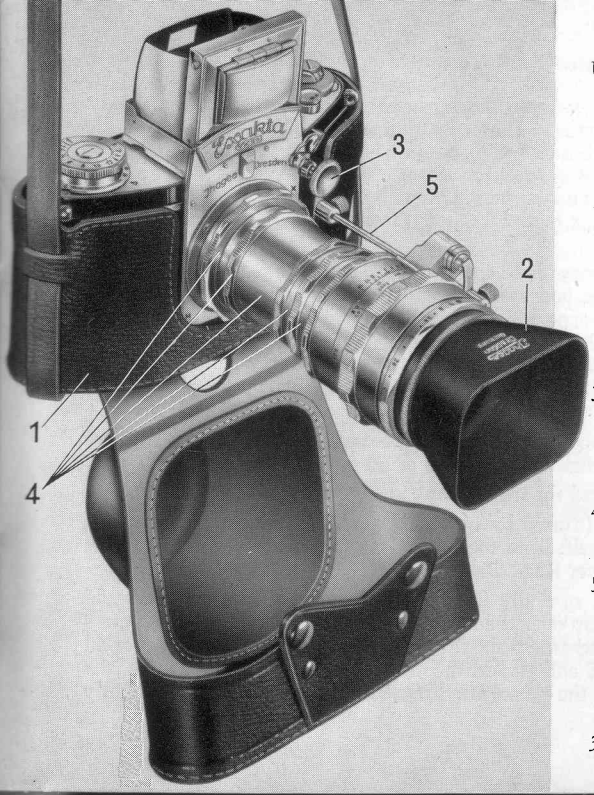


Useful accessories

1. *The Eveready case:* the best safeguard against damaging your EXAKTA. The camera is secured to the case by a screw and need not be removed for picture taking.
2. *The lens hood:* all EXAKTA lenses can be equipped with lens hoods. A lens hood is indispensable, especially when color photographs are to be taken. It prevents flare and fog in against-the-light shots and protects the lens from the vicissitudes of bad weather. A lens hood is the same as a sunshade.
3. *The EXAKTA Giant knob (button release):* a convex metal button which can be screwed into the release knob to facilitate releasing the shutter with gloves and stiff fingers in winter.
4. *Bayonet rings and extension tubes:* they are used to make close-ups at very short distances.
5. *A release Bridge* as the "Closal attachment" and the "Cobra" make it possible to use the fully automatic spring diaphragm even when the lens is being used at some distance from the camera, as when using extension tubes for close-up work.

Some useful hints for handling the EXAKTA

The automatic EXAKTA II a has a new slow speed setting knob for faster, silent operation of the slow speeds & delayed action. However when lenses up to 135 mm. focal length are employed with the hand-held camera the shutter speed should be no less than 1/25 second. With a 180 mm. lens the shutter speed should be at least 1/50 second. There are people who are able to photograph with a hand-held EXAKTA and a 250 mm. lens, but, to be on the safe side, it is recommended that lenses of more than 135 mm. focal length should only be used with the camera mounted on a tripod.

For average shots with a standard lens always hold the EXAKTA perfectly steady. The elbows should be held at the side of the body for better support, it is also a good idea to press the camera against a wall or a tree. Time exposures should always be made with the cable release. Amateurs who are inclined to shake the camera when pressing the release button should employ the self-timer with the camera set on a tripod.

The longest possible exposure time for moving objects depends on the direction of movement relative to the camera and the speed of the subject. The nearer the moving subject is to the camera, the greater is the risk of subject movement. Subjects moving at right angles to the lens axis need a faster shutter speed than those moving towards or away from the camera.

It is of the greatest importance that you read the instructions for using the EXAKTA II a.

If anything goes wrong with the camera (caused by incorrect handling, dropping the camera, etc.) do not try to repair the damage yourself. Send the camera to your dealer or directly to the EXAKTA Camera Company, 705 Bronx River Road, Bronxville, N. Y.

The EXAKTA VX II a should be protected carefully from dust, sand and humidity and should be kept in its case preferably with a lens cap over the lens. Although the exterior of the camera can be cleaned at any time the internal mechanism should not be touched. You should never oil or grease it! The mirror of the models VX and II a can be dusted with a very soft brush (lens cleaning brush). Either the finder hood or the prism attachment should always be permanently

fitted to the camera. The ground-glass should be protected against scratches and finger-prints. The glass surfaces of the lenses should never be touched, even the tiniest spot of perspiration from your fingers may damage the polished and coated surface. All lenses should be kept in cases when not in use and protected by a cap when on the camera. Cleaning the lens is hardly ever necessary, while dust can be removed by a lens cleaning brush. If cleaning is necessary gently wipe the lens with a soft, well-washed piece of linen after removing any dust with a soft brush. Do not use any liquid solvents (alcohol, petrol, etc.), breath on the surface and wipe gently without pressure.

Special focusing glasses are available for the EXAKTA, Penta-Prism and waist-level view finder and Magnear, they are:

Ground glass with clear center spot.
Ground glass with clear center spot and hair line cross.
Bisected ground glass or clear glass.
Plain ground or clear glass.

For macrophotography, photomicrography and close-ups the special focusing are indispenseable. Some of the focusing glasses are available only on special order. More information on specific focusing glasses are available from EXAKTA Camera Company.

The automatic EXAKTA IIa in actual practice

The EXAKTA II a is a true miniature camera for use with 35 mm. film, giving negatives of 24 x 36 mm. in size. This repetition seems necessary in order to emphasize the fact that miniature negatives are very small indeed, hardly larger than a stamp, and must be enlarged considerably to yield a picture. Good miniature negatives must be needle-sharp or a satisfactory enlargement cannot be made. But the excellent definition provided by the various EXAKTA lenses and the ease with which they can be focused on the focusing screen are not enough to ensure really *good* pictures; from the pictorial point of view some of the most attractive pictures are those that "fill the frame", that is to say, close-ups. The purpose of the miniature camera is to catch the constant changing, colorful life around us, but the pictures should not be overloaded with too much detail. Filling the frame, simplicity and liveliness are the main features of a good picture and this applies to the whole range of miniature photography with the exception of scientific work, where other criteria come into play.

Groups and portraits in open air

With the EXAKTA II a it is not difficult to approach the subject as close as is necessary. To avoid distortions

with standard lenses it is not advisable to go too close to your subjects when making portrait shots. For this purpose the medium long focal lengths are ideally suited. You can focus at a reasonable distance from the subject and still fill the frame satisfactorily. But there is still more to it. The longer focal length makes it possible for you to work almost unnoticed by your subjects. Don't let your models pose, don't line up your sitters like a graduation-day group, in short, leave them alone and do your photographic work as inconspicuously as possible. Catch them when they are chatting happily to each other, or doing some chores, catch them when they are making fun of each other and take grandpa's portrait when he is filling his pipe or reading his newspaper. Use snapshot focusing, but don't underrate the importance of the background. It should be as simple as possible without any obstructive pattern such as brick walls, foliage, etc. Trees don't grow out of peoples' heads and there are not many folks who have a pole or a door knob permanently fixed to them. Such errors in choosing a background should be avoided by all means and even a "soda pop" or beer sign surrounding grandpa's head like a halo, is not what we want to see in a portrait. The background can be a smooth wall or better even the blue sky. Don't photograph people in the harsh and almost vertical sunshine of noon; wait for the late afternoon or take your pictures in the morning when the light is soft and the sidelight provides better modulation. If the shadows seem a little too dark lighten them up with a reflector (a tablecloth, a piece of white paper, a mirror, etc.) and for sharp focusing choose the eyes; it's the eyes that have it, everything else will come out satisfactorily. Use the prism – viewfinder for people moving about, take the finder hood for sitting subjects. When the sun is shining a yellow filter can be useful. – Moving subjects: f/5.6, $^1/_{100}$ second; portraits f/4, $^1/_{150}$ sec., scattered groups f/8, $^1/_{50}$ sec. – all with 40 ASA panchromatic film.

Be sure to mail your EXAKTA Camera Registration Card promptly to EXAKTA Camera Company, 705 Bronx River Road, Bronxville, N. Y., for this will entitle you to receive free periodic mailings from EXAKTA. These mailings may include the EXAKTA Magazine, EXAKTA Catalog and other literature on new EXAKTA products and developments.

Snapshots

Taking genuine snapshots is action photography at its best. The essentials are that the subject should not be too small in the negative, sharply defined and conveying the impression of an actual event taken straight from life without any additional "direction". If there is movement it should be 'into' the picture space not towards the edge of the negative. Snapshots can be made in the hubbub of a large city as well as in the perfect calm of a small village, on the sandy beaches of the sea as well as on the crest of a mountain. What is needed is some experience in tripping the EXAKTA shutter at precisely the right moment to secure the mood of the scene. For genuine snapshot the EXAKTA II a should be well prepared beforehand: the lens should be focused on 16 feet, the diaphragm set to f/8 and the shutter to 1/50 or 1/100 second. The depth of field ensured with this setting will then extend from approximately 10 feet to 50 feet. If there is any possibility of focusing "on the dot" without being discovered by the models-to-be, it should be done, of course. Sometimes you find an attractive subject with just the right illumination, which, however, is lacking in "life". The best thing to do is then to focus on the point were a person or an

animal should be and wait until somebody turns up to meet the requirements. Then release the shutter gently.

When taking snapshots, you are never really master of the situation. You can't arrange the subject, you must use the background as it is, and more often than not, some unforseen human or animal element intrudes at the last minute and spoils everything. These sad experiences have led to the development of a snapshot technique where a certain amount of direction guarantees a greater margin of success. In this, your models know what is expected of them and help by enacting for you the scene you had in mind; the original scene you could not take, but which struck you as being unique can now be composed and directed in front of your EXAKTA. And if you make several exposures you can be sure that there will be at least one in which the effect of spontaneity is almost equal to that of a genuine snapshot, but which is far superior in pictorial quality. — Use 40 — 100 ASA pan film, light yellow filter, for fast movements don't use a speed lower than 1/100 sec. at f/8. In poor light or when there are strong contrasts, open the diaphragm up to f/5.6 or f/4; use a long-focus lens from a fair distance.

Pictures of Children

Everything said so far with regard to the technique of picture-making also holds true when taking photographs of children. As long as they are small and not yet too energetic, things are comparatively easy; quite enchantingly natural pictures of a baby can be taken indoors near a window or even in a shaded spot out of doors on a fine day. Harsh, direct sunlight should be avoided since a softer illumination is much more suitable for a baby's face.

When using 40 ASA pan film at f/5.6 or f/4 and a light yellow filter, there is no need to expose for longer than $^1/_{25}$ sec.

Older children can prove quite a handful! They have their own and often strongly expressed ideas, which rarely coincide with yours. However, there are ways and means of enticing them and, failing that, you can always ambush them with long-focus lenses. Successful child photographers are those who understand children, but it helps considerably to have an assistant to divert their attention from the "black box" and entertain them so that the most natural expression can be recorded. After all, we don't want pictures of dolls but of lively youngsters laughing or even crying, absorbed in a world of their own, like this little boy happily splashing about. This is much more satisfactory than a picture of a selfconscious child, ill at ease in his "Sunday best".

Horizontal-format child photos are best taken with the finder hood; for upright photos use the prism finder. 40 ASA pan film, light yellow filter, f/5.6 and $^1/_{100}$ sec. in bright sunlight. Shoot at an oblique angle to the direction of movement if the child is running about, using f/4 and $^1/_{50}$ sec.

Nudes

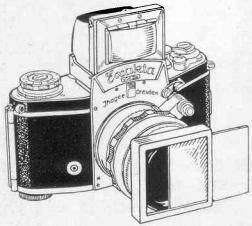
This field of photography is the most difficult, since success depends on the author's tact and sensitivity in his choice of the means by which he expresses his ideas. There is only a very narrow margin dividing an artistic conception from offensiveness. If, in this field, suggestions can be made at all, the following may be helpful: judicious selection of the model, simple and natural poses, avoidance of distracting details in the surroundings and, most important, soft, modelling illumination. Light and shade, which are the photographic means of expression, can either make or mar a figure study. The use of diffusing disks is of proven advantage.

Beautifying backlight

Flat, unflattering front lighting should be avoided in all figure studies. Side lighting gives subtle modelling and backlight is a real beauty treatment. For backlit pictures the lens must be well shaded by an effective lens hood. Take meter readings from the shaded parts of the subject and expose generously for richly detailed shadows. (40 ASA film, f/5.6, 1/50 sec., light yellow filter).

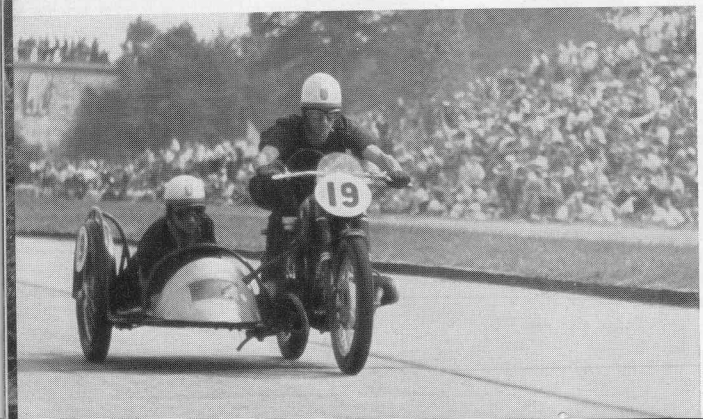
Be your own double

The picture here is not the result of clever photo-montage, but of a simple double exposure on the same frame. For special effects, it is possible to wind the focal plane shutter without advancing the film at the same time. To do this, turn the small shutter speed setting knob ($^1/_{25} - ^1/_{1000}$ sec.) in the direction of the arrow until it stops but do not lift the outer ring, and don't let go of the knob but hold it tightly as otherwise it is apt to recoil. For the exposure proper, the lens must be partly covered (see illustration). Cut a mask from a piece of cardboard and place it in front of the lens (it is easiest to attach it to the lens hood) at a distance approximately equal to the focal length. According to diaphragm opening, always cover more than just half of the lens. The effect can be observed on the ground glass screen. First expose one half of the negative. Then, cock the shutter as described above and, whilst the model moves over to the opposite side of the field of view, turn the mask through 180°, thus covering the already exposed part of the negative, and the second exposure can now be made. Of course, the EXAKTA must be rigidly screwed to a tripod and its position remain unaltered. Lighting and exposure time must be exactly the same for both exposures. A few test exposures are recommended.



The EXAKTA at sports meetings

Blurred photos of sporting events are useless, consequently, short exposure times are imperative if rapid movement is to be "stopped" effectively. To become proficient in this branch of photography it is best to start with sports usually confined to some type of track (horse, car, ski and cycle races, athletic contests, etc.). The camera standpoint should be carefully selected beforehand (watch the background!), all controls set, and the lens focused on the spot where the subject will appear. Use long-focus lenses, if need be. When taking pictures at right angles to the line of motion of the the subject, the EXAKTA can be swung to follow the movement. In this way, it is possible to obtain a sharp record at 1/250 or even 1/100 sec. The resulting blurred background indicates the rapidity of the movement. For games like football, etc., a long-focus lens is best. You may concentrate on the centre of activity in the field or, using the snapshot setting, on the exciting happenings around the goals.



Use the prism finder. 1/1000 sec. is only needed for the fastest movements, normally 1/500 sec. will do in bright sunlight. Use 40 ASA film, light yellow filter at f/4 and 1/500 second. With overcast sky take a film of 160-250 ASA, no filter, expose at f/4 or f/5.6 for 1/500 second.

"On the Straight" by Werner Wurst, f/4, 135 mm. long focus lens, light yellow filter, 1/1000 sec., 40 ASA film speed.

Animal photography

First at hand are our own domestic pets, which always lend interest to pictures of our family and friends. A landscape will be also the better for a horse drawing a plow or cart, or a couple of browsing cows in the foreground. Large-size animal portraits are well worth taking, and every EXAKTA owner will naturally take his or her camera to the Zoo. The animals behind the bars and the people in front of them make very typical Zoo pictures, in which the bars are accepted as part of the scene. Long-focus lenses are very useful for working in open-air zoos: place the lens between the bars when using these lenses; the bars will become invisible when a very long focus lens (250 mm. or over) is used at about a foot from the bars. These lenses can also be employed succesfully for taking pictures of small animals from a distance, giving a good-sized image on the negative. Because of the long focal length of these lenses the background never appears sharp and thus pictures will then look as though taken in the animal's natural habitat. However, genuine pictures of this type demand a more than fair knowledge of animal life, inexhaustible patience and clever disguise for oneself and the camera. Small animals and very young ones will be easiest to photograph. Focus animal snapshots with the prism attachment, small animals with the finder hood. Use snapshot setting for very lively animals. In sunshine 1/500 sec. is normally sufficient; 40 ASA films, light yellow filter, set to f/4 or f/5.6.

Landscapes

A fine study of a landscape is most rewarding. However, in miniature photography a landscape showing a panorama with many details but no foreground is hardly ever satisfactory. A good landscape should have some distinct objects in the foreground. They emphasize the spatial effect, lend depth and animation to the picture, which is why one should look for some suitable "foreground interest". Almost everything, trees, buildings, vehicles, animals and, of course, people are suitable and even a few stalks of grass or corn or a boulder will serve the purpose. When people appear in a landscape it is essential that their dress and pose should be in keeping with their surroundings and that they should not look into the lens but out into the landscape. Here is a good occasion to remember the self-timer; failing anyone else, the photographer can supply the human touch of interest himself.

A landscape should give us the feeling of open spaces and our interest is deeper when we are led into it by a few guiding lines, such as a road, a river, railroad, tracks, etc., which should run diagonally into the picture if at all possible. The feeling of depth can also be achieved by well modulated contrasts. Have dark and vigorous tones in the foreground and let them stand out against the softer grey tones of the distance. But without a few clouds in the sky a landscape appears flat and uninteresting. That is why a light or medium yellow or green filter should be used. Even if the sky is cloudless a filter is recommended, since it will intensify the blue of the sky and result in a better print. In this case, a wide expanse of empty sky should be avoided by placing the horizon as high as possible or by enlivening the large, dull sky area with a few branches of a tree reaching into the picture.

See tips for special settings on page 24. For landscapes with minute detail use 18-20 ASA film, but 40 ASA film is adequate for all normal purposes. With sun, use a light yellow filter, f/8, 1/50 sec. Orange filters strengthen the cloud effects and render distant views more clearly.

Architecture

Buildings also have their own beauty and this goes for both old and new, if only we learn to see their photogenic qualities. However, architectural photography is full of pitfalls. An overall view of a cathedral looses all its value when the spires are cut off. The lens-subject distance must be great enough, but if it is not, the wide-angle lens comes to the rescue. However, if even this remedy fails, then it is better to concentrate on recording a few beautiful details instead of an amputated version of the whole. Foreground interest is also important in architectural work, since it simulates the missing sense of depth and animates the scene. If human figures are posed for this purpose, they should not become the focus of interest but rather act as quiet admirers of the building.

If you are determined to get all there is into your picture, and tilt your EXAKTA upwards or downwards, the photograph will show converging lines; verticals will run into each other. Provided you use this effect intentionally, to give the feeling of lines rising high up into the sky, there is nothing wrong with it, but otherwise, converging lines, especially in frontal views, are disturbing and have to be corrected later on when enlarging. Normally, converging lines can be avoided by either lowering or raising the camera standpoint when exposing.

Old as well as new buildings, with their portals, staircases, galleries, bay windows and inner courtyards are rich material for more detailed studies. As in landscape and portrait photography, here also are hours when the illumination is either more or less favourable. With the sun high in the sky at noon and almost no shadows cast, any architectural shot will be unsatisfactory. During the morning and afternoon, on the other hand, even the smallest detail will stand out boldly, a filigree of shadows enlivens plain surfaces, depth is added to views through doors, windows and colonnades, the dark frames of which make the lighter grey tones of the background recede still further and the relation between distances is clearly established. For photos of interiors, a wide-angle lens is a necessity and additional lighting is very often required. Photoflood lamps, flash bulbs and electronic flash can be used for brightning up shadows without destroying the effect of daylight.

Always expose for the largest mass of dark shadows. Use 18-20 ASA film for recording richly detailed overall views, otherwise use 40 ASA film but use both with a light yellow filter, f/8 or an even smaller stop when working from a tripod. Exposures may vary between 1/100 and 1/5 sec., even in sunlight. Take several shots of the same subject at varying exposure times.

All-weather photography

Do not let yourself be intimidated by bad weather. It wouldn't be much of a recommendation for our camera if rain, snow or storms could put it out of action. Moreover, we would be the poorer for many impressive pictures taken in whipping gales, whirling snow or teeming rain, both in town and country. A 40 ASA pan film is quite suitable, permitting working with a hand-held camera at f/4 and 1/25 sec.

Artificial light

There is no off-season for the EXAKTA nor is there enforced idleness because of bad light; the EXAKTA can be used in all weather and lighting conditions, in daylight and, of course in artificial light.

The simplest way to obtain good pictures in poor light is to use longer exposure times, provided that the subject does not move and that the camera is used from a firm support (table, wall, etc.) or better still, from a tripod. In the early hours of the evening or by the light of street lamps, pictures can be taken at all times of the year, in town and country, as long as the exposure is sufficiently long. Here, we recommend a 40 or 100 ASA film and the use of the time-setting mechanism for exposures not exceeding 12 seconds. For genuine night photography with the EXAKTA the "T" setting should be used together with your watch, for exposures of 1 - 2 minutes. Normal indoor room illumination is quite suitable for taking photos of single persons or small groups.

With a 100 ASA film and an aperture of f/4, exposures will vary between 2 and 6 seconds, which still permits using the self-timer of the EXAKTA. Even children should be capable of keeping still for a few seconds without even blinking an eye. For still-life photography and that of all immobile objects, exposure times can be as long as required, so that even the charming effect of candlelight can be recorded faithfully (Christmas pictures, etc.).

With high-speed films it is possible to take candid shots in artificial light, in brightly lit rooms, on fair-grounds and well-lit city streets. Near the brilliant advertising signs, theater lobbies, etc., even short exposures are possible. Passing cars should be taken head-on or from a slightly oblique angle. Modern high-speed films show an astonishing latitude for this type of photography and it is possible to work with $^1/_{100}$ sec. at f/2.8 or f/2. For "freezing" fast movements at night, use the EXAKTA f/1.5, 75 mm. lens and the prism finder especially when taking stage or circus photographs shots at sports arenas, floor shows, etc. Under very good lighting conditions, which means in very brightly-lit rooms with light-colored reflecting walls, exposures of $^1/_{500}$ sec. can be made with films of the highest speed (160 - 250 ASA), using the

full aperture of f/1.5. In such circumstances, the use of an exposure meter is a necessity since the brightness of the available light varies considerably. When lighting conditions, speed of the film and the aperture of the lens demand longer exposures, the movement of the subject must be taken into account. Give 1/500 or 1/250 sec. for rapid movements, 1/100 sec. for normal movements, 1/50 to 1/25 sec. for slight movement and 1/5 or 1/2 sec. and longer if there is no movement at all. In the latter case, rest the arm holding the camera on any available support or use a chestpod to avoid camera shake.

Studies by artificial light

The previous chapter dealt with photography by "available" artificial light. Much greater control, however, is possible if we can arrange the lighting just as we want it, to give the best pictorial effect. Most suitable for this purpose are internally-silvered lamps of 375 watts to 500 watts, which yield a very high light intensity without requiring additional reflectors.

Photoflood lamps are suitable for every type of artificial light photography and also as fill-in lights for daylight shots, wherever necessary (interiors). These lamps are best employed when screwed into metal reflectors which then can be placed where they are needed (i. e., by screwing to a tripod or other support). Photoflood lighting is very effective; it is a good modelling light and gives strong contrasts, which may be softened by using diffusing screens. Extremely heavy shadows resulting from long exposures of static objects can be eliminated by constantly moving the lamp.

For portraits one photoflood lamp is sufficient and should be placed so that it illuminates the head of the model obliquely from above, casting some light on both the side of the head and the face, so that strong but well-modulated shadows are produced. Direct front lighting is flat and gives no modelling at all, while light from below or straight above distorts the features. Heavy shadows in the face must be brightned by diffusing screens (white cloth, a sheet of white cardboard or paper), or by positioning a normal household lamp to lighten the dark side. As a rule, there should always be one main source of light: a rule which is also valid when several light sources are used. In general, the head should be softly lit from the front, creating a soft, diffuse overall-illumination, to which should be added the main modelling light, coming at an oblique angle either from behind, from above or from one side. Backlighting may also be used together with a spotlight for special effects such as highlights on the hair. Should the general effect of the illumination be too bright, a more subdued effect can be obtained either by using diffusing screens or by changing the distance of the lamps employed. At least three 500 watts Photoflood lamps are required for lively candid shots, but then it is possible to

work with a hand-held camera and a shutter speed of 1/25 or 1/50 sec. with films of between 40 and 100 ASA.

Special attention must be paid to the background and all distracting objects should be removed. Bold-patterned wallpaper is very disturbing and should be covered with a large sheet, plain paper, etc. A medium-grey background is most advantageous because both light and dark-colored hair will stand out against it.

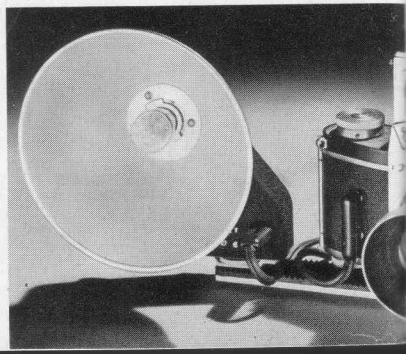
For portraiture with artificial light use 40-100 ASA films without filter; lenses of medium speed, diffusing screens and don't forget the lens hood! With one 500-watt Photoflood lamp and 40 ASA film the exposure should be calculated in relation to the distance between subject and lamp. At a distance of 6 feet the exposure should be 1/5 sec. at f/2.8, 1/2 sec. at f/4 and 1 sec. at f/5.6. With two lamps, the exposure should be halved. If the subject is fairly dark or a diffusing screen is used in front of the lamp, the exposure must be doubled, and four times the original exposure will be necessary when the distance between subject and lamp is doubled.

Flash with the EXAKTA

Taking pictures at night, or indoors, is just as simple and easy as taking them outdoors in sunlight. Flash permits the photographer to illuminate a subject or scene anywhere, anyplace at any time. Flash makes it possible to take instantaneous exposures at fast shutter speeds, with an extreme depth of field. Two types of flash sources are generally used: they are flashbulbs and electronic flash. Both are very reliable, and will render perfect results every time. Flashbulbs are fired with a flashgun. For best results with flashbulbs, the EXAKTA B. C. (battery capacitor) flashgun should be used. The EXAKTA flashgun has been precision engineered to the needs and requirements of the EXAKTA. Because of this there are no lost shots, no flashbulbs failures, no shorts. The EXAKTA flashgun synchronizes with the EXAKTA shutter on all speeds. The EXAKTA flashgun consists of a battery case, a reflector, a flash cable and an aluminium bracket by which the EXAKTA is attached snugly to the flashgun. The EXAKTA B. C. flashgun features an outlet for extension flash and an approved cord which plugs into the flash sockets of the EXAKTA. The flashgun has a bulb ejector and takes small size #6 flashbulbs.

EXAKTA Camera Company has a new electronic strobe unit available which is light weight and portable. It is called the EXAKTA A Portable Electronic Flash Unit. A ring light is also available with this unit for Macrophotography and for intra-oral and other close-up work. The EXAKTA electronic strobe unit is moderatly priced. For more information on this unit and other EXAKTA accessories write to EXAKTA Camera Company, 705 Bronx River Road, Bronxville, New York.

The New EXAKTA II a has been greatly improved, and now has three sockets (outlets) of synchronization for flash photography, M, X, F.



EXAKTA B. C. flashgun ▷

M OUTLET is used for flashbulb synchronization with focal plane flashbulbs as G. E. and Westinghouse #6 and #31 and Sylvania #26. The EXAKTA flash synchronization on the M outlet is set so that the shutter opens 16 milliseconds after you press the shutter release. Thus focal-plane bulbs are suitable because they have a long, even peak coinciding with the travelling or opening of the EXAKTA shutter.

F OUTLET is used for flashbulbs synchronization with flashbulbs having a 5-millisecond delay-as SM flashbulbs, with the shutter speed set at $^1/_{25}$ of a second. Before inserting flashbulbs into the flashgun (on F outlet only), or before you plug the flashgun into the camera, be sure the shutter is cocked, each time. If you do not cock the shutter each time, the bulb will go off immediately!

X OUTLET is used for electronic flash and strobe units. Electronic flash units operate without any delay after the shutter has been released. When using electronic flash, the shutter of the camera should be set at $^1/_{25}$ or $^1/_{50}$ of a second. At these settings, the shutter slit is open at its widest, thus providing sufficient time for the electronic flash to record on film.

If at some time the flash mechanism does not synchronize properly, it is possible that the contacts are out of order. The camera should be checked. Before doing so make certain that the flashgun is in order electrically. Check to see that the contacts of the batteries, bulbs and midget adapter (if one is used) are not corroded or damaged. Occasionally, a run of bulbs is faulty and goes through the manufacturer's plant without being caught. If you get such bulbs, your camera and flash equipment may be in fine working order but the bulbs will not fire. Therefore, it is a good idea to check one of your bulbs on another gun to make certain it will fire. Many photographers carry a piece of sandpaper with which they can scrape the end of each bulb inserting it in the flashgun and thereby assure perfect contact. When using extensions or special solenoids, the electrical load should not exceed 2 amperes, the EXAKTA's maximum capacity.

During recent years electronic flash has become very popular among photographers as flash units of this type have been introduced to the market which are portable, comparatively light in weight and no longer as expensive as the earlier models. An electronic flash unit is still more

THE EXAKTA IIa SYNCHRONIZATION FOR FLASH PHOTOGRAPHY

LAMP NUMBERS	EXAKTA FLASH SOCKET	RECOMMENDED SHUTTER SPEEDS
G. E. No. 6, 31, Sylvania No. 26	M	1/100 to 1/1000th Sec.
G. E. No. SM, Sylvania No. SF	F	1/25, 1/50
ELECTRONIC FLASH AND STROBE UNITS	X	1/25, 1/50
G. E. No. 5, 8, Sylvania No. 25	M	1/25

GUIDE NUMBERS FOR G. E. OR WESTINGHOUSE #6 FLASHBULBS

ASA film exposure index	12	16	20	25	32	40 / 50 / 64	80 / 100 / 125	160 / 200 / 250	540 / 650 / 820
Shutter speeds under 1/100	95	110	120	130	150	190	260	380	650
1/100 - 1/150	55	65	70	80	90	110	160	220	400
1/200 - 1/250	36	40	44	50	60	70	100	140	260
1/500	26	30	34	38	44	55	75	110	190
1/1000	16	19	22	24	26	34	48	70	120

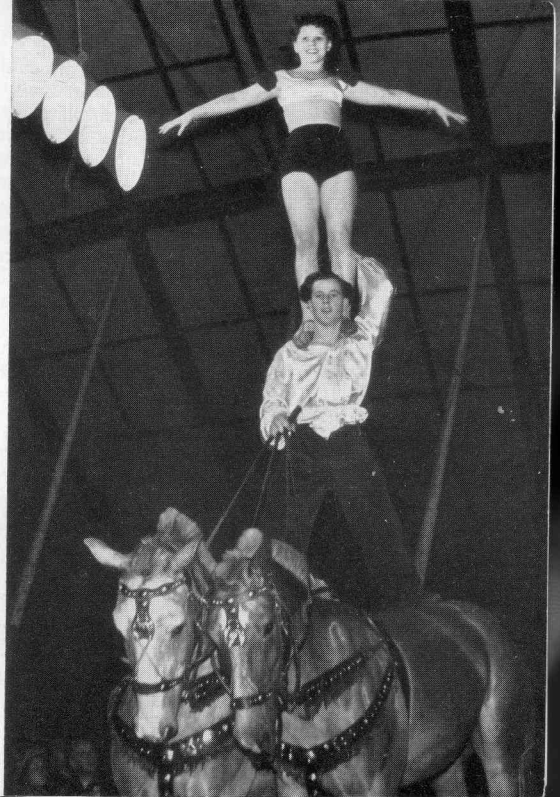
GUIDE NUMBERS FOR G. E. OR WESTINGHOUSE #31 FLASHBULBS

ASA film exposure index	12	16	20	25	32	40 / 50 / 64	80 / 100 / 125	160 / 200 / 250	540 / 650 / 820
Shutter speeds under 1/100	140	160	180	200	240	300	400	600	1000
1/100	55	65	70	80	90	110	160	220	400
1/250	40	44	50	55	65	80	110	160	280
1/500	26	30	32	36	44	56	72	100	160
1/1000	18	20	22	26	28	36	50	70	130

To find the proper f/stop (or diaphragm number), divide the Guide Number by the distance (in feet). For example, if it Guide Number is 70, and the distance of the camera to subject is 10 feet, the diaphragm stop is f/7.

expensive initially than a few flashbulbs, but it has the great advantage that the flash tube need not be replaced after every exposure. In the long run an electronic flash will prove cheaper than using expendable flashbulbs for 10,000 to 50,000 flashes, which can be fired with a single electronic flash tube. The duration of the electronic flash (normally 1/500 to 1/2000 second) depends of the capacity of the capacitor and of the circuit leading to the flash tube. Since the length of the exposure is governed solely by the flash duration and as most of the modern flash units of 50 to 200 watt/seconds work without delay to peak, they should therefore be used only with the "X" setting of the EXAKTA.

The contact of the EXAKTA shutter will be closed when the first blind of the focal plane shutter has passed the film gate completely, and before the second blind has entered the film gate, that is to say, whilst the whole film gate is fully open. This can be achieved by setting the shutter at 1/50 second, but is also possible with slower shutter speeds. A shutter speed of 1/50 second is of great advantage, as it will prevent pre-exposure by the room light when high-speed lenses and films are used.



It should be mentioned, however, that the modern electronic flash unit of 50-100 or 200 watt/seconds has not the enormous light intensity of the flashbulb, although the light output is sufficiently high to allow the use of relatively small stops. When the plug of the flash lead is placed on the "X"-contact of the EXAKTA any further operation should be performed in strict adherence to the instructions for using the particular flash unit you are using. This is to say, that the guide number, distance setting, aperture and film speed must be selected in accordance with those instructions.

Flashbulbs and electronic flash units are becoming increasingly popular for use as sole or additional light sources when working under unfavorable lighting conditions. Architectural shots taken at night show new aspects of a building when it is part-illuminated by flash or floodlight from various points by several light sources. For daylight portraiture outdoors, flash is not only used for brightning up unwanted shadows but also for simulating sunlight when the available light is poor. Flash is also an invaluable aid in nature and animal photography. But the greatest merit of flash photography surely lies in the fact that any object moving at any conceivable speed – from every night-street scenes to the breathtaking acrobatic feats at the circus or ballet – are within the scope of the EXAKTA.

Still life and industrial photography

This is a rich field of photographic activity which challenges the photographer's skill and ingenuity in solving problems of composition and illumination, both in daylight and artificial light. Here he can arrange his objects as he chooses, checking and improving the effect down to the most minute detail on the focusing screen. In these cases, the EXAKTA should be used fixed to a tripod, since the lens should be stopped right down for greater depth of field. For this particular type of photography the merits of slow speed films should be considered, since they have an exceptional resolving power and the greatest possible acutance. The lighting plays a most important rôle: it should be employed to achieve a rich tonal range by means of well-distributed light and shadow areas, besides giving a true rendering of texture and material.

Hints: Lenses of medium focal length are recommended and exposure times should be obtained by a few test exposures.

Close-ups of small subjects

Ground-glass screen focusing is particularly useful when photographing small subjects so that they appear relatively large on the focusing screen. With other cameras the distance must either be measured or determined by means of an elaborate optical device. With the EXAKTA II a the ground-glass screen image reveals not only the correct focusing but also the framing, the definition and the necessary depth of field. The only thing to do is to increase the distance between the lens and the focal plane and this is done easily by using bayonet rings and a set of extension tubes, which can be combined so that practically all short distances can be covered easily.

The shortest possible extension of 5 mm. can be achieved with the two-in-one ring No. 146. After removing the lens this ring is inserted into the bayonet mount of the ring. When a pair of intermediate rings No. 139/41 are screwed together and inserted into the camera mount the extension will be 10 mm. It is also possible to use the double-ring No. 146 together with the pair of intermediate rings No. 139/41. For greater extensions the tubes should be employed. The pair of intermediate rings No. 139/41 should then be separated and the tube (or two or more) screwed between the two rings. The extension tubes available are: No. 142 5 mm.; No. 143 15 mm. and No. 144 30 mm. The possible combinations are shown in the table on page 64. By the way, the rear bayonet ring has a clamping ring. The lens can always be rotated by means of the front bayonet ring and the tubes so that it is placed in the normal position, that is to say, with all the scales visible from above. The whole combination in this position can then be fixed by the clamping ring. When a lens with an automatic diaphragm is used together with extension tubes the automatic diaphragm must be connected to the shutter release by means of the release bridge.

Table for close- ups with the EXAKTA IIa

Extension Tubes	for 50 mm. lenses						for 58 mm. lenses				
Calculated for (description of Nos. see page 63	extension mm.	total dist. mm.	image dist. mm.	lens-to-subject dist. mm.	exposure factor	scale of reproduction	total dist. mm.	image dist. mm.	lens-to-subject dist. mm.	exposure factor	scale of reproduction
No. 187	5	605	55	550	1,2	0,1	794	63	731	1,2	0,09
Nos. 181/183	10	360	60	300	1,5	0,2	462	68	394	1,4	0,17
Nos. 181/183+184	15	282	65	217	1,7	0,3	355	73	282	1,6	0,26
Nos. 181/183+184+187	20	245	70	175	2,0	0,4	304	78	226	1,8	0,35
Nos. 181/183+185	25	225	75	150	2,3	0,5	275	83	192	2,1	0,43
Nos. 181/183+184+185	30	213	80	133	2,6	0,6	258	88	170	2,3	0,52
Nos. 181/183+184+185+187	35	206	85	121	2,9	0,7	247	93	154	2,6	0,60
Nos. 181/183+186	40	203	90	113	3,3	0,8	240	98	142	2,9	0,69
Nos. 181/183+184+186+187	50	200	100	100	4,0	1,0	233	108	125	3,5	0,86
Nos. 181/183+184+185+186	60	202	110	92	4,9	1,2	232	118	114	4,2	1,03

The Table shows distances and scales of reproduction which can be obtained with the Two-in-One Ring, a Set of Bayonet Adapter Rings and Extension Tubes. By using additional Tubes the working distance can be further reduced so that with triple extension (= image distance 15 cm. or 17.4 cm.) two times magnification will be obtained. The above figures are calculated for 50 mm. and 58 mm. lenses focused at infinity. Intermediate values can be obtained by using the lens helical focusing mount. — Increase in image distance requires increase in exposure time; hence the exposure factors. —
Scale of reproduction 0,8 = ratio of size of subject on film (0,8) to its actual size (1).

Color photography with the EXAKTA IIa

Once again it is the focusing screen image which makes color photography easy with the EXAKTA, for the simple reason that the screen image always shows the full color of the subject to be taken. Color photography has been improved considerably during recent years. There are direct-positive reversal films giving color transparencies of excellent quality and negative films from which prints and enlargements can be made. Some of the color films are "universal" material, that is to say, they can be used with daylight as well as artificial light; others are still made in two different types to be used with either daylight or tungsten light. Paper prints and enlargements can now also be made from positive transparencies by using reversal color paper. Many of the commercial color films can now be home-processed by the user, while others are processed in special processing plants.

The color balance of daylight color films varies according to the make of film range between a color temperature from 5600° and 6000° K, that of tungsten color films between 3200° and 3400° K. Other color films can be used in both daylight and artificial light. Color films with daylight emulsions can also be used for flash exposures with blue coated flashbulbs and those balanced for artificial light with yellow-coated flashbulbs. There are also several types of color film which can be exposed by the light of clear flashbulbs. For electronic flash only daylight color film should be used.

As will be seen from this summarizing description of modern color films, they differ considerably and it is strongly recommended, therefore, that the instructions for using the various films should be adhered to strictly. The field of color photography has extended so rapidly recently and the films introduced to the market are constantly changing in speed, color balance and application, so that it is impossible to give a comprehensive survey.

Make sure to obtain the right type of color film you want by telling your photographic dealer what kind of color pictures you intend to take.

Instructions for the New EXAKTA EXPOSURE METER

Please follow the steps outlined below to work the EXAKTA Exposure Meter.

STEP 1.

Look at the top of the Exposure Meter and you will see that it is made up of the following parts:

RING A. An outer moveable ring with shutter speed numbers engraved on it from 12 to 1000. There are two triangles on this ring – a red triangle and a black triangle.

PLATE B. A circular plate which is seated within the outer moveable ring. Part of this circular plate is cut out, where a needle can be seen to move as the meter is pointed at light. The numbers from 10 to 1000 engraved on one side of this plate are ASA film speed ratings. The other set of numbers running from 10 to 31 are Continental DIN ratings for film speeds that are used in Europe. There is also a series of "channels" in black & silver which the needle points to.

SEGMENT C. This moveable segment is at the very top of the meter and has diaphragm stop numbers engraved on it from f/2 to f/22. At the very tip of each side of the segment C are fins which serve as pointers for film speed ratings. The fin to the right of number 2 serves as a pointer for the ASA film speed rating for the film loaded in the camera. The other fin to the left of number 22 is a pointer for DIN settings, which is used only by continental countries. In the U.S.A. the ASA film speed rating is the one to use.

OPAL GLASS D. This is used for incident light readings which will be explained later.

FLAP w/red tip E. This is a blind which is raised upwards when you cannot get a reading on the meter with the flap closed.

STEP 2. Adjusting For Film Speed

Set the film speed fin pointer on the ASA film speed number which corresponds to the film loaded in your camera (this pointer is to the right of number 2, explained in Segment C).

STEP 3. Operating The Light Meter w/Flap closed

Aim the meter at the subject. Be sure the flap is closed. When the needle moves as the meter is aimed at the subject, turn Ring A so that the black triangle is in the same channel with the needle.

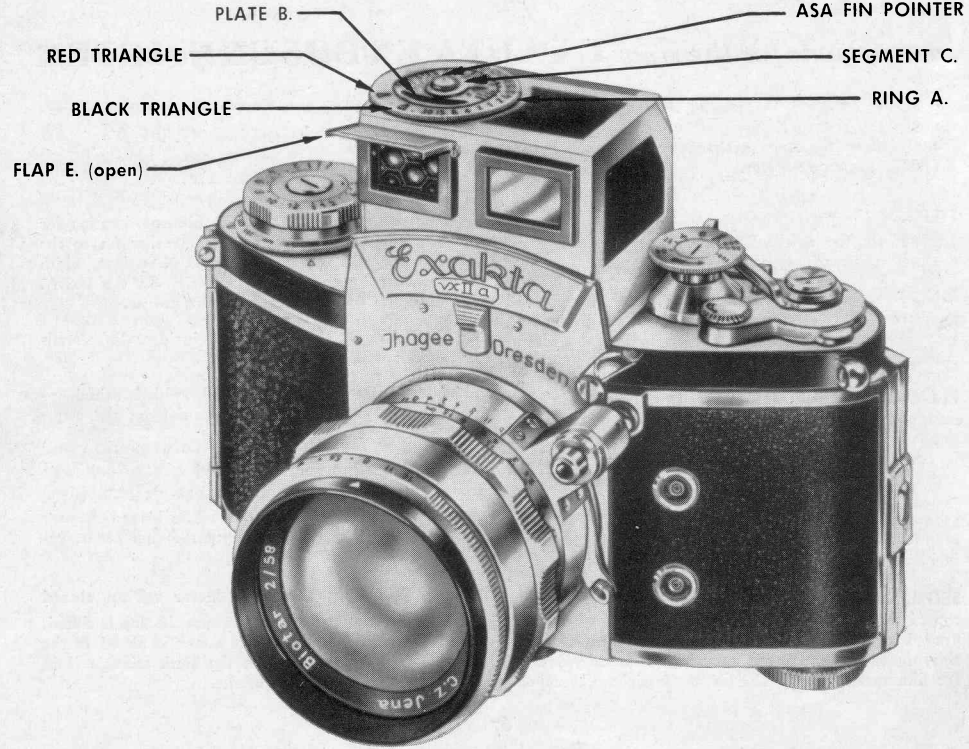


PLATE B.
RED TRIANGLE
BLACK TRIANGLE
FLAP E. (open)
ASA FIN POINTER
SEGMENT C.
RING A.
Exakta
VX II a
Jhagee
Dresden
Biotar 2/58
C. Z. Jena

STEP 4. Reading The Aperture Setting & Shutter Speed

By doing this you will note that segment C with the diaphragm stops on it is lined up with the shutter speed setting on Ring A (the diaphragm stops are on the inside, the shutter speed settings are on the outside). You can use several combinations of shutter speed settings & diaphragm stops. For example: Let us say that you set the ASA fin pointer on ASA speed 100. Aim the meter at the subject and the needle stays in the second black channel. Line the black triangle up with the needle and we have a choice of the following diaphragm stops and shutter speeds:

F/22	1/25th
F/16	1/50th
F/8	1/250th
F/5.6	1/500th
F/4.0	1/1000th

You can use any set of diaphragm stops and speeds above.

STEP 5. Operating The Light Meter With Flap Open

at the subject, open FLAP E then turn RING A until If the needle does not move when you aim the meter the red triangle is lined up in the channel with the needle. Follow Step 4 to read settings (the procedure for reading diaphragm settings and shutter speed settings is the same when using the black or red triangles).

Incident Light Readings

Incident Light Readings are average of all the light sources which illuminate the subject. To read the incident light average, do the following:

1. Place the opal glass over the open or the closed flap of the exposure meter.

2. Let the subject hold the camera and have him point it to the place where the photographer will take the picture. If the camera is on a tripod, simply remove the exposure meter prism finder from the camera, and use it as a regular exposure meter.

3. Use the black triangle if the opal glass is placed over the closed flap of the exposure meter window. If however, the opal glass is placed on the open window (with flap open), be sure to use the red triangle.

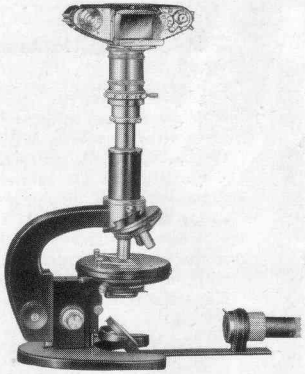
Using Color Film

Because it is sometimes found that manufactures' ratings for a particular color film may be a little higher or lower than it is actually thought to be, it is suggested that you make a few trial shots with the aperture settings read from the meter. Take a few with the next higher and a few with the next lower aperture values. The best picture you will get should provide the proper setting for that particular color film.

This is the end of our little guide to the EXAKTA IIa

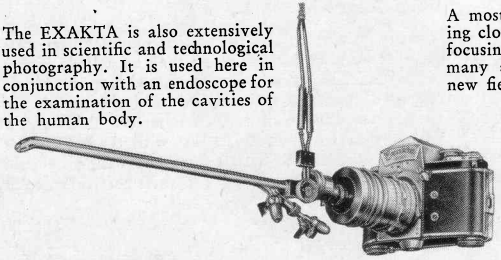
It is, we admit, a rather hasty survey. Nevertheless, we hope we have given you an idea of the versatility and quality of the EXAKTA II a. Actually we have touched only upon the most important features of the EXAKTA II a, those which you *must* know for taking every-day pictures, but this is not all there is to it, by far. Being restricted by space we were unable to describe the uses of the EXAKTA in many other fields, such as for technical and scientific work, the excellent "Versal" (multipurpose) unit, the attachable focusing bellows, etc. There are so many applications for the EXAKTA — too many to elaborate upon here. For example, doctors can attach an 'Endoscope' to the EXAKTA for taking pictures within the human body, or an 'Colposcope' for photographing body cavities. Scientists can attach it to microscopes or astronomical telescopes, and there is a special stereo-attachment to make stereo pictures. There is also a water-tight casing for modern underwater photography.

If you want particulars on all of these and other new accessories please write to EXAKTA Camera Company.

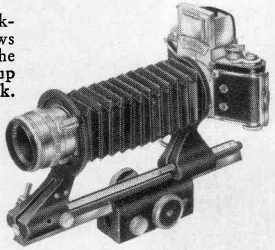


The EXAKTA as a micro-camera.

The EXAKTA is also extensively used in scientific and technological photography. It is used here in conjunction with an endoscope for the examination of the cavities of the human body.

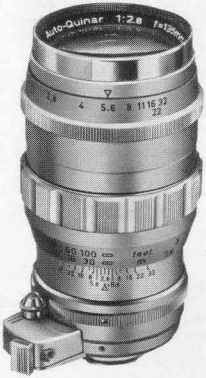


A most economical way of making close-ups is to use the bellows focusing attachment; one of the many accessories for opening up new fields of photographic work.



Carl Zeiss Jena
Flektogon F/2.8, 35 mm.
Wide Angle Lens with
automatic diaphragm

Schneider Xenon F/1.9,
50 mm. normal lens with
automatic diaphragm

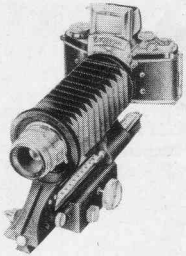


Steinheil Auto-Quinar
F/2.8, 135 mm. Telephoto
Lens with automatic
diaphragm

Meyer Primotar F/3.5,
180 mm. Telephoto Lens

Ihagee Extension tube set

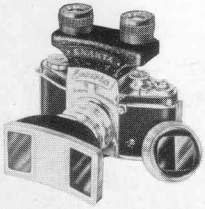
Versal Bellows Extension Unit for Close-up photography



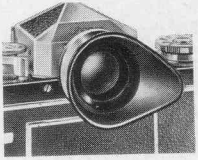
2-in-1 adapter

Closal Attachment — permits automatic diaphragm lenses to be used with extension tubes and bellows extensions while retaining automatic feature of lenses

EXAKTA Stereo Unit



Eyepiece for Penta Prism



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