

This manual is for reference and historical purposes, all rights reserved.

This page is copyright© by M. Butkus, NJ.

This page may not be sold or distributed without the expressed permission of the producer

I have no connection with any camera company

On-line camera manual library

This is the full text and images from the manual. This may take 3 full minutes for the PDF file to download.

If you find this manual useful, how about a donation of \$3 to: M. Butkus, 29 Lake Ave., High Bridge, NJ 08829-1701 and send your e-mail address so I can thank you. Most other places would charge you \$7.50 for a electronic copy or \$18.00 for a hard to read Xerox copy.

This will allow me to continue to buy new manuals and pay their shipping costs.

It'll make you feel better, won't it?

**If you use Pay Pal or wish to use your credit card,
click on the secure site on my main page.**

Versatility through interchangeable lenses

As a build-up and system camera the PRAKTICA is basically equipped for the generous use of interchangeable lenses. Only those who choose and use them to suit the subject correctly utilise the design possibilities of the single reflex camera to the full and reach the measure of versatility in use which the designers of the PRAKTICA envisaged. Technical and aesthetic actions are equally guided by the finder image when auxiliary lenses are used. In spite of an unchanged working distance, if required, a multitude of details can be shown relatively small, or some of it large, with the result that such an enlarged or reduced picture content can guide the transmission of information and the artistic style.

All PRAKTICA lenses described below represent top optical and mechanical quality as you would expect from the tradition of the Kombinat VEB PENTACON, Dresden, Feinoptisches Werk Goerlitz and the Jenoptik Jena GmbH. They all are completely re-calculated Anastigmat constructions, using modern glasses with high breaking coefficient. In addition to an outstandingly high definition, as a result of their high resolution and the best contrast transmission, they show freedom from distortions and absolute colour correctness. Already at full aperture (1.8; 2.8, etc.) which permits positive focusing and short shutter speeds in poor illumination, an outstanding quality of reproduction is obtained. The lens surfaces are antireflection coated. Helical mount, automatic diaphragm and



interchange adapters are some of the characteristics of their mechanical equipment. Worth mentioning also are the long focusing threads of the standard and wideangle lenses which enable close focusing without accessories down to 0.33 or 0.35 m (12" to 14"). (See also table "Lenses for the PRAKTICA").

Standard Lenses

Every PRAKTICA is fitted with a standard lens of 50 mm focal length which corresponds approximately to the diagonal of the negative size 24 mm x 36 mm. With each of these superbly corrected lenses you will master the majority of all photography because the picture angle, and through it, the informative contents of the picture comes very close to what the eye perceives. The same applies to the perspective. The standard lens is therefore suitable over the whole spectrum of photography of people, snaps of children, animals, for reporting and sports, town traffic, for landscapes and architectural photography and particularly of factual photography of every conceivable type. There is also no reason to change the lens for copying and close-up photography. The wide apertures (1.8) have already been mentioned and are remarkable — supported by fast film — for extending the photographic day almost ad lib, and to open it up for lively artificial light work for which the miniature camera is so typical. The interchangeable standard lens is fitted with the PRAKTICA thread M 42 x 1 which is now an international standard.

Wideangle Lenses

The following considerations can be decisive for the use of a wideangle lens in the PRAKTICA: the subject matter is not fully shown at a given distance which for some reason or other cannot be increased, it is undeniably cut off in the viewfinder field. For such a task the angle of the standard lens is too narrow. The answer is to use a wideangle lens. It has a shorter focal length in comparison with the standard lens and in return for this a wider angular field and, as an optical gift, a larger depth of field. With a wideangle lens you encompass more and at the same distance a bigger section of the surroundings. Naturally the details become correspond-

ingly smaller, but the wideangle picture has a higher information content. It is therefore indispensable for general panoramic views of buildings, landscapes, for wide groups of people and mainly also for interiors, e.g. in museums, galleries, workrooms, in your own home, at exhibitions, in animal houses, etc. The extensive depth of field and through it the simplified focusing make the wideangle lens also the choice for reporting, sports photography and other quick action snapshots.

Wideangle lenses emphasize perspective. They reproduce subjects near the camera relatively large, so that they become prominent in appearance and simply dominate the scene. Distant subjects in contrast are reproduced relatively small and lose some of their significance for the picture. Therefore a clear division occurs between foreground, middleground and background, increasing the three dimensional effect. A superwideangle converts a room into a hall. The distance between foreground and background appears extended. You can work creatively with this perspective aspect and emphasize or tone down the attention gathering effect of certain objects. Intentional or unintentional exaggerations and distortions are in the realm of the practical; a child grasping for a PRAKTICA turns into a dwarf with the hand of a giant.

Of the wideangle lenses mentioned in our list, those with a focal length of 35 to 29 mm have a moderate effect and are very universal in application. They are sufficient for the usual wideangle photographs and such a lens should be contained in your PRAKTICA outfit. The superwideangle lens "Flektogon from Jena" 4/20 with a picture angle of 93° should be chosen for widest sections, extreme space effect and most fascinating perspectives.

Telelenses

The occasion of using a telelens in the PRAKTICA arises — as opposed to the wideangle — if the working distance cannot be reduced, but a certain subject should appear larger than it is obtainable with the standard lens. Such situations occur daily to every photographer because he cannot or will not always take what is of interest to him at close distance. The

distance cannot be shortened for obvious reasons in sports and animal photography (including the zoo) or when taking stage pictures. This applies often, too, to details in landscapes or buildings. Snapshots of people unobserved produce the most natural effects. The telelens permits the greater "safety distance". In a technical sense it is the reversal of wideangle photography; now the longer focal length with narrow angular field triumphs and, similar to the binocular, large distances are bridged, distant objects are brought nearer and appear framefilling large. This avoids unsatisfactory sectional enlargements when working with negative film and offers slides with fully utilised frames when using reversal film.

Here the immense advantage shows up especially for the composition of the miniature picture; the frame is fully concentrated on the essential and all detracting minor details are lost — less now means more. Omission enhances the power of expression of the picture. To this one can add the desired reduction in depth of field of the telelens: the definition on the target separates people, animals and things excellently from the unsharp non-essentials. Hand in hand with this pleasant appearance goes the change in perspective of the picture. Objects near the camera and those further away are narrowed to each other in size according to the focal length; they push together, the distance between them seems shorter or non-existent. Perspective exaggerations (see wideangle lenses) disappear and with very long focal lengths one can observe a certain flatness. This too has an important pictorial function for poster effect type of simplification.

The particularly favoured "small" telelenses of medium focal lengths between 100 and 135 mm correct the perspective very pleasantly. They incorporate, for example, people in a proportion to which we are used to into the landscape or architecture. Also in other respects these lenses are to be recommended for photographing people and in particular portraits because distortions are avoided (forward stretched out hands or feet do not appear unnaturally large, in portraits the nose does not push itself so far forward). The field of application of the "small" telelens is extensive and one of

them must not be omitted from the PRAKTICA outfit. Quite frequently they are used in place of the standard lens to obtain photographs of people, animals, landscapes, buildings, street scenes and in particular of goods of the narrowest possible section in pleasant perspective. They are also useful for small animal photography to permit a large working distance. Telelenses of 180 and 200 mm focal length are almost similarly universally applicable as the "small" ones. However, they show clearly the advantages of the longer focal lengths; the definitely narrow field at great distance, will be finally fully mastered with the longest focal lengths of 300, 500 and finally even 1000 mm. These big tubes are appreciated by the specialist in the field of reporting, animal and sports photography and are valued too by the photographing scientist who can produce documentary evidence of almost unreachable objects for investigation. The artistic photographer, finally, will be able to utilise the magnification and perspective which can be obtained from these long focal lengths to obtain unusual pictorial effects. It is an advantage that in spite of the long focal lengths noticeably wide apertures are available (4, 5.6). In poor available light and by fast movement of the subject (e.g. animals in natural surroundings) the prospect of success is appreciably enhanced.

To compare the obtainable size of reproduction we offer a few figures: if several PRAKTICA pictures are taken from the

same unchanged position with different lenses, the auxiliary lenses show in relation to the 50 mm standard lens the following image magnification: 100 mm 2 x, 200 mm 4 x, 300 mm 6 x, 500 mm 10 x, 1000 mm 20 x. An animal that was a barely recognisable 3 mm high with the 50 mm lens reaches, when taken with the PENTACON 5.6/500, a height of a full 30 mm at 10 x enlargement.

All the PRAKTICA telelenses mentioned in this survey belong to the type of "genuine telephoto lenses". In relation to the focal length they show a surprisingly shorter barrel length. Several lenses are also equipped with interchangeable adapter to allow them to be used with different cameras, even with the popular middle size PENTACONsix TL 6 x 6 cm ($2\frac{1}{4}$ x $2\frac{1}{4}$ in.).

Lenses for the PRAKTICA

Description	Lens opening number and focal length (mm)	Number of elements	Type of diaphragm ¹⁾	Utilised picture angle	Screw-in thread for filters, etc.	Push-on diameter (mm)	Shortest focusing distance (m) ²⁾	With interchangeable adapter
PENTACONauto	1.8/50	6	ADB	47° M	49 x 0.75	51	0.33	
PENTACONelectric ³⁾	1.8/50	6	ADB	47° M	49 x 0.75	51	0.33	
PANCOLAR from Jena	1.8/50	6	ADB	46° M	49 x 0.75	51	0.35	
PANCOLAR from Jena ³⁾	1.8/50	6	ADB	46° M	49 x 0.75	51	0.35	
T from Jena	2.8/50	4	ADB	45° M	49 x 0.75	51	0.35	
DOMIPLAN	2.8/50	3	ADB	47° M	49 x 0.75	42	0.75	
FLEKTOGON from Jena	4/20	10	ADB	93° M	77 x 0.75	80	0.16	
PENTACONauto	2.8/29	7	ADB	73° M	55 x 0.75	57	0.25	
PENTACONelectric ³⁾	2.8/29	7	ADB	73° M	55 x 0.75	57	0.25	
PENTACON	3.5/30	5	VB	71° M	49 x 0.75	51	0.33	
FLEKTOGON from Jena ³⁾	2.8/35	6	ADB	62° M	49 x 0.75	51	0.18	
PENTACONauto	2.8/100	5	ADB	24° M	49 x 0.75	51	1.10	
PENTACONelectric ³⁾	2.8/100	5	ADB	24° M	49 x 0.75	51	1.10	
PENTACONauto	2.8/135	5	ADB	18° M	55 x 0.75	60	1.70	
PENTACONelectric ³⁾	2.8/135	5	ADB	18° M	55 x 0.75	60	1.70	
PENTACON	2.8/135	5	VB	18° M	55 x 0.75	57	1.50	Yes
S from Jena ³⁾	3.5/135	4	ADB	18° M	49 x 0.75	51	1.00	
S from Jena ³⁾	2.8/180	5	SB	14° M	86 x 1	90	1.70	Yes
PENTACON	4/200	5	VB	12° M	58 x 0.75	60	2.50	Yes
S from Jena ³⁾	4/300	6	SB	8° M	86 x 1	90	4.00	Yes
PENTACON	4/300	5	VB	8° M	95 x 1	100	3.60	Yes
PENTACON	5.6/500	4	VB	5° M	118 x 1	125	6.00	Yes
REFLEX LENS from Jena	5.6/1000	4	without 2.5°	Built-in	filter turret		16.00	Yes
+ 2 dia- mirrors phragm								

¹⁾ VB = Pre-select diaphragm (in advance selectable lock position for the aperture setting ring to the required working aperture; before releasing, turn ring as far as it will go, that is to the aperture number).

SB = Semi-automatic diaphragm (the diaphragm mechanism is tensioned by hand and with it opened up, when releasing the diaphragm closes automatically to the pre-selected value).

ADB = fully automatic diaphragm, which converts the PRAKTICA from semiautomatic to fully automatic working (closing and opening of the diaphragm is fully automatic).

²⁾ With electric transmission of the aperture value, specially for the PRAKTICA LLC and PRAKTICA VLC.

³⁾ With automatic aperture correction on close focusing.

⁴⁾ Standard and wide-angle lenses have an advantageous long helical lens mount for focusing at short distances without the aid of accessories.

Internationally an uncommonly large number of further PRAKTICA lenses with screw thread M 42 x 1 are available.

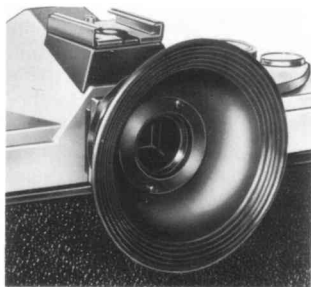
Accessories, helping to get sharper pictures

The PRAKTICA offers in itself all pre-conditions for obtaining highest definition. We have already talked about this. There are, however, influences which work against definition of which one has to take account and which can be overcome through suitable accessories.

Lens hood and eye-cup

The sharpness of a picture depends to a large extent on contrasts. A contrasty photograph appears to be sharper than a flat one. Therefore it cannot be too strongly recommended to use a lens hood. It shields the lens from contrast reducing side light and ensures brilliant definition as well as glowing unadulterated colours in your picture. In addition it forms an effective protection against raindrops and snowflakes. The lens hood has, however, to correspond to the picture angle of the lens and must not cut off any light. Direct against the light conditions, that is when the open sun (not early or in the evening) appears in the field of view, require an additional protection of light by shading the lens. Among others, this can be obtained by holding the camera so that the finder image shows that the light source itself is covered by some object (the sun by a branch of leaves, etc.).

Strong side light can be disturbing when focusing and unfavourably influences its accuracy. With the aid of the pliable eye-cup which can be pushed on to the eyepiece of the prism finder (also prism attachment of the PRAKTICA VLC) one



Lenshood and eyecup guarantee brilliant definition

can keep away the undesired light both from the glass surface and the eye. Wearers of glasses, too, can work with this excellent light protection, as the eye-cup permits screwing in an eye correction glass which should be selected in accordance with one's eye prescription by the optician and fitted by him. This enables them to focus pin-sharp without spectacles.

Focusing magnifier

In critical cases one can also focus with the focusing magnifier. It is fitted to the eyepiece of the prism finder (also prism attachment of the PRAKTICA VLC) and enlarges the centre of the finder image additionally 2.7 x (combined magnification 12 x). With it the focusing accuracy is extensively

The focusing telescope for the PRAKTICA



enhanced as it is convenient and necessary in close-up photography of objects with extremely fine details and little depth, copying, when using long focal length lenses, for micro photography and other precision work. You can adjust the focusing magnifier for correction of faulty eyesight within ± 7 dioptres. To observe the full finder image there is no need to remove the focusing magnifier: you can swing it away on its hinges, but it remains ready for work on the camera.

Angular finder

The prism finder and the prism attachment of the PRAKTICA cameras allow sighting the subject directly, whereby the direction of viewing and taking are the same. There are occasions,

The rightangle
finder for the
PRAKTICA



however, where it is necessary, more convenient or safer to view the finder image at right angles to the taking direction and also to focus in this position, for example, when photographing objects near the ground, when using a low tripod, a copying stand, when taking macro-photographs and in conjunction with many complicated arrangements of equipment in technique and science. The angular finder solves the problem quite simply: it is attached to the eyepiece of the prism finder or prism attachment and permits one to view the finder image at right angles and to see it completely and side correct. As the angular finder can be swung round one can view also diagonally. Defective eyesight can be corrected with a dioptic adjustment from + 6 to - 6 and the eye-cup keeps detracting side light at bay. Finally it should be mentioned that the angular finder is also of use for snapshots: big and small people will be deceived by the different angle between viewing and taking.

Interchangeable finder attachments and field lenses for the PRAKTICA VLC

The PRAKTICA VLC occupies a special position as it permits one not only to attach lenses and accessories, but also to change the finder, giving the optical facility to adapt the viewing and setting of the definition to the job in hand.

You will be aware of the characteristics of the prism attachment which in horizontal and vertical holding of the camera produces an upright, sidecorrect and 4.5 x enlarged image; holding the camera at eye-level, direct viewing of the subject to be photographed, same direction of movement of subject and image in the finder, outstanding suitability for the whole field of quick action shots. Photographing objects near the ground, when working with the tripod or copying stand, for micro photography and similar combination of equipment in science and in technical fields it is often desirable to view the picture field and the sharpness at right angles to the direction of that of taking the picture. The chestlevel reflex finder and the magnifying attachment permit just this. The finder image is erect in horizontal photography and 5.6 x and 5 x respectively magnified. These finder attachments are particularly suitable for

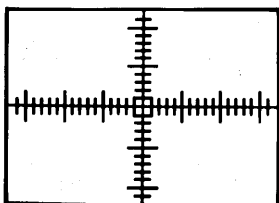
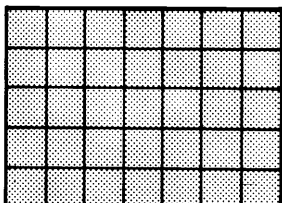
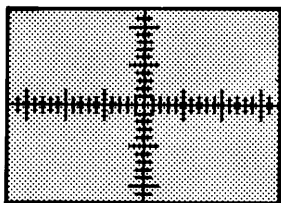
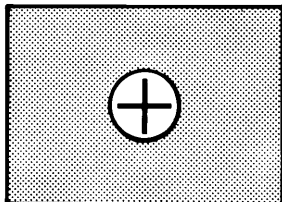
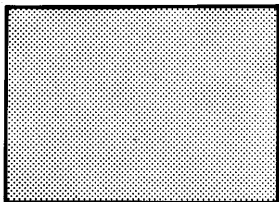
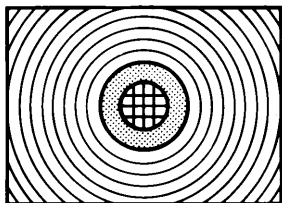
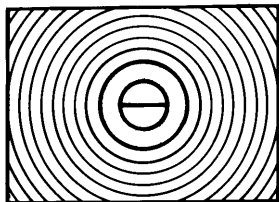


The interchangeable finder attachments of the PRAKTICA VLC prism attachment, chest-level reflex finder attachment and magnifying attachment



objects with or without minimal movement. The magnifying attachment has a remarkably high focusing accuracy through outstanding optical means; it should therefore be chosen for close-ups, copying, micro photography and in similar cases where the best possible definition is essential. Faulty eyesight can be corrected with diopter compensation of between $+2$ to -4 . The chestlevel reflecting finder attachment can also enrich snapshot and reporting photography because it allows one to take pictures "round the corner" over obstructions, e.g. over the heads of a congregation of people, over walls, etc. The finder image is viewed with the PRAKTICA VLC held with the out-stretched arm from a hidden position or above one's head. To change the finder attachment, press the disengagement knob, lift out the attachment vertically or insert until engaged. The finder hood springs open on pressing the knob on the back. If required, the focusing magnifier can be swung to one side, but it has to be in position to measure the light.

Each of the three finder attachments can be fitted with the best suited focusing system or with a field lens adapted to one's needs. In addition to the "Fresnel lens with micro-prism screen and ground glass ring" focusing system a second one is obtainable: "Fresnel lens with ring screen and measuring wedge". The ring screen has the same effect as the prism screen, the measuring wedges show vertical and horizontal lines respectively cut and offset from one another until correct focus has been obtained. Also a simple throughout matted screen can be employed. Also fully matted are two special screens, one has millimetre divisions, the other one a net of lines (squares 5 mm x 5 mm). These lines are helpful to establish the ratio of reproduction, to align the camera, e.g. when copying. For extreme close-ups (macro photography), for micro and astro photography and similar combination of equipment where focusing screen and measuring wedges are not functioning, but a finder field as bright as possible is desired, matted special screens with a clear centre of 6 mm and a line cross as well as another without any matting but with millimetre division belong to the



- ◀ Interchangeable image setting systems, focusing screens and special focusing screens for the finder attachments of the PRAKTICA VLC: image setting system Fresnel lens with ring screen and measuring wedges, image setting system Fresnel lens with ground glass ring field and micro prism screen, matted screen, matted special screen with clear field and crossline, matted special screen with millimetre division, matted special screen with squared net 5 mm x 5 mm, un-matted special screen with millimetre division

accessory range of the PRAKTICA VLC. Focusing is done by the bright aerial image and the millimetre division and the line cross safeguards correct visual adjustment. To change the focusing system or the screen, hold it on its long side and press it in the direction of the two holding springs until on the opposite side at the single holding spring it becomes easy to tip it out. To insert, reverse the procedure. Please do not touch the surface of the lenses.

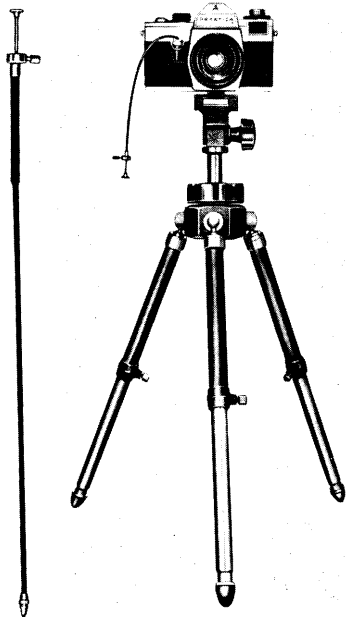
Special cable release and PENTACON universal tripod

We have already stated that when using slower speeds than $\frac{1}{30}$ sec the PRAKTICA should be used from a tripod for the sake of good definition and also that it is advisable to use a cable release to release the shutter. We would like to introduce you to two guarantors for good definition: the special cable release prevents unsteadiness of the hand being transmitted to the camera. It is equipped with a fixing screw so that the releasing finger does not need to keep the plunger pressed down with B setting. The screw permits one to clamp down the release for any length of time.

The PENTACON universal tripod combines rigidity with a surprising versatility. It has proved itself particularly for close-up photography. The PRAKTICA can be screwed to it quite safely, tilted in any direction and reliably locked in any position. The tripod head and column can be attached from below so that the height of the camera can be as low as 0.75 m

(2½ ft.) from the ground to 1.35 m (4½ ft.). The outstanding stability is explained by the special lockable ball and socket head and tripod legs. A handy leather carrying case simplifies transporting the PENTACON universal tripod.

Special cable release and
PENTACON universal tripod
for best definition



Close-up photography with all refinements

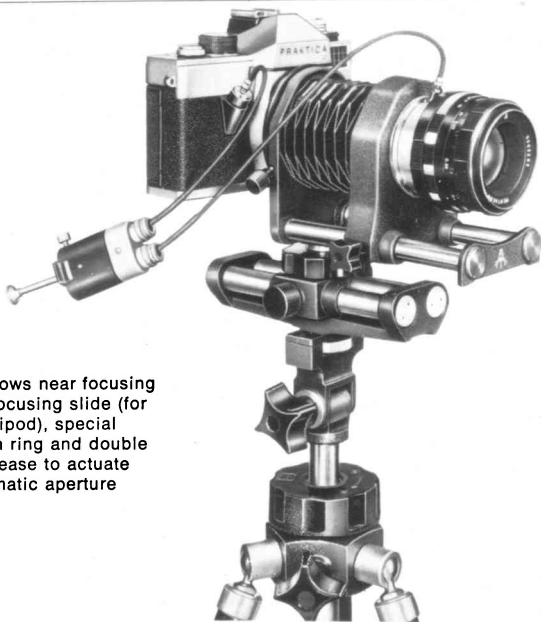
Numerous flowers, blooms, small animals, crystals, jewellery, postage stamps and many more minute things offer themselves as subjects for close-up photography with your PRAKTICA. Shots only experts used to be able to take and which are difficult to master even today with the majority of cameras are managed easily with the PRAKTICA as a single lens reflex camera. If you go very close to the subject the helical lens mount does not extend sufficiently for near focusing; the extension has to be increased through accessories, extension tubes or bellows focusing units are required. With them a new and almost unknown world opens up; up to now hardly noticed things are elevated to frame filling size and you receive from each such shot valuable ideas and information. Most PRAKTICA owners agree, if you do not take close-ups you give away much of the pleasure your camera has to offer and part of its performance. In spite of the increased extension parallax free reflex focusing remains and the advantages of the internal metering are emphasized. As always, everything is visible in the viewfinder: section, composition, definition, depth of field and the meter needle of some models.

Extension tubes and thrust pin extension tubes

The larger the subject should appear on your film, the longer has to be the distance between lens and film plane of the PRAKTICA. The necessary extension is most simply obtained through extension tubes. They are screwed between camera



Thrust-pin extension tubes permit close-up pictures with automatic aperture setting: Right, the model for the electric aperture value transmission of the PRAKTICA models LLC and VLC



Mini-bellows near focusing device, focusing slide (for use on tripod), special extension ring and double cable release to actuate the automatic aperture

and lens either singly or in combination of two or more and are obtainable in three versions:

1. A set consisting of three tubes with an extension of 7, 14 and 28 mm. With them and the additional use of the helical mount a ratio of reproduction of 1 : 1 is obtainable when used in conjunction with a standard lens of 50 mm focal length. 1 : 1 means that the subject and the picture have the same size. When using these extension tubes, the automatic diaphragm control of the lens is switched off and manual aperture setting is used.

2. A set of three extension tubes with thrust pins with extension of 7, 14 and 28 mm. The combination possibilities are the same as with the ordinary extension tubes, but a transmission thrust pin actuates the automatic diaphragm control of the lens on releasing. Focusing with full aperture is particularly usefull for close-up work of small animals or easily swaying flowers and blooms and the automatic stopping down of great advantage.

3. Two extension tubes with thrust pin with 12.5 and 25 mm extension. They are equipped with contact paths and pins for the electrical transmission of the aperture value of the PRAKTICA LLC and PRAKTICA VLC as well as with thrust pins to actuate the automatic aperture. In conjunction with the long helical mounts of the standard lenses PENTACON-electric 1.8/50 and PANCOLAR 1.8/50 (with electric diaphragm) the two thrust pin extension tubes permit all ratios of reproduction down to 1 : 1.

Mini bellows near focusing device

This handy, easy be carried about instrument offers a continuous extension from 35 to 125 mm. The ratio of reproduction can be changed quickly. The lens is screwed to the lens mount and the PRAKTICA body to the camera flange. It can be turned upright or horizontally at will or to any inbetween position and fixed in it. To obtain the desired extension, the lens carrier is pushed to and fro on its guide rails and fixed (centimetre scale is found on the right rail). By this means the necessary ratio of reproduction can be determined according to the subject on hand of the finder image of the PRAKTICA camera.

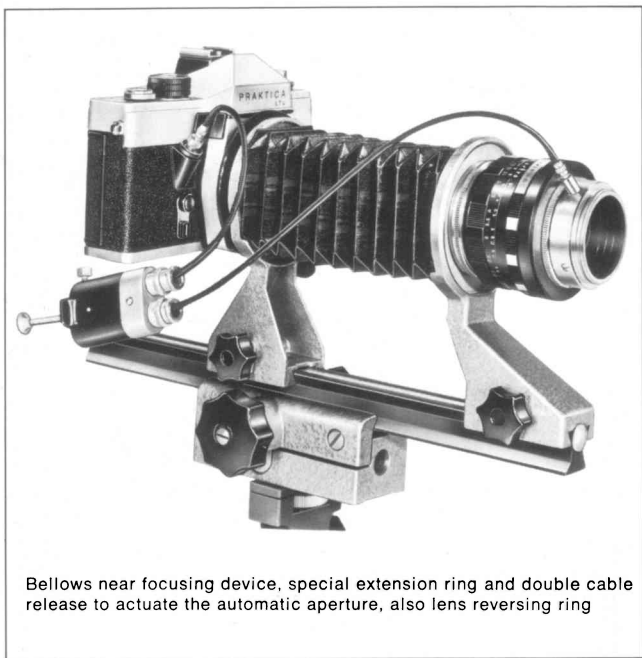
The combination of PRAKTICA and Mini bellows is equally suitable for use in the hand as on a tripod (tripod bush on camera and on the lens carrier). The following ratios of reproduction obtainable are: with standard lens 50 mm focal length from 0.7 to 2.5 (this means that objects to be taken from 34 mm x 51 mm to 10 mm x 14 mm will be reproduced to fill the negative frame without cut off), with 100 mm focal length from 0.35 to 1.25 (object dimensions from 69 mm x 105 mm to 19 mm x 29 mm). The automatic diaphragm is disengaged. Stop down by hand. Automatic diaphragm with special extension ring and double cable release, electrical aperture value transmission with extension ring pair and cable. More about this follows.

Focusing slide

Close-up pictures require a somewhat different focusing technique: the PRAKTICA, ready to take a picture, is moved in the direction of the object and back, until the finder shows the best definition. When photographing from the hand, this is no problem. The considerably reduced depth of field, however, calls frequently for extensive stopping down to high aperture numbers (small lens opening) and consequently also longer shutter speeds. This in turn asks for the use of a tripod, the position of which would have to be changed time and again when extension tubes or Mini bellows are used. Best definition is hardly to be expected in this procedure. Hence our advice: use the focusing slide. It is screwed to the rigidly positioned tripod and the PRAKTICA, with the extension increasing accessory fitted, is screwed to the movable camera carrier. The complete camera set up can now be pushed to and fro on the guide rails of the focusing slide to establish easily the best definition. This changes only the subject distance (= distance between the subject and lens) — also when the mini bellows are used — but not the ratio of reproduction.

Bellows near focusing device

If you combine the advantages of the Mini bellows, the focusing slide and a bellows extension adjustable from 35 to 220 mm you have the essential characteristics of the bellows near focusing device. These somewhat larger instruments



Bellows near focusing device, special extension ring and double cable release to actuate the automatic aperture, also lens reversing ring

are less intended for handheld shots, but have proved themselves excellently for stationary use, simply placed on a table or connected up with a tripod or a copying stand.

In this bellows near focusing device the lens and camera body are also screwed to the lens and camera carriers. The PRAKTICA can be fitted horizontally, vertically or in any oblique position and locked in it. For continuous setting of the required bellows extension and the corresponding ratio of reproduction, the long bellows extension is available. The camera carrier with the PRAKTICA is pushed to and fro on the guide rails and a scale shows the increase in extension in figures. Camera and lens carriers can be fixed in position by a grippy fixing screw to hold them safely even in vertical taking position. To work with the tripod, the presence of its own focusing slide is decisive. To focus, the complete instrument is moved forward and back by its rack and pinion until maximum sharpness is obtained. The bellows near focusing device permits the following ratios of reproduction, some of which already produce enlarged reproduction and reach far into the field of macro photography: with the standard lens of 50 mm focal length from 0.7 to 4.4 (that is objects of sizes from 34 mm x 51 mm down to 5 mm x 8 mm can fill the film frame without cut off), with 100 mm focal length from 0.35 to 2.2 (object sizes from 69 mm x 105 mm to 11 mm x 16 mm); with 135 mm focal length from 0.26 to 1.63 (object sizes from 92 mm x 138 mm to 15 mm x 22 mm). Below you can read about use of automatic diaphragm and electric aperture value transmission.

Special Intermediate ring and double cable release

It has been stressed previously on numerous occasions that the depth of field is strongly reduced in close-up work. For this reason the urge is strong to release as soon as one has focused correctly, especially subjects with movement. Particularly as the slightest change of the camera position or of the subject can produce a diminished sharpness, e.g. with an insect in place of the eyes and feelers too far forward or back. For this reason it is decisive for the success of the shot that one can stop down automatically as it is the case

with the thrust pin extension tubes. If you work with simple extension tubes or with the bellows near focusing device, add between it and the lens the special intermediate ring with cable release connection. The double cable release can be connected to the intermediate ring and to the release of the camera. This guarantees that on releasing first the aperture is closed to the pre-selected aperture number and then the shutter runs down. Double cable releases have to be adjusted beforehand: on depressing the plunger the pin of the longer release has to protrude about 1 mm further from the connecting piece than the shorter one. Screw the longer release first to the special intermediate ring, then the shorter one to the release of the PRAKTICA. The special intermediate ring produces an additional extension of 14 mm.

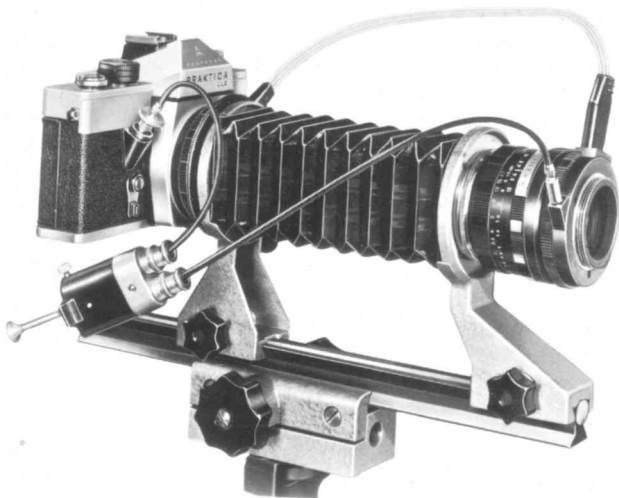
Intermediate ring pair with cable for PRAKTICA LLC and PRAKTICA VLC

If the intermediate ring pair with cable is employed, the electrical aperture value transmission is operative with the bellows near focusing device too. It permits internal light metering with full aperture and brightest possible viewfinder image as is particularly important at long bellows extensions with the consequently reduced brightness of the finder image. When metering no additional reduction of light occurs. The transmission elements are again contact paths and pins. The rear intermediate ring is screwed between camera and bellows near focusing device, the front one between bellows near focusing device and lens. An additional extension of 25 mm is produced. Both intermediate rings are connected to the cable. The front intermediate ring has also a cable release to permit — as described in the previous chapter — the use of the automatic diaphragm control with the double cable release. A small button is screwed into the camera release to enable it to be pressed down to first pressure point to measure the light, while the cable release is connected.

Lens reversing ring

You can, as we have already explained earlier, take close-ups with the bellows near focusing device whereby the subject is reproduced already enlarged (macro photography).

This requires an unusually short distance between the subject and the lens and a large one between lens and film plane (picture). Our lenses have their optimal correction, however, in reverse proportion: large distance between subject and lens, smaller between lens and film plane. It is therefore recommended for maximum picture definition to use the lens reversed, that is with the back lens to the subject, when taking macro photographs with a ratio of reproduction exceeding 1 : 1.5. For this a lens reversal ring has been created. It is screwed with its PRAKTICA M 42 x 1 thread into the lens carrier of the bellows near focusing device and the lens is screwed to the other thread M 49 x 0.75 by its filter thread. The special intermediate



Full aperture measuring with brightest possible finder image of the PRAKTICA models LLC and VLC even for magnifying attachment with the bellows near focusing device; electric aperture value transmission with extension ring pair and cable

ring for cable release connection or the front ring of the intermediate ring pair for the automatic diaphragm control have, however, to be screwed on the side of the subject to the lens. With the reversing, a somewhat different extension will apply than is indicated on the scale of the bellows unit and this depends on the construction of the particular lens used.

Near focusing table

Our table is intended to give you pointers for practical use. Here first of all is the necessary explanation of the technical terms.

Extension = Length of the intermediate rings or the bellows with lens set to infinity. Intermediate values are obtainable with the helical focusing mount, the height of which has to be added, e.g. thrust pin intermediate ring 25 mm + helical mount height 12.5 mm = extension 37.5 mm.

Subject distance = Distance between subject to be photographed and lens (approximately position of aperture blades).

Picture distance = Distance between lens (approximately aperture) and sharp picture in the film plane of the PRAKTICA.

Total distance = Subject distance plus picture distance.

Ratio of reproduction = Smaller numbers than 1.0 mean reduced, larger numbers than 1.0 magnified reproduction of the subject to be photographed. Quick calculation of the ratio of reproduction = extension divided by focal length of lens.

Subject dimensions = Dimensions of the subject which is reproduced, filling the frame without cut off.

Exposure factor = The increase in exposure time due to the increased extension if — for depth of field sake — the aperture has to remain unchanged. Example: exposure time measured with the meter $\frac{1}{30}$ sec, exposure factor 4, therefore $4 \times \frac{1}{30}$ sec = final exposure time $\frac{1}{8}$ sec. On the models PRAKTICA LTL, PRAKTICA LLC and PRAKTICA VLC the exposure factors are incorporated by the internal light measurement so that no calculations of any type have to be made.

About close-ups with flash you will find details in chapter "PRAKTICA and Flash".

**Near focusing table
for lenses of 50 mm focal length**

Extension	Subject distance	Picture distance	Total distance	Ratio of Reproduction	Subject dimensions	Exposure factor
mm	mm	mm	mm		mm x mm	
0	∞	50	∞	Varying	Fixed	1.0
5	550	55	605	0.1	240 x 360	1.2
10	300	60	360	0.2	120 x 180	1.4
12.5	250	62.5	312.5	0.25	96 x 144	1.6
15	217	65	282	0.3	80 x 120	1.7
20	175	70	245	0.4	60 x 90	2.0
25	150	75	225	0.5	48 x 72	2.3
30	133	80	213	0.6	40 x 60	2.6
35	121	85	206	0.7	34 x 51	2.9
37.5	117	87.5	204.5	0.75	32 x 48	3.1
40	113	90	203	0.8	30 x 45	3.2
45	106	95	201	0.9	27 x 40	3.6
50	100	100	200	1.0	24 x 36	4.0
55	95	105	200	1.1	22 x 33	4.4
60	92	110	202	1.2	20 x 30	4.8
70	86	120	206	1.4	17 x 26	5.8
80	81	130	211	1.6	15 x 23	6.8
90	78	140	212	1.8	13 x 20	7.8
100	75	150	225	2.0	12 x 18	9.0
110	73	160	233	2.2	11 x 16	10.2
120	71	170	241	2.4	10 x 15	11.6
130	69	180	249	2.6	9 x 14	13.0
140	68	190	258	2.8	9 x 13	14.4
150	67	200	267	3.0	8 x 12	16.0
160	66	210	276	3.2	8 x 11	17.6
170	65	220	285	3.4	8 x 11	19.4
180	64	230	294	3.6	7 x 10	21.2
190	63	240	303	3.8	6 x 9	23.0
200	63	250	313	4.0	6 x 9	25.0
210	62	260	322	4.2	6 x 9	27.0
220	61	270	331	4.4	5 x 8	29.0
245	60	295	355	4.9	5 x 7	35.0