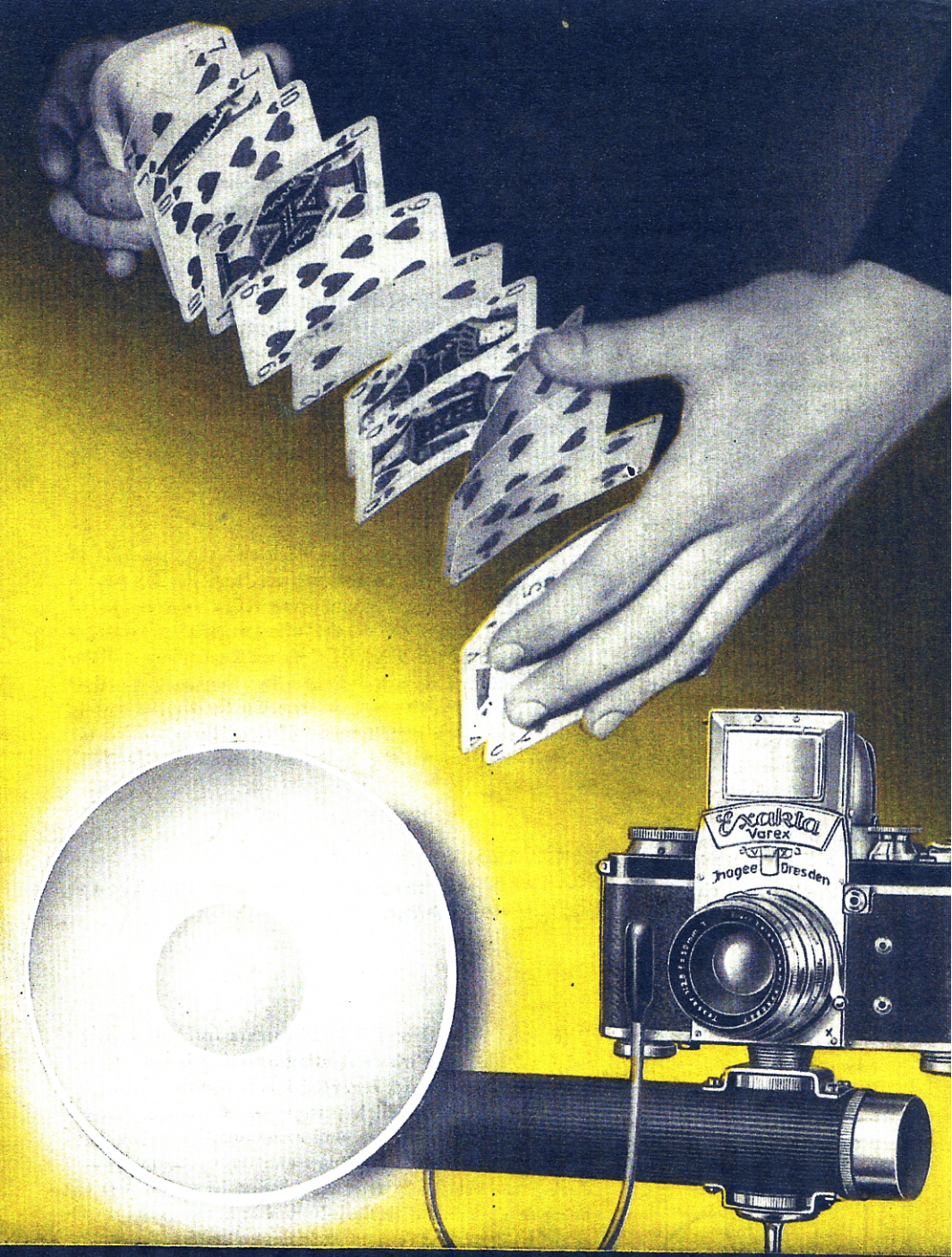


Flash Technique

Flash Technique

Modern Flash Technique

fulfills the one desire cherished for many decades by all photographers, viz. to be able to make pictures at shortest shutter speeds and normal lens apertures independently of prevailing lighting conditions. By the advent of electronic flash units these expectations have even been surpassed by far.

Both flash-bulbs (ordinary flash) and flash-tubes (electronic flash units) possess the advantage that they give out a short, but intensive flash of light in a hermetically sealed glass bulb or tube. There are neither open flames, nor smoke, dust, smells, or loud noises. One may flash freely everywhere without annoying anyone or causing a fire. Since the light output of flashes is known, lens aperture and flash distances from subject can so be chosen as to ensure well-balanced negatives in every case. No wonder, therefore, that all photographic experts are more and more making use of the modern light sources.

Reliable synchronisation

is the hub of all flash technique, for the lighting up of the flash and the operation of the shutter must be synchronised with precision. In this respect, too, the EXAKTA Varex justifies its reputation of being an adaptable miniature reflex camera: fitted with two reliably synchronised flash contacts it can make the fullest use of all advantages of modern flash technique. The operation of the EXAKTA Varex focal plane shutter plays an important part in this connection. It is a well-known fact that such shutters expose the negative in successive strips, and yet there is — even for the shutter setting of $^1/_{50}$ sec. (and for any longer speed too) — a certain space of time during which the whole picture area is open for exposure: a fact of considerable importance for flash synchronisation.

The purpose of the
Two flash contacts in the EXAKTA Varex

is to close the circuit necessary for firing the flash at the correct moment. The two methods of synchronisation are, however, different.

"M" Synchronisation

— formerly marked with "V" (contact sockets on left hand camera front wall, below slow speed knob) — is designed for flash-bulbs whose lighting duration is longer than any of the short shutter speeds ($^1/_{1000}$, $^1/_{500}$, $^1/_{250}$ sec. etc.) i. e. for so-called "Broad Peak Lamps" (OSRAM S 2, PHILIPS PF 45) which permit — as already pointed out — the use of short shutter speeds up to $^1/_{1000}$ sec. and consequently snapshots of ultra-rapid movements (sports, artistes, etc.). The camera shutter opens and shuts during the relatively longer flash duration, and also the firing delay usual with flash-bulbs has been taken into account by closing the circuit early enough so that the shutter will not open before the flash lights up. For further details cf. Table page 6.

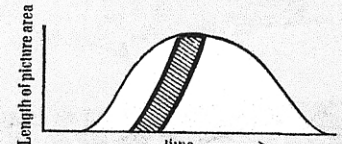
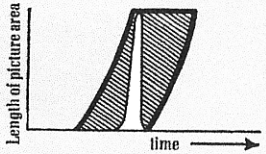


Diagram of shutter opening (hatched area) and lighting duration of flash-bulb

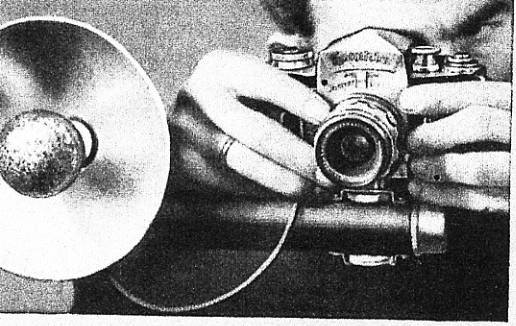
EXAKTA and electronic flash
Arnfried Zedler, Halle

"X" Synchronisation

— formerly marked with "E" (contact sockets on right hand camera front wall) — is designed for flash-tubes (electronic flash units) in the first place. As soon as the first shutter curtain has travelled across the picture area, the flash circuit is closed. The extremely short duration of the tube flashes ($^1/_{5000}$ sec. in most cases) coincides with the time when the picture area is fully open, as it is the case with the shutter set at $^1/_{50}$ sec. or longer. An immense advantage lies in the fact that when working with the EXAKTA Varex and a flash-tube even the relatively short shutter speed of $^1/_{50}$ sec. can be used, since in that case practically no additional exposure by normal lighting can occur. — With "X" synchronisation and the shutter speed of $^1/_5$ sec. (or more) all available flash-bulbs can be fired, too. This "open flash" technique is indicated for stationary subjects and, of course, for motionless persons.



Electronic flash (white area) and shutter diagrams (hatched area)



The EXAKTA Flashgun

has been designed for rational flash-bulb work. It has the following advantages:

versatile application in conjunction with the EXAKTA Varex (Model VX), all previous EXAKTA Varex models, the Kine-Exakta, and the EXA;

locking-device for flash-bulbs of any size and any base type (no need for screwing bulbs in and out!). Flash-bulbs are inserted and ejected in a matter of seconds;

solid construction which is equal to permanent use;

extension outlet.

The EXAKTA Flashgun consists of:

a) **the stick-shaped battery-case** serving as a handle for the Flashgun. It accepts 3 stick-shaped batteries producing a total voltage of 4.5 volts (Battery Adapter see next page!). In order to connect the camera with the Flashgun, the battery-case is fitted with a tripod screw, and a tripod bush permits of mounting the whole structure on a tripod if delayed-action shots or "open flash" pictures are to be made.

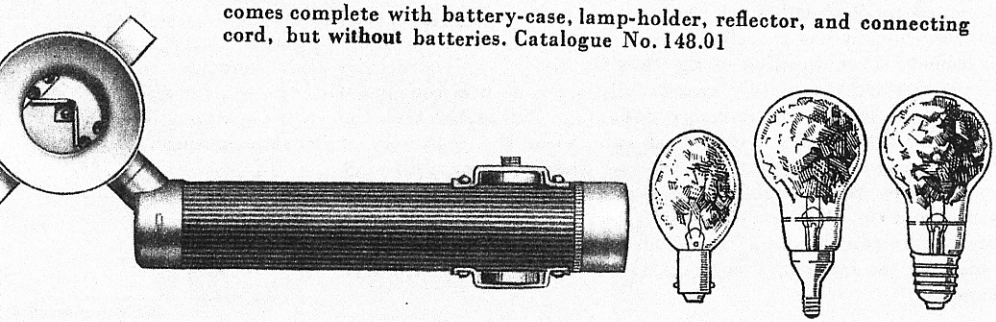
b) **the adjustable lamp-holder and the metal reflector with highly polished inside** permitting complete utilisation of the flash-light. The lamp-holder is movable both horizontally and vertically and allows of working with direct of indirect light according to choice. The best use of the light is made when the axis of lighting and the optical axis intersect at the subject.—The reflector is interchangeable in order to facilitate transport and permit the use of reflectors of different shapes and angles of diffusion. — The locking-device accepts any flash-bulb irrespective of size and base type without any further manipulation (See Illustrations). The locking-device opens upon pressure on its side parts. Having inserted the flash-bulb, let go the side parts, and the bulb is held in contact position. By pressing the side parts again the used bulb will be ejected automatically.

c) **the connecting cord with two plugs.** It connects the camera with the Flashgun and is plugged into the lamp-holder and into either set of camera contact sockets (Cf. Table page 6).

The outlet for extension flash is provided at the top of the battery-case below the lamp-holder. In order to fire a flash-bulb independently of the camera synchronisation, the lamp-holder is provided with a push button which must also be used whenever it is desirable to test the contact of the Flashgun by means of a control lamp.

The EXAKTA Flashgun

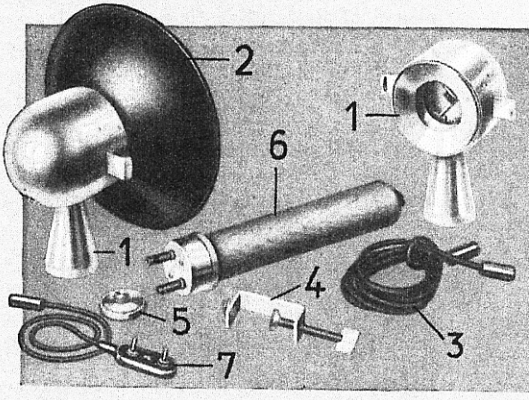
comes complete with battery-case, lamp-holder, reflector, and connecting cord, but **without** batteries. Catalogue No. 148.01



Useful EXAKTA Flashgun Accessories

The light of one flash-bulb will not be sufficient in every case. When working at longer subject distances or in order to light up large rooms, the use of a second flash-bulb will often become indispensable. The same goes for lighting effects to be produced by means of side top, or back lighting.

An Extension Lamp is available for the simultaneous use of a second flash-bulb. It consists of the parts Nos. 1—3 which are also supplied separately. (Extension Lamp, Catalogue No. 148.02.)



1. **Extension Lamp-Holder** (Catalogue No. 148.02 U 4), similar to the lamp-holder of the EXAKTA Flashgun, fitted with stand and tripod socket.

2. **Reflector for Extension Lamp-Holder** (Catalogue No. 148.01 39) which can be used with the EXAKTA Flashgun too.

3. **Extension Cord (1.50 m)** (Catalogue No. 148.02 U 3) connecting EXAKTA Flashgun and Extension Lamp.

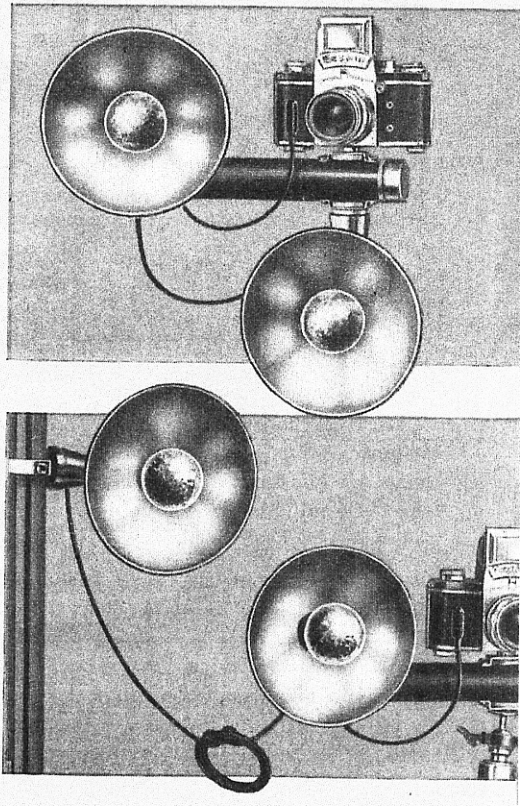
The Extension Lamp can be placed anywhere or mounted on a tripod. If neither is possible, use

4. the **Clamp Screw** (Catalogue No. 148.04) which is fitted with two tripod screws for the Extension Lamp and fastens securely to pieces of furniture and other supports, to lamps and anywhere else. Thus the second flash-bulb will provide side, top, or back light as required.

5. the **Adapter Screw** (Catalogue No. 148.03) permits to fasten the Extension Lamp to the EXAKTA Flashgun if hand-held shots with two bulbs are to be made (press-work).

6. the **Battery Adapter** (Catalogue No. 148.05) permits for studio work to charge the EXAKTA Flashgun from an accumulator instead of using batteries. The Battery Adapter is inserted into the battery-case. **Note, however, that the EXAKTA Flashgun must not be charged from the mains!**

7. the **Connecting Cord (35 cm)** of the EXAKTA Flashgun, connecting lamp-holder and camera, is also available as an accessory. It is fitted with special plugs for the lamp-holder and the contact sockets of the EXAKTA Varex, Kine-Exakta, and EXA. (Catalogue No. 148.01 U 10.)



Plug for lamp-holder . . . . Catalogue No. 148.01 U 12
Plug for camera contact sockets Catalogue No. 148.06

Flash Hints

All those who intend to make only occasional flash pictures with an EXAKTA Varex or one of the previous models, will do best to use flash-bulbs which are inexpensive, but useless after being fired. Flash-tubes (electronic flash units), on the other hand, will stand thousands of flashes. The purchase of such a unit will only pay if there is plenty of flash work to be done: for reporters and professional photographers the EXAKTA Varex in conjunction with an efficient electronic flash unit evidently represents an ideal tool. "X" synchronisation can be installed in all previous Kine-Exakta cameras. If installation is required, send camera to us!

Flash work is the continuation of current artificial light photography, but in spite of shortest shutter speeds it does not entail a reduction in depth of field when using ultra-fast lenses nor the coarse grain of fast-speed films. Flash-tubes are best suited for "freezing" fast action: the incredibly short flash duration of approximately $^1/_{5000}$ sec. allows of taking shots of a novel type. Favourite fields of application are: sports, artistes, stage shots, press work, snapshots in crowded streets or in recreation grounds, animal portraits, technical action studies, etc. Similar good results can be obtained when using suitable flash-bulbs at the available shutter speeds up to $^1/_{1000}$ sec.

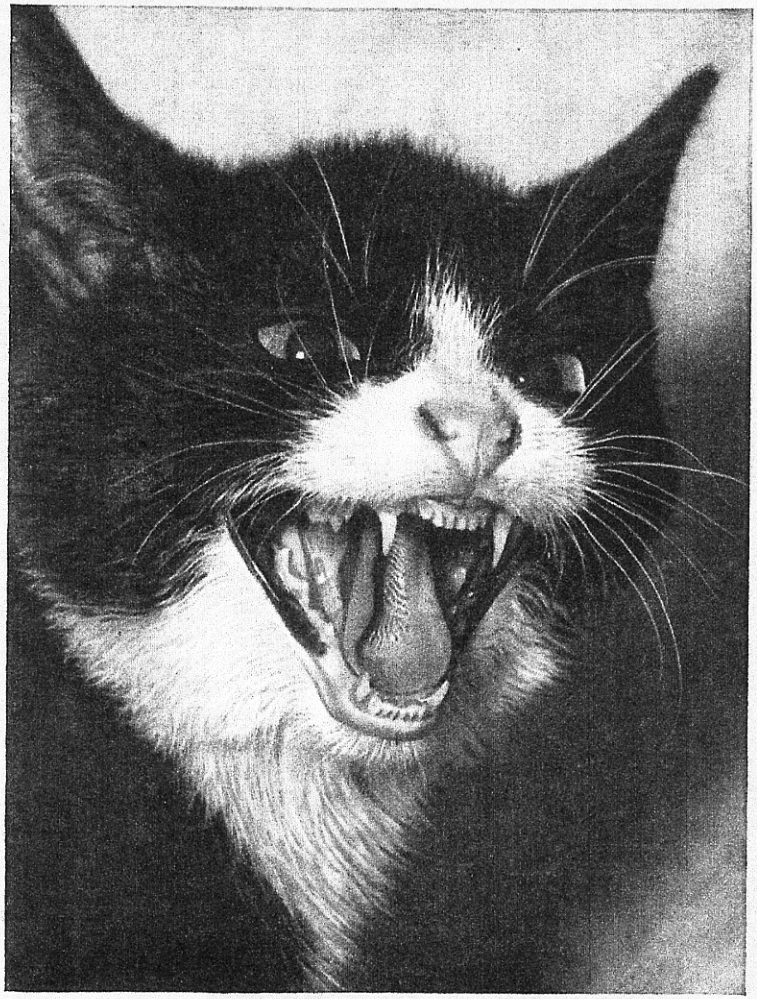
If fired near the camera, the flash will give good frontal illumination, but very often the subject will be deficient in relief. By firing a second flash some distance from the camera, the picture will show additional side, top or back lighting effects and, consequently, a more effective distribution of shadows. This method has already been described with reference to flash-bulbs, but it exists for flash-tubes as well by firing extension flashes by means of a photo cell. For further details consult the literature published by electronic flash unit makers.

Flashes may also be used as fill-in light sources for indoor work when the subject is well illuminated by photoflood lamps or when the flash is intended to fill in dark shadows. Stationary subjects (e. g. architecture photography by night) can be flashed at to advantage from various standpoints the shutter being open all the while. For daylight work, too, flash lighting is welcome: it will imitate sunlight when working outdoors under overcast sky, and when shooting against the light it will fill in dark shadows. Rapidly moving insects are taken at extremely short distances by daylight with fill-in flash too.

When using flash-bulbs with the EXAKTA Varex and the previous models consult the following table. Flash-bulbs must be used with the shutter speeds indicated in the left hand column only on condition that the effective exposure time is indicated. If not, the flash-bulb should not be used with the shutter speed indicated in the left hand column.

Minor variations of the values indicated in the table may result from inevitable and permissible tolerances of the flash-bulbs. It is only when using "M" synchronisation that the "effective exposure time" is the decisive factor with regard to subject movement. But when using "X" synchronisation for "open flash" work, the shutter is open for a much longer time than the flash duration so that additional exposure is liable to occur in brightly illuminated rooms. That is why rapid action can only be arrested with "M" synchronisation and appropriate flash-bulbs.

EXAKTA
and electronic flash
Richard Peters jun.
Dresden



How to use flash-bulbs with the EXAKTA Varex

EXAKTA shutter set at	Synchronisation	Effective exposure times										
		OSRAM Vakublitz Flash-bulbs						PHILIPS PHOTOFLUX Flash-bulbs				
		F0	F1	F2	S0	S1	S2	PF14N	PF25N	PF45E	PF56E	PF110B
1/1000	M				1/1000	1/1000	1/1000			1/1000	1/1000	1/1000
1/500	M				1/500	1/500	1/500			1/500	1/500	1/500
1/250	M				1/250		1/250			1/250	1/250	1/250
1/150	M						1/150			1/150	1/150	1/150
1/100	M						1/100			1/100		1/100
1/50	M						1/50			1/50		1/50
1/25	M									1/25		
1/5	X	1/150	1/100	1/60	1/40	1/40	1/25	1/45	1/40	1/15	1/35	1/25
longer speeds	X	1/150	1/100	1/60	1/40	1/40	1/25	1/45	1/40	1/15	1/35	1/25

Illustration page 1:
Taken by Horst Marcuse, Berlin
with EXAKTA

Right: EXAKTA and electronic flash
Bert Leidmann & Krafft Warlies, Nagold
Left: EXAKTA and ordinary flash $^{1}/_{1000}$ sec.
Hannes Speckens, Duesseldorf

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