



Wollensak

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. Only skilled workmen are permitted to assemble such a fine instrument. With good care it will serve faithfully for many years, rendering accurate and dependable exposures.

★ 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, extending from the top of the shutter, *to the right*—the full length of the slot. The shutter is now cocked and ready for making the exposure by pressure on the cable release or the release lever located at the bottom of the shutter.

★ TO OPERATE THE SHUTTER WITH OR WITHOUT SYNCHRONIZATION

The markings on the speed dial are: T, Time; B, Bulb; 1, 1 Sec.; 2, 1/2 Sec.; 5, 1/5 Sec.; 10, 1/10 Sec.; 25, 1/25 Sec.; 50, 1/50 Sec.; 100, 1/100 Sec.; 200, 1/200 Sec.; and 400, 1/400 Sec.

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.



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

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, just press the cable release or release lever. No harm will befall the shutter if the speed cam is set between any two given markings; but for correct exposures, set the indicator accurately at the desired speed. Speed of the shutter, if used at intermediate settings, is not guaranteed at those settings.

Lens # 2

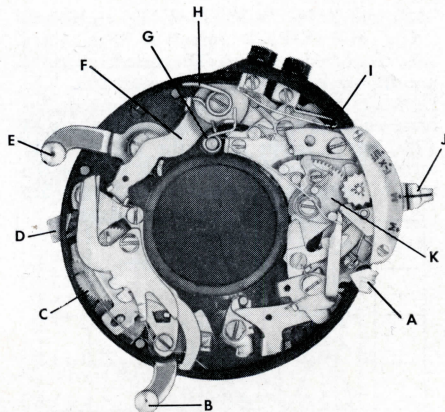
★ TO OPERATE THE SHUTTER FOR SYNCHRONIZED FLASH

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

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 open to receive the full benefit of the flash.

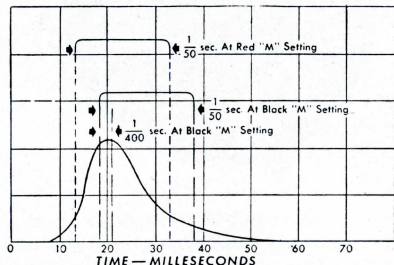
CONSTRUCTION DETAILS

- | | |
|--------------------------|-------------------------|
| A. Diaphragm indicator | G. High-speed spring |
| B. Release lever | H. Main spring |
| C. Retarding device | I. Point of contact |
| D. Cable release bearing | J. Time-delay indicator |
| E. Setting lever | K. Synchronizer retard- |
| F. Main lever | ing mechanism. |



The RAPAX Full Synchronomatic has an easily adjustable mechanism for synchronizing a given class of flashlamp by merely setting the time-delay indicator in the notched position opposite the appropriate marking on the delay scale. From left to right 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. For most efficient synchronization with Class M (20-23ms) lamps use the black "M" setting for speeds marked black and use the red "M" settings for speeds marked red. (See



Graph illustrating advantages of two "M" settings

Graph). If an electronic high speed flash unit of the Class X type is to be used, set the time delay indicator at "X." This gives

excellent synchronization at *all* shutter speed settings.

If Class F (5 m.s.) lamps are to be used, they will be in synchronization at the red speeds of 50 and slower when the synchronizer is set at the red "F."

To summarize the above in convenient table form:

SETTINGS FOR FLASH PICTURES*

	<i>With Speed Setting</i>	<i>Set Synchronizer at—</i>
For Class M (20-23 m.s.) Lamps	400, 200, 100 (black) 50 thru B & T (red)	Black "M" Red "M"
For Class X (Electronic Flash)	All Speeds	Black "X"
For Class F (5 m.s.) Lamps	50 thru B & T (red)	Red "F"

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

No other adjustment is necessary, before exposure, except to see that the flashlamp is inserted in the battery case and to cock

the shutter. COCKING THE SHUTTER AUTOMATICALLY COCKS THE SYNCHRONIZER AT ALL SETTINGS OF THE DELAY INDICATOR EXCEPT IN THE "OFF" POSITION.

When the shutter is released, it automatically synchronizes the peak flash 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 time-delay indicator should be set to the desired position before cocking the shutter; if the shutter is already cocked before moving the millisecond indicator from OFF position to any other position, the synchronization mechanism will not be cocked. In such cases, simply release and then re-cock the shutter.

Should the shutter be cocked with the lamp in place, the time-delay indicator may, if necessary, be moved from red "M" to black "M" or black "M" to red "M" *but not* to the OFF position. If it is

moved to the OFF position with the shutter cocked and the lamp in place, the lamp will flash. To make this change in setting, simply remove the lamp from the battery case and then set time-delay indicator to the desired position. If the time-delay lever is at a given setting, it does not require re-setting after each exposure as long as the same class of flash lamp is used.

With the time-delay indicator in the OFF position, *no electrical contact is made*. The shutter speeds may be re-set at any time after the shutter is cocked without firing the lamp.

If more than one Class F or Class M lamp is 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.

BEFORE PUTTING YOUR CAMERA AWAY, RELIEVE THE TENSION ON THE CONTROLLING SPRINGS OF THE SHUTTER BY SETTING THE SHUTTER AT A SLOW SPEED AND TRIPPING.

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:

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

The 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 Synchronomatic set at "X" for any shutter speed.

There are some electronic high speed flash units on the market which have a relay in the trip circuit giving a time lag which is usually adjustable. Because of this lag they are not classified as "X" units and are not intended for use at the "X" setting of the RAPAX Full Synchronomatic. Relay type flash units are primarily for use with a solenoid operated shutter although some units work with the RAPAX Full Synchronomatic at one of the "M" settings. When a relay type flash unit fails to work with the shutter at these settings it is usually due to the long contact duration requirements of the relay which far exceed the duration necessary for ordinary flashlamps. IT IS RECOMMENDED THAT THE PRO-

SPECTIVE PURCHASER OF A RELAY TYPE FLASH UNIT ACTUALLY TRY THAT UNIT WITH HIS SYNCHRONIZED SHUTTER. This will eliminate the purchasing of a unit which is not sensitive enough for use with the shutter synchronizer.

★ DON'T

DON'T use oil on the shutter. Special greases 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. Should dust settle on the mechanism, remove it with a rubber syringe bulb.

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