



The
3¼ x 4¼ and 4 x 5
Anniversary

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SPEED GRAPHICS

and how to use them

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A DESCRIPTION OF YOUR ANNIVERSARY SPEED GRAPHIC

Your new Anniversary Speed GRAPHIC is a camera of the greatest versatility. It gives you a choice of two shutters so that you may enjoy the greatest efficiency whether you wish to make a very short exposure or a relatively long one. Focusing may be done by ground glass, rangefinder, or scale, depending upon the demands of the subject and the lenses used. Three distinct methods enable you to compose your picture with the greatest ease—for most accurate composition there is the ground glass; slightly more convenient under some circumstances is the tubular viewfinder which has a correction for parallax; and finally there is the wire frame viewfinder which many photographers find unexcelled for following moving objects.

The **serial number** is stamped into the under side of the top of the right front of the body as you face the camera and consists of six digits about $\frac{1}{4}$ " high. Always give this number in correspondence regarding your camera.

Interchangeable lenses give you the choice of focal lengths and apertures so necessary for the many fields of photography in which this camera is capable of working. Double bellows extension aids in the photography of small objects and in the use of long-focus lenses. The drop-bed will be readily appreciated when it becomes necessary to use wide-angle lenses as in the photography of architectural subjects, and on these and other occasions the movements of the front standard will also be valuable.

Accommodation can be provided for the use of flash synchronizers, an expedient which has been known to make the difference between *good* pictures and *no* pictures on many occasions.

The choice of negative materials—including film packs, sheet film and plates—is equalled by but few cameras. And finally, and perhaps most important, all these features have been accomplished without a sacrifice of rigidity or without a departure from good photographic manufacturing practice.

A fine camera is primarily an *instrument* rather than a *machine*. GRAFLEX products have won a reputation for sturdiness and continued functioning under adverse conditions, but this should in no sense be considered an invitation to abuse these cameras. More damage is probably done by people handling things with which they are not familiar, than by the normal wear of service. To insure the long and trouble-free life of which your camera is capable, follow and study these directions as you handle it for the first time. Above all, do not twist any knobs or push any buttons on this camera until you know what this pamphlet tells about them. Do not lend your camera to anyone not familiar with it, or without instructing him in how to use it. If you lose this book or want additional copies, write us.

OPENING THE CAMERA

The preferred way to open the camera is to rest it on the left hand with the viewfinder on the top, and the thumb of the left hand inserted between the carrying strap and the camera body. Press inward on the front (bed) with the right forefinger, and at the same time depress the **bed release button** with the thumb. As the bed then opens downward, its fall may be checked by the right hand. Continue firmly but gently to bring the front down to the point where the spring-actuated **bed braces** lock the bed firmly in its horizontal position.

Turn the knurled **focusing knobs** located near the front edge of the bed to move the **sliding track**. This is the **focusing adjustment** and will be considered in more detail at a later point. The **front standard** rests on the sliding track, and it carries the lens with its associated shutter. To loosen the front standard, turn the **front standard lock**, so that it is parallel to the track. Unlock and move it along the sliding track, pulling it past the flat springs, until it snaps firmly against the **infinity stops**. Lock the standard by taking the locking lever and the side of the standard between the thumb and the index finger and push the lever back by squeezing. This will keep the front standard firmly in position. Always lock the standard. The lens with which this camera has been fitted at the factory will then be in position for focusing with either rangefinder or focusing scale.

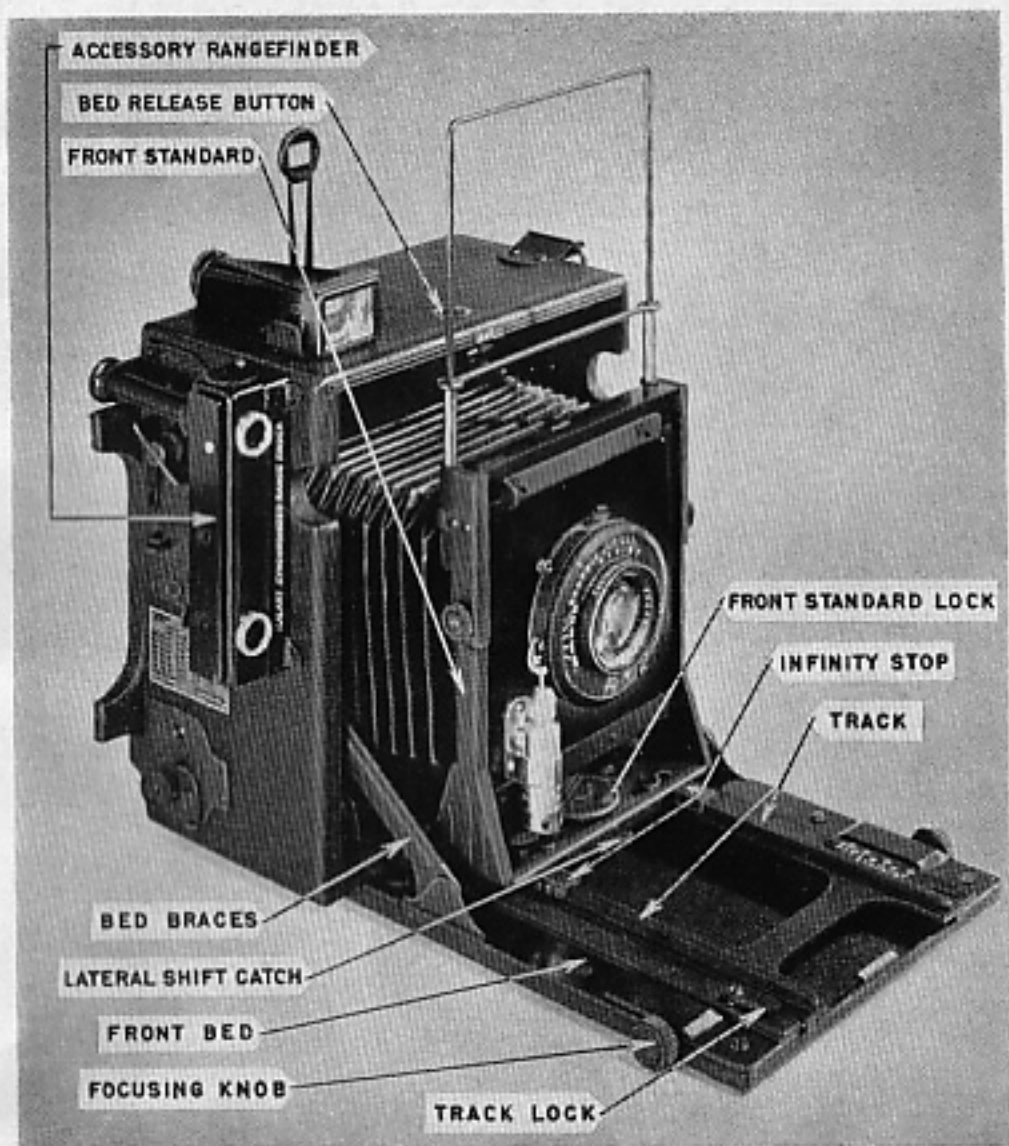


Figure 1. The 4 x 5 Anniversary Model Speed GRAPHIC. The 3 1/4 x 4 1/4 Model is practically identical except for size. The accessory rangefinder, the extension eyepiece, and the GRAFLEX Flash Synchronizer Solenoid release as shown are not standard equipment.

To close the camera, rack the track all of the way back until the focusing scale indicates the infinity position. Unlock the front standard and push it all of the way back into the camera and lock it. Leave the track lock unlocked and depress the bed braces and push up the bed until it snaps securely.

SHUTTERS

The Speed GRAPHIC Camera is usually provided with two shutters. For slow exposures (durations longer than perhaps 1/50th of a second) and for synchronized flash photography with the larger size negatives and existing lamps, a *between-the-lens shutter* is still preferable. The shutter built around the lens of your Anniversary Speed GRAPHIC is an excellent example of this type. For action requiring exposures shorter than about 1/50th of a second, the *focal-plane shutter* has never been surpassed in efficiency. And no focal-plane shutter has ever surpassed that in your Anniversary Speed GRAPHIC in dependability. **Naturally only one of these shutters can be used at a time; the one not being used must be set open during the exposure** (as will be explained below).

Some shutters now have built-in mechanism for flash synchronization, and this eliminates the need of external synchronized release or tripper. Different flash lamps have a different ignition lag, which is the time that elapses between the closing of the switch to the battery and the instant the flash reaches a useful level. Most flash lamps have a lag of either five or twenty milliseconds as indicated in the following table:

	5 m. sec.	20 m. sec.
G-E and Westinghouse	SM	No. 22, No. 11, No. 5, etc.
Wabash	SF	No. 2, Press 25, 40, etc.

Each shutter having built-in flash synchronization has a means of adjustment to allow its use with these different lamps. Details are given with instructions for each individual shutter.

Do not try to remove a shutter from the lensboard by turning it, for it is prevented from rotating by a locating pin fitting into the lensboard.

THE GRAPHEX SHUTTER

DIRECTIONS: The No. 2 Graphex shutter is rim-set, with 9 speeds from 1 to 1/400 second plus **Bulb** and **Time**. The knurled rim carries the designations **T, B, 1, 2, 5, 10, etc.**, (the numbers corresponding to instantaneous exposures of 1, 1/2, 1/5, 1/10 sec., etc.) and the desired one should be set directly opposite the arrow (which points to 400 or 1/400 sec., in the illustration).

The speed setting may be changed before or after cocking the shutter, but is more easily accomplished before cocking. Settings between the marked speeds will **not** give intermediate exposure times. When turning the knurled rim to 1/400 a slight additional pressure will be required to overcome the resistance of the booster spring.

As illustrated the **cocking lever** is at the upper left side of the shutter. Moving this lever clockwise cocks the shutter. After the shutter has been cocked, the lever returns almost to its original position, but exposes a red dot, indicating that the shutter has been cocked.

The **release lever** is at the bottom of the shutter and is controlled directly by the **Finger Release** attached to the base of the lensboard. Pressing inward on the plunger of the Finger Release with the forefinger or the plunger of a cable release will release the shutter mechanism.

The Graphex shutter is cocked in the usual manner for **Time** and **Bulb**, as well as instantaneous exposures. When set on **T**, the first pressure on the release opens the shutter, and the second permits it to close. When set on **B** the shutter remains open only as long as pressure is maintained on the release. A cable release and tripod should always be used for **Time** and **Bulb** exposures.

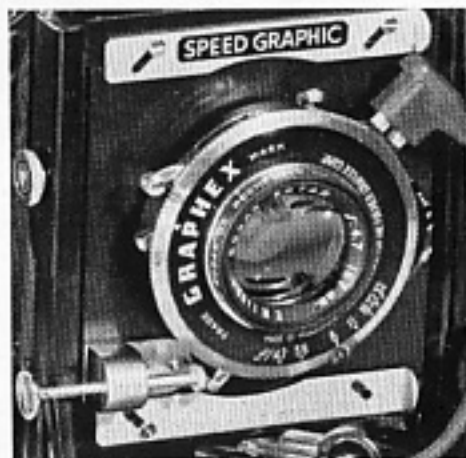


Figure 2a. The 127mm Kodak Ektar Lens in No. 2 GRAPHEX Shutter.

The **cable release socket** is next to the cocking lever. The **aperture scale** and **aperture pointer** are at the bottom of the face of the shutter.

The **Press-Focus Lever**, at the top of the shutter, may be used for opening the **cocked shutter** blades for focusing purposes, eliminating the necessity of resetting it to the **Time** setting for that purpose. Move the Press-Focus Lever clockwise and down to open the blades; move it counter-clockwise and up to close them. This lever will not function unless the shutter is cocked, and does not interfere in any way with the normal operation of the shutter.

The two **contact posts** extending from the top right side of the shutter connect to the internal flash synchronizing mechanism. The flattened right angle connection of the **A-20 connecting cord** as shown attaches to these and the other end must be plugged into the **SERIES OUTLET** at the back of the battery case. In the **GRAFLEX Flash Synchronizer Battery Case**, this outlet is reached by unscrewing and swinging down the red push button switch. The shutter is released and synchronization is effected **only** by use of the Finger Release or a cable release.

Built-in synchronization eliminates the need of an external synchronized solenoid release or tripper. Synchronization is accomplished by a special gear train controlled by a dial setting arrangement at the right side of the shutter. This train is automatically engaged as the shutter is cocked unless the notched control lever has been moved to the "Off" position. Should the shutter already be cocked before moving the synchronization mechanism from the "O" or "Off" positions to other positions this mechanism will not be cocked until the shutter itself is released and recocked; hence in such an instance recock the shutter to cause the synchronization mechanism to be engaged. A click-stop arrangement permits accurate setting for synchronization by adjusting the delay of the operation of the shutter to correspond with the correct ignition time lag of the lamp being used. When setting the synchronization adjustment lever, make certain the click stop arrangement is definitely engaged in its detent at the "OFF," "O" and "5" positions, before using the shutter. Beyond the "5" position, intermediate settings may be used and will give intermediate delay times.

See table on page 4 for characteristics of various lamps.

THE SUPERMATIC SHUTTER

The Kodak Supermatic Shutter in Figure 2b is rim-set with 9 speeds from 1 to 1/400 seconds plus Time and Bulb. The blade arrester or **Press-Focus Button** is built into the Supermatic Shutters used with Speed GRAPHIC Cameras. Many of these shutters incorporate a built-in delayed action mechanism ("self-timer"), whereas the newer models are complete with mechanism for built-in flash synchronization. The larger No. 3 Supermatic Shutter accepting 6 $\frac{3}{8}$ " and other large lenses has 8 speeds from 1 to 1/200 second plus Time and Bulb and is complete with built-in delayed action mechanism and Press-Focus Button.

The **speed scale** on the upper face of the shutter is divided into two sections, each with its own bright surface pointer on the rim of the shutter. Adjust the shutter for automatic exposures of 1/400, 1/200, 1/100, 1/50 and 1/25 second by turning the outside knurled collar or rim until one of the speed pointers is opposite the 400, 200, 100, 50 or 25 index line. These speeds are generally safe for hand-held exposures.

Adjust the shutter for exposures of 1/10, 1/5, 1/2, 1 second and "B" (Bulb) and "T" (Time), by turning the outside knurled collar until the other speed pointer is opposite the 10, 5, 2, "B", or "T" index line.

Intermediate speed settings will not give intermediate shutter speeds. The speed setting may be changed before or after cocking the shutter.

Set the diaphragm at the desired aperture of f/4.7, 5.6, 8, 11, 16, 22, or 32 by moving the **aperture pointer** to the line indicating the desired f/number. The newer shutters have a click stop into which the aperture pointer will drop.

Cock the shutter for all speeds, including "Time" and "Bulb" by pushing the **cocking lever** clockwise, in the direction of the Press Focus Button, until it catches. To make an exposure, move the shutter **release lever** counter clockwise in the direction away from the cocking lever. To make a "Time" (T) exposure, press the release lever once to open the shutter and again to close it. For a "Bulb" (B) exposure, press the release lever to open the shutter. The shutter will close when this pressure is released.

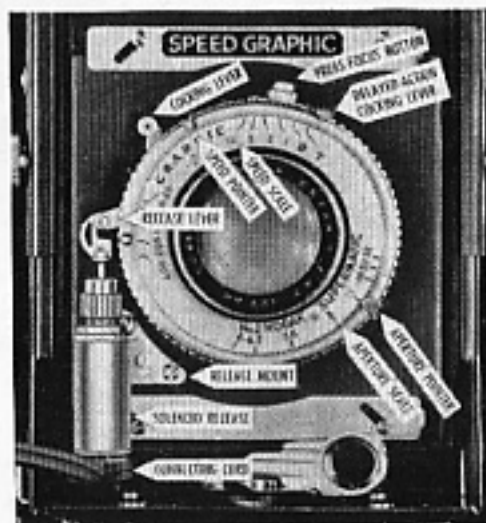


Figure 2b. The Supermatic Shutter with GRAPHLEX Solenoid Release.

If desired, a **cable release** may be used to operate the shutter. Remove the cable release screw plug located next to the release lever and attach the cable release at that point. A cable release and a tripod or other firm support should always be used for long instantaneous and all "Time" and "Bulb" exposures.

The **Press-Focus Button**, just over the Figure 1 on the shutter speed scale, is used to hold the shutter blades open for ground glass focusing without resetting the shutter to "T". With the shutter set for any speed and cocked, hold down the Press-Focus button as you press the shutter release lever. The shutter blades will then open and remain in this position. To release the Press-Focus button, and make the shutter ready for the exposure, merely recock the shutter with the cocking lever. The shutter will then operate in the normal manner when released.

Some of the No. 2 and all of the No. 3 Supermatic Shutters have the **delayed action** mechanism. This has its own cocking lever (above the letter "T" on the speed scale), which is moved to the right away from the Press-Focus Button only after the shutter has first been cocked. Pressure on the shutter release lever will release this additional mechanism, and it will automatically make the exposure after a delay of 10 to 15 seconds. This device can be used when the photographer wishes to get into the picture himself, and will release the shutter without jar when slow speeds must be used with the camera held in the hand.

Flash Photography with Supermatic Shutter Having Built-in Synchronization.

Attach flattened right angle connection of the A-20 or B-20 Connecting Cord to the contact posts or prongs extending from the side of the shutter. The other end of the cord must be plugged into the **SERIES OUTLET**, which is usually at the back of the battery case. In the GRAFLEX Flash Synchronizer Battery Case, this outlet is reached by unscrewing and swinging down the red push button switch.

Synchronization is accomplished by a gear train within the shutter and cocked by the lever previously used to cock the self timer. Adjustment for 5 and 20m. sec. lamps (see page 4) is made by loosening the binding screw in the slot on the face of the shutter. Moving this to the left allows adjustment for 20m. sec. lamps and to the right for 5m. sec. lamps. After loosening the screw and moving the indicator to the desired position, tighten the binding screw *securely*.

Set the aperture pointer, adjust the shutter speed ring, and cock the shutter as usual. Push the synchronizer cocking lever (previously used to cock the selftimer) toward the two prongs on the shutter rim as far as it will go. The shutter is ready to provide positive flash lamp synchronization when the exposure lever is pressed. **Caution:** Do not use the Press-Focus Button without first disconnecting the connecting cord or removing the flash lamp.

When using a **Kodatron** or other Speedlamp, do not use the synchronizer cocking lever, since the shutter mechanism is automatically in adjustment for it and requires no further attention, regardless of the position of the indicator (S or 20) on the face of the shutter. Attach the cord from the lamp to the prongs on the shutter and cock the shutter normally. When the shutter release lever is pressed, the shutter will automatically actuate the flash discharge of the Kodatron.

THE COMPUR SHUTTER

All three types of Compur shutters with which a Speed GRAPHIC may be equipped are fundamentally similar to the following extent:

They are built around the lens, and contain its **iris diaphragm** (by which you set the *stop* or *aperture* of the lens); they produce the conventional Time and Bulb exposures without "cocking"; and automatically-timed Instantaneous exposures from 1 second to something shorter than 1/100th of a second after "cocking."

It *must* be cocked to produce an instantaneous exposure, and this is done by moving the **cocking lever** clockwise until it catches. After cocking, the shutter is released by moving the **release lever** counter-clockwise or squeezing the **cable release** that may be screwed into the **cable release socket**. When a shutter is set for **T**, the first pressure on the release opens the shutter, the second closes it. When set at **B**, pressure on the release will open the shutter leaves, and relieving this pressure will permit the leaves to close.

Never attempt to cock a Compur shutter when it is set for T or B.

Never attempt to move from an instantaneous setting to T or B while the shutter is cocked.

The Rim-Set Compur

The Compur shutter illustrated in Figure 2c is referred to as being of the "rim-set" variety, because the choice between the exposures which it is capable of giving is made by rotating the knurled rim. It carries the designations **T**, **B**, 1, 2, 5, 10, 25, 50, 100, etc., (the numbers corresponding to instantaneous exposures of 1, 1/2, 1/5, 1/10 sec., etc.) and the desired one should be set directly opposite the arrow (which points at 100 or 1/100, in the illustration). For any exposure except **T** and **B**, the cocking lever is rotated as far as it will go in a clockwise direction *after* setting the speed. *Never attempt to change from or to the highest shutter speed while the shutter is cocked.*

The working aperture of the lens is set by moving the pointer of the diaphragm control along the scale carrying these aperture designations on the face of the shutter.



Figure 2c. The Rim-Set Compur Shutter.

In the case of this rim-set shutter, a delay of approximately ten seconds in the release of the shutter will automatically be produced if, after the shutter is cocked, the **delayed action button** behind the cocking lever is moved back and the **cocking lever** is then pushed still farther to the right. Pressure on the release lever or the cable release will actuate the delay mechanism, and after approximately ten seconds the shutter itself will operate and make the exposure. To prevent damage to the shutter *this delayed-action mechanism must never be used with the highest shutter speed.*

The Press Compur

This shutter, supplied only with the Carl Zeiss 13.5 cm and 15 cm Tessars $f/4.5$, is a modification of the "rim-set" Compur. It differs in that the delayed-action mechanism is replaced by a **catch** to hold the shutter leaves open for ground-glass focusing, in the same way as the Press-Focus Button does in the Supermatic shutter.

To hold this shutter open, trip it (when set for any speed) with the **catch button** held back, and cushion the **cocking lever** with the finger so it will not strike hard against the catch; this will retain the shutter leaves fully opened for focusing on the ground glass. After focusing, re-cock in the normal manner for the actual exposure, and the catch button will release itself. This catch button replaces the self-timing button. The self-timing mechanism has been removed from this shutter.

The Dial-Set Compur

The chief difference between the "rim-set" and the "dial-set" Compur lies in the speed selection mechanism. The function of the knurled rim of the former is divided between the two dials in the latter.

With **T** (sometimes **Z**) or **B** of the smaller dial (the **locking disc**, between the shutter release lever and the cable release socket) set opposite the short white line carried on the face of the shutter, operation of the release lever will produce Time or Bulb exposures without cocking. When the **I** (sometimes engraved **M**) of this small dial is turned to the short white line, the instantaneous exposures shown on the larger **speed dial** will be produced after cocking the shutter. The speed dial (carrying the choice of instantaneous exposures) has an arrow engraved on its front surface to show the direction in which it is to be turned in changing speeds. Never attempt to rotate this dial against the arrow, or the mechanism will be damaged.

The working aperture of the lens is read against the scale carried on the top side of the shutter behind the speed dial or on the face of the shutter, and controlled by a lever at the base of the shutter.



Figure 2d. The Dial-Set Compur Shutter.

FOCAL-PLANE SHUTTER

The *focal-plane shutter* with which this camera is provided consists essentially of a durable light-tight **curtain** (Figure 3) having five rectangular openings or **slits**, a chosen one of which passes in front of the film or plate in making an exposure. The portion of the curtain which is not covering or exposing the negative is wound on rollers at each end, and in making the exposure passes down from the top to the bottom roller. The exposure time is governed by the width of the **slit** and by the **tensions** of the spring which causes the curtain to move when the mechanism is released. **The front shutter must be open on Time whenever the focal-plane shutter is used.**

The controls for the focal-plane shutter are located on the right side of the camera housing (as normally used from the back), and appear as in Figure 4.

The *Shutter Speed Table* on the top of the camera includes numbers representing exposure times customarily referred to in terms of fractions of a second, obtainable with the various combinations of curtain apertures **A, B, C** and **D** and tension numbers **1** through **6**.

These reference letters and numbers are changed progressively from **O** to **D** in the **slit aperture window** by turning the **shutter-winding key** counter-clockwise, and from **1** to **6** in the **spring tension window** by turning the **spring tension control** counter-clockwise. In so doing, progressively smaller slits and higher tensions are made available for the exposure. To reverse either operation and return to a wider slit or lower tension than indicated, the shutter release or tension release is moved, to allow the mechanisms to unwind one notch at a time. It will be found easier to set to a higher tension before winding to a narrower slit.

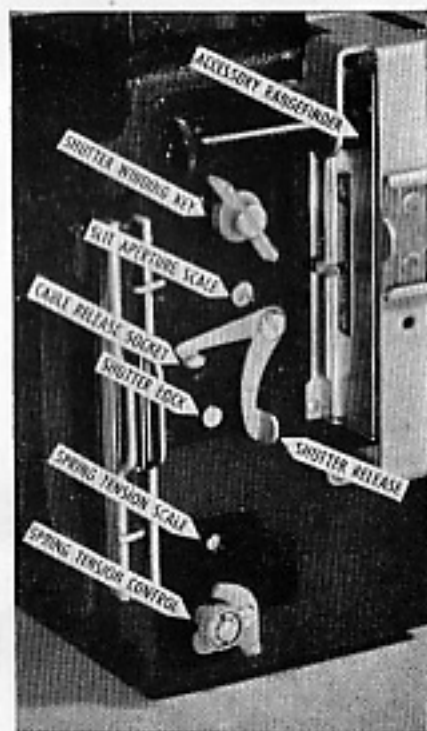


Fig. 3.
The Curtain.

When the shutter has been set in accordance with the above directions, the exposure is made by carefully squeezing the **shutter release** or the plunger of the **cable release**. Avoid jarring the camera.

To make a time exposure with the focal-plane shutter, wind or release the curtain until **T** (Time) appears in the **slit aperture window**. Set the tension at **1**; rest the camera upon a rigid support; open the shutter with one pressure upon the release, and terminate the exposure by a second pressure.

This shutter can be locked in any position by moving the **shutter lock button** toward the rear of the camera. It will be unlocked automatically when the shutter winding key is turned again. Always lock it on **O** when using the front shutter.



CAUTION: Because one of the curtain slits passes in front of the picture aperture every time the curtain is moved (either in winding it or in releasing it), it is necessary to *protect any film in the camera* from unintentional exposure by *having the slide in the film holder* while the focal-plane shutter is being set; otherwise injurious fogging of the film is liable to result.

★

Figure 4.
The Focal-Plane Shutter Control Panel.

FLASH SYNCHRONIZATION

The Speed GRAPHIC Camera can be used for flash synchronization through either of two systems. The more recently supplied shutters are complete with built-in mechanism automatically producing synchronization. Complete instructions appear on pages 4, 6 and 8.

With a shutter having built-in synchronization, the required accessories will be in the nature of a flashing unit consisting of a battery case, reflector, battery case support and a cord extending to the shutter. This cord should be attached to the shutter and to a **Series Outlet** in the battery case. This outlet is usually at the back of the battery case, sometimes on the underside of the head. In the GRAFLEX Battery Case, it is beneath the red push button switch and is made available by unscrewing the switch and swinging it down.

A **battery case**, carrying a **reflector** and socket for the lamp, is usually attached to the camera by means of a suitable coupling on the **range-finder encircling bracket** shown in Figure 8. A **magnetic release**, whose function is to release the shutter at the proper instant, must be properly positioned in relation to the release lever. With most shutters the Solenoid Release of the GRAFLEX Synchronizer may be left permanently on the lens board.

To operate the synchronizer after it is in place, the focal-plane shutter is first opened by setting **O** in the slit aperture window, the front shutter is set for one of its highest speeds and cocked, a flash lamp is inserted in the socket, and the button for closing the circuits on the rear of the battery case is pressed to make the exposure. With a correctly adjusted cut-fit using any flash lamp *designed for between-the-lens shutter synchronization* the shutter will be opened and closed while the flash is at its maximum intensity. Recommended lens apertures and shutter speeds should be obtained from tables furnished by makers of the lamps.



Figure 5 The GRAFLEX Flash Synchronizer

Ground-Glass Focusing for Flash

When a magnetic release is in place, its finger may be in such a position as to make the **front** shutter inoperative for either Time or Bulb exposures. As far as the flash synchronizer itself is concerned this is of no importance, but it may be exceedingly annoying when ground-glass focusing must immediately precede use of the flash. This difficulty has been overcome through the introduction of the press focus button and press focus lever built-into the Supermatic, GRAPHEX and Press Compur Shutters, previously described.

LENSES

The lens of your Anniversary Speed GRAPHIC is mounted in a shutter incorporating an **iris diaphragm**, and the shutter is screwed into a metal **flange** attached to the **lensboard**. The lensboard is held in place in the front standard by **slide locks**. Each lens should have its own lensboard.

To remove the lensboard, move the slide locks in the direction of their slots, holding the board at the top to prevent its falling out. Then lift it out by grasping the shutter.

The 3¼ x 4¼ Anniversary Speed GRAPHIC has slide locks top and bottom, while the 4 x 5 model has a slide lock on the top only.

The **diaphragm scale** (**aperture scale** in Figures 2b, c and d) is marked in *f*/*N* numbers, indicating the relative sizes of the opening, secured by moving the diaphragm control lever. Full information on this subject will be found on page 25 under the heading Correct Exposures.

Your camera, when fitted with a lens whose focal length is approximately equal to the diagonal of the negative, will give a "normal" angular coverage or field of view—that is, about 45° to 50°.

To photograph large objects at close range you can use a **wide-angle lens**—an objective of relatively short focal length but specially designed to cover the negative. The image of each object will be smaller at a given distance with a wide-angle lens than with a normal lens, but there will be a wider field of view. (See under The Wide-Angle Lens for further information.)

For a larger image of objects at a distance, use a **long-focus lens** or a **telephoto**. The latter type is sometimes preferable, because it does not require so great an increase in bellows extension and still gives a larger image. Needless to say, the field of view of a long-focus or telephoto lens is smaller than that of a normal focal length.

Other things being equal, a wide-angle (short-focus) lens will have a greater depth of field and angle of view than the normal focal length, while long-focus and telephoto lenses have a smaller depth of field and angle of view.

Equal $f/$ numbers have the similar values on all lenses, regardless of focal length.

COATED LENSES

The coating of lenses is one of the most recent accomplishments in the optical industry. A coated lens will have a brownish-purple color on the surface. This color is similar to the tarnish or iridescent color that was previously considered detrimental in lenses. The process of coating deposits a metallic salt, such as magnesium chloride, on the surface of the lens in an extremely high vacuum.

The coating of lenses is done only on the air glass surfaces and not on the cemented surfaces. The advantages of coating photographic lenses are an increase in transmitted light by a reduction in light loss caused by internal reflections, a definite increase in brilliance or contrast of the image and the elimination of flare spots due to multiple reflections within the lens. Every surface of a lens that is coated will increase the light transmission. However, with most standard lenses, this increase in light transmission will not be noticeable due to the exposure latitude of most of the films currently available. The added brilliance due to the coating of the lens surfaces should be noticeable and should result in finer photographs.

The coating which is now being applied to lens surfaces is almost as hard as the average optical glass. While no special precautions are necessary for cleaning the surfaces of coated lenses, they should be handled as carefully as all fine lenses. All surface grit and dust should first be removed with a soft camel's hair brush before the lens is cleaned with a fine lens tissue or a soft cloth such as a well-laundered linen handkerchief. Do not apply pressure on the cloth. Simply breathe on the surface of the lens and wipe gently with easy circular motions. If a lens cleaning fluid (only those specifically recommended by lens manufacturers) is to be used, do not apply it directly on the lens surface. Instead place a drop or two on the lens tissue or cloth and wipe the lens with the moistened material.

FOCUSING

The **focusing scales** on Speed GRAPHIC Cameras are of the vernier type, one part carried on the camera bed and the other on the sliding track. The distance indicated is that from the subject to the film or ground glass. To focus on any desired distance, turn the focusing knob until the lines corresponding to that distance on the two parts of the focusing scale lie exactly next to each other. When the front standard has been pulled against the infinity stops and locked and the lines opposite the infinity marks (∞) on the two scales coincide, the camera will be focused on very distant objects (infinity). To focus sharply on an object 100 feet from the ground glass, for example, turn the focusing knobs until the lines marked 100 on each scale coincide as shown in Figure 6.

To facilitate quick use a modification of this scale is shown in figure 6. For the shorter distances the single indicator line on the movable scale can be set opposite the desired footage mark.

When several lenses are to be used interchangeably a new vernier scale must be fitted for each if this method of focusing is to be used.

The **tracks** are easily moved by means of the **focusing knobs** as long as the track-lock points front. Turning the lock lever so that its free end points toward the nearest knob, locks the focusing mechanism.

Ground-Glass Focusing must naturally be done with both shutters open (as in making a Time exposure as described in the section on Shutters), and preferably with the camera on a tripod and the lens set at its maximum aperture. The ground glass is made accessible by pulling down on the small **latch** in Figure 8, which allows the **focusing panel cover** to spring up. After use, this hinged door is pressed back into its closed position to prevent damage to it or to the glass focusing screen. Accurate focus on the ground glass screen can be obtained by varying the position of the lens with either focusing control knob.

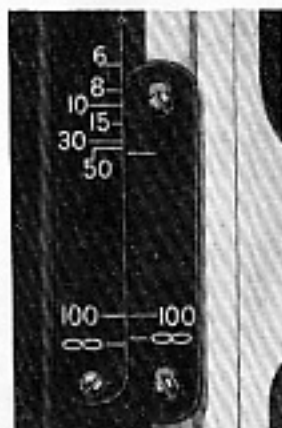


Figure 6. The Vernier Focusing Scale.

The focusing panel in a **GRAPHIC Back** recedes to permit the entrance of a GRAPHIC Film Holder or Film Pack Adapter so that the film will lie in the focal plane where the image is formed.

If your camera has a **GRAFLEX Back**, it will accept the GRAFLEX focusing panel interchangeably with the GRAFLEX film and plate attachments.

Rangefinder Focusing

This camera, as illustrated, is equipped with an accessory internally-coupled **rangefinder**. Before leaving the factory it was adjusted so as to synchronize (i.e. give an exact indication of critical focus) with the particular lens with which your Speed GRAPHIC was equipped. Any change in lens, even if the focal lengths are nominally the same, will require a checking and probable readjustment of this rangefinder if it is to be used for the most accurate focusing. Such a re-synchronization should be attempted only by one with such experience; and then only in accordance with the procedure recommended by the manufacturer of the accessory.

To use the rangefinder look through the small window in its side nearest the back of the camera (or through the **extension eyepiece** attached to the encircling bracket), being sure to keep fingers or other obstructions away from the two windows in its front side. Move the camera until the object to be focused on is in the center of the field visible through the rangefinder. Careful examination will now reveal a smaller and brighter field in approximately the center of the larger one, and this smaller field contains a second image which can be shifted by turning the focusing control. A little practice will enable you to locate the small field in the exact center of the larger one without conscious effort, and this exact centering is necessary to the most accurate use of this accessory. A critical focus is indicated for that object or portion thereof which shows a *single image* in this central field of the rangefinder. A double image is indicative of "out of focus," and may be corrected by turning the focusing control in the proper direction. Whenever possible, rangefinder focusing is facilitated by picking a portion of the object which presents sharp lines of good contrast.

Although this rangefinder is a great convenience in focusing, it does not tell you the exact amount of the scene which will be included on the negative. That is the function of a **viewfinder**, described in the next section.

VIEWFINDERS

Three methods are available to the user of a Speed GRAPHIC for knowing how much of a given scene will be included in the negative. For most purposes the **tubular viewfinder** mounted on top of the camera near the rangefinder will be used. Details of the means by which this finder can be adjusted for parallax and for different focal-length lenses are shown in Figure 7. The small **dial** at the back of the finder has four markings, which can be aligned with the white line at the top of the finder. Notches assist in locating the four points so that subjects at distances of 6', 8', 15' and ∞ (infinity), respectively will be centered by the camera lens on the ground glass when the subject is centered in the finder. When using the finder, set this dial for the distance to the subject.

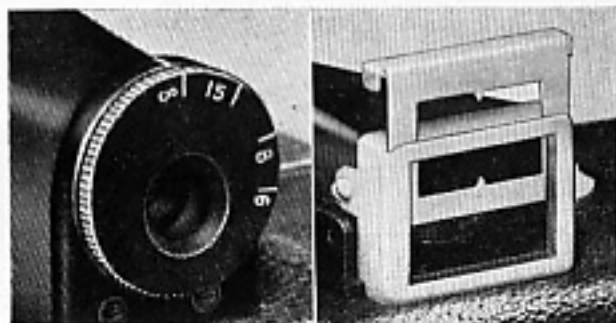


Figure 7. The Tubular Viewfinder.

Caution: Be sure that the front standard of the camera is centered laterally and vertically.

The size of the **front aperture** in this finder determines the maximum field of view seen through it, and may be changed by the insertion of new **masks** to correspond with the fields covered by lenses of various normal and long focal lengths. The mask supplied with the camera was chosen to match the lens fitted to it. Each mask is identified by a number, and data concerning their use will be found in a special circular available on request.

The **wire frame finder** is brought into action by raising the **peep-sight** from its folded position against the rear of the camera top, and by extending the frame from its telescoped position behind the front standard. This extension is accomplished by grasping at its center the upper of the two horizontal rods lying along the top of the front standard and pulling it directly upward until both bars are raised. This finder

must be collapsed again before the front standard can be returned to the camera housing preparatory to folding up the bed; its vertical sides telescope into the collapsed position when its top horizontal member is pressed evenly at each end in a downward direction. This wire frame finder permits you to observe the picture full-size and from eye level, and is therefore well suited to the following of moving subjects.

Viewfinders in general should not be relied upon to give too accurate an indication of the exact limits of the picture to be secured on the negative, since the amount visible depends upon the position at which the observer holds his eye—a thing which varies between individuals and is greatly influenced by whether or not the user wears glasses. They are used to best advantage when your eye is held as close as possible to the rear element of the finder. When very accurate composition is necessary, place the camera on a tripod and use the ground glass.

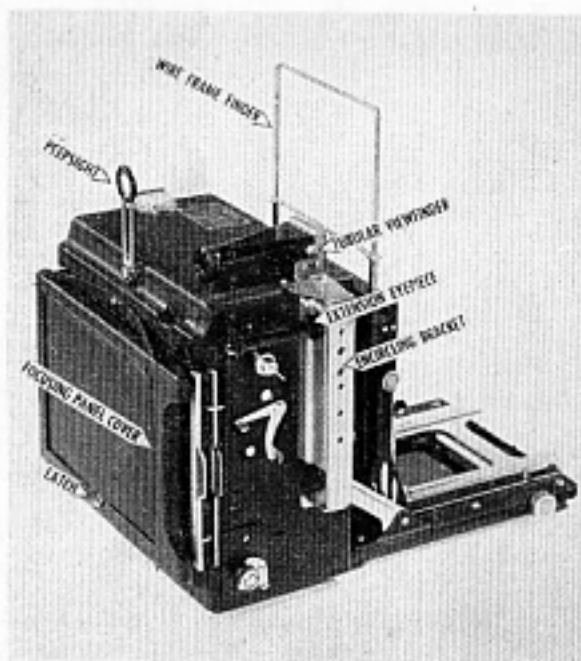


Figure 8. From the Rear

THE WIDE-ANGLE LENS

The use of wide-angle objectives is often attended by the discovery that the front of the camera bed cuts into the field of view. Your Anniversary Speed GRAPHIC overcomes this difficulty without losing use of the smooth rack-and-pinion actuated by the focusing control knobs. To use this feature to best advantage, fasten the camera to a tripod whose top does not project out beyond the bed hinge and proceed as follows:

With the front standard returned completely into the camera housing (as though the camera were to be closed, with the focusing scale at infinity, and making sure that the breaks in the bed and track are aligned), press downward on both bed braces so as to free them from the recesses into which they sprang to hold the bed in its horizontal position. (This is the operation which also frees the bed for closing the camera). Thus freed, a slight downward pressure applied to the bed will bring it to the point where the braces snap into a lower set of notches, and the camera appears as in Figure 9. With the bed in this position, focusing and composition are done on the ground glass with the front standard carried on the short section of track remaining within the camera housing.

Before attempting to close the bed, rack the sliding track all of the way back and move the front standard into the camera body. To return the bed to its normal position, free the bed braces from their latched position by depressing them again, and raise the bed.



Figure 9. Ready for Wide-Angle Work.

DOUBLE-EXTENSION BELLOWS

When working with long focal-length objectives or with the average lens at very close distances, it sometimes becomes desirable to extend the front standard beyond the point permitted by the accurately pre-set infinity stops and the available track extension. If you wish to return to the normal use of the equipment, including rangefinder or scale focusing, it is quite essential that the infinity stops be left in the position set at the factory. The additional extension may be gained by jumping the front standard over these stops without moving them. This can be done by sliding the front standard forward off the short rear section of the track while the camera is in the condition illustrated in Figure 9 (bed lowered as in wide-angle work—see preceding section) and then carrying it forward and slipping it on the front end of the main track. The bed should be returned to its normal (horizontal) position before attempting to focus or make exposures. *Neither the rangefinder nor focusing scales can be used with the lens thus extended; focusing must be done on the ground glass.*

FRONT MOVEMENTS

In general, when it is desired to photograph an object higher than your head, you point the camera upward; and when something to one side attracts you, you turn the camera in that direction. If the subject (such as a building) happens to have a flat vertical surface, the resulting negative is apt to show an unwanted converging of lines which you know are parallel (rows of windows or the sides of the structure, for example). This is the phenomenon which makes some photographs of tall buildings look as though they were leaning backward. This is not "distortion" but a true rendering of linear perspective—even though it may not always be pleasing.

Although the linear perspective can be altered greatly during subsequent enlargement of the negative, it is often desirable to minimize the effect as much as possible in the original exposure. This can be done by keeping the back of the camera (the film) as nearly parallel as possible to the surface being photographed, and by then bringing into the field those parts slightly higher or to one side by shifting the lens up or sideways without moving the rest of the camera.

On your new Anniversary Speed GRAPHIC these motions are provided for. The front standard may be shifted to either side, parallel to the plane of the film, after releasing the front standard lock (turning it so as to

be parallel with the tracks) and depressing the **lateral shift catch** directly below it (Figure 1). The **slots** in the lower plate of the standard limit this motion to an amount consistent with acceptable coverage of the negative by a "normal" focal-length lens. The lens may be raised from its normal position after loosening the knurled **nuts** on either vertical side of the front standard.

Before making an exposure, the lens should be locked in its optimum position by again tightening the controls we have just considered. Before any attempt is made to return the front standard to the camera housing (as in preparation for closing the front bed), the lensboard must be brought back to its normal position (lowered and centered laterally).

FILM AND PLATE HOLDERS

Film Pack Adapters, Holders for sheet film, (cut film) and plates, as well as Magazines for sheet film, are available for use with the Speed GRAPHIC. The Magazine however, is usable *only with the GRAFLEX Back*. It is described in detail in the special instruction pamphlet which accompanies it.

Blowing or brushing out the empty holders before loading will help prevent the occurrence of "pinholes" in the finished negative.

Film Pack Adapter

The Film Pack Adapter can be loaded or unloaded in full daylight, but the direct sun should be definitely avoided; and deep shade becomes more essential as higher-speed films are used. Always make sure that the **slide** is inserted before the Adapter is removed from the camera.

To load the film pack adapter, open its hinged back by first releasing the pair of catches located at the edge nearest the slot (the edge from which the slide can be withdrawn). Then insert the metal film pack, handling by its edges, so that its paper tabs protrude through the slot in the Adapter when the hinged back is closed, and so that the aperture in it faces the aperture in the front of the adapter. (Save the paper and metal foil in which this film pack was wrapped so that it may again be protected from light as soon as it is removed from the Adapter).

Before the first exposure can be made the outside tab (bearing the number **O**) must be withdrawn and torn from the pack. Further instructions accompany each pack. After the last tab (number **12**) has been pulled, the exposed film pack is somewhat self-protected and may be removed from the Adapter. *Handle it only by its edges. Re-cover it with its foil wrapping and return it to the box.*

Sheet Film Holders

Loading or unloading a sheet film holder should be done only in total darkness; in order to acquire the skill necessary for this, you may wish to practice in the light with a piece of exposed film.

To find the emulsion side of a piece of sheet film in the dark, note the position of the notches cut along one of its shorter edges. The emulsion side will be facing you when the unnotched short side of the film is nearest you and the notches are in the upper right-hand corner. Always handle the film by its edges and never touch the front (emulsion) surface.

To load a sheet film holder, first remove the slide. Now, while bending the bottom retaining edge of the holder out from the position which it occupied when the slide was in place, slip the piece of sheet film in under the two film-retaining guides so that the emulsion side will be next to the slide when it is replaced. It will facilitate insertion of the film if you bow it slightly. After the film has been slid into the holder as far as it will go, the hinged bottom edge of the holder can be returned to its normal position. If the bottom retaining edge does not seat smoothly, the film has not been pushed under the upper guide at the other end.

Replace the slide after the film is properly inserted. Rotatable catches are provided to prevent unintentional withdrawal of a slide.

Raised dots on the slide handle can be used to identify exposed and unexposed films. Load the holder with the dots on the outside, and after exposure replace the slide with dots facing in.

To unload the holder, the reverse procedure is followed.

Fitting Holders to the Camera

Accessories such as the GRAPHIC holders are inserted in the GRAPHIC Back in the opening presented when the focusing panel is separated from the main body of the camera, by drawing back on its two **ears**. The holder should be held by its sides and pushed in until its raised edge drops into the recess in the back of the camera; this insures a light-tight fit and eliminates the possibility of drawing the holder out of the camera as the slide is removed.

To remove the holder, insert the slide, pull the holder slightly away from the back of the camera at the handle end, and push the other end with the left hand. It then comes out very easily.

GRAFLEX film and plate holders and magazines are loaded in the same manner as the corresponding **GRAPHIC** accessories. Like the accessory **GRAFLEX** focusing panel, this type of film and plate accessory is held in place on the camera by the retaining strip at the bottom and the slide lock on top. After fitting these accessories to the camera, make sure that the slide lock is pushed down as far as possible.

CORRECT EXPOSURE

While the final goal of most photography must be admitted to be a satisfactory print, the first goal of the camera user is a negative in which at least the main subject of interest is sharply defined and of a density which will permit making a good print. This density will depend upon the **light** with which the subject is illuminated, the **speed of the film**, the **processing** the film is subsequently given, and upon the **lens** and **shutter settings** in relation to these quantities. The best advice is undoubtedly to cut through all of this complication by learning to use a good exposure meter, for the price of one of the better photo-electric models will be repaid many-fold in good negatives and general satisfaction.

But the exposure meter will only go so far as to present you with a rather wide choice of lens apertures and shutter speeds, telling you that if you choose $f/11$ (for example) then you must set the shutter for 25 ($1/25$); or that if you wish to use $1/100$ in order to stop some faster motion then you must set the lens aperture to $f/5.6$.

"Increasing the shutter speed" means that a shorter exposure is given—as, for example, in changing from $1/50$ to $1/100$. In other words, the shutter passes light for a shorter length of time.

"A larger stop" or "opening up the lens" means that the actual diameter of the aperture of the lens is increased, and hence more light is passed by the lens in a given length of time. The smaller $f/$ numbers indicate larger apertures— $f/8$ being larger than $f/16$, $f/3.5$ larger than $f/5.6$, etc.

The relation between these combinations of aperture and shutter speed is really very simple, and knowing one of them is sufficient to give you any other without even a pencil. The rule is simply this: every time you open up the lens one stop (or one f / number), double the shutter speed; and vice-versa.

Suppose for example that you know the correct exposure would be $1/50$ at $f/16$. But your subject is going to move and you have estimated that $1/200$ th will be needed to stop it on the negative. You know that this will require opening up the lens so you proceed to do so, counting as you go from stop to stop; starting at the next larger will be $f/11$, for which you double the speed—(going to $1/100$ th); the following stop is $f/8$, for which you double the speed again—(going to $1/200$ th). And there you have it: $f/8$ at $1/200$ th. The exposure meter dials will be found to bear the same relation between the combinations offered.

Like so many so-called "rules," the above one also has an exception which applies to only some lenses at maximum aperture. Going from $f/32$ to progressively larger apertures calling for a doubling of shutter speed as we go down the list, the ideal diaphragm scale would be marked:

$f/32, 22, 16, 11, 8, 5.6, 4, 2.8, 2, 1.4, 1.$

The lens on your Speed GRAPHIC probably has just these same stops indicated from $f/32$ to $f/5.6$. But, if its maximum aperture is $f/4.5$ or $f/4.7$, that figure will follow the 5.6 without being twice as fast; it is only about 50% faster and would therefore call for a 50% increase in shutter speed instead of the 100% set by our rule. A similar caution must be observed if you have an $f/3.5$ objective, as it will be marked at $f/4$ and $f/3.5$ even though the 2-to-1 exposure factor does not lie between these two apertures.

Any of these combinations which the exposure meter offers you will give the same density of negative; but the sharpness of those negatives and the amount of subject which will appear to be in good focus will vary with the exact combination you choose. And the choice which the photographer must make will be a compromise between the need for stopping

motion (calling for the higher shutter speeds and the larger lens apertures) and the desire to have the greatest amount of material in sharp focus (calling for smaller lens apertures and slower speeds).

Of the two, stopping motion is probably the more important since without it you may have a negative in which *nothing* is sharp; suggestions regarding it will therefore be given next. Finally, we shall consider the factors which control just how much of the scene (in addition to the object on which you actually focused) will appear sharp—assuming that all motion was stopped—and that goes under the heading Depth of Field.

STOPPING MOTION

If the subject you intend to photograph is moving, its image on the plate will likewise move. It will move some during even 1/1000th second, although only about 1/10th as far as it will during 1/100th second. All the photographer can hope to do is to give a short enough exposure so that the motion of the image on his film will not be objectionable. And just what constitutes "objectionable" depends both on the observer and upon the use to which the negative is to be put. A negative which is to be enlarged 10 times or to be printed in a magazine must be sharper than if it were to be reproduced in its original size. And a print which is apt to be examined through a reading glass must naturally be sharper than one to be seen from a distance only, as a highway billboard.

Not knowing precisely how his negative may be used, the average photographer must aim at "average acceptability," and it is on this basis that the following table has been compiled. It allows the photographer to take into account the four factors which are present at the time of his exposure: Namely, the **focal length** of his lens, the **distance** he will be from the subject when he releases the shutter, the **velocity** with which the subject will be moving at the instant of exposure, and the **direction** of its motion relative to the direction in which he is pointing his camera.

Suggested shutter speeds to stop motion at right angles to the camera when the subject moves 10 miles per hour.

		APPROXIMATE FOCAL LENGTHS IN INCHES				
		4	5	6	7	8
DISTANCE FROM SUBJECT IN FEET	12	1/500	1/600	1/700	1/800	1/1000
	25	1/250	1/300	1/350	1/400	1/500
	50	1/125	1/150	1/170	1/200	1/250
	100	1/70	1/80	1/90	1/100	1/125

These speeds are only approximate, and have been "rounded off" to give numbers easy to multiply and divide. The need of greater accuracy is doubtful in view of the uncertain speed of the object to be photographed.

The above table applies to a subject moving 10 miles per hour at right-angles to the camera. In all probability your subject will be doing something different. If so, modify the shutter speed called for in the above table by the following rules:

**Double the speed of the shutter for double the velocity of the subject.*

***Half the shutter speed for half the velocity.*

**Double the shutter speed for half the distance to the subject.*

***Half the shutter speed for double the distance.*

**Double the shutter speed for double the focal length.*

***Half the shutter speed for half the focal length.*

Use one-third the shutter speed if the subject is coming directly toward you or going directly away from you.

Use two-thirds the shutter speed if it is coming or going at 45 degrees.

When in doubt, use the next higher speed.

*—1/100 instead of 1/50, for example.

**—1/50 instead of 1/100, for example.

The following table gives the approximate velocity with which some common objects might move. In using this table, it must be borne in mind that portions of the subject may move faster than the subject itself. For example: the arms and legs of a person walking or running; the oars of a boat; the wings of a bird; the spokes of an automobile or wagon wheel. Usually a higher shutter speed will be required completely to "freeze" an object than merely to stop its forward motion. This table is based on the rate of movement of the object as a whole.

5 mph. Pedestrians. Foliage in a light breeze. Rowboats.

10 mph. Children playing. Swimmers.

20 mph. Foot races. Boat races. Street traffic. Divers. Jumpers. Football and Baseball games. Sail boats.

40 mph. Horse races. Highway traffic. Power boats.

60 mph. Trains. Motorcycle races. Birds in flight.

100-300 mph. Airplanes. Auto races.

DEPTH OF FIELD

Although we may focus most precisely on a certain portion of an object, we all know that things slightly nearer to the camera as well as some slightly farther away will also appear sharp in the final print. The field of sharp focus extends farther behind the object than in front. This range of distances within which all objects *appear* equally sharp is called the **depth of field**.

As in the case of stopping motion considered in the preceding paragraph, our acceptance of sharpness will depend upon the nature of the print and how it is viewed; and the sharpness to be demanded of a negative for making such prints must depend upon the amount of enlargement contemplated. Depth of Field, therefore, is not a precise physical quantity which can be measured. Lens manufacturers put out more or less complicated tables under the heading "depth of field," or less correctly "depth of focus," which some photographers find useful. The

great majority of camera users, however, find the following easily-remembered facts enough of a guide for all practical purposes.

1. *The greater the distance to the object focused on, the greater the depth of field for a given focal length and relative aperture.*
2. *The greater the focal length of the lens, the less the depth of field at a given relative aperture and distance.*
3. *The greater the lens aperture (the smaller the $f/$ number), the less the depth of field for a given focal length and distance.*
4. *The sharp field is deeper behind the object than in front of it.*

If you want the greatest possible amount of material to appear sharp in your picture, stop the lens down as far as you can without requiring an exposure time so long that movement becomes objectionable. If, on the other hand, you wish to minimize the background or nearer objects by purposely throwing them out of focus, open up the lens to one of its larger apertures. If you want the maximum sharpness at the precise point on which you focus without regard to what is nearer or farther away, choose a lens aperture approximately half way between the greatest and the smallest which your lens can give.

HOLDING THE CAMERA

The **strap**, on the side of the camera housing opposite to that on which the focal-plane shutter controls are located, is designed for holding the outfit in use as well as for carrying it when not in its case. Holding this in the left hand or slipping the hand under the strap and gripping the edge of the body (as you prefer), leaves the right hand free for focusing, shutter operation, and film changing. Bracing your arms against your body will increase the steadiness with which you can hold the camera and therefore increase the sharpness of your negatives, especially those exposed at the slower shutter speeds.

Tripod Sockets

The Speed GRAPHIC is provided with two **tripod sockets** in the camera housing. The one for vertical pictures is under the carrying strap and is made accessible by unlatching this strip at its upper end; the top **strap lug** slips out of its **clip** when the spring forming the top part of the latter is pressed downward.

CARE OF THE CAMERA

This camera is carefully constructed, and with proper care will give the type of performance which is rightfully to be expected from high-grade equipment. Although it is strong enough to withstand normal shocks incident to shipping and actual use, it should be handled with proper care so as to avoid injuries to the more sensitive parts such as lenses, shutters, rangefinder, etc.

The Lenses must be kept clean at all times. *Never touch the glass of a lens with the fingers. Finger prints corrode the highly polished surfaces and ruin the objectives.* A soft brush, such as goes under the name "camel's hair," is usually sufficient for removing dust and lint from lenses, and a small rubber ear syringe is also handy for blowing off dust. If additional cleaning seems to be called for, use tissue made for that purpose; or if this is not available a soft, freshly-laundered, unstarched unused linen handkerchief. Breathing on the lens before applying the tissue is accepted as good practice, but the use of household cleaning fluids should be avoided. Never unscrew the lens elements from the shutter; under normal conditions cleaning of the inside surfaces will be unnecessary.

Shutters contain springs that regulate their speed, and these should not be left over long periods in their stressed (or cocked) condition. The front shutter should always be released before putting the camera away. The spring tension on the focal plane shutter returned to **1** and the curtain returned to **0**. Adoption of these practices will maintain a maximum efficiency in the operation of these shutters. **Never oil a shutter.**

Filters require the same care as lenses. The mount should be checked to see that it does not exert undue pressure on the filter, and care should be exercised to make sure that the filter is attached squarely and accurately to the lens.

Before loading a sheet film **holder**, dust off both sides of the slides as well as the interior of the accessory. A reasonably stiff paint brush, having unused bristles which will not shed, is well suited to this purpose. The ear syringe will be useful here, too, to remove dust from the inaccessible edges.

Important points in closing the camera:

- 1. Center the lens vertically and laterally.*
- 2. Rack the track back to infinity.*
- 3. Leave the track-lock unlocked.*
- 4. Move the front standard back into the camera body.*
- 5. Release slit and tension of the focal-plane shutter and make sure that the between-the-lens shutter is not cocked or set at its highest speed.*
- 6. Make sure the bed locks securely in its closed position.*

GRAFLEX FLASH EQUIPMENT

The **GRAFLEX Flashing Unit** is intended to be used with front shutters having built-in synchronization. It consists of one of the **GRAFLEX Battery Cases** and one of the reflectors as described below, together with a suitable connecting cord and means for attachment to the camera. Full details concerning the use of this equipment will be found on pages 4 through 8.

The **GRAFLEX Flash Synchronizer**, engineered and built by **GRAFLEX** expressly for Speed **GRAPHIC** cameras with between-the-lens shutters, is particularly recommended to photographers who depend on flash for an important part of their work. Basic electro-mechanical principles, generally ignored heretofore, are employed to make possible consistently efficient operation, even under conditions of low battery-output that might otherwise have ruled out a successful flash picture.

The comparatively high resistance of the inertia-type Solenoid Release, plus the low resistance of the incidental electrical circuit and the fine balance of the mechanical elements, permit the maintenance of synchronism with batteries having low ampere capacities. As a result, ordinary dry cells (of the size known to the trade as "Size D") are perfectly satisfactory—so that the effects of low temperatures, and aging or excessive use of the batteries, will not throw the unit out of sync until the current drops to the point at which ignition-failure of the lamp may be expected.

The compact solenoid release can be mounted permanently on the lens-boards of most Anniversary Speed **GRAPHICS**, permitting the camera to close while it is in position. Quickly-detachable mountings are provided for certain 4 x 5 Anniversary Speed **GRAPHICS*** and for other models. A

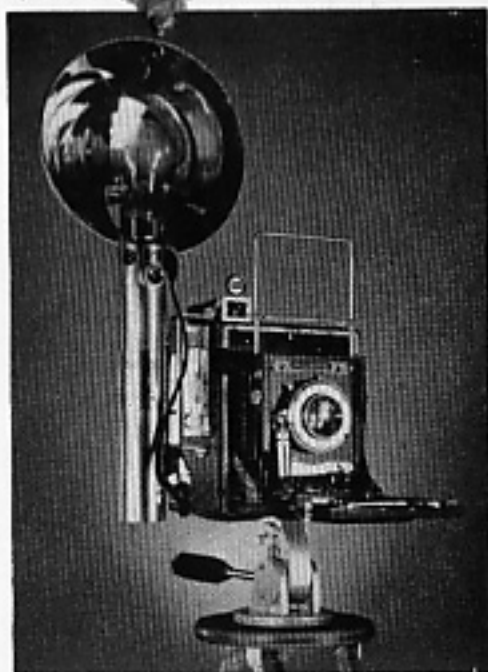


Figure 10.
GRAFLEX Flash Synchronizer
 and **GRAPHIC Pan-Tilt Tripod Head**

*Nos. 245288-246037 and 248430-249179 inclusive

Solenoid Release and permanent mount are shown in Figure 2b.

2-cell and 3-cell units are available—the former recommended for all-around single-lamp work, and the larger unit recommended for heavy-duty and multiple-flash shooting because of its greater capacity.

Adjustable 7" reflectors for medium-base lamps, and 5" reflectors for bayonet-base lamps, are self-centering and equipped with ejectors to obviate the handling of a hot or broken lamps.

The spotlight built into the battery case facilitates focusing and viewing in poor light. The main switch is associated with the series outlet in such a way that it cannot cause unintentional ignition of the lamp when hooked up for synchronization with the focal plane, or front shutters with built-in synchronization or when the remote control cord is used with a solenoid operated shutter. There are two parallel outlets for the regular connecting cords, and a third for household plugs to permit use of household lighting equipment or photo cord reflectors to hold additional flash lamps.

Extension cords, side Lighting Unit and a remote-control cord are available, as well as a focal-plane connecting cord for use of the battery case and reflector with the Super D GRAFLEX and with those Speed GRAPHICS equipped with a built-in focal-plane synchronizer circuit and socket.

The battery case is adjustable vertically and can be readily fitted to either side of the camera. The newly-designed clamp is operated by a lever and grips the bracket so firmly that the camera may be safely held by the battery case.

If you are interested in flash equipment for your Speed GRAPHIC, get full information on the GRAFLEX Flash Synchronizer. Complete instructions are given in the Manual accompanying it.

The GRAFLEX Synchronizer Tester is a most convenient unit for checking synchronization with any electrically operated front shutter. It will allow visual as well as photographic testing to guard against possible failure due to weakened batteries or improper adjustment of the shutter tripper. Full details can be obtained through your GRAFLEX dealer.

The GRAPHIC Pan-Tilt Tripod Head is an extremely rugged and rigid accessory, designed to support Speed GRAPHIC and GRAFLEX cameras. It tilts 90° down and 25° up, and rotates 360°, all movements being controlled by a single locking-handle with a molded plastic grip. Broad base and top assure the firm support needed for Time exposures, especially when used with a Crown Tripod.

Reg # 358830

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The **GRAFLEX Service Department** is equipped to inspect, clean and adjust all **GRAFLEX** products, and to fit accessories and special lenses to Speed **GRAPHIC** and **GRAFLEX** cameras. All correspondence on this subject should be addressed to the Service Department.

The **GRAFLEX Technical Department** is anxious to help you get the most out of your Anniversary Speed **GRAPHIC**. Do not hesitate to write us about any photographic problem you may have. When your questions have to do with the actual making of pictures, be sure to send in your negatives.

The **Registration Card** attached to your camera when it left the factory should be filled out completely and accurately, and returned to us promptly. It furnishes us with information that facilitates answering your letters, and assures a permanent record of your equipment that may prove valuable in case of theft or loss. If you did not receive a Registration card with your camera, write today for another.

Lens Ektar # ER-7315
127 mm mm f 4.7

*
Rangefinder Kalart A 16752

Purchased 3/16/46
GRAFLEX, Inc.

Rochester 8, New York, U. S. A.