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ASAHI PENTAX



INSTRUCTION GUIDE



MAJOR ASAHI PENTAX WORKING PARTS

- | | |
|----------------------------|---------------------------|
| ① Diaphragm adjusting ring | ⑪ Slow speed shutter dial |
| ② Pre-set diaphragm ring | ⑫ Shutter button |
| ③ Pre-set diaphragm index | ⑬ Film rewind knob |
| ④ Distance scale ring | ⑭ Film rewind crank |
| ⑤ Distance scale | ⑮ Film type guide |
| ⑥ Distance scale index | ⑯ Hinged back lock |
| ⑦ Depth-of-field guides | ⑰ Shoulder strap hook |
| ⑧ Film transport lever | ⑱ Synchro-flash FP socket |
| ⑨ Exposure counter | ⑲ Synchro-flash X socket |
| ⑩ High speed shutter dial | |

I N D E X

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The ASAHI PENTAX is a quality photographic product from a world-famous Japan optical goods manufacturer, the Asahi Optical Co., Ltd. of Tokyo. Among its unique features are the world's first combination of a pentaprism finder and the Asahi instant return mirror for photographic follow-through. The TAKUMAR lenses and all ASAHI accessories are made by the Asahi Optical Co., Ltd. and are guaranteed to be free of material and workmanship defects according to the standards set forth in the Guarantee Card with your camera.

MAIN FEATURES OF ASAHI PENTAX

Type

Single lens reflex

Film size

35mm film

Picture size

24mm×36mm

Standard lens

Takumar 58mm f2.0

Takumar 55mm f2.2

Takumar 58mm f2.4

All with helicoidal lens barrel with pre-set diaphragm ring.

Focal plane shutter speeds

T, B, 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200, 1/500.

Viewing and Focusing

Viewing and focusing are achieved by turning the distance scale ring and observing the image through the penta-prism viewfinder with its built-in magnifier and Fresnel lens. (With the 58mm lens, an approximately life-size image is seen through the viewfinder.)

Reflex Mirror

Instant return mirror capitalizes on the human eye's image retentiveness to aid in the photographic follow-through.

Film Transport

Single-stroke, rapid transport lever automatically winds film and cocks shutter.

Film Rewind

Film rewind crank speeds film take-up.

Double Exposure

Coupled film transport and shutter cocking prevents double exposure. (If desired, double or multiple exposures may be made by depressing the film rewind release button located on the bottom of the camera body).

Interchange- able Lenses

Threaded lens mount provides lens interchangeability with Asahi-Takumar lenses, Praktica, Contax D and similar size lenses.

Flash Synchron- ization

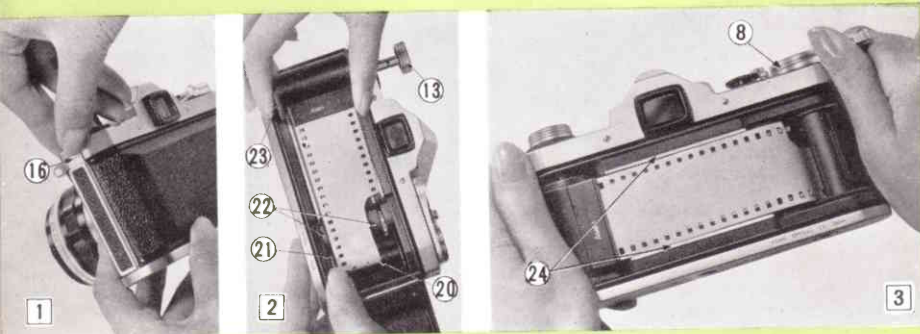
For flashbulbs and electronic flash.

Film Type Guide

Color-coded to aid in film identification with ASA range from 10-800.



Recommended horizontal position
for camera.

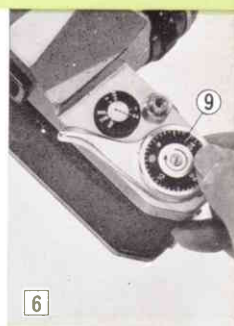
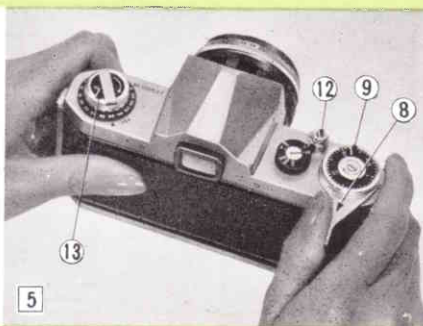


SIMPLIFIED FILM LOADING

1. Open the back by pulling out the lock¹⁶.
2. Pull out the film rewind knob¹³ completely, place the film cassette into the cassette chamber²³, and push back the rewind knob. Draw out the film leader and insert it into the slit of the take-up spool²⁰.
3. Turn the film transport lever⁸ and make sure that both sprockets²² have properly engaged the film perforations. Close the back and fasten the lock¹⁶.

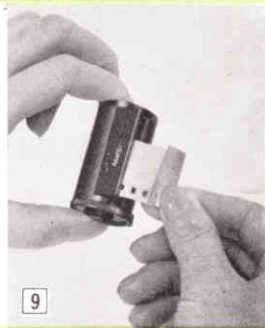
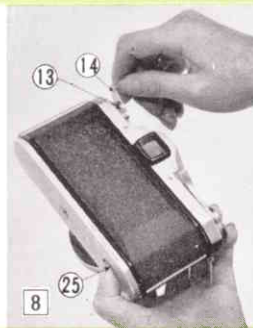
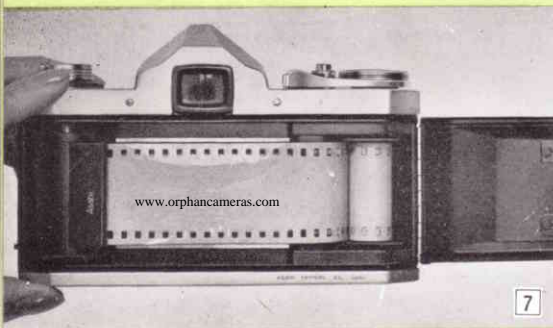
RAPID-ACTION FILM TRANSPORT

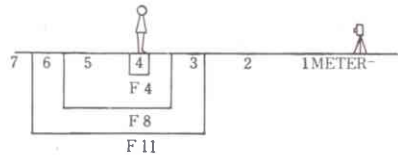
1. Before turning the film transport lever⁸, slowly turn the film rewind knob¹³ clockwise until a slight resistance is felt. This prevents loosening or warping of the film.
2. Cock the film transport lever until it stops (180°). Watch to see that the film rewind knob automatically turns counter-clockwise, indicating that the film is moving from cassette to take-up spool.
3. Trip the shutter button¹² and again cock the film transport lever. Set the exposure counter⁹ to "0" and trip the shutter button again. The camera is now ready to take the first picture. When cocking the film transport lever for the first picture, the exposure counter automatically moves to "1", indicating that the first picture has been taken.



RAPID-TYPE FILM UNLOADING

1. After the final picture on the roll has been taken, DO NOT open the back or **all** exposed frames will be ruined.
2. Erect the film rewind crank¹⁴ and turn it while depressing the film rewind release button²⁵. When the film has been rewound back into its cassette, the rewind crank will lighten as the leader end of the film slips off the take-up spool.
3. Open the back, pull out the film rewind knob¹³ and remove the film cassette. Bend the leader end of the film to indicate that the film is exposed and ready for development.





BRIGHT-FIELD FOCUSING

1. Cock the film transport lever to wind the film and set the shutter. Set the pre-set diaphragm ring² at the desired lens aperture. Turn the diaphragm adjusting ring¹ so that the actual diaphragm is fully open to make the viewing and focusing bright and easy.
2. Observe the subject through the viewfinder. Turn the distance scale ring⁴ until the image is clearly in focus. Then turn the diaphragm adjusting ring¹ until it automatically stops at the pre-selected diaphragm setting. Take the photo by tripping the shutter button.
3. The above diagram illustrates depth of field. When the diaphragm is closed, depth of field is increased; when it is open, depth of field is shallow. It is sometimes necessary to focus with the diaphragm closed to determine the effective depth of field.

DEPTH-OF-FIELD GUIDES

The figures on each side of the distance scale index⁶ correspond to the diaphragm settings and indicate the range of in-focus distance for different lens apertures. For example, if the lens opening f8 is to be used, the range on the distance scale⁵ covered within the figures "8" indicates the area in focus at that lens setting. Note that as the lens apertures change, the effective depth-of-field changes.

As the ASAHI PENTAX has a bright Fresnel lens construction, the exact depth of field is determined visually by observing the image through the viewfinder with the diaphragm closed. To emphasize the subject by obscuring its foreground and background, open the diaphragm and shoot at a higher shutter speed. For greatest depth-of-field, close the diaphragm and shoot at a slower speed.

COMPOSITION OF PICTURES

The image on the viewfinder gives the exact image which will fall on the film. Even after changing lenses for extreme close-up or telephoto photography, the image on the ground glass is the actual image that will appear in the final photo.



PRE-SET DIAPHRAGM

The click-stop, pre-set diaphragm ring² assists in simplifying camera handling. It should be set before focusing. Set it at the desired lens setting and focus with the actual diaphragm open. Before tripping the shutter, turn the diaphragm adjusting ring¹ until it automatically stops at the pre-selected diaphragm setting. The diaphragm may be set at points between click-stop settings.



LENS APERTURE (DIAPHRAGM)

The brightness of the lens increases as the diaphragm f number decreases. The following table shows the relative exposures of f numbers.

Diaphragm setting	2	2.8	4	5.6	8	11	16	22
	2.4	3.5						
Ratio of exposure	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	8	16
Brightness of lens	As the diaphragm is opened from f22 to f2, lens brightness doubles at each setting. For instance, twice as much light enters at f11 as at f16.							

INSTANT RETURN MIRROR

The ASAHI PENTAX incorporates the unique advantage of an instant return mirror which permits the photographer to find—shoot—and instantly see again the subject on the ground glass. This creates the advantage of the

evaluation of the exposure just completed so that the photographer may be ready for the next exposure to come. The accompanying photographs illustrate the differences between the instant return mirror action and the action of the standard single lens reflex mirror.

ASAHI



Focus



Expose



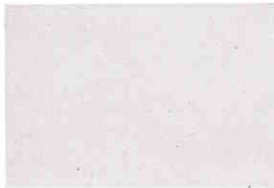
Instantly See Again

Because of the human eye's image-retentiveness combined with the instant return feature of the ASAHI PENTAX mirror, the image is only partially lost during the moment of exposure.

OTHERS



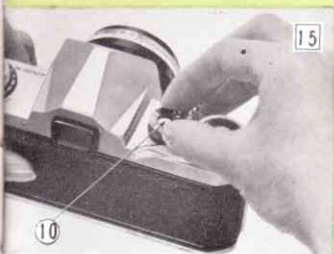
Focus



Expose



Image Blackout



SHUTTER SPEEDS

The ASAHI PENTAX is equipped with shutter speeds of 1/500, 1/200, 1/100, 1/50, 1/25, 1/10, 1/5, 1/2, 1 second, plus Time and Bulb. The following chart shows the relation between the lens settings and shutter speeds to provide the same exposure effect in a given lighting. For example, note that an exposure of f2.8 at 1/100 is the equivalent of f5.6 at 1/25.

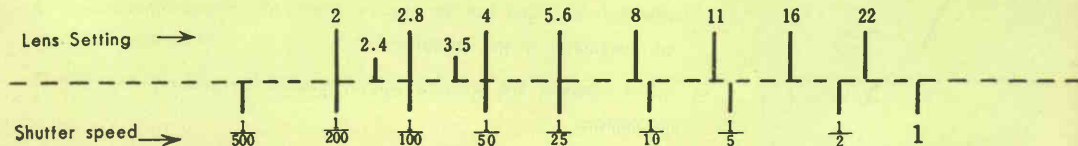
ADJUSTMENT OF SHUTTER SPEEDS

From 1/25 to 1/500 and Bulb:

Set the figure 25 on the **slow speed** shutter dial¹¹. Lift the **high speed** shutter dial¹⁰, turn and drop it at the desired shutter speed setting. The shutter speed may be set **before** as well as **after** cocking the film transport lever.

For Bulb exposures:

At the setting B (Bulb), the shutter will be fully open as long as the shutter button is depressed. When a long exposure is desired while using the B setting, attach a shutter release cable with a locking device to the shutter button. This will permit a "time" exposure.



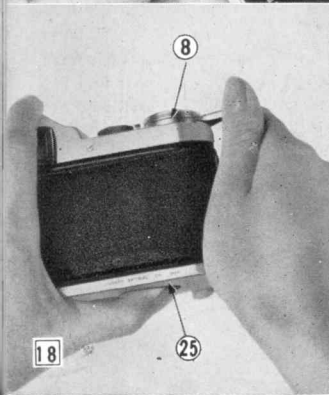


From 1 second to 1/10 and Time:

Set the figures 25-1 on the **high speed** shutter dial¹⁰. Turn the **slow speed** shutter dial¹¹ to the desired slow speed setting.

For Time exposures:

At the setting T (Time), the shutter will be fully open after the shutter is released. To close the shutter, turn the slow speed shutter dial to the left.

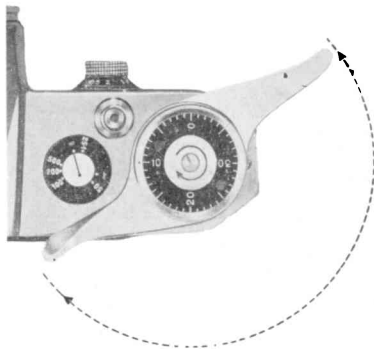


CAUTION

1. At slow speeds, support the camera rigidly or use a tripod to prevent vibration of the camera.
2. The high speed shutter dial¹⁰ automatically turns when the shutter is released and can not be touched during this instant without causing an irregularity in the exposure.
3. Avoid keeping the camera shutter cocked to protect the shutter mechanism.

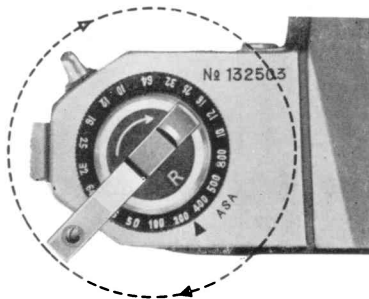
RAPID WIND ACTION

The ASAHI PENTAX has been furnished with a single-stroke, rapid wind film advance and shutter winding action. The rapid wind lever⁸ operates with a simple half-circle stroke of the right thumb. For further rapid action convenience, a film rewind crank¹⁴ is provided in place of a knurled knob for film rewinding.



CREATING MULTIPLE-EXPOSURES

To make a double- or multiple-exposure, depress the film rewind release button located on the camera bottom and turn the film transport lever. This permits the cocking of the shutter without moving the film. Double- or multiple-exposures are made by repeating this procedure. To maintain the disengaged film in position for accurate multiple-exposures, turn the film rewind knob¹³ clockwise before cocking the shutter for the added exposures.

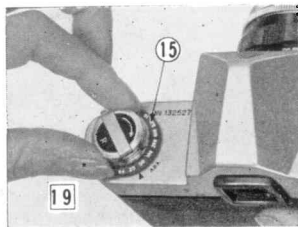


FILM TYPE GUIDE

Use the film type indicator⁹ to record the speed of the film loaded in the camera. The figures on the film type guide are ASA numbers. Use the white figures for black-and-white film; red figures for color film; and green figures for special film, such as positive film, copying film, reversal film, etc. To check whether or not the camera is loaded, turn the film rewind knob¹³ clockwise. If it turns freely, the camera is **not** loaded.

PROPER MAINTENANCE

To remove grit or dirt from the camera body, use a soft brush or a dry, soft piece of cloth. Never use oil and do not touch the shutter curtains. For the lens and the reflex mirror, use only a spray of air or a soft lens tissue. Never wipe the mirror or lens surfaces with cloth.



Recommended vertical position
for camera

BRIGHT GROUND GLASS

For maximum optical brilliance even in weak light conditions or when the lens has been closed to a small f-stop, the ASAHI PENTAX has been equipped with a Fresnel lens beneath the ground glass. This lens insures brilliant images in the corners of the ground glass with all interchangeable lenses. The illustrations on this page indicate the advantages provided in this superior viewing system design.



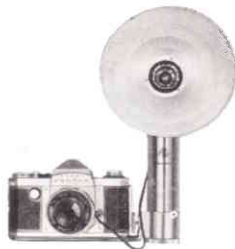
PENTA-PRISM OPERATION

For improved single lens reflex operation, the ASAHI PENTAX incorporates a penta-prism which, in addition to correcting the mirror image reversal of waist-level type reflex cameras, adds the advantage of simplified vertical and horizontal camera handling.



FLASH SYNCHRONIZATION

The ASAHI PENTAX is equipped with FP and X flash sockets. The table shows which flash socket on the camera, which shutter speeds and which flashbulbs may be combined for maximum lamp efficiency. Unless these combinations are rigidly followed, there will be a failure in flash synchronization. Note "X" on the high speed shutter dial¹¹, which indicates the highest speed at which an electronic flash may be used. Also note that by using the X socket and any of the slow shutter speeds (X, 1/25, 1/10, 1/5, 1/2 and 1 second) it is possible to use Class F and M bulbs.



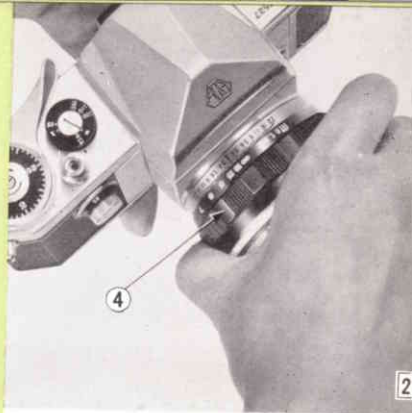
Flash sockets \ Shutter speeds	1/500	1/200	1/100	1/50	X	1/25	1/10	1/5	1/2	1	B
	FP Class (screw base)										
FP	FP Class (screw base)										
	FP Class (Bayonet base)										
X						F Class					
						M Class					
						Electronic Flash					

INTERCHANGEABLE LENSES

The ASAHI PENTAX offers a system of seven interchangeable TAKUMAR lenses. TAKUMAR lenses are widely respected by the professional and amateur photographers for their fine resolution. The photographic coverage of the various TAKUMAR lenses are illustrated on the next page. With focal lengths longer than 83mm, the subject image is seen through the viewfinder larger than life size.

Regardless of the lens selected for the ASAHI PENTAX, there is never need for an accessory viewfinder, ordinarily required for range-finder type cameras.

When interchanging lenses, hold the lens by the distance scale ring⁴ as shown in photograph 21.





55 mm



58 mm



83 mm

DIFFERENCES OF ANGLE OF TAKUMAR INTERCHANGEABLE LENSES

All photographs were taken from the same location and distance from the subject.

100 mm



135 mm



500 mm



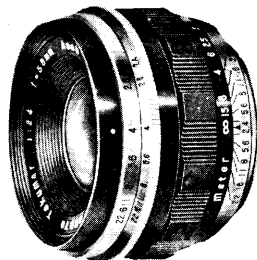
**TABLE FOR DEPTH OF FIELD WITH
TAKUMAR 58 mm f 2.4 AND f 2.0 LENSES**

Subject distance Lens opening	Extension tubes Nos. 1, 2 and 3; distance scale set at 60cm.	Extension tubes Nos. 1 and 2; distance scale set at 60cm.	Extension tube No. 1; distance scale set at 60cm.	60 cm	1.5 meters	4 meters	8 meters	15 meters
F 2	23.9 ^{cm} ~24.1	26.4 ^{cm} ~26.6	36.4 ^{cm} ~36.8	59.4 ^m ~60.6	1.46 ^m ~1.54	3.72 ^m ~4.33	6.9 ^m ~9.5	11.6 ^m ~21
2.8	23.9~24.1	26.4~26.6	36.3~36.9	59.1~60.9	1.44~1.56	3.6~4.5	6.6~10.2	10.7~25
4	23.8~24.2	26.3~26.7	36.2~37	58.8~61.3	1.42~1.59	3.5~4.7	6.1~11.6	9.4~35
5.6	23.8~24.2	26.2~26.8	36~37.2	53.3~61.8	1.39~1.63	3.3~5.1	5.6~14	8.3~80
8	23.7~24.3	26.1~26.9	35.7~37.5	57.6~62.6	1.35~1.69	3.1~5.8	4.9~21	6.9~∞
11	23.5~24.5	25.9~27.1	35.4~37.8	56.7~63.7	1.3~1.77	2.8~6.9	4.3~53	5.8~∞
16	23.3~24.7	25.7~27.4	34.9~38.4	55.4~65.5	1.2~1.9	2.5~10	3.5~∞	4.5~∞
22	23.1~25	25.4~27.7	34.4~39.2	54~68	1.1~2.2	2.1~25	3~∞	3.6~∞

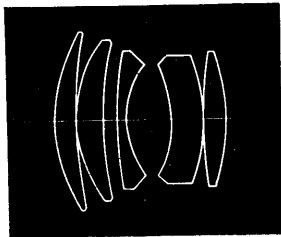
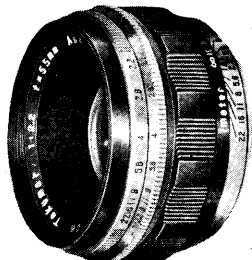
A pioneer of large diameter, bright 5 element lenses: new optical glass used with recently advanced theory of design. It certainly makes portraits, sports events, stage production and other important happenings a part of your life. It satisfies all your demands for brilliance, sharpness and color balance.

Lens elements5
Minimum lens aperturef22
Distance scale.....60 cm (2.0 ft)
—infinity
Angle of view41°
weight155 grs.
With pre-set diaphragm

TAKUMAR 58 mm

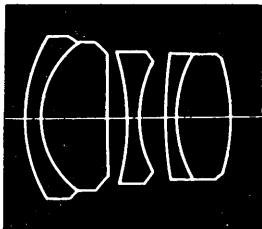


TAKUMAR 55 mm f 2.2 (Standard)



Finest 5-element lens performance. Combines effective light gathering capacity with maximum resolution performance at a focal length especially suited to single lens reflex photography. Highly recommended as the basic lens for Asahi system.

f 2.4 (Standard)

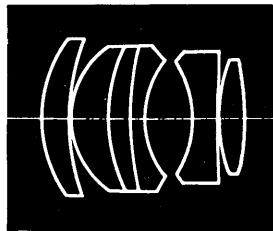
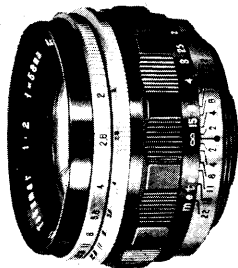


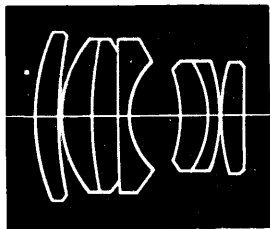
Newest high-speed 6-element lens, utilizing latest optical glass advances. High resolving power combines with outstanding brightness for easiest focusing. Ideal for exceptional results indoors or at night.

Lens elements6
Minimum lens aperturef 22
Distance scale.....60 cm (2.0 ft)
—infinity
Angle of view41°
Weight160 grs.
With preset diaphragm

Lens elements5
Minimum lens aperturef 22
Distance scale.....55 cm (1.8 ft)
—infinity
Angle of view43°
Weight155 grs.
With pre-set diaphragm

TAKUMAR 58 mm f 2 (Standard)





Lens elements7
Minimum lens aperturef 16
Distance scale.....1.1 m (3.5 ft)
 —infinity
Angle of view29°
Weight440 grs.
With pre-set diaphragm

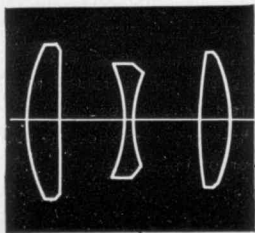
A quality medium telephoto lens of 3 elements, with aberrations satisfactorily corrected. Lightweight design for minimum camera vibration. Recommended for scenery, portrait, news photos, other moderate telephoto effects.

TAKUMAR

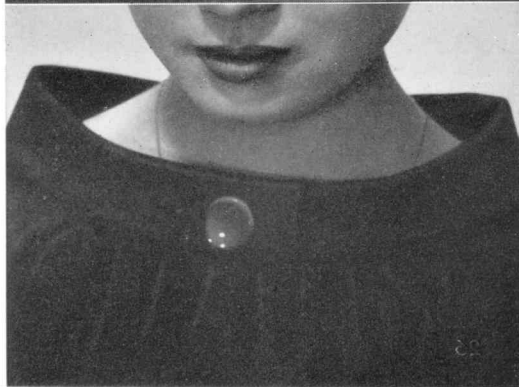
Lens elements3
Minimum lens aperturef 16
Distance scale 1.2m (4ft)—infinity
Angle of view24°
Weight280 grs.
With pre-set diaphragm

Single lens reflex design
of ASAHI PENTAX per-
manently eliminates pa-
rallax.

100 mm f 3.5



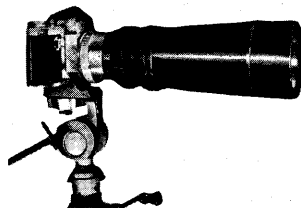
Parallax of eye-level
35mm cameras in close-
up portraits.



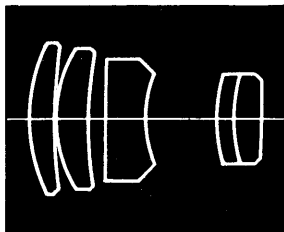
Produces a brilliant image in all corners of the photo even with the diaphragm fully open! Indispensable for distant subject matter and for portraits. Ideal for close-ups of animals or plants, even at a distance. Recommended as the ideal long telephoto lens for hand-held camera operation.

Lens elements5
Minimum lens aperturef 16
Distance scale 1.8m (6ft)—infinity
Angle of view18°
Weight500 grs.
With pre-set diaphragm.

TAKUMAR



TAKUMAR 135 mm f 3.5



Real telephoto lens of newest design. The light weight of 950 grams enables hand-held shooting, and is considered to be the most ideal telephoto lens for spectacular telephotographic effects. Even with the diaphragm fully open, the aberrations are corrected to the greatest extent possible. Gives needle-sharp resolution to every corner of the picture.

300 mm f 4

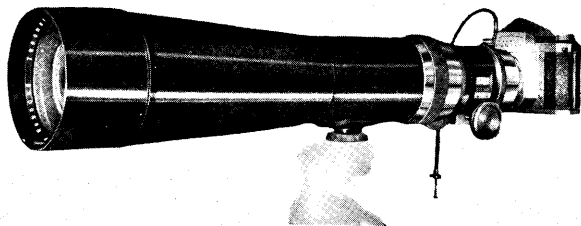
Perfect ultra-telephoto lens for sports, scenic and wildlife photography. Bright f5 image simplifies aiming and focusing. Produces edge-to-edge coverage of high resolution. Comparatively light and small for its performance. With handsome, protective leather sheath carry case.

Lens elements2
Minimum lens aperturef 16
Distance scale 11m (35ft)—infinity
Angle of view5°
Weight2,850 grs.
Equipped with rack-pinion focusing knob and lenshood.



Lens elements3
Minimum lens aperturef22
Distance scale 9m (30ft)—infinity
Angle of view8°
Weight950 grs.

TAKUMAR 500 mm f 5



LENS-MOUNT DESIGN

The ASAHI PENTAX has been designed with a threaded lens-mount conforming to the world-wide specification for Takumar lenses, Praktica, Contax S, Contax D and others.

Asahi owners frequently suggest that the camera lens-mount will offer greater versatility if adapted to the Leica screw thread. This is not practicable, because the back focus distance of the single lens reflex camera (from film plane to lens-mount) must be longer than in a range-finder type camera if the single lens reflex is to have space for the reflex mirror. In the Asahi, this back focus distance is approximately 17mm longer than normal with Leica type lenses. Even if a Leica thread lens is mounted on the Asahi with an adaptor, it can be used only for close-up work for a subject distance of 26.5cm from the film plane.

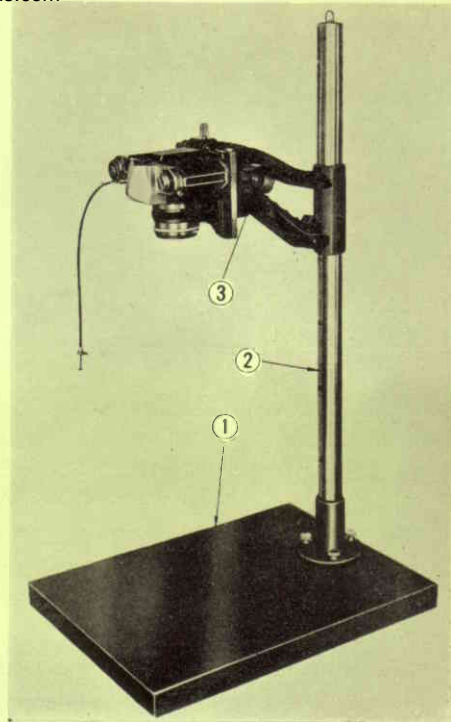
If a Takumar lens is mounted on a Leica thread camera or lens-mount with an adaptor, the coupled rangefinder will not work on the Takumar lens, since it does not incorporate the necessary operating cam.

Adaptors for the Asahi are available primarily for use with Leica lens-mount enlargers and scientific-laboratory photographic apparatus.

ASAHI COPY STAND

For exact and accurate copying with the single lens reflex camera. Maintains precise, parallel camera position while providing close-up performance impossible with a tripod or other camera stand.

The copy stand is equipped with a copying base¹, extension poles² and pantographic camera mount with mini-adjusting knob³. With this unit, titles for color slides, microphotography, identification photos of minor objects and other useful copying work are easily prepared.





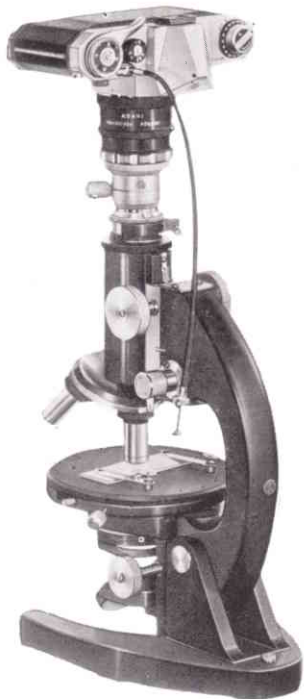
These rings may be used in combination as desired. Ring No. 1 is suited for moderate close-up work as in copying documents. When all extension tubes are used simultaneously with the Takumar 58mm lens, the subject may be enlarged on the film to a magnification of 1.06 of life size. Such extreme close-up photography is a special advantage of the single lens reflex camera, because there is no parallax.

EXTENSION TUBES

By inserting any or all of the extension tubes between the camera body of the ASAHI PENTAX and the Takumar lens, close-ups of the subject (as close as 10cm from the front element of the lens with the Takumar 58mm lens) may be photographed.

The extension tube set consists of 3 rings, Nos. 1, 2 and 3; 8mm, 16mm and 32mm respectively.





MICROSCOPE ADAPTOR

By inserting the microscope adaptor between the camera body of the ASAHI PENTAX and the microscope tube, photomicrography can be easily and simply accomplished with the optics of the microscope. As the ASAHI PENTAX has a bright Fresnel lens design penta-prism, viewing and focusing is exceptionally clear. The exact microscopic subject observed on the ground glass will be exposed on the film plane. Groups of virus, colloids, blood tissues and other microscopic subjects visible through the viewfinder are satisfactory subject matter. The advantage of the instant return mirror provides improved photomicrography with living cells.



FILTERS

Filters are available in UV (ultra-violet), O-53 (light orange) and Y-47 (light yellow). All are 46 mm screw-in types which are interchangeable for Takumar 50 mm, 58 mm, 100 mm and 135 mm lenses.



FILM MAGAZINES

For bulk film use. This magazine is specifically designed and constructed to prevent leakage of light or film abrasions.



LENSHOOD

Recommended for use whenever possible to avoid off-angle rays and when shooting against the light

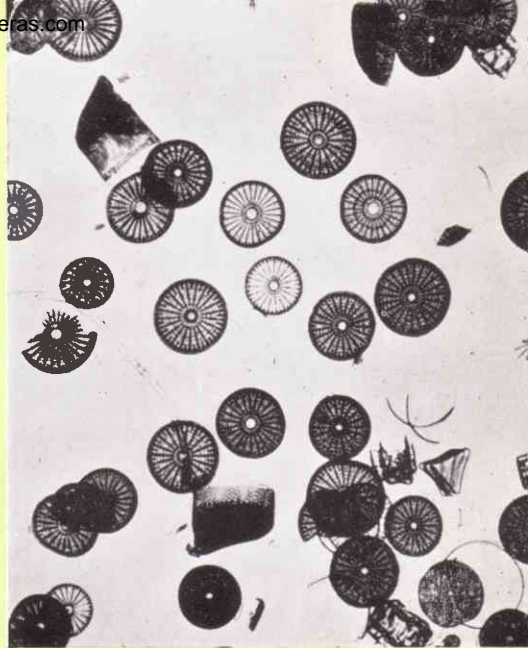
ADAPTORS

Adaptor "A" fits Leica-thread lenses to the ASAHI PENTAX. Because of the back focus effect of the ASAHI PENTAX, this adaptor can be used only for close-ups within approximately 30 cm with 50 mm lens. (See page 27.) Adaptor "B" fits Takumar lens to Leica-type lens-mount and is mainly used when fitting Takumar lenses to Leica lens-mount enlargers. Adaptor C (Takumar Adaptor) converts old style Takumar lens for use in the Asahi PENTAX camera.

Canadian postal stamp

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Close-up with Takumar 50mm f3.5 lens. Exposure: f11, 4 seconds, by reflected daylight and two 100 W lamps, using extension tubes and copy stand. Exposed on copying film.



Photomicrographed diatoms on spider web.

ASAHI-TAKUMAR RESOLVING POWER TESTS

Resolving power of all Takumar lenses is factory-tested by three methods: a microscopic resolution test, a projection test and a photographed film test. Resolving power of a lens shown by lpm (lines per mm) varies depending upon the method of test. Takumar lenses have been tested for resolving power to conform to Asahi standards, which are higher than those set by JIS (Japan Industrial Standards). All Asahi-Takumar lenses bear the seal of the Japan Camera Inspection Institute which insures the performance standards.

ASAHI PENTAX

The single lens reflex
with the instant return mirror

