

Wollensak
**FULL SYNCHROMATIC
RAPAX SHUTTER**

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RAPAX

FULL SYNCHROMATIC

This between-the-lens photographic shutter is a precise high-speed instrument which has been built to exacting tolerances at the Wollensak Optical Company. With good care it will serve faithfully for many years, rendering accurate and dependable performance.

TO PRE-SET THE SHUTTER

The RAPAX Full Synchronomatic is a pre-setting type of shutter; before exposures can be made, it must be set or cocked. This is accomplished by moving the setting lever, which extends from the top of the shutter. The shutter is then ready for making the exposure by operating the cable release or the release lever located at the bottom of the shutter. See Fig. I.

TO OPERATE THE SHUTTER WITH OR WITHOUT SYNCHRONIZATION

The markings on the speed cam represent:

T, Time	10, 1/10, Sec.
B, Bulb	25, 1/25 Sec.
1, 1 Sec.	50, 1/50 Sec.
2, 1/2 Sec.	100, 1/100 Sec.
5, 1/5 Sec.	200, 1/200 Sec.
	400, 1/400 Sec.

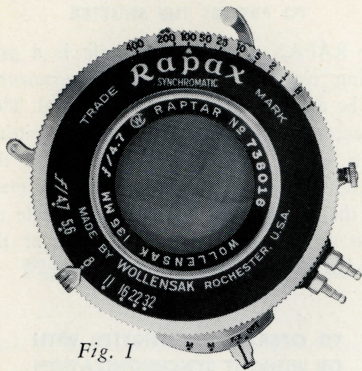


Fig. 1

The RAPAX Full Synchromatic Shutter has a short, smooth action of the release lever. Thus it can be used with an external solenoid when desired.

FOR TIME EXPOSURES

"T" or *Time Exposure* is used for exposures of long duration. Turn the speed cam (the outside knurled disc) until the letter

"T" is at the index line on the shutter. Cock the shutter with the setting lever and release by pressure on the release lever or the cable release. This action will cause the blades to open and remain open until the release lever is again tripped (in the same direction) to close the blades. NEVER RECOCK WHEN THE BLADES ARE OPEN; DAMAGE TO THE SHUTTER MAY RESULT.

FOR BULB EXPOSURES

"B" or *Bulb Exposure* is used also for making prolonged exposures. Turn the speed cam to "B" and cock the shutter, then press the release lever or the cable release. This will open the shutter and keep it open as long as pressure is maintained. As soon as pressure is released, the shutter will close.

FOR INSTANTANEOUS EXPOSURES

Turn the speed cam to the exposure desired, and cock the shutter. (When setting to 1/400 sec., a slight additional pressure is required to overcome the resistance of the booster spring.) To release, operate the cable release or release lever.

FOR QUICK GROUND-GLASS FOCUSING

With the speed cam set at the selected speed, cock the shutter and depress the focus lever. This action will open the blades and keep them open. To close the blades, lift the focus lever to its original position. Since the shutter has already been cocked, you are ready to trip the release lever for an exposure.

TO OPERATE THE SHUTTER FOR SYNCHRONIZED FLASH

No external synchronizers or solenoids are necessary for flash work with the RAPAX Full Synchromatic.

To permit accurate synchronization of all types of flashlamps with the shutter, a special mechanism called the synchronizer has been built into the shutter. Essentially, the synchronizer consists of a set of electrical contacts which close the circuit to the flashlamps, and a delay mechanism which determines the instant at which the shutter should be fully open to receive the full benefit of the flash.

CONSTRUCTION DETAILS

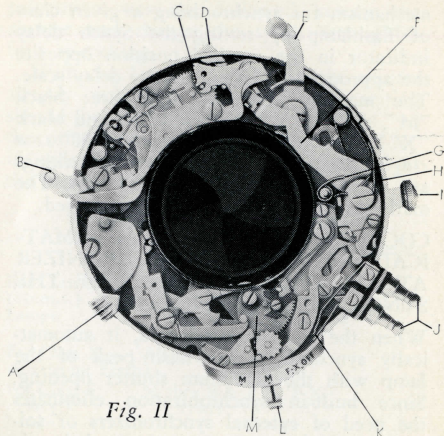


Fig. II

- | | |
|-------------------------|------------------------------|
| A. Diaphragm indicator | H. Main spring |
| B. Release lever | I. Focus lever |
| C. Retarding device | J. Flash bi-post |
| D. Cable release socket | K. Point of contact |
| E. Setting lever | L. Synch delay indicator |
| F. Main lever | M. Synch retarding mechanism |
| G. High-speed spring | |

The RAPAX Full Synchronomatic has a mechanism for synchronizing a given class of flashlamp by setting the Synch delay indicator in the notched position opposite the appropriate marking on the delay scale. The markings on this scale are: black "M", red "M," "F-X" (red "F" and black "X"), and "OFF." *Note that "F-X" is a single notched position.* The speed markings are in black for 400, 200, and 100. The markings 50 through B & T are in red.

COCKING THE SHUTTER AUTOMATICALLY COCKS THE SYNCHRONIZER AT ALL DELAY SETTINGS OF THE SYNCH DELAY INDICATOR.

When the shutter is released, it automatically synchronizes the flash peak of the lamp with the maximum shutter opening. Since built-in synchronization eliminates the need of external synchronizers or solenoids, the battery current is needed only to flash the lamp.

CAUTION: *The synch delay indicator should be set to the desired position before cocking the shutter to insure that the syn-*

chronizer mechanism is also cocked. If this precaution was not followed, release the shutter and change the synch setting before re-cocking.

With the lamp in place and the shutter already cocked no change in synch setting should be made except from one "M" to the other "M" or from "OFF" to "F-X" in order to prevent unwanted flashing of the lamp.

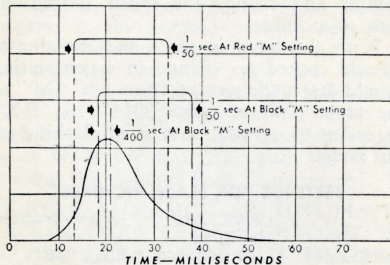
SETTINGS FOR FLASH PICTURES*

	<i>With Speed Setting</i>	<i>Set Synchronizer at—</i>
For Class M (20 m.s.)	400, 200, 100 (black)	Black "M"
Lamps	50 thru B & T (red)	Red "M"
For Class X (Electronic Flash)	All Speeds	"F-X"
For Class F (5 m.s.)	50 thru B & T (red)	"F-X"
Lamps		

**See last page for explanation of M, F, and X Classifications.*

For most efficient synchronization with Class M (20 ms) lamps use the black "M" setting for speeds marked black and the

red "M" setting for speeds marked red. (See Fig. III).



Graph illustrating advantages of two "M" settings

Fig. III

If an electronic high speed flash unit of the Class X type (O ms) is to be used, set the time delay indicator at "F-X." This gives excellent synchronization at *all* shutter speed settings.

If Class F (5 ms) lamps are to be used, they will be in synchronization *only at the red speeds of 50 and slower when the synch delay indicator is set at "F-X."*

With the synch delay indicator in the OFF position, *no electrical contact is made.*

MULTIPLE FLASH

If more than two Class F or Class M lamps are used at one time, additional batteries should be used. With standard 1.5 volt photo flash cells, the wiring for extension flash lamps, No. 18 or larger, is:

3 cells	15 ft. wire	2 lamps max.
4 cells	25 ft. wire	2 lamps max.
5 cells	50 ft. wire	2 to 3 lamps max.
6 cells	75 ft. wire	2 to 3 lamps max.

The Rapax Full Synchromatic works very well with the new "B-C" flash circuits which are recommended for multiple flash.

REMOTE OR "OFF-THE-CAMERA" FLASH

This may be done by using a solenoid as a remote tripper only and using the shutter synchronizer for the flash. The Graflite Guns (and possibly others of similar design) have provisions for this type of operation.

HERE IS WHAT IS MEANT BY

"M", "F", & "X"

There are in common use for between-the-lens shutters three general types of flash-lamps classified according to their "time-to-peak" ratings as follows:

Type	Rated Time-to-peak	Typical Examples
Class M	20 milliseconds	G. E. No. 5, 11, 22. Sylvania 25, 0, 40 etc.
Class F	5 milliseconds	G. E. SM Sylvania SF
Class X	0 milliseconds	Electronic high speed:

Most electronic high speed flash units listed as Class X lamps (also called "O" type, and trigger type) have a gas discharge tube in the trip circuit which acts instantaneously and thus the time-to-peak is listed as 0 milliseconds. They are very consistent in operation and thus give excellent synchronization with the RAPAX Full Synchronic set at "X" for any shutter speed.

Some electronic high speed flash units have a relay in the trip circuit giving a time delay and are primarily for use with a solenoid operated non-synch shutter.

Should you experience flash failure, first check your batteries, gun, cords and connections. If the trouble still persists, the shutter should be checked.

DON'T

DON'T put your camera away without relieving the tension on the controlling springs of the shutter; Set the shutter at a slow speed and trip.

DON'T use oil on the shutter. Special lubricants have been applied, making it unnecessary to use any additional lubricants. *Oil will ruin the shutter.*

DON'T use graphite. If the shutter seems sluggish, it may be the result of continuous wear, extreme atmospheric conditions, or undue exposure to dust. The shutter should be disassembled and cleaned by a competent shutter repairman.

DON'T use the shutter contacts on the house mains (110 volt line.)

Guarantee

Wollensak shutters are guaranteed against defective workmanship and parts for one year from the date of manufacture.

WOLLENSAK
ROCHESTER 21, N. Y.

WOLLENSAK SHUTTER REPAIR STATIONS

Wollensak has selected and trained these privately owned shutter repair organizations. They use genuine Wollensak parts which are furnished at no charge, and are equipped with special repair tools. Please note, however, that these stations do not perform warrantee service work.

ANDERSON & HOWELL, 1228 S. E. Ninety-Second Ave., Portland 16, Oregon.

ADAM ARCHINAL CORPORATION, 10 West 33rd Street, New York 1, New York.

ASSOCIATED CAMERA TECHNICIANS, 7305 Melrose Ave., Hollywood, California.

BAB'S PHOTO REPAIR SERVICE, 46 Broomfield Street, Boston, Massachusetts.

CAMERA REPAIR SERVICE OF MILWAUKEE, 210 E. Michigan St., Milwaukee 2, Wisconsin.

CAMERA SERVICE COMPANY, 2257 Cascade Street S. W., Atlanta, Georgia.

COTTERMAN CAMERA REPAIR, 533 Lemke Building, Indianapolis, Indiana.

DOWNTOWN TRAIN & CAMERA SHOP, 122 W. Elizabeth St., Detroit 26, Michigan.

NEWTON J. DRAPER, 8746 Brentwood Place, Brentwood 17, Missouri.

EASTERN CAMERA EXCHANGE, 66 West Columbia Street, Hempstead, Long Island, N. Y.

FULLER & D'ALBERT, INC., 815 Tenth N. W., Washington 1, D. C.

O. G. HEINEMANN, INC., 126 West 32nd Street, New York 1, New York.

S. O. LINDAHL SALES, INC., 1534 Court Place, Denver 2, Colorado.

MAC'S FOTO SERVICE, McCitcheon Bldg., Anchorage, Alaska.

MACK CAMERA SERVICE, 1025 Commerce Avenue, Union, New Jersey.

MOLER'S CAMERA CLINIC, 209 E. First Street, Wichita 2, Kansas.

PRECISION REPAIR LABORATORY, 2123 East Ninth Street, Cleveland 15, Ohio.

JAMES F. SARAGINO, 201 East 48th Street, New York 17, New York.

HOWARD SMALL, 1015 Chestnut Street, Philadelphia 7, Pa.

M. STRAUSS PHOTO-TECHNICAL SERVICE, Atlantic Building, 930 "F" St., N. W., Washington 4, D. C.

WHITE PHOTO SALES, 441 Plymouth Court, Chicago 5, Illinois.

CANADIAN STATIONS

CAMERA CLINIC, 2030 McGill College Ave., Montreal 2, Quebec.

PRECISION CAMERAS OF CANADA, 10 Craig St. West, Montreal 2, Quebec.

GRAFLEX-WOLLENSAK SHUTTER SERVICE-PARTS STATIONS

Wollensak has trained and equipped these key Graflex repair facilities for servicing Wollensak made shutters. They use genuine factory parts and service tools and perform warrantee service work.

Note 1: The Western Division and the New York Office service Wollensak shutters which are used on Graflex cameras only.

Note 2: Graflex, Ltd., services all Wollensak shutters.

GRAFLEX, INC., Western Division, 800 N. Cole Ave., Hollywood 38, Calif.

GRAFLEX, INC., New York Office, Suite 922, Rockefeller Plaza, New York 20, N. Y.

GRAFLEX, LTD., 137 Wellington St. W., Toronto, Canada.

WOLLENSAK

OPTICAL COMPANY

ROCHESTER 21, N. Y. U. S. A.