detail at both the design and production stages has resulted in a complete range of precise camera movements in a strong yet surprisingly lightweight package. This new camera has been designated the "FA," which stands for "Fine Art," to underscore its excellent suitability as a versatile tool for the fine-art photographer.

Specifications

NEW

Focusing: by ground glass, measurement scale (scale for 65, 90, 120mm on front side and 75, 105, 150mm

on rear side of the measurement scale) Camera
Movements: Camera Bed = Drop 15 degrees, Lens
Standard = Rising 28mm, Swing 15 degrees L/R, Tilt
10 degrees Forwards, 15 degrees Backwards, Lateral
Shift 30mm L/R (15mm when wide angle lens is used)
Camera Back = Swing 11 degrees L/R, Tilt 11 degrees
Forward/Backward. 4-way Vertical/Horizontal
Changeover Track Extension: 72mm Bellows
Extension: Front = 249mm Rear = 23mm Lens Panel:
80 × 80mm Tripod Sockets: Provided bottom, side and
camera bed. Spirit Level: on camera top Dimensions:
173 × 164 × 97 (when folded) Weight: 2.0kg

[Example Systems: See page 41]

Opening New Creative Possibilities Through the Finest Quality and Performance





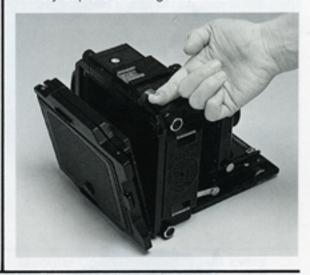
camera, the 45FA which is amazingly light a mere 2kg. That's about what a 35mm SLR body with two lenses (standard and telephoto) weighs. This lightweight, compact

> to survive even rugged field conditions without coming to harm. The photo shows everything you need for normal shooting, yet it all fits into a special attaché



New Design for Quick Vertical/Horizontal Setting

The 45FA incorporates a newly designed system for rapid changes between vertical and horizontal formats without moving the camera body. For total convenience, tripod sockets are provided in three locations (camera base, bed and side) and film holders can be inserted from all four directions. These new features facilitate a very wide variety of picture-taking situations.



An Easy-to-Carry Performer You Can Take Anywhere

The 45FA brings you large-format capabilities in a light, compact camera body suitable for hand-held shooting. The distance scale on the camera bed has settings for 65mm, 75mm 90mm, 105mm, 120mm and 150mm lenses, so adjustments when changing lenses are easily made. For accurate framing, simply attach the Universal Zoom Finder to the special shoe provided. For the 4 x 5" format, use lenses between 90 - 400mm focal length. When using the 6 x 9cm format, a lens with a focal length between 65

300mm should be used, but is advisable to use a 6×9 format mask (sold separately) in such cases for maximum framing accuracy.



A Full Range of Camera Movements

Advanced image management is made easy by the 45FA's complete range of movements, with strong, precisely aligned components and smoothly functioning controls. Even with wide-angle lenses, full rise is possible thanks to a swingable flap on the camera body.



Horseman's state-of-the-art design know-how and precision manufacturing skills have been perfectly integrated in the 45FA to provide a new degree of versatility for amateur and professional photographers alike.





with flap up, and lens raised





tionality, reliability and overall high quality, the Japanese Ministry of International Trade and Industry (MITI) has awarded the Horseman 450 its "G mark" for design excellence.

Horseman 450

The highest degree of precision obtainable only in a fully-fledged optical bench system is yours with the Horseman 450. This monorail camera offers a number of unique Horseman features intelligently designed, we believe, for maximum operational precision and ease. The L standards provide such a tremendous

degree of flexibility that practically every situation can be met with an optimized system. Swing and tilt operations are greatly simplified by the unique construction that retains the swing and tilt axes exactly in the film plane (for details, see next page). The Horseman 450. We're exaggerating only very slightly when we call it "a photographer's dream come true."

Specifications

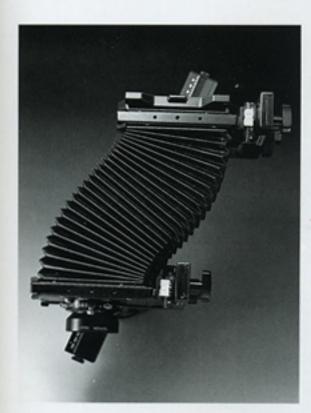
Type: Modular Optical Bench View Camera (Consists of 11 modules. See page 30/31.) Material: Die-cast and Machined aluminum alloy Finish: Black matte finish Focusing: Rack and Pinion Drive system on H-shaped monorail Lens Panel: 140mm sq. Camera Back: International standard, 2-way insert. Spirit level: Rotary type, detachable Dimensions: 325 x 245 x 420mm (when set

up), 325 x 90 x 465mm (when folded) Weight: 4.8kg (10.6lbs.) Camera Movements: Lateral Shift = Front and Rear Standards 30mm L/R. 60mm calibration with click stops at "0" optical axis and 30mm position each side. Rise/Fall = Front and Rear Standards 30mm Up/Down. 60mm calibration with click stops at "0" optical axis and 30mm up and down positions. Swing = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Titt = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Ground Glass: 10mm grid pattern. Fresnel lens included (detachable). Formating marks for 6 x 7, 6 x 9 and 6 x 12cm are also provided on the ground glass. Flange back (lensboard/film plane): 80 -390mm (with standard bellows), 60 - 300mm (with wide angle bellows)

[Example Systems: See page 42]

All the Latest Technology in a 4×5" Monorail Camera





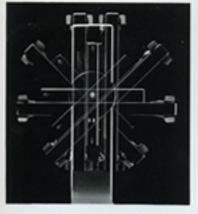
Swing & Tilt Axes Lie Exactly in the Film Plane

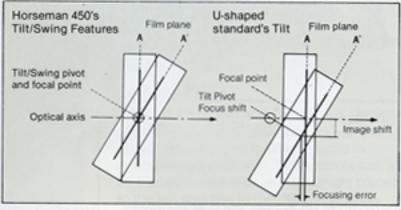
Perhaps the most unique Horseman feature in the 450 is found in the design of the "L" standards and their associated control mechanisms. They assure that even when tilt and swing operations are used, the tilt/swing axis always stays coincident with the film plane. When a swing or tilt movement needs to be applied, once the desired image plane is focused on the appropriate swing/tilt axis line, the inclination can be made in one movement without trial and error adjustment

between focus and inclination. Compared with conventional monorail cameras this Horseman feature greatly speeds the application of these important movements. The swing/tilt axes being on the actual film plane must be regarded as the camera's most significant technical feature for the user.

Horseman Technology down to the Tiniest Detail

The Horseman "L" standards, although supported from only one side, are extremely rigid and stable. Film holders can be easily removed and inserted regardless of tilt and swing. As explained above, the L-shaped design permits the swing/tilt axes to remain coincident with the film plane, eliminating trial and error swing/tilt movements and associated refocusing once the desired plane has been focused on one or other swing/tilt axis. The swing/tilt locks are equipped with powerful friction brakes that keep the standards firmly in place but need only a light force for locking and releasing. Both standards can swing through a full circle, so the amount of swing/tilt that can be applied is limited only by the bellows. Rise, fall and shift operations are carried out with smooth, precision rack & pinion drive operation. Their control and lock knobs are mounted coaxially for easy one-hand operation. All these major and minor details add up to an extremely high degree of flexibility and user friendliness. Trust Horseman to sculpt today's high technology into its most efficient, friendliest form.

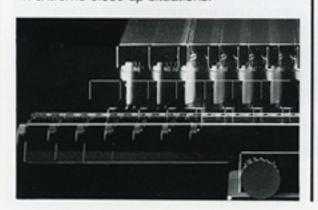




"H"-shaped Monorail with Rack & Pinion Drives

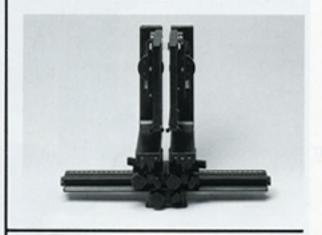
The monorail of this optical bench system is shaped like an H on its side, a shape known for its high rigidity and stability. Traveling on the upper and lower bars of this "H" are a total of three precision machined rack and pinion drives for moving the two camera standards (top) and the entire monorail (bottom) back and forth. The photographer can thus move the entire camera forward and backward over a certain range without having to move the tripod — a feature that will be especially welcome in close-up and macro work. Both movements can be per-

formed at the same time (with the other hand), greatly facilitating rapid sharp focusing in extreme close-up situations.



Accepts 65mm Super Wide Angle Lens

With a minimum flange distance of only 60mm between the front and rear standards, the Horseman 450 will accept wide angle lenses down to a 65mm super wide angle without the need for a recessed lens panel. Another "versatility plus" feature from Horseman engineering.



Easy-to-Carry Design — Only 90mm Thick [See page 29]

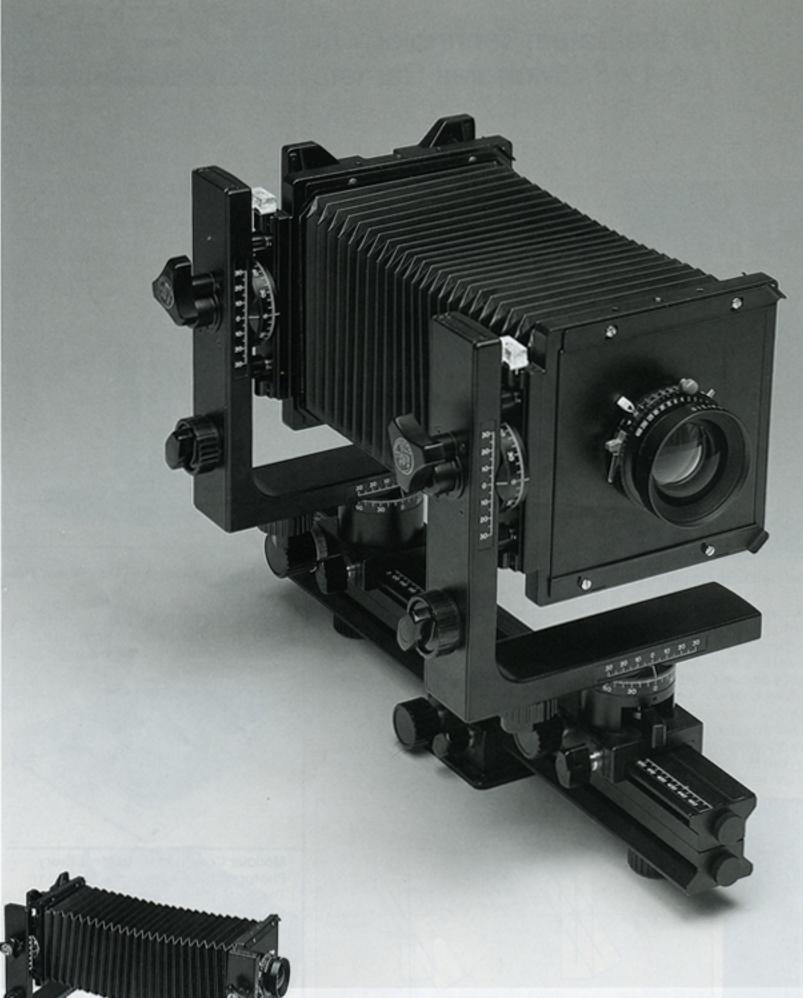
Just line up the L support parallel to the monorail, and the folded body is a mere 90mm thick. Then, you can store it in the optional attache case, making it very convenient to carry.



Modular Construction to Meet Every Photographic Situation [See pages 30-31]

The Horseman 450 system consists of a number of modules that can be assembled in many different ways to respond to varying needs. The front and rear "L" standards can be swung through a full circle and operated from the left or right. All control knobs can be brought to the same side for easy one-hand operation. In this way, all controls will remain easily accessible even when the camera is placed close to a wall due to restricted working space.





Horseman 450EMII

NEW

All of the original Horseman 450's excellent features such as the solidly built, stable construction and the "L" standards (which keep the swing and tilt axes exactly in the film plane) have been retained in the new 450EM (expandable monorail) II. In addition, you get as standard equipment the expandable (from 460mm to 700mm) monorail. Also standard is the depth of field scale which

allows you to set precise zones of sharpness without guesswork at the largest possible aperture. Designed to meet the most demanding professional standards, the 450EMII affords the creative photographer an unprecedented degree of freedom and flexibility.

Specifications

Type: Modular Optical Bench View Camera (Consists of 11 modules. See page 30/31.) Material: Die-cast and Machined aluminum alloy Finish: Black matte finish Focusing: Rack and Pinion Drive system on H-shaped monorail. Depth of Field Scale provided on Rear Standard. Lens Panel: 140mm sq. Camera Back: International standard, 2-way insert. Spirit level: Rotary type, detachable Dimensions: 347 × 245 × 480mm (when set up), 347 × 100 × 480mm (when folded) Weight: 5.7kg Camera Movements: Lateral

Shift = Front and Rear Standards 30mm L/R. 60mm calibration with click stops at "0" optical axis and 30mm position each side. Rise/Fall = Front and Rear Standards 30mm Up/Down. 60mm calibration with click stops at "0" optical axis and 30mm up and down positions. Swing = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Tilt = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Ground Glass: 10mm grid pattern. Fresnel lens included (detachable). Formating marks for 6 × 7, 6 × 9 and 6 × 12cm are also provided on the ground glass. Flange back (lensboard/film plane): 80 — 600mm (with standard bellows), 60 — 300mm (with wide angle bellows), 90 — 690mm (with extra long bellows)

[Example Systems: See page 42]

Horseman 450EMII 23104

New Standard Features Combined with Even Greater Functionality and Ease-of-Use



Swing/Tilt Axes Lie Precisely in the Film Plane for Quick, Accurate Camera Movements

With Horseman's L-shaped standards, the focal point and the tilt pivot of the film plane coincide exactly, with absolutely no deviation even when swing/tilt camera movements are applied. This is not the case with conventional U-shaped standards: there is always a certain shift in the composition or the focal point when camera movements are used. Since there is no discrepancy between the tilt pivot of the film plane and the focal point with L-shaped standards, it is not necessary to recompose or refocus your picture even if you need to change camera



Expandable Monorail is Standard Equipment.

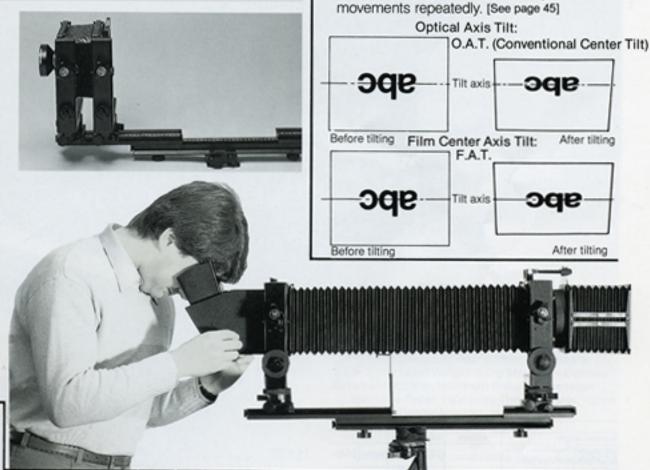
The monorail, the link between the lens standard and the film standard, is one of the basic components of a modular view camera. It must be neither too long nor too short, around 400mm being ideal for most applications. When using lenses with a long focal length and for close-ups and enlargements, however, a longer monorail is necessary. Normally, you would have to add extra supports or replace the monorail with a longer one in such cases. But now the Horseman 450EMII's expandable monorail does it for you.

Simply extend the upper rail forward or backward to expand the monorail from 460mm to a maximum total length of 700mm. No need for extra supports or switching monorails. Horseman's tough, dependable "H" rail configuration holds the standards steady as a rock with no lateral shifting.



Depth of Field Scale Also Standard

Now standard equipment on the 450EMII, the depth of field scale lets you set precise zones of sharpness at the largest aperture quickly and easily. Instead of stopping down the aperture in order to obtain the desired depth of field and confirming the result by looking at the groundglass, the depth of field scale calculates the correct f-stop for you while the aperture is wide open. The scale can be used with any focal length lens as long as it is set to the correct frame size. For 6 × 9cm framing, for example, simply set the depth of field scale knob to the 6 × 9cm position.



Modular Freedom and Functional Design

Like the 450, the 450EM II offers you the kind of flexibility that is only possible in a modular-type camera. The controls can all be placed to one side, or one upright placed to the left and one to the right. And since the 450EM II has an expandable monorail as standard equipment, there is no need to replace the monorail if you go up to 5×7 " or 8×10 " format. To convert to the

5×7" format, for example, the only new equipment you need is a 5×7" bellows, a 5×7" main frame and a 5×7" ground-glass back. For the 8×10" format, an 8×10" "L" standard in addition to a 8×10" bellows, 8×10" main frame and a 8×10" groundglass back are all that is required. So if you are thinking of going up in format at some future date, the 450EM II is the obvious choice. [See page 31]









A "Basic Model" Horseman View Camera Based on the Acclaimed 450



Horseman 450B

The L-arms, swing/tilt axis supports as well as the high precision, durability and toughness that make the 450 such an outstanding monorail camera are all retained in the 450B. In fact, the underlying concept behind the two cameras is identical. The main frame of the 450B is fixed, and rack and pinion drive for everything except focusing of the rear standard has been dispensed with. Naturally, the tilt/swing disk brake locks, the modular construction and design are the same as in the 450, making the 450B a lot of camera for the money and

an ideal starting view camera. This camera too has its swing/tilt axis on the film plane to simplify these camera movements.

Specifications

Type: Modular Optical Bench View Camera Material: Die-cast and Machined aluminum alloy Finish: Black matte finish Focusing: Rack and Pinion Drive system on H-shaped monorail (rear standard) Lens Panel: 140mm sq. Camera Back: International standard, 2-way insert. Dimensions: 325 × 245 × 410mm (when set up), 325 × 90 × 465mm (when folded) Weight: 4.5kg (10 lbs.) Camera Movements: Lateral Shift = Front and Rear Standards 30mm L/R. 60mm calibration with click stops at "0" optical axis and 30mm position each side.

Rise/Fall=Front and Rear Standards 30mm Up/Down. 60mm calibration with click stops at "0" optical axis and 30mm up and down positions. Swing = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Titt = 360 degrees (Limited only by bellows) Pivots on optical axis. 360 degrees calibration (2 degrees graduation) with click stops every 90 degrees. Ground Glass: 10mm grid pattern. Formating marks for 6 × 7, 6 × 9 and 6 × 12cm are also provided on the ground glass. Flange back (lensboard/film plane): 80 — 390mm (with standard bellows), 60 — 300mm (with wide angle bellows)

[Example Systems: See page 42]

Horseman Technology in Two Superbly Engineered Optical Bench **View Camera Systems**





Horseman 810/570

These 8 x 10" and 5 x 7" format view cameras both follow the same basic design philosophy as the popular 450. From the dual swing/tilt axes down to the expandable double-monorail, which is standard equipment on both, the emphasis is on flexibility. The 810's newly-developed front L-arm support makes it easier than ever to use. Both models were designed so as to easily be convertible to the 4×5", 5×7" or 8×10" formats should you so desire.

Horseman 810 Specifications

Material: die-cast and machined aluminum alloy Finish: black matte finish Camera Movements: Tilt/Swing = 360 degrees (limited only by bellows) Rise/Fall = Front/Rear 30mm each. Lateral Shift = Front 30mm L/R, Rear 30mm left 60mm right Camera Back: 2-way insert Weight: 8.5kg Maximum Bellows Extension: 640mm Minimum Bellows Extension: 75mm Lens Panel: 140mm sq. Ground Glass: 10mm grid pattern For other specifications, see page 14.

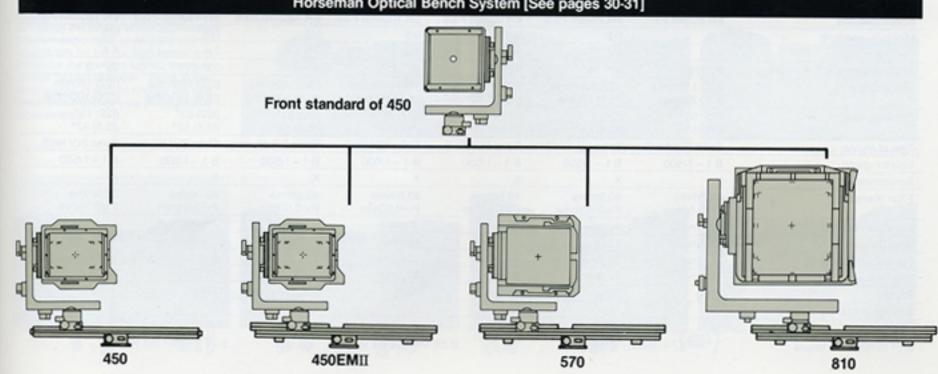
Horseman 810 23121

Horseman 570 Specifications

Material: die-cast and machined aluminum alloy Finish: black matte finish Camera Movements: Tilt/Swing=360 degrees (limited only by bellows) Rise/Fall = Front 30mm rise/fall, Rear 30mm rise Lateral Shift=Front 30mm L/R, Rear 60mm right Camera Back: 2-way insert Weight: 6.0kg Maximum Bellows Extension: 690mm Minimum Bellows Extension: 120mm Lens Panel: 140mm sq. Ground Glass: 10mm grid pattern. Fresnel lens included For other specifications, see page 14.

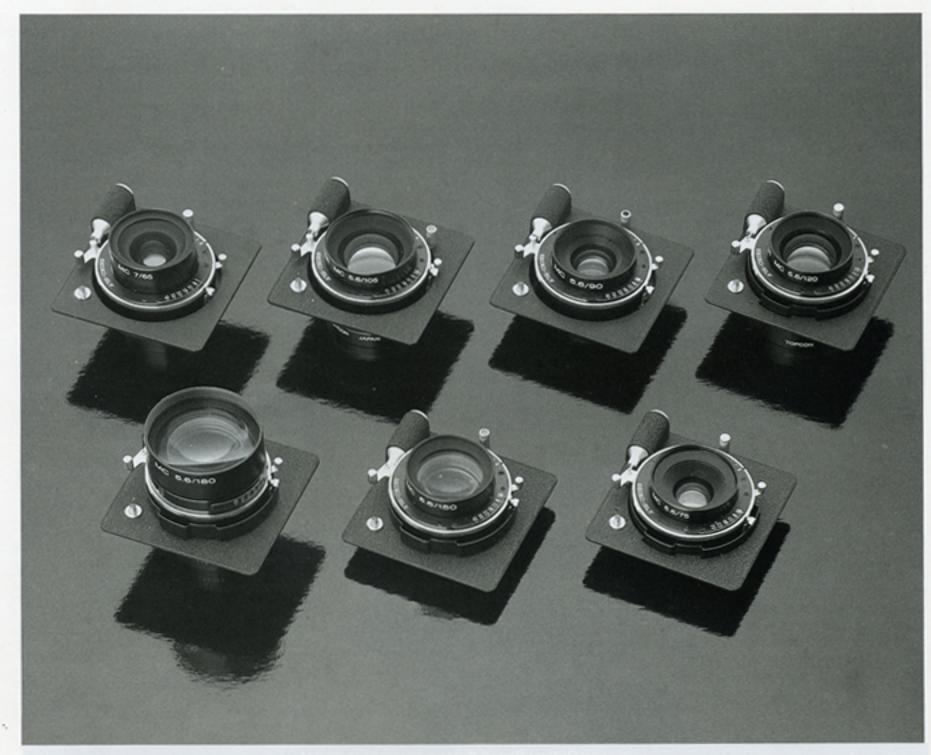
eHorseman 570 23111

Horseman Optical Bench System [See pages 30-31]



HORSEMAN SUPER ER LENSES

Hard Multi-Coating for Even Greater Sharpness with the Reliability and Quality You've Come to Expect from Horseman



Specifications	ER 65mm F7	ER 75mm F5.6	ER 90mm F5.6	ER 105mm F5.6	ER 120mm F5.6	ER 150mm F5.6	ER 180mm F5.6
Minimum aperture	145	132	145	145	145	145	145
Lens construction	4:6	4:6	4:6	4:6	4:6	3:4	4:4
Angle of view (6 x 7, 6 x 9cm)	69°-76°	62*-68*	53*-58*	46°-51°	41*-45*	33°-37°	28°-32°
Image Circle	(f22) 152mmø (f7) 120mmø	(f22) 120mmø (f5.6) 100mø	(f22) 150mmø (f5.6) 130mmø	(f22) 160mmø (f5.6) 140mmø	(122) 160mmø (15.6) 160mmø	(122) 160mmø (15.6) 140mmø	(f22) 140mm (f5.6) 100mmø
Covering power	(122) 99* (17) 85*	(122) 77° (15.6) 68°	(122) 80° (15.6) 72°	(122) 75° (15.6) 67°	(122) 64° (15.6) 64°	(122) 53° (15.6) 50°	(122) 43° (15.6) 32°
Type of shutter	Seiko SLV No.0	Seiko SLV No.0	Selko SLV No.0	Seiko SLV No.0	Seiko SLV No.0	Seiko SLV No.0	Selko SLV No.0
Shutter speed	B-1 ~ 1/500	B-1 ~ 1/500	B·1 ~ 1/500	B-1 ~ 1/500	B-1 ~ 1/500	B·1 ~ 1/500	B·1 ~ 1/500
Syncronization	X	X	X	X	X	X	X
Filter diameter	40.5mmø P=0.50mm	40.5mmø P=0.50mm	40.5mmø P=0.50mm	43.0mmø P=0.50mm	40.5mmø P=0.50mm	40.5mmø P=0.50mm	52.0mmø P=0.75mm
Front diameter	42mmø	42mmø	42mmø	45mmø	42mmø	42mmø	54mmø
Rear diameter	39.5mmø	31mmø	39.5mmø	48mmø	51mmø	31mmø	39.5mmø
Flange focal distance	70.6mm	73.7mm	88.6mm	104.2mm	121.3mm	144.4mm	124.9mm
Overall length	55.8mm	37.9mm	39.5mm	47.5mm	49.8mm	41.5mm	74.5mm
Weight	300g	230g	230g	260g	290g	250g	330g
Storage possibility in camera body	0	0	0	0	0	0	X
Lens construction	(co)-	-000	(M)))-	(M)	(R)(M)-	ARIM-	(A) N

Proverbial Horseman Quality in a Wide Range of Professional Lenses

HORSEMAN SUPER ER LENSES

Horseman Super ER Lenses

These seven high-quality lenses all come attached to special lens panels and are desinged to be used with the lightweight and compact Horseman series. Our exclusive HMC (Hard Multi-Coating) eliminates flare and is the secret behind these lenses' excellent resolution and contrast. VH-R and ER-1 are linked by a cam to the rangefinder. The compact (80mm square) lens panels are equipped with a solenoid for linkage to the ER system.

Super ER 65mm F7 01221

A versatile lens for the 6×7 and 6×9 formats with a wide field of view. Especially suitable for landscape photography and architectural work, etc.,

requiring swing/tilt movements. Usable for 4×5 inch when no swing/tilt is needed.

Super ER 90mm F5.6..... 01223

Superior optical characteristics for accurate image formation. A bestselling lens especially popular for group photographs, etc. But equally

suitable for landscapes, close-up and repro work and a host of other applications.

Super ER 150mm F5.6..... 01227

Its focal length makes it a standard lens for 4×5", but with excellent resolving power traded in for a relatively small image circle.

Also eminently suitable for 6 x 9cm as a portrait lens and for commercial photography of relatively small objects.

Super ER 105mm F5.6..... 01225

A hi-tech lens design with superior resolving power, contrast and coverage. For all highly demanding applications requiring optimum image

quality. Supports 6 x 9cm and 4 x 5" formats.

Super ER 180mm F5.6..... 01228

A telescopic lens for the 6×9cm format, with excellent image clarity but the slight softness typical of long focus lenses. Close-up portraits, landscape details, etc. are

natural applications of this fine lens.

● Super ER 75mm F5.6...... 01222

For group shots, etc. in restricted spaces, but also a very popular lens for wide-angle outdoor work in landscape photography, etc. Only limited

swing/tilt, but excellent corner to corner coverage.

Super ER 120mm F5.6..... 01226

Excellent 4 x 5" coverage at full aperture. Large 160mm diameter image circle, high resolving power. Produces a very natural perspective on

6 x 9cm, but also popular as a medium wide-angle 4 x 5" lens for group photography,





Focal Distance and Field Angle

Normal human eyesight can detect objects within a range of approximately 50°. Since the lenses which approximate this field angle most closely are 105mm focal length for the 6 x 9cm format and 90mm for the 6 x 7cm format, they are termed "standard lenses." Refer to the photographs at right to choose the lens which best matches your photographic requirements.



NEW

Super ER 65mm F7



Super ER 75mm F5.6



Super ER 90mm F5.6



Super ER 105mm F5.6



Super ER 120mm F5.6



Super ER 150mm F5.6



Super ER 180mm F5.6

The Decisive Factor in Large Format Photography



Specifications	LF 90mm F5.6	LF 150mm F5.6	LF 180 mm F5.6	LF 210mm F5.6	LF 300mm F5.6
Minimum aperture	164	f64	164	164	f64
Lens construction	4:7	4:6	4:6	4:6	4:6
Image circle	(f22) 236mmø (f5.6) 154mmø	(122) 210mmø (15.6) 174mmø	(122) 230mmø (15.6) 203mmø	(122) 295mmø (15.6) 243mmø	(122) 420mmø (15.6) 346mmø
Covering power	(f22) 105° (f5.6) 81°	(122) 70° (15.6) 60°	(122) 66° (15.6) 60°	(f22) 70° (f5.6) 60°	(122) 70° (15.6) 60°
Type of shutter	Copal No.0	Copal No.0	Copal No.0	Copal No.1	Copal No.3
Shutter speed	T-B-1 ~ 1/500	T-B-1 ~ 1/500	T-B-1 ~ 1/500	T-B-1 ~ 1/400	T-B-1~1/125
Synchronization	X	X	X	X	X
Filter diameter	77mmø P=0.75mm	58mmø P=0.75mm	58mmø P=0.75mm	67mmø P=0.75mm	95mmø P=1.00mm
Front diameter	80mmø	60mmø	60mmø	70mmø	100mmø
Rear diameter	70mmø	51mmø	51mmø	60mmø	80mmø
Flange focal distance	101.3mm	143.2mm	167.7mm	203.6mm	292.3mm
Overall length	84mm	61mm	62.5mm	78mm	84mm
Weight	600g	340g	340g	510g	1,300g

Lens construction













Universal Zoom Finder 45...... 21502

This zoom finder can be used, either attached to a camera for hand-held shooting or, separately. By using the zoom finder to compose the subject and the zooming knob to determine the focal lengths of the lenses you wish to use, you can save yourself from having to move the camera about and change lenses unnecessarily, greatly speeding things up. Suitable for use with lenses with a focal length of 90 - 400mm for the 4 x 5" format. [See page 36.]

LF Topcor Lenses Meet and Exceed the Toughest Standards for Large-Format Lenses.

LF TOPCOR LENSES

LF Topcor Lenses

Topcor LF series includes wide-angle type lenses for a broad spectrum of applications such as landscape and portrait work as well as product photography. To obtain optimum fidelity in terms of sharpness and color balance, all Topcor LF lenses are treated with Horseman's exclusive HMC-(Hard Multi-Coating) process. This prevents flare and results in high contrast and excellent image clarity.

LF Topcor 180mm F5.6 21225



The first wide-angle type 180mm lens equipped with a #0 shutter, therefore compact and light-weight. Also permits long-focus framing on the 6 × 9cm

الله الله الله

Topcor LF Lenses with Prontor Shutter

The Topcor lenses listed below are equipped with Prontor Professional shutters. For details see p.17.

OLF Topcor 150mm F5.6	21254
w/Prontor Professional #01	
OLF Topcor 180mm F5.6	21255
w/Prontor Professional #01	
OLF Topcor 210mm F5.6	21256
w/Prontor Professional #1	
9LF Topcor 300mm F5.6	21258
w/Prontor Professional #3	

LF Topcor 90mm F5.6 21222



LF Topcor 150mm F5.6 21224

Its focal length of 150mm being

diagonal of the 4 x 5" format,

perspective and serves as a

In extreme close-ups up to high

approximately equal to the

this lens gives a natural

versatile, all-around tool.

magnifications, bellows extension remains

image with excellent corner coverage.

reasonable. Characterized by a bright, clear

equally suited to close-ups, repro work, and the like. Rear protection ring removable for use with Horseman VH, VH-R, ER-1, 45HF and 45FA

• LF Topcor 210mm F5.6 21226



A jack-of-all-trades among lenses, equally suited to commercial product photography as to portraits, landscapes, etc. Wide image circle and image coverage up to 8 × 10" in close-ups are welcome

features. A lens you will find yourself using very frequently.

● LF Topcor 300mm F5.6 21228



A high performance lens especially designed for the 8×10" format, but also popular as a long focus lens for 5×7" and 4×5". Sharpness and clarity together with good color fidelity and excellent contouring qualify it for

portrait work and the like where the special "feel" of a long focal length is desirable.



2x Teleconverter 150-300

This is the first teleconverter for large-format lenses, enabling you to convert a 150mm focal distance lens to 300mm. The seven element, five group construction uses special low-dispersion glass so that it won't effect the sharpness, color balance or image circle of the original lens. The exposure factor is 4× or two EV values. Mounting and unmounting is easily achieved. Simply connect the adapter to the lens and then screw on the teleconverter. Its compact size makes it perfect for on-location shooting.

●2× LF Teleconverter 150-300 25231

Focal Length and Field of View

The 150mm focal length lens is
"standard" for the 4 x 5" format.
It has a field of view of 54", roughly
equivalent to that of the human
eye. If we convert the field angles
for 4x5" format LF Topcor Lenses
into the corresponding field angles
for the 35mm format, 90mm
corresponds to 25mm; 150mm to
43mm; 180mm to 52mm; 210mm to
60mm; and 300mm to 85mm.







LF 150mm F5.6



LF 180mm F5.6



LF 210mm F5.6



LF 300mm F5.6



150mm Lens



150mm Lens + 2x LF Teleconverter 150-300

A Multitude of Film Holders To Accommodate Every Creative Need



Roll Film Holders

Horseman provides four types of roll film holders: in 6×7 and 6×9cm formats, for 120 and 220 roll film, respectively. Every Horseman roll film holder features smooth, positive film transport, maintains plane film surface and eliminates interior light reflections. Horseman film holders are as easy to use as they are professionally designed and built to the highest quality standards.

● Roll Film Holder 1	22401
● Roll Film Holder 2	22402
● Roll Film Holder 3	22403
Roll Film Holder 4 S Zom 20 and a 220 soll film)	22404

ER Roll Film Holders IIIII IIII

A member of the ER accessory series, ER roll film holders are equipped with new dark slide pockets and memo boards. Naturally, they are completely compatible with the VH and VH-R cameras.

eER Roll Film Holder 1	 22411
●ER Roll Film Holder 2	22412

Roll Film Holders

Horseman roll film holders for 4×5" cameras feature partial-frame advance possibilities and automatic counter resetting. Choose from among five types: 6×7 and 6×9cm for 120 and 220 film, respectively, and a 6×12 model for easy panoramic photography with your 4×5" camera. Designed to fit all 4×5" cameras that follow the accepted international standard.

Roll Film Holder 451	22451
(6 x 9cm 8exp. on #120 roll film) ● Roll Film Holder 452	22452
(6 x 7cm 10exp. on #120 roll film) • Roll Film Holder 453	22453
(6 x 9cm 16exp. on # 220 roll film) • Roll Film Holder 454	
(6 x 7cm 20exp. on # 220 roll film) • Roll Film Holder 612	
(6 x 12cm 6exp. on #120 roll film)	22401



needed. Double exposure prevention.

Not usable with ER-1.

6×9

6×9

Polaroid Land Film Hodler 545 ... 29621 Accepts a single sheet of 4 x 5 film, series 50.

4X5

4888

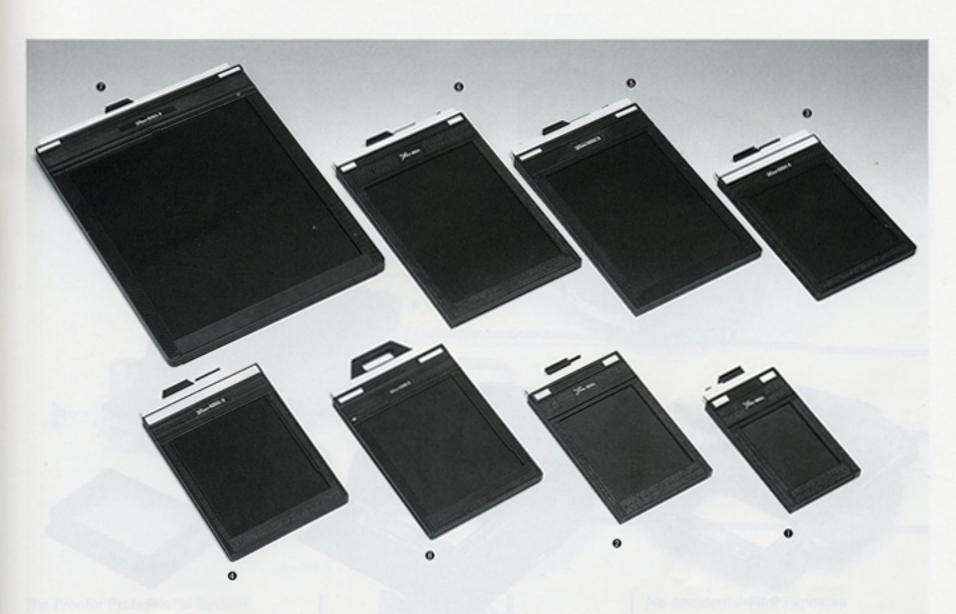
Polaroid Land Film Holder 405 ... 29623 For economical 8-pack of 8.3 x 10.8cm film. Accepts films of the 600 and 100 series.

4×5

"Polaroid" is a registered trademark of Polaroid Corp., Cambridge, Mass., U.S.A.

U.S.-Made Lisco Film Holders — Tops for Flatness and Toughness

LISCO SHEET FILM HOLDERS



"Lisco" is a registered trademark of Lisco Products Co., California, U.S.A.



The newly-developed Lisco Mark II is a 4 x 5" sheet film holder designed to meet the needs of professional photographers. The "dark slide auto-lock" feature, which ensures that dark slides are not removed accidentally, and the "numbering mechanism," which lets you imprint numbers onto the film, are just two of the Mark II's new features.

Dark Slide Auto-Lock Mechanism

Dark slides are automatically locked in place when you insert them, so there is no danger of unexpected catastrophes caused by dark slides being removed accidentally. The lock is released when the film holder is attached to the camera. When inserting film, you can remove the dark slides by pressing the lock button.



Numbering Mechanism

Film sheets can be numbered on the edge from 00 — 99. The two numbering wheels help to identify shots or bracketed exposures after development.



Other Convenient Features

The "wide-open flap" opens a full 270° for film loading. The dark slides are tough yet flexible, thanks to a pliable new material which is also highly resistant to cracking.



Lisco Sheet Film Holders

Acclaimed by professional photographers the world over, American-made Lisco sheet film holders exhibit superior flatness and high-quality tough construction. The newlydesigned 4 × 5" Lisco Mark II is aimed at being nothing less than the ideal professional-use sheet film holder.

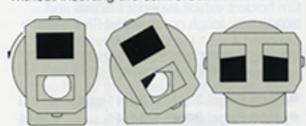
 Lisco Regal 2-1/4" × 3-1/4" EXEL 	28423
9 Lisco Regal 3-1/4" × 4-1/4"	28444
e Lisco Regal II 9 × 12cm	28446
OLisco Regal II 4×5" EXE	28445
e Lisco Regal 4-3/4" × 6-1/2" ■	28456
OLisco Regal 5×7" ESSE	
e Lisco Regal II 8×10" Esse	
O Lisco Mark II 4×5" EDDS	28447

Ingenuity Helps Speed Up Your Work: Horseman Rotary Backs



Rotary Back

Groundglass screen and film holder are mounted side by side on a circular, rotating cameraback. Compose and focus on the screen, then simply rotate the back through 180 degrees in a single motion. There is no need to constantly exchange film holders and focusing screens, and work efficiency is greatly improved. The built-in exposure prevention permits the back to be rotated without inserting the dark slide.



How to Use the Rotary Back

Attach the rotary back to the camera back.

After composing and focusing the picture, close the shutter, push the release lever and rotate the film holder. As the exposure protection moves as shown in the drawings, there is no need to insert the dark slide.

- Rotary Back Type 1 22501
 (for VH, VH-R, ER1 and 6 × 9 reducing back)
- Rotary Back Type 2 2502

 (supplied with ground glass back 22574.
 for any international standard 4×5" camera)

 Fite all international standard 4×5" cameras

Fits all international standard 4×5 " cameras. For speedy 6×7 and 6×9 cm photography.

Special rotary back for Horseman 450, 450B and 450EMII. In both cases fits directly into rear camera frame, minimizes thickness loss due Rotary Back.

Special Ground Glass Back for Polaroid.......22573

Screen is located further back for proper focusing with Polaroid film. "P" Type Rotary Back

The "P" Type Rotary
Back combines
a Horseman Rotary
Back with a Prontor
Professional Adapter. This greatly
streamlines large
format work because
changeover from
focusing to shooting
(on roll film) is perfor-



med by a single rotation of the Rotary Back. After you have focused, simply turn the "P" back 180 degrees; the shutter will be closed automatically, safeguarding your film against accidental exposure.

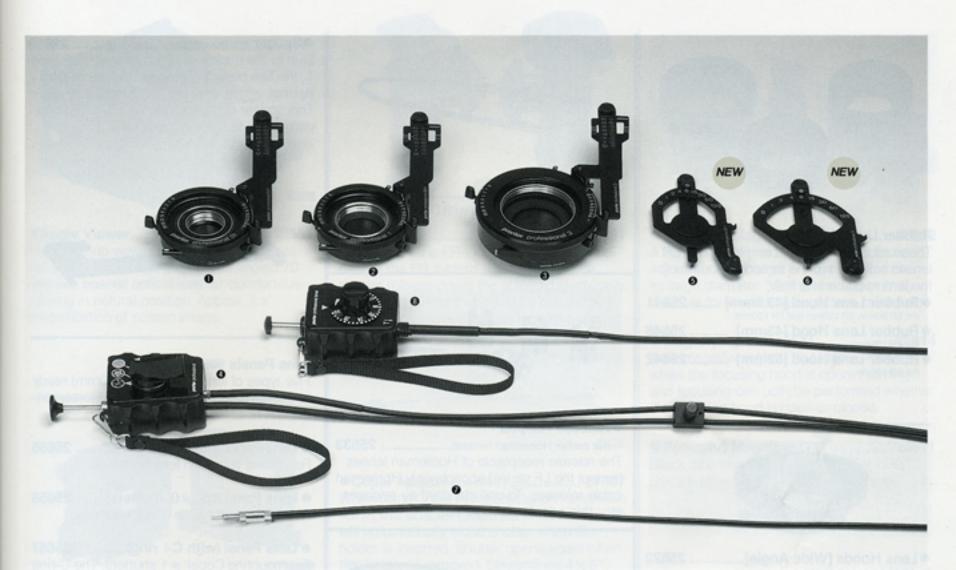
- Rotary Back Type P1 25506

 (for VH, VHR, ER-1 and 6 x 9 Reducing back)
- Rotary Back Type P2 2507
 (supplied with ground glass back 22574
 for international standard 4 × 5* cameras)

A Giant Step Towards More Efficient Large Format Work: Prontor Professional Shutters

prontor professional System

(Made in West Germany)



The Prontor Professional System

Prontor Professional shutters, developed and made by the Carl Zeiss Group of Germany, greatly simplify the photographer's work with their self-cocking feature and remote control capability. Close-ups and multiple exposures of moving objects as well as trick photography are natural domains for this shutter system.

No Manual Cocking Required

As Prontor Professional shutters are self-cocking, a lot of bothersome work is eliminated. The release stroke provides the power for the next cocking. Self-cocking also eliminates slight movements of the camera due to manual manipulation.

All Shutter and Aperture Operations Remote Controlled

Remote control via two cables provides the following single-action operations: shutter opening & closing, full aperture, stop-down to preselected aperture, shutter release.



Shutter closed, aperture stopped down to preselected stop.



Shutter open, aperture stopped down to preselected stop.



Shutter open, aperture fully open.



- Prontor Professional Shutter 01.. 28511
 (#0 shutter with aperture setting device)
- Prontor Professional Shutter 1 ... 28512
 (#1 shutter with another setting decice)
- Prontor Professional Shutter 3... 28513 (#3 shutter with aperture setting device)
- Remote Control Unit...... 28515
- ®Time Setting Device 01/1 28521
- @Time Setting Device 3 28522

No Accidental Film Exposure

By connecting the camera back of the 45HF or "P" type Rotary Back to the Prontor remote control unit via a cable, the shutter will be automatically closed when a film holder is inserted or Rotary Back is rotated. There is no need to manually close the shutter, and accidental film exposure is prevented.



Automatic Coupling Cable 28516

9 Prontor Timer...... 28517

(shutter speed: 2 — 32 seconds)
With shutter set at "B", exposures up to 32 seconds can be timed precisely. Compatible with a wide range of shutters in addition to Pronter models.

Tailor Your System To Your Exact Needs. The Wide Range of Horseman Accessories.



Rubber Lens Hoods

These rubber lens hoods for Horseman ER lenses screw on to the threaded portion of the lens in place of a filter.

- Rubber Lens Hood [40.5mm] 25641
 (for ER 90mm, ER 120mm and ER 150mm)
- e Rubber Lens Hood [43mm] 25646
- © Rubber Lens Hood [52mm] 25642



● Lens Hoods [Wide Angle].............. 25622

This metal wide angle lens hood fits Horseman's 65mm and 75mm Super ER lenses.



Filters

Horseman filters are made of the finest optical crown glass, have multiple coating and are scratch protected by an ultra-hard coating layer. Designed to give optimum color balance and fidelity.





Release Adapter



Horseman Cable Release............ 25532
 This cable release fits earlier Horseman lenses.

VH VH-R ER-1



Lens Panels Roma

Five types of lens panels (80 × 80mm) ready to accept different lenses for the Horseman VH, VH-R, ER-1, 45HF and 45FA.

- Lens Panel (for #0 shutters)...... 25656
 Ready to accept all #0 size shutters.
- e Lens Panel (with C-1 ring)............. 25657
 For mounting Copal #1 shutters. The C-ring (spacer) moves the shutter a little forward from the panel for smoother operation.
- Telephoto Lens Panel 25658 For 360 and 400mm telephoto lenses.





Angle Viewer...... 22551

Right-side-up viewer for outdoor use. Shuts out stray light. Rotating eyepiece angled 70 degrees against optical axis for comfortable viewing in natural position. Approx. 2 x magnification of screen image.



●ER Grip 24501

This grip for the ER-1 is an essential component of the ER system. The micro-switch shutter release drives the solenoid electrically, eliminating jarring that could be caused by a mechanical release. Uses four AA batteries.



Precision Magnifier [4X] 25612

A superbly designed magnifier with focus adjustment and edge to edge flat field over its large diameter 55mmø field. Extremely valuable for examining negatives, prints, etc.

A 6x magnifying glass that alllows focusing when the focusing hood is open. Framing and focusing can both be performed whether the focusing hood is open or closed.

● Focusing Magnifier [7X] 25611 Black tube shuts out stray light. For clear, precise observation of focusing screen.



●4×5" Universal Ground Glass

Upgrades these Horseman 6 x 9cm cameras

to 4 x 5" format. Attaches as easily as a roll film holder. Also permits panoramic 6 x 12cm shots. An economical way into the exciting world of large format photography.



When using Copal Press shutter on Horseman

45HF, this adapter (attached to camera back) will automatically close shutter when film holder is inserted. Shutter opens again when film holder is removed. Streamlines 4 x 5" photography considerably.



Flashgun Clamps | State | State | State |

For attaching your strobelight or flashgun (grip type) to your Horseman camera.

 Flashgun Clamps [38mm] 25661 e Flashgun Clamps [45mm] 25662



2-Way Level...... 25616

Although only about half the size of a pack of cigarettes, this fluorescent bubble level shows if the film plane and subject are horizontal or perpendicular.



For quick, easy, yet secure mounting of camera on the tripod. Simply attach shoe to tripod, adapter to camera, then slide shoe into adapter until it locks in place. The shoe has spring-loaded stopper pins at both ends to secure the camera even when it is not yet properly locked in place. The two guide pins on the adapter determine the positioning of Horseman field cameras.



num, 39 x 32 x 22cm, 3.9kg)



Photo Angle Finder 25615

Measures relative angle between film plane and object, or angle against perpendicular of object alone. Useful for accurate swing/tilt operations. Oil-dampered indicator needle moves smoothly and without vibrations.

A New Level of Control Flexibility to Enhance Your Creativity





Universal Zoom Finder (See page 37) This wide-range zoom finder is designed for use with 65 — 300mm focal length lenses in the 6 x 9cm format and 90 400mm lenses in the 4 x 5" format. It can be attached directly to the ER-1 and 45FA, and an adapter is provided for attachments to other cameras. A parallax correction ring is provided, but, when mounted on the ER-1, parallax correction is accomplished automatically through a linkage with the rangefinder. In addition to letting you compose frames accurately in hand-held applications for whatever lens focal length you wish to use, there is also a way to determine the most appropriate lens by framing, using the zoom control. The finder can be mounted on a zoom finder grip (optional) to hold the zoom finder steady when not mounted on a camera. Both 6×9cm format and 4×5" format models are available.

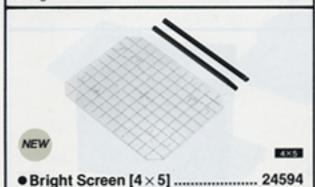
OUniversal Zoom Finder 69 (280g)	21501
 Universal Zoom Finder 45 (280g) 	21502
●Format Mask 6×9	21701
9 Format Mask 4×5	21702
Zoom Finder Grip	21713

*For more detail, see page 37.



For easier focusing outdoors. Folds together for easy carrying and storage.





This screen increases the brightness of the groundglass surface by approximately one aperture setting over conventional groundglass. Especially effective with lenses having a small f-stop.

Exposure Meters

A thru-the-lens exposure meters for average, full-area measuring on the film plane. Read-out of film surface value with immediate computation of shutter speed or aperture setting. Fits cameras like a sheet film holder. No need to calculate bellows factor for close-ups, or to consider any other effect on the exposure caused by the camera movements or the filter usage.

Exposure Meter 45 (w/5. 4V Battery).... 04311
 Full-area measuring on the entire 4 × 5" format. The meter face can be rotated with click stops at 45° to be readable from any direction.

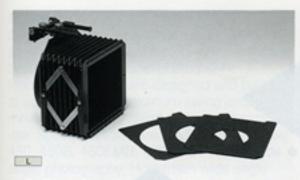




Large Type Cable Release 29542
 Cable release for large format lenses.
 With easy-to-grip stoppers. Kink-resistant heavy-duty construction, light weight.



• Quick Shoe (supplied with adapter)...... 27564 A heavy-duty quick-mounting tripod shoe. The 450 can be slipped into the shoe in one smooth simple action and is initially held there by a spring loaded catch. This can be done on either side. For attaching other types of cameras, an adapter is required.



Bellows Type Lens Hood 27544

Fixed-length lens shades can be inconvenient for certain lens/film size combinations. The bellows type lens hood permits accurate adjustment to the picture angle, shutting out all stray light. Hood tilts up for easy access to aperture and shutter controls. Filter holders for standard 3, 4 or 5-inch gelatin filters slide into front and/or back of bellows hood.



 Support Plate (for 1000mm monorail).. 27562 For securely mounting the 450 or 810 with 1000mm monorail, use this double support plate together with two tripod mounts.



 Tripod Mount 23701 With small and large tripod sockets.



Reduces from 8×10" to 4× 5", needs 23707 and 23708 for 4 x 5" photography. 9 570 Reducing Back 23586

Reduces from 5×7 " to 4×5 ", needs 23707 and 23708 for 4×5 " photography.

⊗6×9 Reducing Revolving Back

(for 450, 450B and 450EM) 27531 Converts Horseman 450 to 6 x 9cm format. Revolves to horizontal or vertical format while camera stays fixed. Economical, because Horseman roll film holders and other accessories can be used as they are.

450B 450 450EM11



Depth of Field Scale

Using an extension knob graduated to show depth of field, this handy device is essential for scientifically setting the correct aperture for a desired depth of field. You can also use it to double-check the depth of field for the current aperture setting quickly and easily. Available for L-series 4 x 5" and 8 x 10" formats.

 Depth of Field Scale Knob [4×5"] 23811

 Depth of Field Scale Knob [8×10"] 23812

"Rise" is one of the special operations possible with the 450. By attaching these hard rubber rings, the "rise" knobs of the camera require less force and become easier to operate.



Fine Focus Adapter 23566

Lets you mount a 35mm camera on a Horseman monorail, for precision-adjustment of distances in close-up and repro work. Camera rides on monorail rack & pinion drive. Also useful in slide duplication, etc.



 Bellows Connecting Frame 23561 Needed to join two bellows together, for example in high magnification photography. Also serves as a fine focus adapter when the upper frame is removed.

Adapter for Polaroid MP-4...... 29568

This adapter is necessary when attaching Horseman L-series components to the Polaroid MP-4 copy stand. The adapter attaches to the monorail for mounting on the MP-4 stand.





Compact, lightweight leatherette case holds disassembled 450, fits under airplane seat.

 Metal Attaché Case 27574 (aluminum, for 450, 450 and 450EMII; dim. 54 x 44 x 17cm, weight 3,800g)

weight 6.800g)

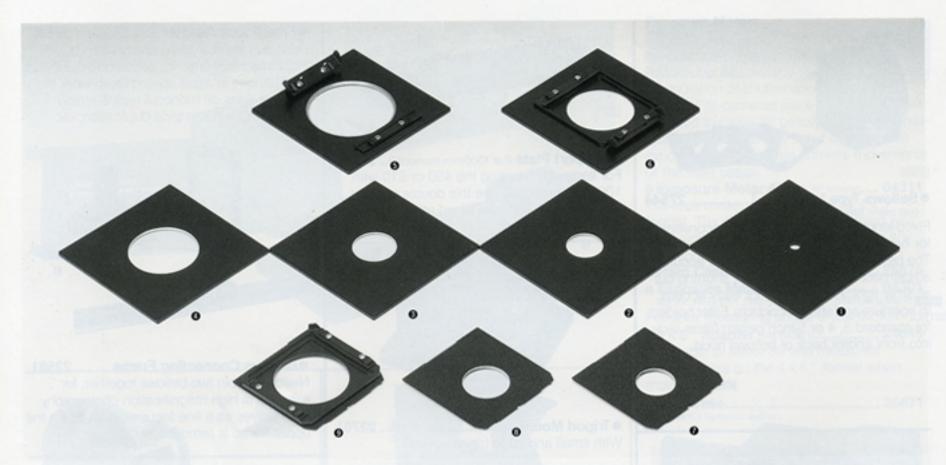
Sturdy aluminum case holds and protects assembled camera.



 Bellows Support (for expandable monorail)

This support attaches easily to the EM (Expandable Monorail) to prevent extra-long bellows from sagging in the middle. The height is adjustable, so it can be used even with camera movements.

Modular Construction, The Key to Unrivaled System Flexibility.



- e14cm Lens Panel (not cut out) Million. 23511 140 × 140mm panels without lens opening.

Permits lenses mounted on Linhof standard panels to be used without remounting.

Permits lenses mounted on 80 × 80mm
Horseman panels to be used without remounting.

- #1 shutter) 27622
- Lens Panel (for Linhof Technika accepting Horseman 80 x 80mm lens panel.)............ 27625

Monorails 🗔

Copal and Compur shutters.

Hoseman provides "H-on-its-side" monorails in six different lengths, finely scaled in mm and containing tough nylon gearing racks on top and bottom.

- Needed for close-up and macro work.

 Permits extreme close-ups with long, standard and short focus lenses when combined with the intermediate bellows standard, etc.

 23553



The upper H bar slides back and forth, giving rail lengths from 460 to 700mm. Expandable Monorail Type [S] 23554
 (Available only to order)

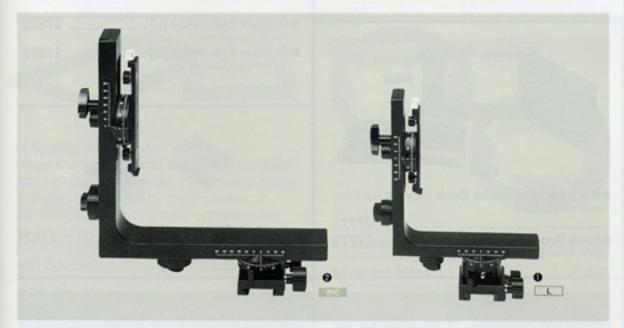
Shorter type of Expandable monorall giving lengths from 300 to 450mm.

Bellows

Good flexibility, sturdy material and long service life are critical factors when selecting bellows for professional photography. Horseman bellows are designed and built to accommodate maximum swing and tilt movements and to stand up to years of hard use. Special bellows are available for models 450, 450B, 450EMII, 570 and 810; for wide angle photography, Horseman wide angle bellows are highly recommended even with standard lenses when extreme movements are to be utilized.

04×5"	Standard Bellows	23501
94×5"	Wide Angle Bellows	23502
	Extra Long Bellows	
05×7"	Standard Bellows	23557
95×7"	Wide Angle Bellows	23558
	" Standard Bellows	
	" Wide Angle Bellows	





L-Supports

Horseman technology has succeeded in creating these revolutionary arms that greatly simplify the photographer's work. As the swing/tilt axes remain coincident with the film plane trial and error, refocusing is eliminated when using swing/tilt movements. Other time and effort saving features include the easy-to-operate swing/tilt lock with its powerful friction brakes; the clearly visible white-on-black scales showing the amount of deviation from normal position; and a multitude of other details that put the Horseman arms in a class by themselves in terms of stability and ease of use.

●4×5" L-support (front portion)	23703
04×5" L-support (rear portion)	23704
98×10" L-support	23724

Rear Frames

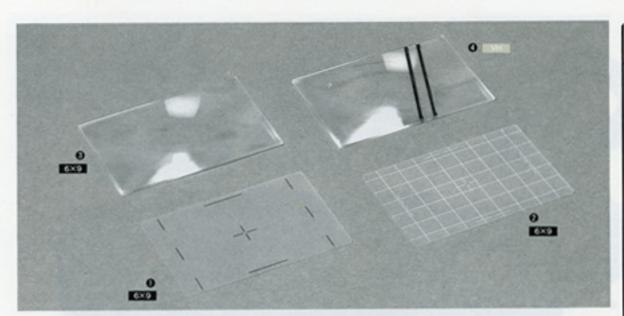
Sturdy, rigid aluminum diecast frames for heavy duty work. Can be inserted horizontally or vertically. As the front and rear main frames in the Horseman modular system are exactly identical, bellows or bellows joints can be attached to either side for quick, effortless camera assembly.

94×5" Main Frame	23705
94×5" Connecting Frame	23707
⊕4×5" Ground Glass Spring Back	
	23708
05×7" Main Frame	23715
95×7" Ground Glass Back	23717
Ø8×10" Main Frame	23725
e8 × 10" Ground Glass Back	23727



SPARE PARTS

No Well-Stocked Studio Would Be Complete Without These Useful Accessories.



06×9	Ground Glass		27832
96×9	Grid Pattern G	round Glass	27833

06×9	Fresnel	Lens	27834
06×9	Fresnel	Lens Kit	27835

(for VH, mounting hardwares included)



Hand Strap (for ER-1 and 45FA)	27841
● Hand Strap(for VH, VH-R and 45HF)	27823



Rubber	Eye-piece	[L]	 27822
(for VH-R vi			



Rangefinder Coupling Cams...... 27811-9
 For use with model VH-R and ER-1. Eight different cams for coupling Horseman lenses to the camera's rangefinder.



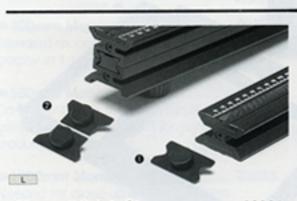
 6 × 9 Ground Glass Back (for VH-R and ER-1) (with Fresnel lens)

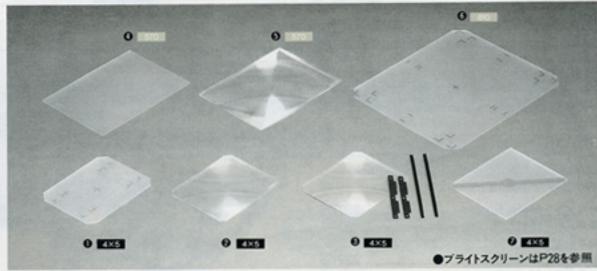
e6×9 Ground Glass Back (for VH)... 27772 (with 10mm grid pattern ground glass)





Spirit Level 23706





 ● 4×5" Ground Glass
 23891

 ● 4×5" Fresnel Lens
 23892

 ● 4×5" Fresnel Lens Kit
 23893

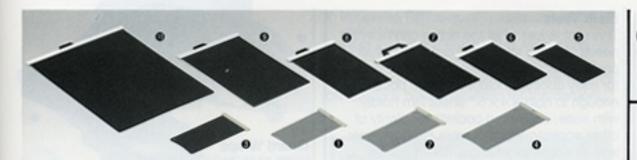
 (mounting hardwares icluded)
 27861

 ● 5×7" Fresnel Lens
 27862

 ● 8×10" Ground Glass
 27863

• Aerial Image Focusing Screen 24593 For microscope photography and under other extreme low-light conditions it is advantageous to observe and focus upon the image formed in the air ("aerial image"). This is easily possible with this special screen.

SPARE PARTS



Dark Slide (for 22401-4, 22411-2 and 22471)	22801
9 Dark Slide(for 22451-4)	22802
Dark Slide (for 22481)	22803
O Dark Slide(for 22461)	22804
© Dark Slide(for 28423)	27805

O Dark Slide(for 28444)	27809
9 Dark Slide(for 28447)	27801
Dark Slide (for 28445 and 28446)	27806
Dark Slide (for 28456 and 28457)	27807
© Dark Slide(for 28481)	27808

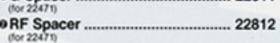




G Spacer, RF Spacer

When 6 x 9cm Polaroid film packs are used with Horseman cameras, the focusing plane is shifted backwards by the thickness of the film pack. The G spacer compensates for this in groundglass screen focusing and

oG Spacer	
eRF Spacer	22812





● Format Mask 4×5" 21702

(for Universal Zoom Finder)

	· ·
Special Ground GI (for 22471)	ass Back

(for 22471)(for focusing in same plane as 22471)	22573
Ground Glass Back (for 6 × 9 cut out)	22574



 Quick Shoe Adapter..... 27565 When attached to the camera, this adapter permits quick slide-in/slide-out mounting on tripods equipped with a Quick Shoe.



 Mercury Battery 5. 4V 25834 Mercury Battery 1. 35V 25835
 (for earlier 04301)



 Rubber Eye-piece 27871



Front lens caps	
e 42mm dia	27881
● 45mm dia(for ER 105mm)	27888
● 54mm dia(for ER 180mm)	27882
65mm dia (for 4.5/105mm) Accessory for discontinued mod	
60mm dia (for LF 150 and LF 180mm)	27891
© 70mm dia(for LF 210mm)	27892
● 80mm dia(for LF 90mm)	27893
e 100mm dia(for LF 300mm)	27894



Rear lens caps	
• 31mm dia (for ER 75, 3.5/105 and 150mm)	
● 39.5mm dia(for ER 65, 90 and 180mm)	
● 48mm dia(for ER 105mm)	
60.7mm dia (for 4.5/105) Accessory for discontinued model	
● 51mm dia(for ER 120mm)	
9 51mm dia(for LF 150 and LF 180mm)	
● 60mm dia(for LF 210mm)	. 27891
9 70mm dia(for LF 90mm)	101111
80mm dia (for LF 300mm)	. 27898

EXTRA ACCESSORIES

High-Quality Accessories Selected to Appeal to the Most Demanding Professional



Fits shutter sizes #0, #1 and #3.



High Torque Screwdriver Set 29552
 Consists of an easy-to-grip black carbon fiber shaft and five precision-tooled bits made of an extremely hard metal alloy. The extra-long 80mm bits are useful for reaching screws deep down in restricted spaces.

(Phillips bits: 2mm x 50mm, 2mm x 80mm, 3mm x 80mm; Flathead bits; 1.4mm x 80mm, 3mm x 80mm)

Displays shutter speeds precisely up to six decimal places. Perfect for timing everything from large-format lens shutters to 35mm focal plane shutters with the utmost accuracy. Lightweight construction contains 006P/9V battery. Easy operation with a 100W bulb.





• Fluorescent Inspection Lamp 29515 Bluish hues in strobelight photography often result from fluorescent paints or dyestuffs on objects. This Detector Lamp emits (invisible) ultraviolet light of 365 nanometer wavelength, showing even minute quantities of fluorescent pigments. Highly recommendable for preparatory checks in flash photography.

Field Vests

This vest is just what the active cameraman needs. It has a total of 20 large and small pockets fastened with zippers and Velcro™ for easy access. Includes a large pocket big enough to hold a 4 × 5" sheet film holder with ease, cushioned pockets for plenty of other accessories, a camera strap fastener and an accessory hanger. There is also a large back pocket for small tripods.



Exposure Calculator 29553

Calumet's Exposure Calculator provides an easy and direct, one-step means of determining bellows factor exposure calculations for table top and close up photography. Simply place the chip onto the set you are photographing and measure the chip from the ground glass.



Luminosity Meters

Specially designed for indoor measurements. Helps streamline on-site lighting in factories, offices, showrooms, etc. Also doubles as regular exposure meter.

- Digital Illuminance Meter IM-3
 29513





Guard Wraps (outside: marine blue/inside: moss green (from Calumet, U.S.A.)

These quilted guard wraps are designed expressly to protect cameras and lenses and come in two sizes, small and large. The four corners are provided with Velcro fasteners so you can wrap objects of any shape securely.





This capacious cloth hood is manufactured to the highest professional specifications. Coin-shaped weights in the four corners prevent the hood from being blown off by sudden gusts of wind. The fabric is navy blue on the inside and white on the outside to reflect heat, so you stay cool even in summer.

Specially woven cloth with good ventilation characteristics and excellent stray light blockage. Recommended for cases where a focusing hood alone cannot shut out all stray light.

EXTRA ACCESSORIES



 Disk Lock Universal Head...... 26611 (120 x 125 x 135mm; 1,150g) (includes 1/4" and 3/8" tripod screws)

This lightweight three-way universal head features aluminum alloy construction with a hard alumite-treated surface for toughness. The rugged disk brake locks are strong enough to allow you to mount even a 8 x 10" format camera safely. You can make adjustments and lock them in place while wearing gloves. To mount a camera, you first screw the tripod screws into the camera part way, then just slide it onto the head and tighten.



Carrying Bag...... 25676

An off-white and brown carrying case made of rugged sail-cloth. Holds up to thirty 4" x 5" sheet film holders.

Dimensions: 150 × 400 × 210mm



Perfect for lighting small items for catalog photos, etc. All you do is place the object inside the umbrella diffuser and shine a lamp on it. A lens hole is provided for the camera.



 Product Shooting Table................ 29577 This lightweight, easy to set up folding stand folds up small enough to fit in the trunk of a car when not in use. Just the thing for field jobs.





Tripods for Large-Format Cameras

These are the legendary Gitzo tripods from France. Renowned the world over for their durability, flexibility and ease of use, these tripods will give you many years of troublefree service. There are three models to choose from.

38220
39272
38312
39370
38502
39570



The New Ansel Adams Photography Series (3 vols.) (imported from the U.S.A., text in English)

The text of this exhaustive series of books by the great photographer Ansel Adams is lavishly illustrated with superb photographs and diagrams explaining every aspect of his art.

• The Camera 29711

Covers all types of cameras from pinhole cameras through 35mm SLRs and large format view cameras. Fundamental techniques like the effects of different lenses and camera movements are explained in detail.

@ The Negative 29712

Discusses everything — from film, lighting and exposure through developing - all you need to know about how to produce better negatives. A thorough explanation of the much talked about "zone system" is also included.

The Print29713

This comprehensive discussion of how to make beautiful prints begins with hints on how to set up your own darkroom and contains a complete discussion of darkroom techniques. You'll also find information on developers and valuable test data.

• Example 29715 Presents 40 representative photographs and

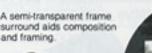
explains in detail exactly how they were created, from actual shooting through developing and making prints. The technical discussion is lucid and highly informative.



UNIVERSAL **ZOOM FINDERS**

Horseman Zoom Finders for Accurate Framing are an Indispensable Tool for the Photographer on the Go.









65mm (6 × 9cm)

This zoom finder can be used, either attached to a camera for hand-held shooting or, separately. By using the zoom finder to compose the subject and the zooming knob to determine the focal lengths of the lenses you wish to use, you can save yourself from having to move the camera about and change lenses unnecessarily, greatly speeding things up. Suitable for use with lenses with a focal length of 90 - 400mm for the 4×5" format and 65 - 300mm for the 6 x 9cm format.



300mm (6 × 9cm)

Camera Mounting

These zoom finders mount directly to the accessory shoe on the ER-1 and 45FA, but a mounting adapter is required for mounting on other makes of camera. The adapter is first inserted into the camera's accessory shoe and then the zoom finder is mounted. When mounted on the ER-1, parallax correction is accomplished automatically; an adjustment is required for other mountings. The format mask revolves for easy switchover between vertical and horizontal.



6×9cm and 4×5" Models Available

The universal zoom finder is available in two models for either the 6 x 9cm or 4 x 5" formats. Values for both 6 x 9cm and 4 x 5" are displayed in the focal distance display window, so one finder can be converted for use with both formats with the purchase of a separate format mask for the other format.



Zoom Finder Grip

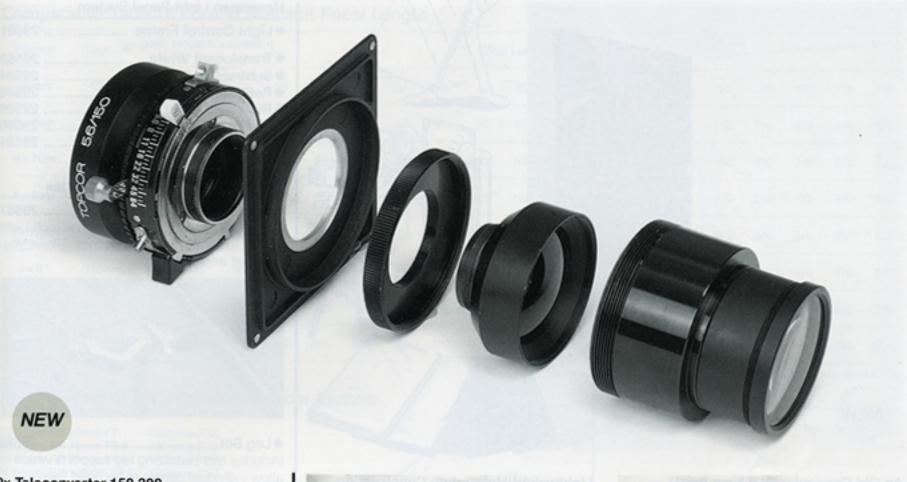
This grip enables you to hold the zoom finder secure and steady when it's not mounted on a camera. A ring for a strap is provided for enhanced portability.



 Universal Zoom Finder 69 	21501
Universal Zoom Finder 45	21502
● Format Mask 6×9	21701
● Format Mask 4×5	21702
Zoom Finder Grip	21713

The World's First Large Format Universal Teleconverter

2X LF TELECONVERTER 150-300



2x Teleconverter 150-300

This is the first teleconverter for large-format lenses, enabling you to convert a 150mm focal distance lens to 300mm. The seven element, five group construction uses special low-dispersion glass so that it won't effect the sharpness, color balance or image circle of the original lens. The exposure factor is $4 \times$ or two EV values. Mounting and unmounting is easily achieved. Simply connect the adapter to the lens and then screw on the teleconverter. Its compact size makes it perfect for on-location shooting.



150mm Lens



150mm Lens + 2X LF Teleconverter 150-300

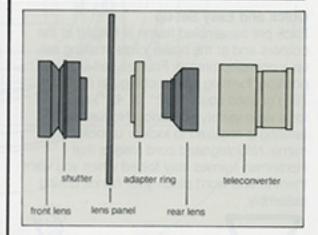




45FA + LF Topcor 150mm F5.6 + 2X LF Teleconverter 150-300



450EMII + LF Topcor 150mm F5.6 + 2X LF Teleconverter 150-300



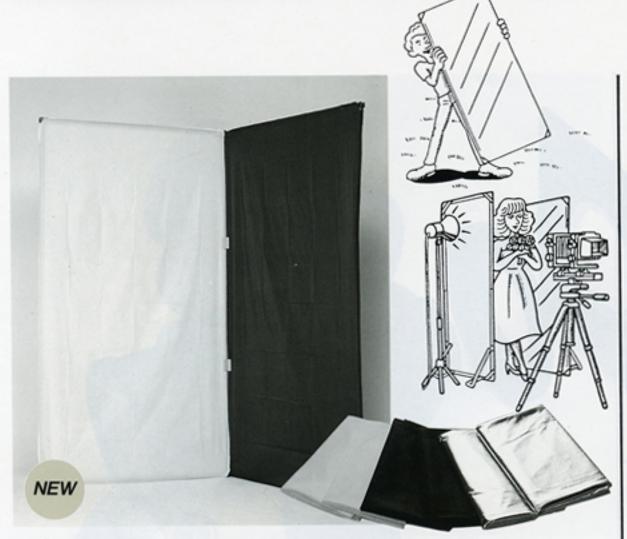
Usable Lenses

LF Topcor 150mm F5.6 Fujinon W 150mm F5.6 Nikkor-W 150mm F5.6 Symmar-S MC 150mm F5.6 New Xenar 150mm F5.6 Sironar-N 150mm F5.6 Apo-Ronar 150mm F9

●2× LF Teleconverter 150-300 25231

HORSEMAN LIGHT PANEL SYSTEM

A Compact Modular System to Handle A Variety of Light Control Need



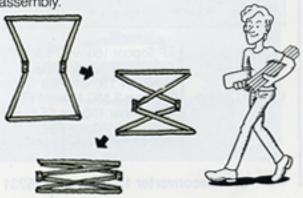
An Old Concept with a New Twist!

Light reflector panels are not new to studio photographers. For years they have been building their own light control reflectors out of 2" × 4"s, metal tubing, foam core, plywood and paint.

Horseman's new Light Panel System was designed to remove the work, weight and wasted studio space associated with these makeshift monstrosities. Here is a complete system which offers convenience and versatility for both studio AND location photographers, and creative lighting control for a full range of applications.

Quick and Easy Set-up

Each pre-assembled frame is hinged at the corners and at the brake joints, making setup a one-step breeze. Frames self-lock into position, forming rigid rectangular (42" × 78") or solid square (42" × 42") supports for a wide variety of fabrics. No turning or twisting is required to lock or unlock the frame. No integrated cord means that Horseman frames stay folded when you want them to and won't pinch your hands during assembly.



Lightweight/Heavy-duty Construction

The Horseman Light Panel Frames are made of ultra-light and ultra-rugged PVC tubing. The 42" × 78" Frame weighs only 2.3 lbs., while the 42" × 42" Frame weighs a mere 1.5 lbs.!

Compact Storage and Portability

The super-thin, 1-1/4" profile of the Horseman Panel Frames allows you to store them efficiently — with or without the fabrics attached. Their compact collapsability makes them more portable and opens up the possibility of using them on location, as well as in the studio.

Versatile Selection of Fabrics

Flexible lighting control is made possible by Horseman's wide choice of reflective and translucent panel fabrics. Whether your needs are high key, diffused, additive, subtractive or warming, there is a fabric for you.

Adroit Accessory System

Frames can be used free-standing with Leg Sets, attached to stands and booms with Light Stand Clamps, joined together with Panel Joiner Clips, secured to the ground with Turf Spikes and adapted to accept lights with Strobe Mounts.

In addition, Neatness Clips can be used to smooth out fabrics. With this wide range of optional accessories, Panels can be converted into soft boxes, large flats, barndoors, lens shades, etc.

*42" x 42" available on special order.

Horseman Light Panel System

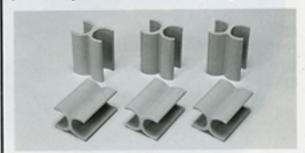
● Light Control Frame	29581
Translucent White	29583
Subtractive Black	
Reflective White	
Reflective Silver	
Warming Gold	
Super Opaque	

Horseman Light Panel Accessories





Panel Joiner Clips (Package of 6)...... 29585
 These two-sided clips are used to connect panels together to form flats and light boxes.



CAMERA MOVEMENTS

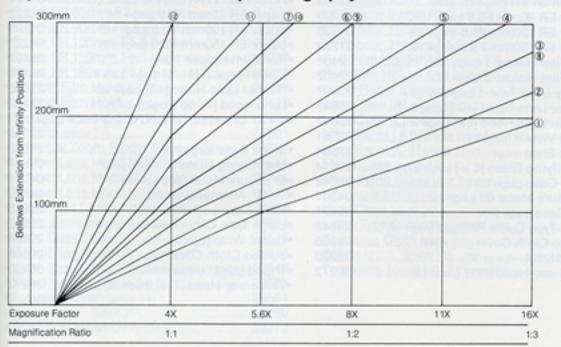
Guide to Lenses for Large Format Cameras

Comparative Table of Format Size and Focal Length

Format	Diagonal									Foca	al Lengt	h (mm)								
35mm	43mm	18	21	22	25	28	32	37	43	45	52	60	65	73	85	90	105	120	135	150
6×6cm	80mm	33	39	41	46	54	58	67	75	80	95	110	120	135	150	165	190	220	240	. 270
6×7cm	90mm	37	43	45	50	60	65	75	85	90	105	120	135	150	165	180	210	240	270	300
6×9cm	100mm	42	48	52	58	65	75	90	100	105	120	135	150	170	180	210	240	270	300	340
6×12cm	125mm	53	60	65	75	85	90	105	120	135	150	180	195	210	240	260	300	340	380	430
4×5"	150mm	65	75	80	90	105	120	135	150	165	180	210	240	260	300	320	370	420	470	530
5×7"	210mm	90	105	110	125	150	160	180	210	240	260	300	330	350	400	440	500	570	640	720
8×10"	300mm	130	150	160	180	210	240	270	300	330	360	420	480	520	600	640	740	850	940	1050

Example: A 150mm lens used on a 4 x 5 " format is the equivalent to a 43mm on a 35mm format.

Image Circle of Hoseman and Topcor Lenses 1 Super ER 65mm F7 152mmø (f22) 2 Super ER 75mm F5.6 120mmø (f22) 3 Super ER 90mm F5.6 4 Super ER 105mm F5.6 5 Super ER 120mm F5.6 6 Super ER 150mm F5.6 7 Super ER 180mm F5.6 150mmø (f22) 160mmø (f22) 160mmø (f22) 160mmø (f22) 140mmø (f22) 8 LF Topcor 90mm F5.6 236mmø (f22) 9 LF Topcor 150mm F5.6 210mmø (f22) (†22) LF Topcor 180mm F5.6 230mmø (†22) LF Topcor 210mm F5.6 295mmø (†22) ① LF Topcor 300mm F5.6 420mmø (122) A 6×7cm B 6×9cm C 6 x 12cm D 4×5" E 5×7" F 8×10" Exposure Factor for Close-up Photography



HORSEMAN EXAMPLE SYSTEMS

Horseman — For Everything From A Beginners Equipment Setup to A Fully Professional Outfit

Points to Keep in Mind When Purchasing a Large-Format Camera

In addition to the camera body itself, you will also need to purchase a lens (or lenses) and a film holder.

The sets of camera bodies and accessories contain the components necessary for an array of different applications. You can choose the combination that best suits your own requirement.

Camera Body Types

Camera bodies can be broadly divided into two categories: the technical (folding) type and the view type. Technical cameras are extremely versatile, combining light weight and compactness of a hand-held camera with the ability to use swing/tilt camera movements. When tilt/swing are not used, the rear standard and the lens standard are kept precisely parallel, so this type of camera is suitable not only for minute operations such as close-ups but also for other applications which do not require focusing, using a groundglass. In short, technical cameras are ideal for hand-held work. A certain amount of camera movement is possible, so a technical camera can be used for studio work in addition to outdoor shooting.

The view camera, on the other hand, is the quintessential large-format camera, indespensable for commercial photography. There is almost no limit to the photographic effects view cameras are capable of, including super wide angle and high-magnification photography. Both the camera front and back standards are capable of extensive movements, and the amount of swing, tilt, rise and fall can be precisely controlled. Furthermore, it is easy to upgrade parts of a view camera system afterward because the body consists of a number of distinct modules.

Choosing Lenses

Compared with 35mm SLRs and the like, there is tremendous freedom in choosing lenses for large-format cameras. However, in order to realize the full potential, certain restrictions must be kept in mind. In addition to focal length and f-stop, the angle of coverage, image circle and flange-back are just some of the factors which must be considered. In the case of the 6 x 9cm Horseman, you can't go wrong if you choose one of the lenses in the ER series. Standard focal lengths are as follows: 90mm for the 6 x 7cm format; 105mm for 6 x 9cm and 150mm for 4 x 5". These focal lengths are considered "standard" because their angle of view most closely approximate that of the human eye. No camera system is complete without at least one "standard" lens.



VH Set [A]

VII Set [A]	
Horseman VH (page 2)	01102
	01227
•Roll Film Holder 1 (page 22)	22401
•Rubber Lens Hood [40.5] (page 26)	25641
•Quick Shoe (page 27)	27564
. Magnifying Glass [6 x] (page 27)	25614
. Large Type Cable Release (page 28)	29542
Focusing Cloth (page 34)	29561
•Tripod [220] (page 35)	38220
•Three-way Head [272] (page 35)	39272



VH-R Set [A]

01101
01225
22401
25646
25614
29542



VH Set [B]

Horseman VH (page 2)	01102
•Super ER 90mm F5.6 (page 19)	01223
•Super ER 120mm F5.6 (page 19)	
•Super ER 180mm F5.6 (page 19)	01228
•Roll Film Holder 1 (page 22)	22401
•Roll Film Holder 2 (page 22)	
•Rotary Back Type 1 (page 24)	
•Rubber Lens Hood [40.5] (page 26)	
•Rubber Lens Hood [52] (page 26)	
Angle Viewer (page 27)	
•Quick Shoe (page 27)	
Magnifying Glass [6 ×] (page 27)	
Metal Case (page 27)	
Exposure Meter 69 (page 28)	
Soft Case (page 28)	20642
Large Type Cable Release (page 28)	
Jumbo Cloth Cover (page 34)	
•Tripod [220] (page 35)	
Three-way Head [272] (page 35)	39272



VH-R Set [B]

01
22
25
27
01
45
46
22
7)
11
42
14
01
45
75
42
63
65
220
72

Toughly Built with Real Field Conditions in Mind — Horseman Technical **Cameras and Equipment**



FR.1 Set [A]

EU-I OEL[A]	
•Horseman ER-1 (page 6)	01103
•Super ER 105mm F5.6 (page 19)	01225
•ER Roll Film Holder 1 (page 22)	22411
•ER Grip (page 27)	24501
 Universal Zoom Finder 69 (page 28) 	21501
 Lens Case [S] (page 19) 	25673
•Metal Case (page 27)	25542
 Magnifying Glass [7 ×] (page 27) 	25611
 Large Type Cable Release (page 28) 	29542
•Guard Wrap [L] (page 34)	29563



45HF Set [A]

Control to the second of the s	
 Horseman 45HF (page 8) 	21103
 LF Topcor 150mm F5.6 (page 21) 	21224
 Roll Film Holder 451 (page 22) 	22451
 Lisco Regal II [4×5] (page 23)×4 	28445
•Lens Case [S] (page 19)	25673
•Lens Panel [# 0] (page 26)	25656
•Metal Case (page 27)	25542
 Magnifying Glass [7 x] (page 27) 	25611
 Large Type Cable Release (page 28) 	29542
Focusing Cloth (page 34)	29561
•Tripod [220] (page 35)	38220
•Three-way Head [272] (page 35)	39272



45FA Set [A]

 Horseman 45FA (page 10) 	21104
 LF Topcor 150mm F5.6 (page 21) 	21224
•Roll Film Holder 451 (page 22)	22451
 Lisco Regal II [4×5] (page 23)×4 	28445
•Lens Case [S] (page 19)	25673
•Lens Panel [# 0] (page 26)	25656
 Magnifying Glass [7 x] (page 27) 	25611
 Large Type Cable Release (page 28) 	
Jumbo Cloth Cover (page 34)	29565



ER-1 Set [B]	
•Horseman ER-1 (page 6)	01103
 Super ER 65mm F7 (page 19) 	01221
 Super ER 90mm F5.6 (page 19) 	01223
*Super ER 105mm F5.6 (page 19)	01225
Super ER 150mm F5.6 (page 19)	01227
Super ER 180mm F5.6 (page 19)	01228
ER Roll Film Holder 1 (page 22)	22411
ER Roll Film Holder 2 (page 22)	
6×9cm Polaroid Film Holder (page 22)	
•ER Grip (page 27)	24501
Universal Zoom Finder 69 (page 28)	
Rubber Lens Hood [40.5] (page 26)	
Rubber Lens Hood [43] (page 26)	
Rubber Lens Hood [52] (page 26)	25642
Lens Hood [Wide Angle] (page 26)	27622
Quick Shoe (page 27)	
Metal Case (page 27)	25542
Magnifying Glass [6 ×] (page 27)	25614
Large Type Cable Release (page 28)	29542
Guard Wrap [L] (page 34)	29563
Focusing Cloth (page 34)	29561
Tripod [220] (page 35)	38220
Three-way Head [272] (page 35)	39272



45HF Set [B]

Horseman 45HF (page 8)	21103
•LF Topcor 90mm F5.6 (page 21)	
•LF Topcor 150mm F5.6 (page 21)	21224
•LF Topcor 210mm F5.6 (page 21)	
•Roll Film Holder 451 (page 22)	22451
•Roll Film Holder 612 (page 22)	22461
Lisco Regal II (page 23)×6	28445
•Lens Case [S] (page 19)	25673
•Lens Case [L] (page 19) × 2	25674
•Lens Panel [#0] (page 26)×2	25656
•Lens Panel [C-1] (page 26)	25657
Metal Case (page 27)	25542
Magnifying Glass [6 ×] (page 27)	25614
•Exposure Meter 45 (page 28)	04311
Hard Case (page 28)	25675
Large Type Cable Release (page 28)	29542
Focusing Cloth (page 34)	29561
•Tripod [220] (page 35)	38220
 Three-way Head [272] (page 35) 	39272



45FA Set [B]

CONTRACTOR OF THE PROPERTY OF	
 Horseman 45FA (page 10) 	21104
 LF Topcor 90mm F5.6 (page 21) 	
 LF Topcor 150mm F5.6 (page 21) 	
 LF Topcor 180mm F5.6 (page 21) 	
 LF Topcor 210mm F5.6 (page 21) 	
•Roll Film Holder 1 (page 22)	
Roll Film Holder 2 (page 22)	
 Lisco Regal II [4 × 5] (page 23) × 8 	
Rotary Back Type 2 (page 24)	
•Lens Case [S] (page 19)	25673
•Lens Case [L] (page 19) × 3	
•Lens Panel [#0] (page 26)×3	
•Lens Panel [C-1] (page 26)	
•Metal Case (page 27)	
 Magnifying Glass [6 ×] (page 27) 	
•Exposure Meter 69 (page 28)	
•4×5" Adapter (page 28)	
•Hard Case (page 28)	
•Guard Wrap [L] (page 34)	
•Large Type Cable Release (page 28)	
•Jumbo Cloth Cover (page 34)	29565
•Tripod [220] (page 35)	
•Three-way Head [272] (page 35)	
times may treat teres (bage 35)	00212

Horseman View Cameras and Equipment Give You the Flexibility to Be Creative.



450B Set [A]

מסטם סטנ [ה]	
•Horseman 450B (page 16)	23106
•LF Topcor 150mm F5.6 (page 21)	21224
 Lisco Regal II [4×5] (page 23)×4 	28445
 Lens Panel [#0] (page 30) 	23513
 Large Type Cable Release (page 28) 	29542
Bellows Type Lens Hood (page 29)	29544
• Attache Case (page 29)	27571
Focusing Cloth (page 34)	29561



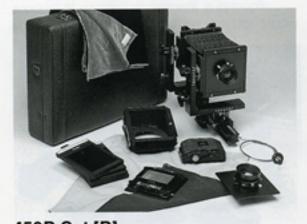
450 Set [A]

•Horseman 450 (page 12)	23101
•LF Topcdr 210mm F5.6 (page 21)	21226
 Lisco Regal II[4 × 5] (page 23) × 2 	28445
Magnifying Glass [6 ×] (page 27)	25614
• Large Type Cable Release (page 28)	29542
•Bellows Type Lens Hood (page 29)	27544
Attache Case (page 29)	27571
•Lens Panel [C-1] (page 26)	25657
. Adapter Lens Panel [for Horseman] (pag	
	23517
• Focusing Cloth (organ 34)	29561



450EMII Set [A]

•Horseman 450EMII (page 14)	23104
•LF Topcor 210mm F5.6 (page 21)	
•Roll Film Holder 1 (page 22)	22401
•Lisco Regal II[4×5] (page 23)×4	28445
Magnifying Glass [7 x] (page 27)	
• Large Type Cable Release (page 28)	29542
•6×9 Reducing Revolving Back (page 29)	27531
•Bellows Type Lens Hood (page 29)	27544
• Driving Aid (page 29) × 2	27681
Attache Case (page 29)	
•Lens Panel [C-1] (page 26)	
·Adapter Lens Panel [for Horseman] (pag	
	23517
Focusing Cloth (page 34)	29561



450B Set [B]

•Horseman 450B (page 16)	23106
•LF Topcor 150mm F5.6 (page 21)	
	21226
•Roll Film Holder 2 (page 22)	22402
 Lisco Regal II [4×5] (page 23)×4 	28445
 Lens Panel [#0] (page 30) 	23513
 Lens Panel [#1] (page 30) 	23514
 Large Type Cable Release (page 28) 	
•6 x 9 Reducing Revolving Back (page 29)	
	27531
•Bellows Type Lens Hoold (page 29)	27544
Attache Case (page 29)	
•Guard Wrap [L] (page 34)	
• Focusing Cloth (page 34)	
eran	



450 Set [B]

450 Set [D]	
•Horseman 450 (page 12)	23101
•LF Topcor 90mm F5.6 (page 21)	21222
•LF Topcor 150mm F5.6 (page 21)	
•LF Topcor 180mm F5.6 (page 21)	
•LF Topcor 210mm F5.6 (page 21)	
Roll Film Holder 1 (page 22)	
•Polaroid Land Pack Film Holder 550 (pa	
	29622
•Lisco Regal II [4×5] (page 23)×10	28445
•Rotary Back Type 3 (page 24)	22503
•Angle Viewer (page 27)	
•Magnifying Glass [6 ×] (page 27)	
•Lens Panel [#0] (page 26) ×3	25656
•Lens Panel [C-1] (page 26)	25657
·Adapter Lens Panel [for Horseman] (pag	
• Exposure Meter 45 (page 28)	04311
Hard Case (page 28)	25675
Quick Shoe (page 27)	27564
•Guard Wrap [L] (page 34)	
• Large Type Cable Release (page 28)	29542
•Bellows Type Lens Hood (page 29)	
Driving Aid (page 29) × 2	
Heavy Duty Case (page 29)	
•4×5" Wide Angle Bellows (page 31)	
Focusing Cloth (page 34)	
•Tripod [502] (page 35)	38502
•Three-way Head [570] (page 35)	39570



450EMII Set [B]

430 LIVITI OCT [D]	
 Horseman 450EMII (page 14) 	23104
•LF Topcor 90mm F5.6 (page 21)	
•LF Topcor 150mm F5.6 (page 21)	21224
•LF Topcor 180mm F5.6 (page 21)	21225
•LF Topcor 210mm F5.6 (page 21)	21226
 LF Topcor 300mm F5.6 (page 21) 	21228
•Roll Film Holder 451 (page 22)	22451
•Polaroid Land Film Holder 545 (page 22)	29622
 Lisco Regal II [4 x 5] (page 23) x 10 	28445
 Precision Magnifier [4 x] (page 27) 	25612
Binocular Reflex Viewer (page 28)	27543
 Lens Panel [#0] (page 26) × 3 	25656
•Lens Panel [C-1] (page 26)	
 Adapter Lens Panel [for Horseman] (pag 	e 30)
	23517
 Lens Panel [#3] (page 30) 	23515
• Exposure Meter 45 (page 28)	04311
Hard Case (page 28)	25675
Quick Shoe (page 27)	27564
•Guard Wrap [L] (page 34)	29563
 Large Type Cable Release (page 28) 	
Bellows Type Lens Hood (page 29)	
Driving Aid (page 29) × 2	25681
Heavy Duty Case (page 29)	
•4×5" Wide Angle Bellows (page 31)	
Focusing Cloth (page 34)	
•Tripod [502] (page 35)	
 Three-way Head [570] (page 35) 	39570

Swing & Tilt Photography and the Image Circle

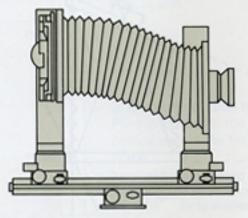
CAMERA MOVEMENTS

Basic Swing and Tilt Operations

The following basic movements are possible in actual use:

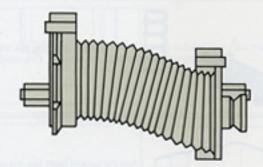
1. Rise and Fall

These terms refer to moving the lens and/or film upward or downward while keeping the lens and film plane perpendicular to each other. Upward movement is called rise, downward movement is called fall. The effect remains almost identical regardless of whether it is the lens or film holder that is moved. However, it must be remembered that when the film holder is moved, the image moves in the opposite direction as when the lens is moved. (This is also true for all other movements.)



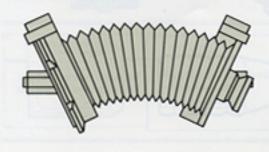
2. Shift

"Shift" (sometimes also called "slide") is movement of the lens and/or film horizontally while keeping the lens axis and film plane perpendicular to each other. It is used to move the subject area laterally.



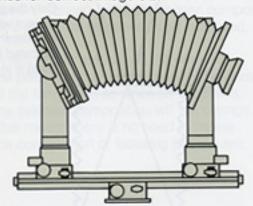
3. Swing

Swing means slanting the lens and/or film holder to the left or right. Unlike with rise, fall and shift, the lens axis and film plane are no longer perpendicular to each other. Swing is used to correct or deliberately exaggerate distortions in the (horizontal) linear perspective.



4. Tilt

Tilt means slanting the lens and/or film holder upward or downward. In other words, "tilt" does for vertical lines what "swing" does for horizontal lines. Swing and tilt are used to change the depth of field to match the subject, or to compensate perspective lines for correct image size.



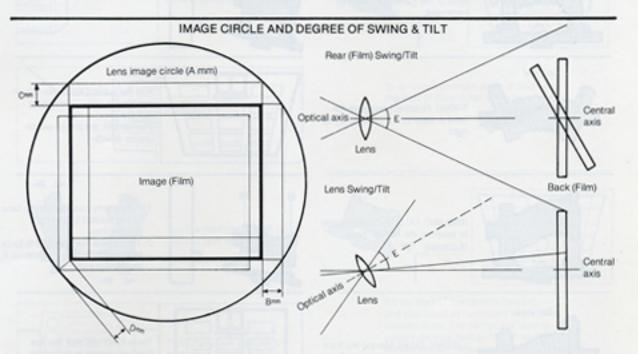
Since each of these basic movements can be performed by moving the front and/or back of the camera, there are 16 possible patterns using the four movements. In actual work, a combination of two or more of these movements are often used to obtain the proper effect for each photograph.

Image Circle

The circular image which a lens projects on the focal plane is called the "image circle." It is brightest in the center while (with a simple lens) its quality and brightness both deteriorate towards the edges. The image circle determines the lens usable field angle, one of the characteristics of every lens. The field angle is the angle between a line from the center of the lens to the outermost

edge of the image circle, and a line to the center of the circle. This is a unique, fixed lens characteristic that has no relationship to the focussing distance or image size. (It does, however, change with the lens aperture.) The lens minimum image circle is measured at a particular focussing distance, usually at infinity. When a nearby object is focussed upon, the lens moves farther out from the film plane and, naturally, the image circle grows. In simple cameras without swing or tilt, the image center and the optical axis of the lens always coincide. That means the diagonal of the film frame can, theoretically, be as long as the diameter of the image circle. However, cameras are usually designed with a somewhat smaller film frame to compensate for the loss in brightness toward the edge of the image circle. In a large format camera with swing and tilt capability, the optical axis of the lens only in rare cases intersects the film plane at its center. When a generous amount of swing and/or tilt is applied, part of the film frame may wander outside the image circle. This means that the maximum permissible swing/tilt is limited by the size of the image circle. Although the size of the image circle can of course be enlarged by extending the bellows, using excessive swing or tilt will result in part of the frame being outside the image circle.

To prevent this from happening, it is necessary to take into account the lens type, image circle diameter and field angle before setting the degree of swing or tilt. (Even lenses of identical focal length will have different field angles and image circles if their internal composition differs; telephoto lenses, for example, have a narrower field angle than their focal length would suggest.)

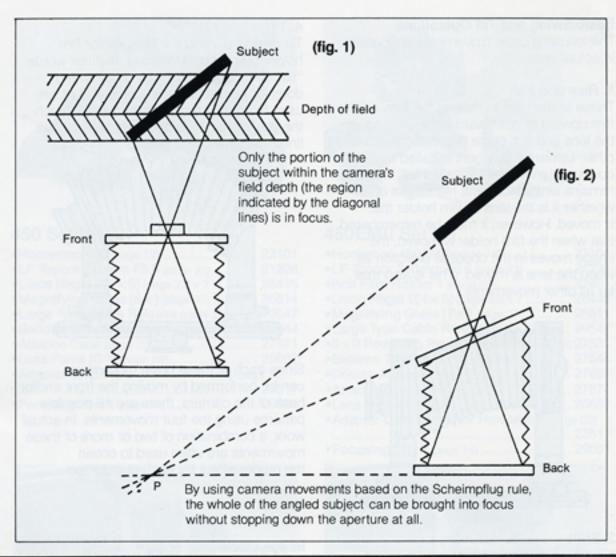


For a lens having an image circle of A mm, the amount of permissible movement is B mm in the horizontal plane, C mm in the vertical plane and D mm in the diagonal plane. Any movement exceeding these limits will result in part of the film frame being outside the image circle. There is an obvious difference between tilt applied at the film plane and tilt applied at the lens. As the top drawing shows, the film frame remains within the lens image circle when tilt is applied at the back; when excessive tilt is applied at the lens, however, part of the film frame will wander outside the image circle.

View Camera movements and how they work

The Scheimpflug Rule

In order to use camera movements properly, an understanding of the Scheimpflug rule is essential. This is the principle which enables us to form a focused image of the subject even if it is at an angle relative to the camera at wide open aperture. If the subject is at an angle relative to the optical axis of the lens, we can sometimes bring the whole of it into focus by closing down the lens aperture and thus increasing the depth of field. The problem cannot always be corrected simply by stopping down the aperture, however (fig. 1). A host of related problems can crop up as well, caused by such things as too slow a shutter speed or stopping down the aperture too much (which will cause the picture quality to deteriorate). Such difficulties are frequent when we relay only on small f-stops to solve the problem. If we use camera movements based on the Scheimpflug rule however, we can bring the whole of an angled subject into perfect focus without stopping down the aperture at all. This is because the Scheimpflug rule states that it is possible to focus all of any (flat) subject provided that the axis formed by its surface, the axis of the camera front and the axis of the camera back all meet in a single point (fig. 2). This is why the Scheimpflug rule is a technique no photographer using camera movement can ignore.



View Camera Movements



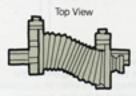
TILT: Rotating (tilting) the front or back of the car backward.



SWING: Rotating (swinging) the front or back of the camera left or



RISE AND FALL: Vertically raising or lowering the front or back of camera

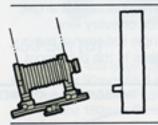


LATERAL SHIFT: Moving the front or back of the camera laterally to the left or right.



Vertical Perspective Control

Useful when photographing buildings from a low angle.

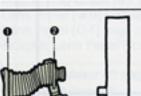


If the camera is pointing upward



And the subject looks like this on the ground glass (converging vertical lines)... (Remember, the image will be

upside down)



- 1. Tilt camera back parallel to face of the subject to correct perspective
- 2. Tilt camera front parallel to back to correct sharpness. Refocus if necessary and.

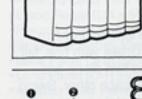




Horizontal Perspective Control

photography.

Useful in architectural, still life and product



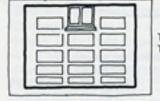
And the subject looks like this on the ground glass (converging horizontal lines).

If the camera is pointing at a slight

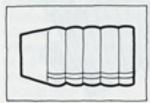
angle to the subject... (Top view)



- Swing camera back parallel to the face of the subject to correct
- Swing camera front parallel to back to correct sharpness Refocus if necessary and.



The subject will look like this. The perspective is corrected.



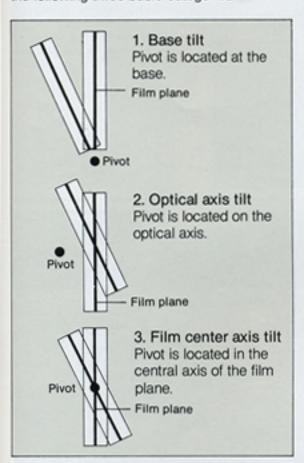
The subject will look like this The perspective is corrected.

The Swing & Tilt Pivot and Camera Back Construction

CAMERA MOVEMENTS

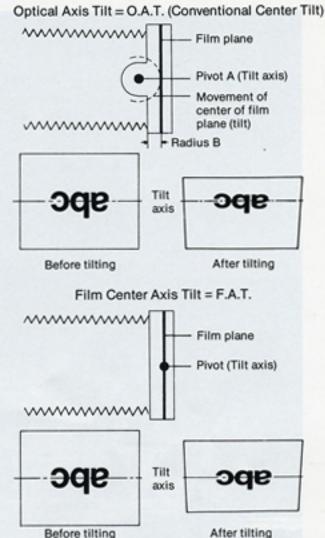
Types of Swing & Tilt Pivots

Swing and tilt methods, a major feature of large format cameras, can be divided into the following three basic categories:



Of these three types, number three, film center axis tilt, offers distinctive advantages. When using base and optical axis tilt, the fact that the tilt pivot does not coincide with the focusing point means that, when tilt is applied, the center of the film plane moves in a circle having a radius of B (the distance between the film plane and pivot) and centered at point A. Consequently, the chosen composition of a photo will be altered if tilt is applied.

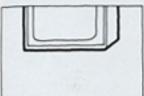
In film center axis tilt, on the other hand, the pivot is at the focusing point (the center of the film plane) so when tilt is applied, the selected composition will not change. That means there is no need to repeat the composition or focusing procedures.





Vertical Image Placement Improves composition, eliminates

Improves composition, eliminates reflections.



If the subject looks like this on the ground class, or...

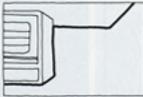


Like this...

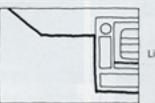


Horizontal Image Placement Use for the same purposes as Vertical

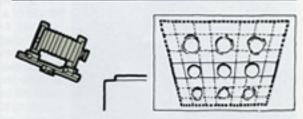
Use for the same purposes as Vertical Image Placement.



If the subject looks like this on the ground glass, or...



Like this...



To control depth of field with the camera.

Depth of Field

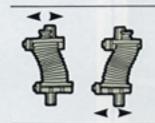
To achieve maximum depth of field from the front of the subject to the back...



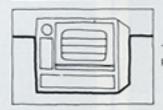
Use the front rise or fall or... use the back rise or fall and...



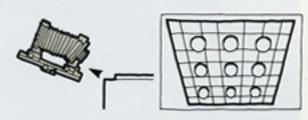
The subject will look like this, properly composed.



Use the front lateral shift or... use the back lateral shift, and...



The subject will look like this, properly composed.



Tilt the front of the camera forward, and stop down as necessary to achieve desired effect. The swings are used to control depth of field on the left to right subject plane. The swings and tilts on the back of the camera can also be used to control depth of field.

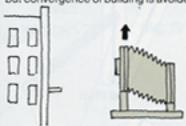
Camera Movements Allow You to Use Your Creativity to the Full.





Rise — making the vertical lines on a building facade come out straight

If we photograph a tall building from below, the vertical lines narrow towards the top. But if we make both the camera back and the camera front parallel to the building facade and raise the camera front, we can not only bring the entire facade into focus but convergence of building is avoided.





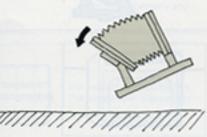


Swing — focusing the entire facade of a long building Normally, if one takes a photograph of an angled subject the portion closest to the camera and the portion farthest away will be out of focus as in the photograph at left. If we swing the front of the camera according to the Scheimpflug rule, however, we can photograph the entire facade in focus.

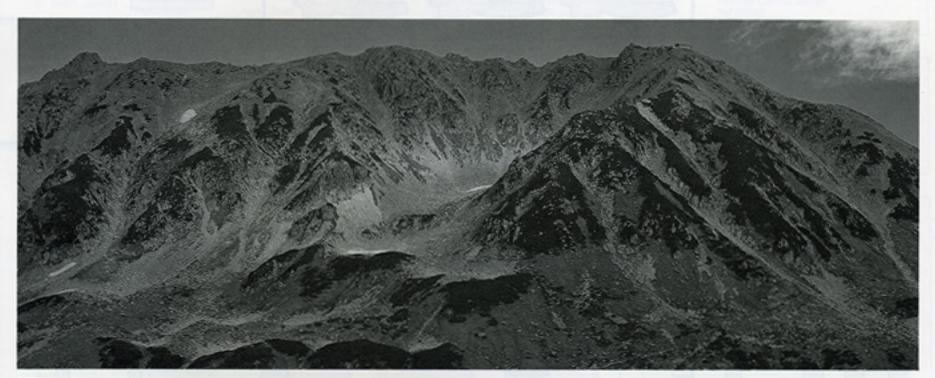




Tilt — focusing on a long, receding surface In order to focus on the whole of a long, receding surface, simply follow the Scheimpflug rule and tilt the front of the camera as illustrated below.



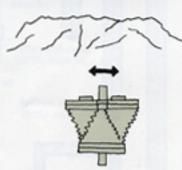
CAMERA MOVEMENTS







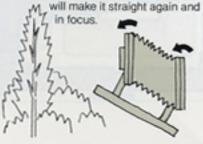
Shift - forming a panoramic view of a mountain range out of two side-by-side photographs If you try to form a panoramic view of a large subject simply by placing side by side photographs which were taken with the camera in different positions, they will not line up properly. You can get around this problem by fixing the camera in one position and simply shifting the lens standard.







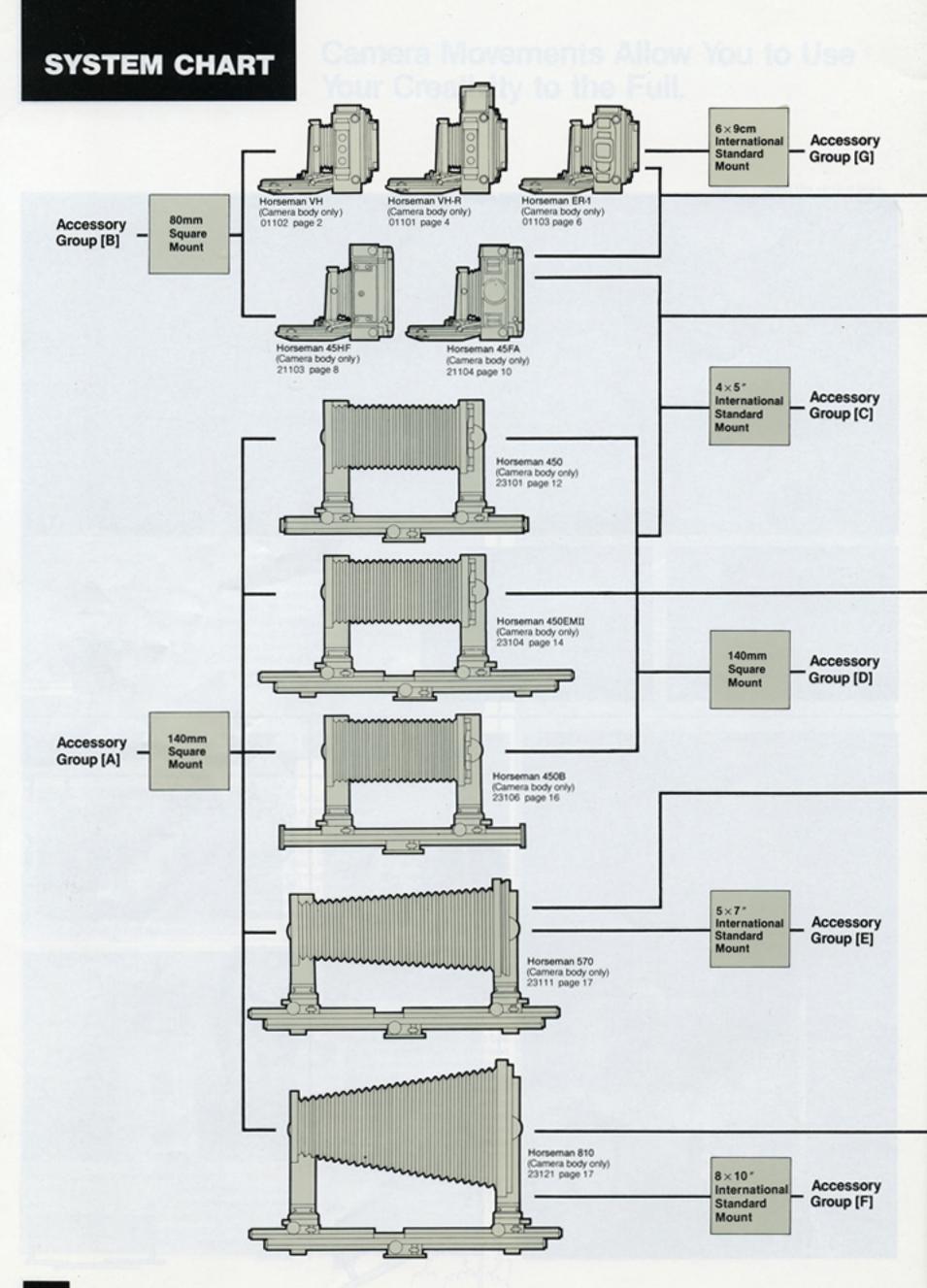
Indirect Rise - Extreme rise or fall can be achieved by inclining the rail and placing front and rear in vertical position again making trees that would otherwise converge photo-graph correctly. If you photograph tall trees from below, they will appear to lean forward and converge as in the photo at right. Tilting the cameraback forward will make the tree appear straight and tilting the camera front so that it is parallel with the back

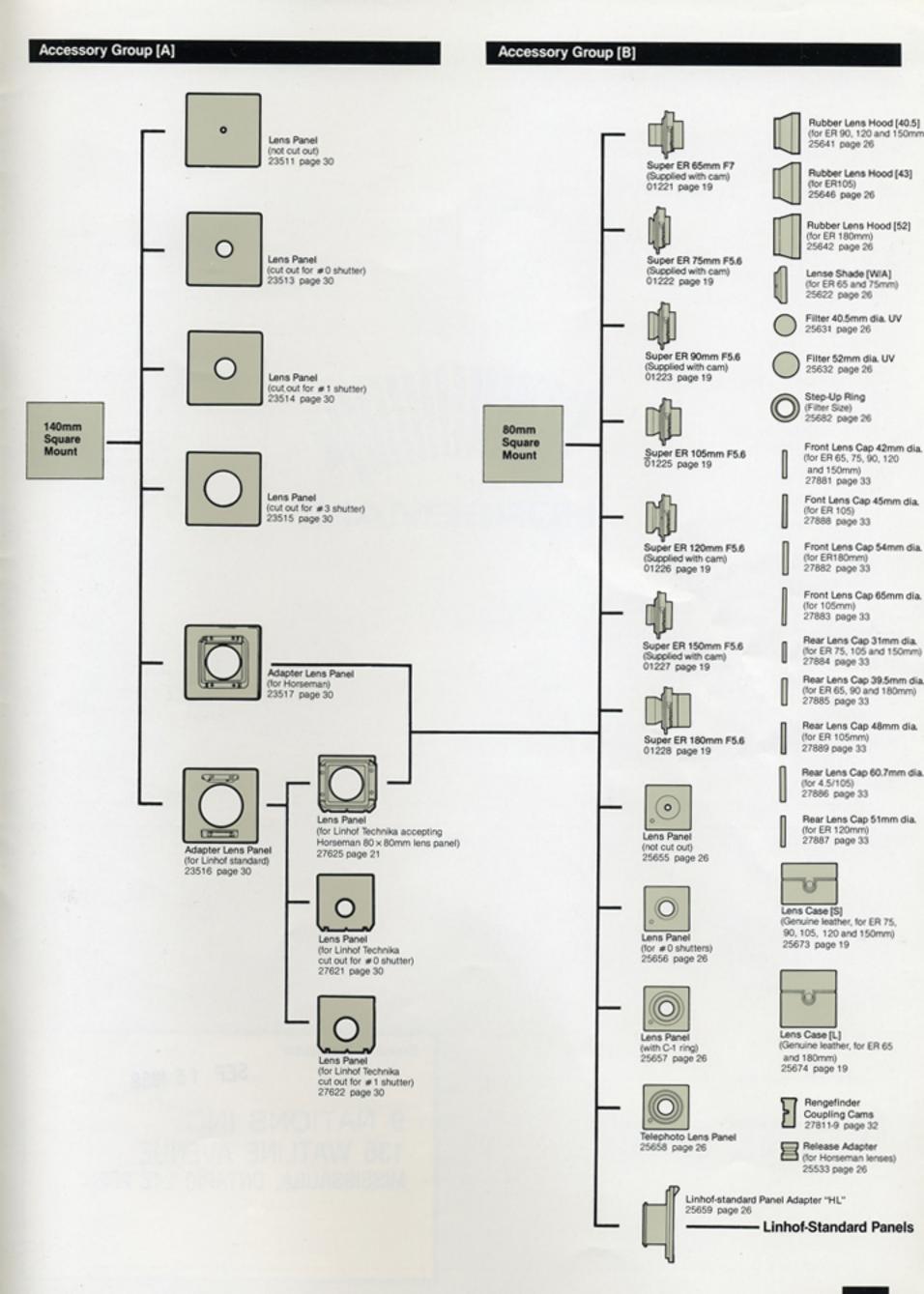


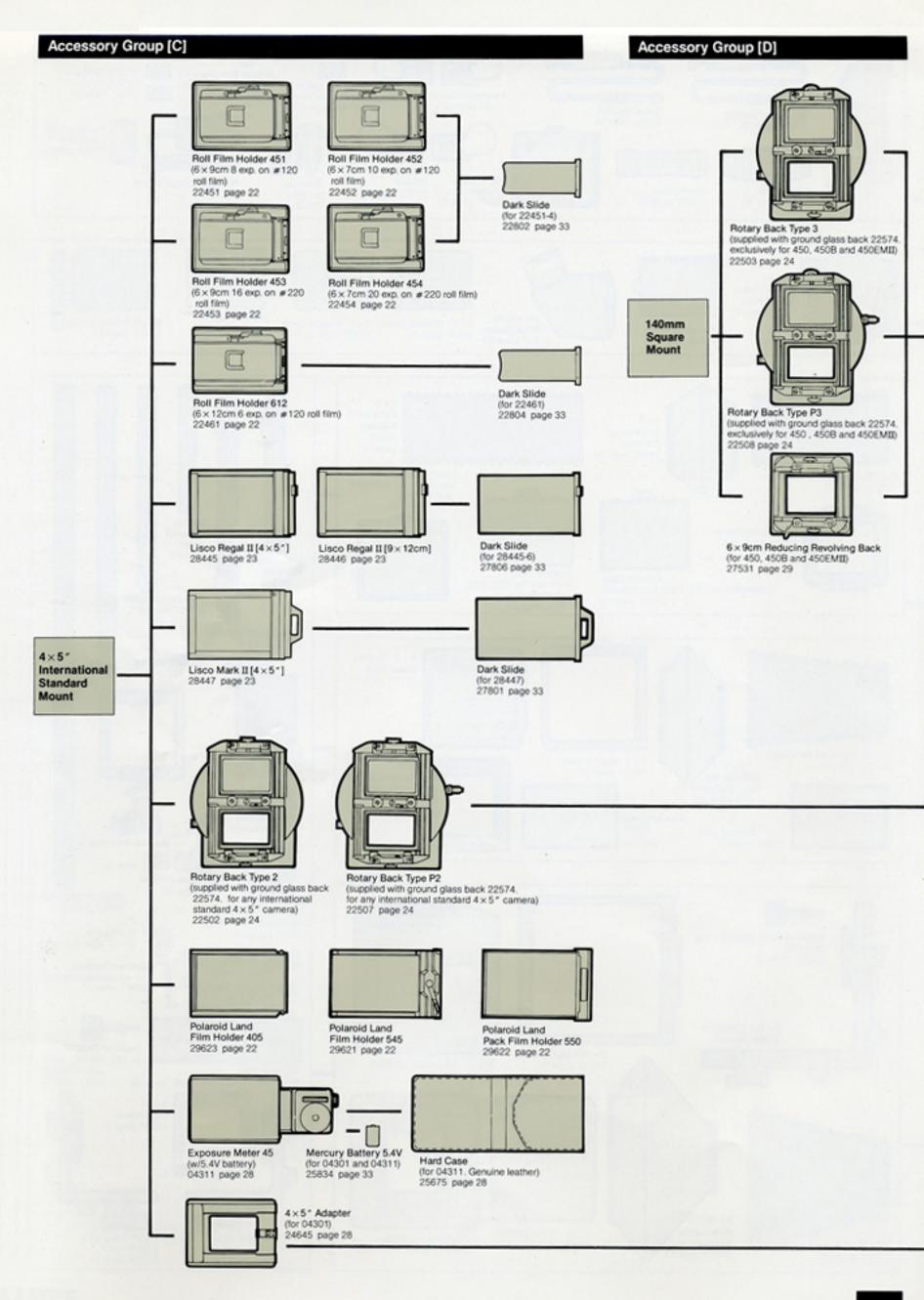


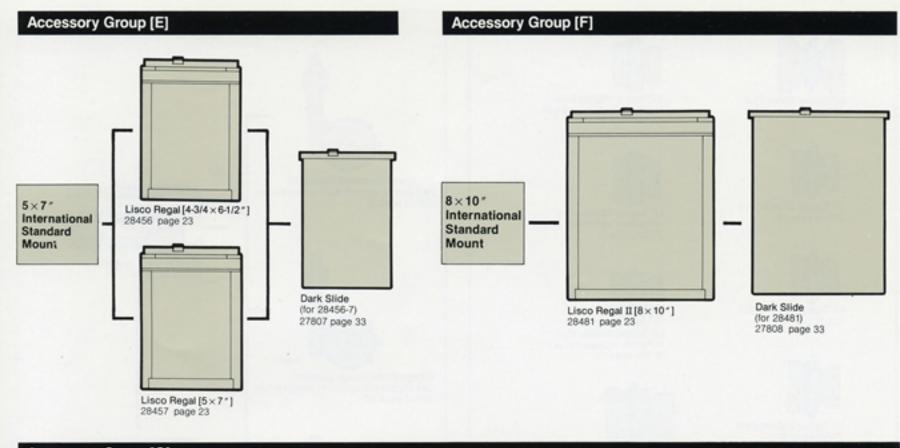


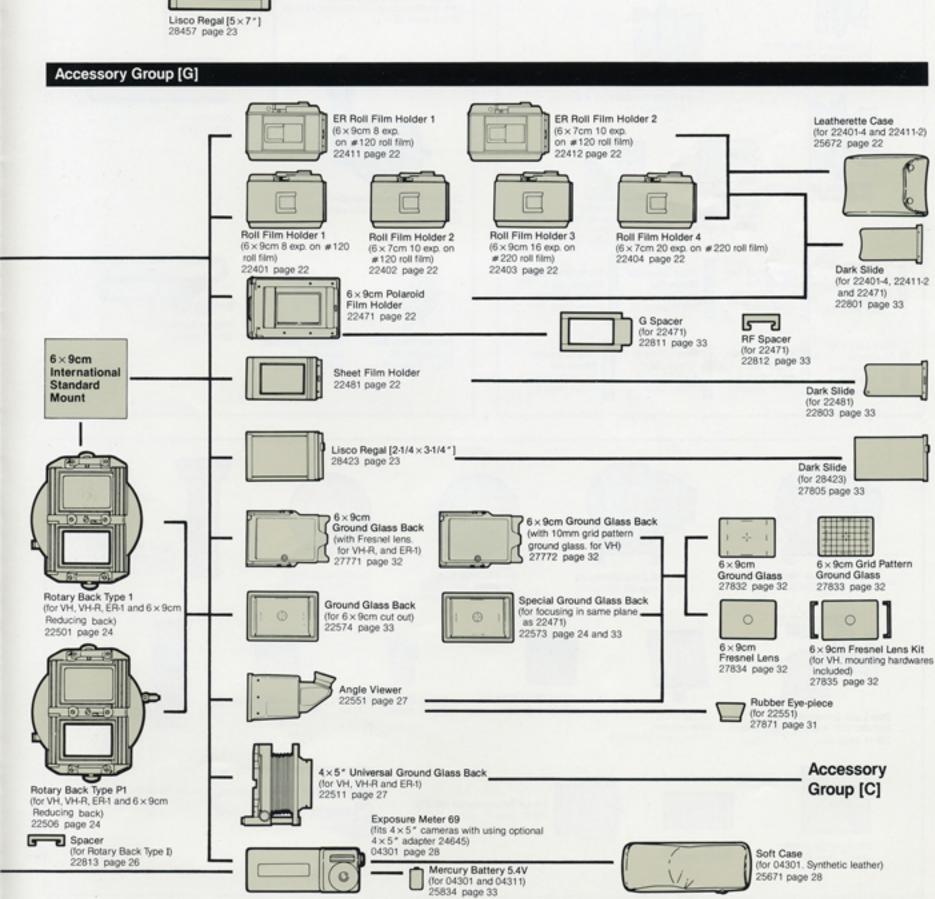
Close-Up — enlarging the image of the subject by expanding the bellows With view and technical cameras, you can take close-ups simply by expanding the camera bellows.

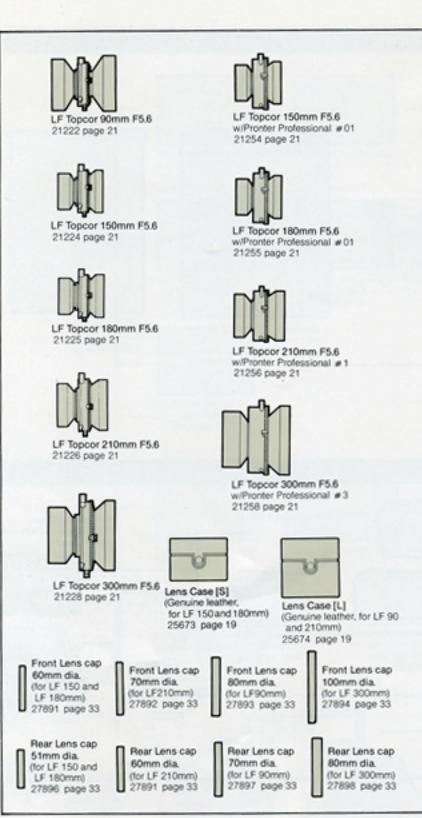


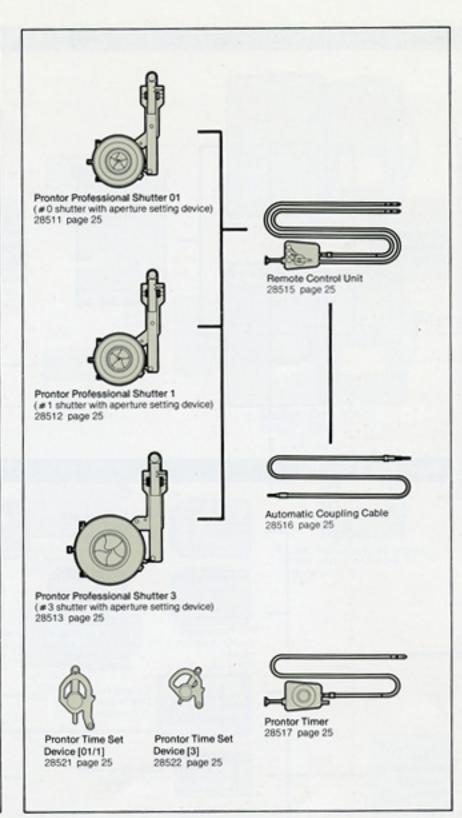


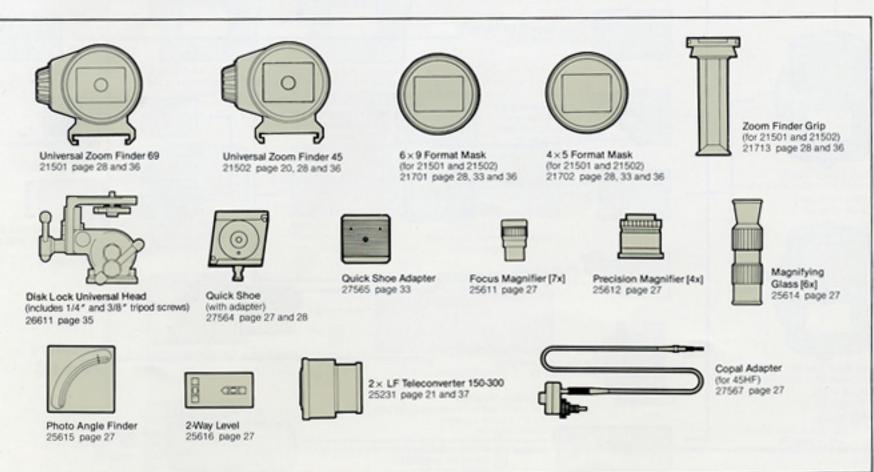


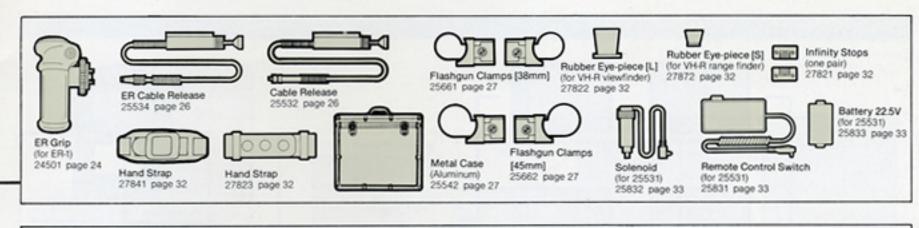


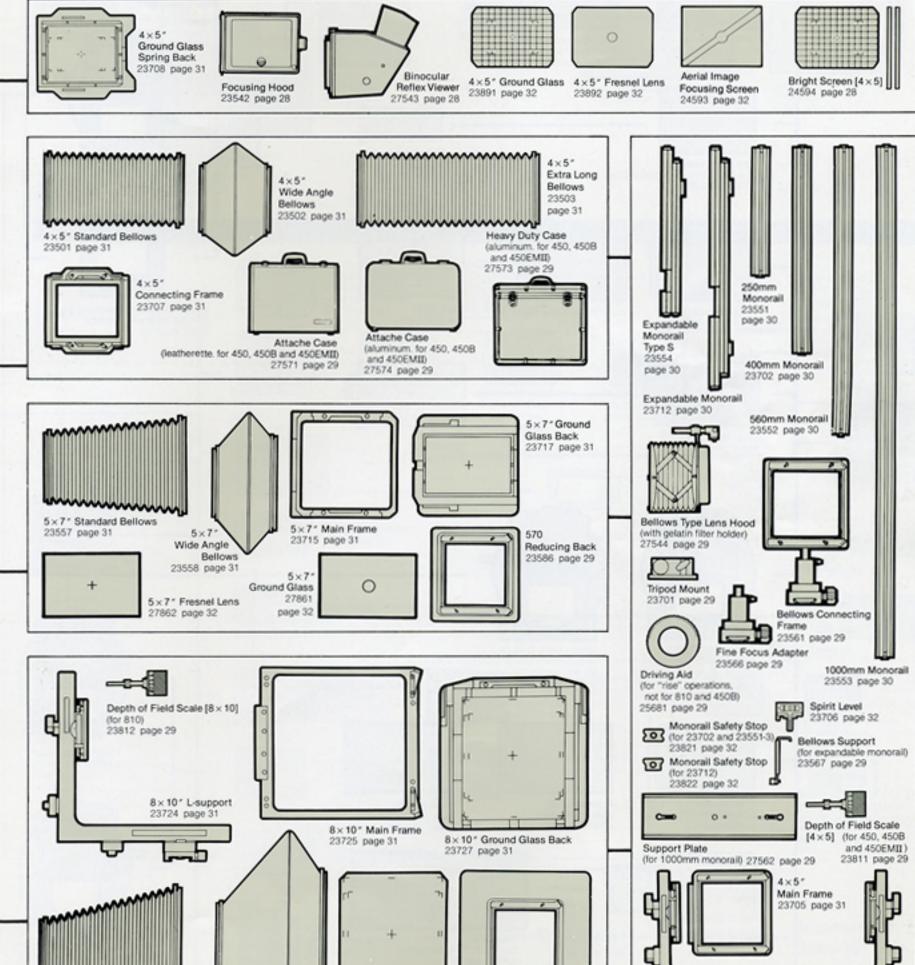












8 x 10 * Ground Glass 27863 page 32

810 Reducing Back

23585 page 29

4×5" L-support

23703 page 31

(front portion)

8×10" Wide Angle

Bellows 23582 page 31

8×10*

Standard Bellows

23581 page 31

4×5" L-support

(rear portion) 23704 page 31



"Horseman" is a registered trademark of Komamura Photographic Co., Ltd., Tokyo, Japan



KOMAMURA PHOTOGRAPHIC CO.,LTD.

2-12-11, Kyobashi, Chuo-ku, Tokyo, Japan Telephone 03 (561) 8591 Fax 03 (564) 3409 Telex 02524705

Exclusive Distributor

SEP 1 5 1988

9 NATIONS INC. 136 WATLINE AVENUE MISSISSAUGA, ONTARIO L4Z 2E2