Automatic depth-of-field indicators

Thanks to the movable depth-of-field indicators (6) it is appreciably easier to focus the camera. Moreover, since it is possible to read off the depth of field corresponding to the exposure combination right on the distance scale (7), you avoid the roundabout diaphragm-scale method.

The movable depth-of-field indicators show the exact field of focus and, at the same time, the distance from camera to subject can be read opposite the central index (5) (see fig 24). The depth-of-field indicators consist of two parallel movable pointers. The position of these pointers relative to the distance scale is reset when the aperture is changed. As you know, every change of shutter speed results in a corresponding change in the aperture since these two factors are automatically connected. Changes in the EVS setting due to changed lighting conditions also affect the aperture. Finally, the diaphragm can be disconnected from the exposure value setting which will also affect the position of the depth-of-field indicators. However, when the distance setting is changed, the pointers remain in the same position. The picture shows how the largest aperture (f/2.8) results in the smallest depth of field. This is equal to the distance between the two pointers. The smallest aperture (f/22) gives the maximum depth of field. A practical method of localizing a predetermined depth of field is to focus first on the nearest part of the object and read off the corresponding value on the distance scale. The same procedure is then applied to the part of the object farthest away. By setting the depth-of-field indicators to these two points you will have immediately made a setting that previously seemed extremely complicated. By taking full advantage of the automatic depth-of-field indicators you will develop faster, more reliable photographic techniques.

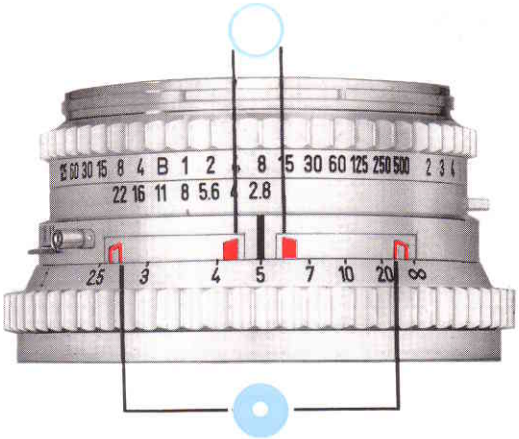


Fig. 29

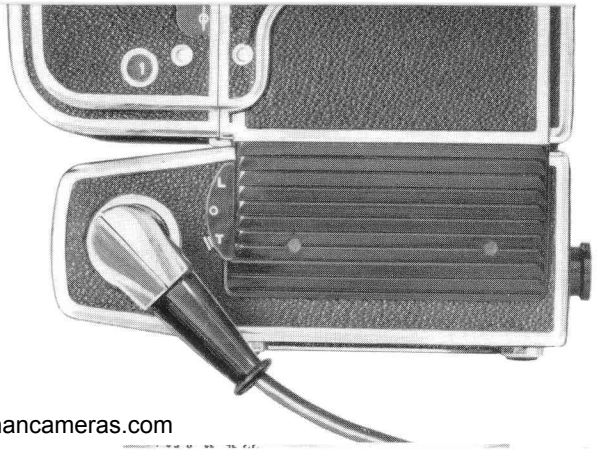
Exposure

Film is exposed by pressing the release button (14). Rule for all exposures: keep the button depressed until the between-lens shutter completes the exposure. This is especially important for times between 1 second and 1/15 of a second.

If the between-lens shutter is set for 1 second, for example, and you release the button too soon the auxiliary shutter will close and interrupt the exposure.

Fig. 30

Fig. 31



Time Lever

When making exposures of longer duration, the time lever (18) should be used. Set the between-lens shutter at "B". When the time lever is moved to the "T" position the shutter opens. When the lever is moved back from the "T" position exposure is terminated, the film advanced and shutter recocked. When exposing, the selector dial (15) should be in the "O" position.

Self-timer

The lever (29) engages the self-timer which, when in position V, operates at all shutter speeds except B. However, before the lever can be moved to V, the catch (30) must be moved forward. When the self-timer is engaged, exposure should be made with the time lever (18) — not the release button. The self-timer provides an 8–10 second delay after setting. The lever then returns to position "X".
The shutter is then X-synchronized and the camera can be used with both electronic flash and self-timer.

Shake-free exposures

One cause of unsatisfactory pictures is fuzziness caused by camera shake. Pressing the release button smoothly and firmly reduces the risk of camera shake. Release cords may be used to advantage for longer exposures.

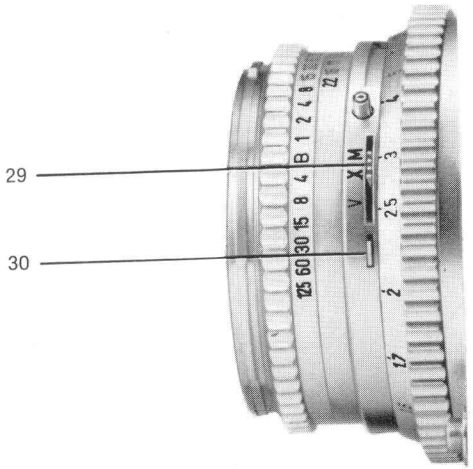


Fig. 32

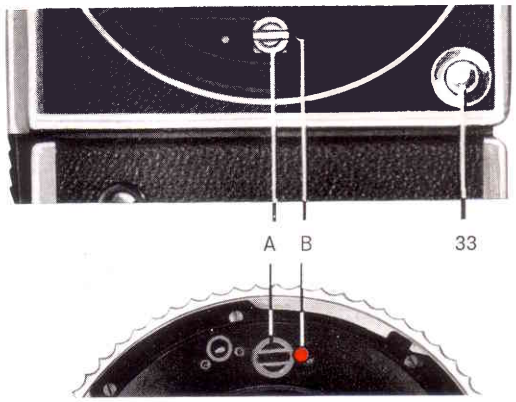


Fig. 33

Shutter cocking

The shutter is cocked by means of the cocking shaft. The slot in shaft (A) points to the red spot (B) when the shutter is cocked. If the shutter has been released while the lens was removed from the camera, it must be re-cocked before the lens can be inserted. The simplest way of cocking the shutter is to insert a coin into the slot on the cocking shaft and turn clockwise.

Changing lenses

The lens on your camera is replaceable and is attached by a bayonet fitting. The lens can be removed only when the selector (15) is set at position O or A and the time lever (18) is simultaneously at position L or O. When the lens catch (33) is depressed the lens can be removed by rotating it 1/5 of a turn in an anti-clockwise direction. Hold the entire lens mount in the right hand to ensure a firm grip.

The lens is correctly in position for attaching to the camera body when the red dot (O) is directly opposite the corresponding red dot (O) on the camera. Turn the mount clockwise until you hear the lens catch click into position.

Fig. 34

Synchronization

The camera is fully synchronized for both M and X settings. The synchronizer contact (28) is of the coaxial type. The cord from the flash gun to the synchro-contact is secured to the cable fastening with a special cable hook. Changeover between M and X is accomplished by the lever (29) after moving catch (30) forward. The diagram below illustrates what is meant by M and X synchronization.

M synchronization

This delays the exposure until the flash has reached its peak intensity.
It is used with class M and S flash bulbs at all shutter speeds. When M synchronization is used the shutter speed is usually shorter than the flash time of the bulb. This factor must be borne in mind when using fast shutter speeds.

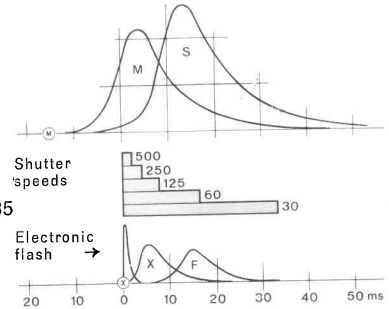


Fig. 35

X synchronization

This is used to fire to the flash when the shutter is fully open. It is used for electronic flash at all shutter speeds and for flashes in accordance with class X and F at longer shutter speeds.

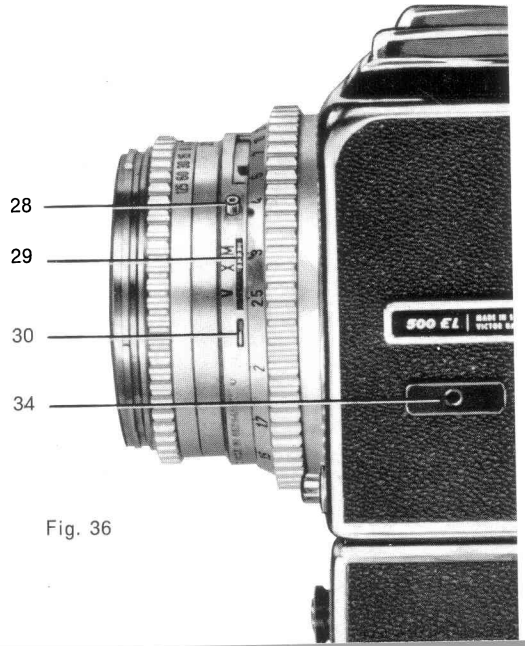


Fig. 36

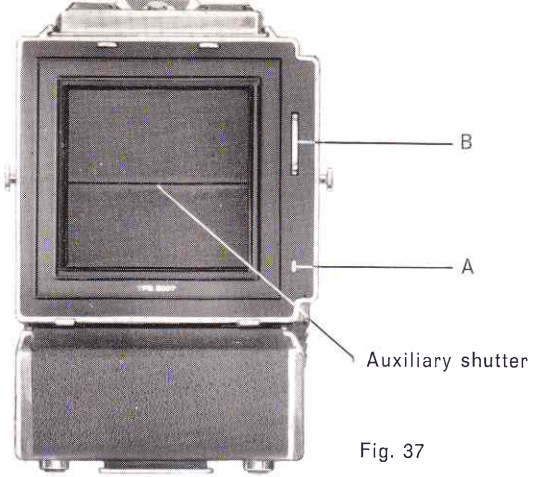


Fig. 37

Auxiliary shutter

The advantage of being able to use interchangeable lenses with individual between-lens shutters in a single-lens reflex camera is achieved by using an auxiliary shutter. This is fitted to the rear wall of the camera housing and consists of two movable blades. The auxiliary shutter is opened by the release button and remains open as long as the button is depressed or an exposure signal is transmitted by other means.

The auxiliary shutter is closed to prevent light from striking the film when the mirror is in the lower position for focusing on the groundglass. It assumes a similar position and function when changing lenses, since this operation can be performed only with the mirror lowered – i.e. when the selector is set at O or A.

Interchangeable backs

The rear of the camera and the front of the magazine are precisely matched. Light traps effectively prevent the intrusion of extraneous light. Power is transmitted from the winder to the film-advance shaft via gear wheel B. The double exposure check and the film signal are actuated by pin A. Make sure that dirt and dust does not collect at A and B to impair camera operation.

One of the major advantages of the Hasselblad camera is that you can change magazines. For this reason it is especially important to learn the necessary procedure at an early stage.

Hold the camera in your left hand with the lens pointing away from you. Press the magazine catch

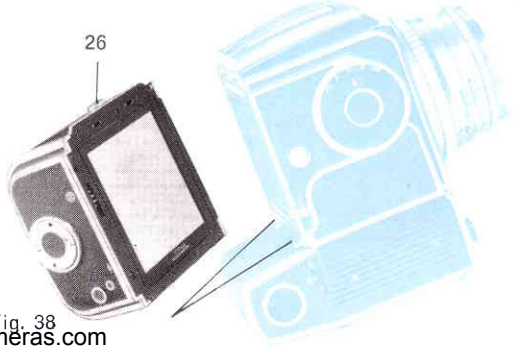


Fig. 38

Fig. 39

(26) to the right with the thumb of the right hand, releasing the magazine and enabling you to lift it from the locking hooks.
The magazine slide (38) must be in place before the magazine can be changed. The magazine slide actuates the catch which prevents you from removing the magazine until the film is protected from light. When the slide is removed you can operate the camera, but the magazine cannot be removed. When it is in position you cannot make an exposure or wind the film, but the magazine can be removed. It is important that the slide be inserted at right angles to the camera body and front. This facilitates loading.

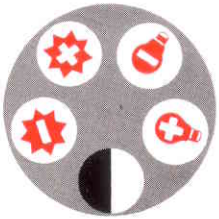
Negative sizes

The following magazines are available for the Hasselblad 500 C:

Magazine 12 for 12 negatives, $2^1/_4'' \times 2^1/_4''$; **16** for 16 negatives, $1^3/_4'' \times 2^1/_4''$; **16 S** for 16 negatives, $1^5/_8'' \times 1^5/_8''$. $1^5/_8'' \times 1^5/_8''$ negatives can be mounted as $2'' \times 2''$ superslides for projection in 35 mm machines. **Magazine 70** provides approx. 70 negatives on 70 mm perforated film for loading in special cassettes.
Magazines are identified by the numbers (25) printed on the same plate that carries the film plane marking (22).

Film type indicator

When working with several magazines you must make absolutely sure to note the type and speed of the film after loading the magazine. Do this on the film type indicator on the back of the magazine.



It is graduated in ASA 6—1600 and DIN 12—33. Set the exposure meter to the required film speed. The type of film is indicated by symbols designating black-white, color, daylight, artificial light, positive, negative.

Fig. 40

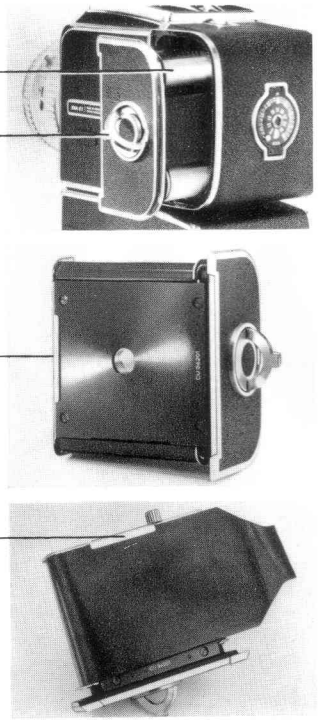


Fig. 41

Loading the roll film magazine

First release the spool holder by turning the spool holder catch (37) counter-clockwise. Next withdraw the spool holder. Then turn the spool holder clockwise until the film clamp opens. Open the spool-holder arms so that the spool and the empty (take-up) spool can be inserted.

Place the take-up spool in the holder with the knurled knob, and the film spool in the opposite one. Hold the thumb on the rolled film and pull out about 4 inches of the paper. The black side of the paper should be towards you.

Insert the paper under the film clamp. Lock it in place by turning the spool holder catch counter-clockwise. Insert the paper flap into the take-up spool. Tighten the paper with the knurled knob.

Place the loaded spool holder in the magazine. Release the paper and lock the spool holder by turning the spool holder catch clockwise.

Open the film window. Turn the winding knob until the figure 1 appears in the window. **Now set the exposure counter by turning the film winding knob counter-clockwise as far as it will go.** The figure 1 will then appear in the exposure-counter window. After the last frame has been exposed the exposure stop comes into action automatically. The film is then wound onto the take-up spool by means of the loading key (23).

When changing magazines, always make certain that white color appears in the film signal window.

Tips on using the roll film back

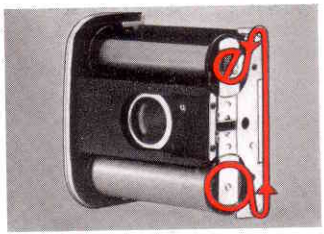
There is no need to remove the magazine from the camera when loading the roll film magazine. On the contrary, you should avoid changing the magazine unnecessarily. Immediately after attaching the magazine, remove the slide. If the slide is left in the magazine you run the risk of losing valuable seconds when swinging into action. If you plan to take a large number of pictures the best method is to load several magazines with film and thus save considerable time.

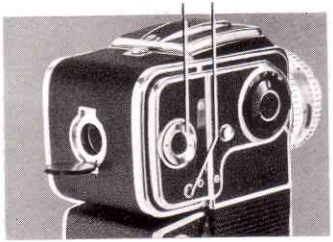
Make a habit of setting the film type indicator to the speed of the film in the magazine as soon as you have loaded the magazine. Don't forget to indicate the type of film. If you are using several magazines you must do this to avoid mix-ups.

Make a habit of turning back to set the exposure counter to 1 after transporting the film; check the number in the film window.

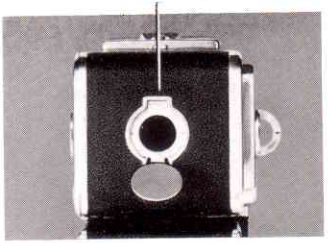
Fig. 42

How to thread the film





Film window opened



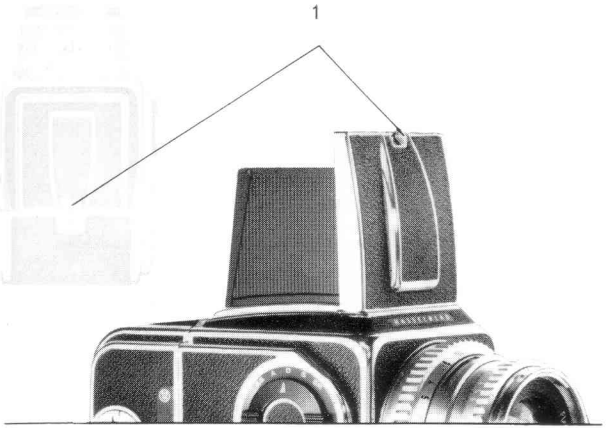


Fig. 43

Focusing hood and ground glass screen

Open the focusing hood by pressing the catch (1) to the right. The fine-focusing magnifier is released by pressing the catch still further to the right. To close the hood, fold the sides over the ground glass screen, then the back, and finally the front.

Note: before closing the hood, the magnifier must be returned to the closed position. Do not touch the surface of the magnifier, since fingerprints and smears greatly reduce brilliance when focusing.

Fine-focusing magnifier

When the focusing hood is opened you will see a bright image of the picture. This is completely free from parallax. i.e., exactly the same picture will be recorded on the film when the exposure is made. The fine-focusing magnifier should be used frequently to check the accuracy of focus.

Ground glass screen

The ground glass screen on Hasselblad cameras is practically free from grain—a feature that greatly facilitates focusing even in very poor light. The brilliance of the image is enhanced considerably by the Fresnel lens which provides faithful light rendition over the entire surface of the ground glass screen.

Removing the focusing hood

To remove the focusing hood, first remove the film magazine, then push the focusing hood backwards in its grooves. The ground glass can be easily cleaned when the focusing hood is removed.

Other finders used with ground glass screen

Accessories used with the ground glass screen instead of the focusing hood include a magnifying hood, which completely shuts out disturbing extraneous light, and two eye-level prism finders.
One prism finder has its line of sight parallel to the lens axis: the other has a 45° sighting angle. Both provide a right-way-round image. The magnifying hood and prism finders are mounted in the same way as the focusing hood.

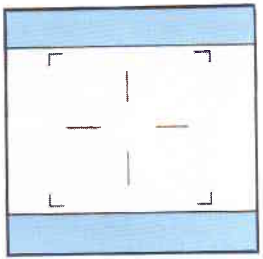


Fig. 44

Markings on the ground glass screen

The ground glass screen is marked with a cross showing the horizontal and vertical planes.
When using roll film magazines 16 and 16 S, a special mask (see fig. 44) is placed over the ground glass screen and held in place by the focusing hood or magnifying hood which are positioned on top of it. The mask is of transparent plastic and is provided with markings for the various picture areas. A checked mask is also available for architectural photography, etc.

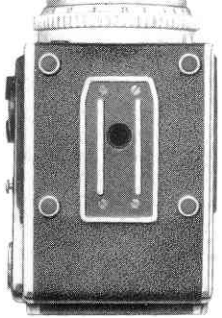


Fig. 45

Tripod fastening devices

Fitted to the bottom of the camera is the usual European tripod thread as well as a quick-attachment shoe. This is inserted in a Hasselblad tripod quick coupling which is supplied as an accessory. The coupling is attached to the tripod pan head or ball and socket. With this accessory the camera can be quickly freed and re-attached in its pre-set position. In addition, the camera is fitted with four rubber feet which provide stable support when the camera is placed on a flat surface.

Cable hook

Insert the cable hook in hole (34) to hold the synchronization cord in position.

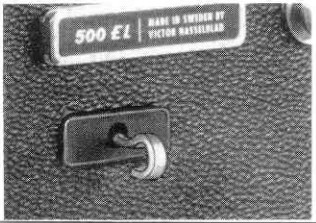


Fig. 46

Frame viewfinder

This viewfinder indicates the field of view for the Sonnar 150 and Sonnar 250 lenses when used in conjunction with the Hasselblad 500 EL and magazine 12 or 70. The frame viewfinder slides onto the sunshade from the front and is clamped in place with an effective snap catch.

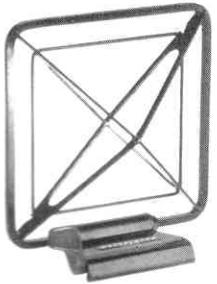


Fig. 47

Spirit level, adjustable flash shoe

Attach and remove in the same way as the sports viewfinder.

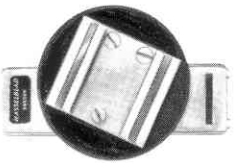


Fig. 48

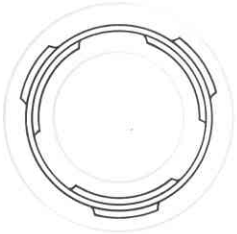


Fig. 49

Filters and sunshade

The lens mount is provided with external and internal bayonet fittings (11) for rapid attachment of filters and sunshade. The internal bayonet fitting is used for color filters, polarization filters and supplementary lenses. The external bayonet fitting is for a sunshade or ringlight. The bayonet fittings have three lugs.

Color filters

The externel and internel bayonet fittings for lenses with focal lengths of 80, 120, 150 and 250 mm are identical. Conventional screw-in filter rings and filters are used with the 50 mm and 500 mm lenses. The size designation for bayonet-fitting filters is **50**; for the 50 mm lens the size designation is **63**; and for the Tele Tessar 500 mm it is **86**. Filters should be attached with the identification code at the right-hand side of the camera where it is conveniently visible for correcting the exposure value obtained from the light meter. Genuine Hasselblad filters are made of solid glass and include correction, contrast and haze filters. They are mounted in black anodized aluminium rings. The identification code indicates color, filter factors and diameter.

Example:
The yellow filter is designated 50 1.5×Y—0.5. 50 means 50 mm filter diameter. 1.5, the filter factor, means that the exposure should be 1.5 times as long. Y means yellow. 0.5 means a reduction of half an exposure value.

The prolonged exposure can either be compensated for directly on the exposure meter reading or by correcting the exposure value (an exposure 1.5 times as long is thus equivalent to an exposure value which is a half step lower: —0.5).

Yellow

For landscapes, snow, cloudy skies.
Yellow and red–lighter.
Blue–darker.

Yellow-green

Cloud effects, distance shots.
Foliage and grass rendered lighter.

Green

Multicolored subjects in daylight.
Portraits in daylight or artificial light.

Orange

Sky contrasts, stresses textures and color variations outdoors.
Absorbs part of ultraviolet light in long distance shots.

Red

More effective than orange filters.
(Filter factors for pan film.)

Grey

Reduces light strength. Used for close-up shots with electronic flash or other subjects exposed to excessive light.

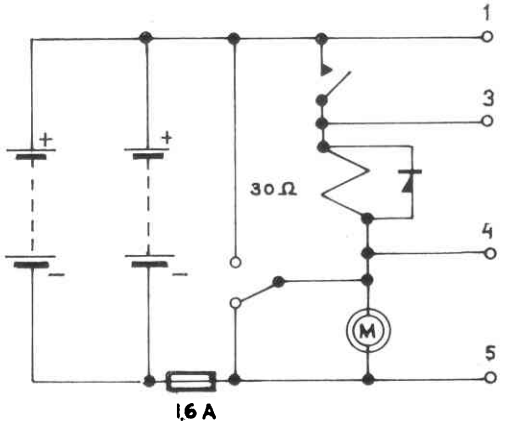
Polarization filters

The Hasselblad polarization filter 50 2×Pola—1 is used to absorb reflections (not metal surfaces). The filter passes a maximum amount of light in one plane only. By rotating the filter with the knurled outer ring the angle presented to entering light can be changed.
The polarization filter can also be used to darken a blue sky; on color film this effect is similar to the effect of a yellow filter on ordinary black-white film.

Light balance filters

Eight light balance filters are available for color photography. Two of these are conversion filters: one for using artificial light film in daylight and one for using daylight film in artificial light.

Fig. 50



Tension: 6 v
Battery: 1 or 2 pcs Deac 5/500 DKZ
Fuse: Wickman 1.6 A time-lag
Terminal: Preh 8-6404 or 8-6082
Current when exposing (pin 1 and 3): 0,2 A

Your Hasselblad is produced in Göteborg, Sweden, by Victor Hasselblad Aktiebolag. This is to inform you that your Hasselblad camera is guaranteed for one year against defective materials or workmanship, **if the enclosed Registration Card is returned within ten days of the date of purchase of the equipment.** Transportation charges to and from manufacturer's nearest authorized service workshop to be paid by customer. No liability is assumed for damaged or faulty film. The guarantee does not apply where the camera is subject to abnormal treatment.