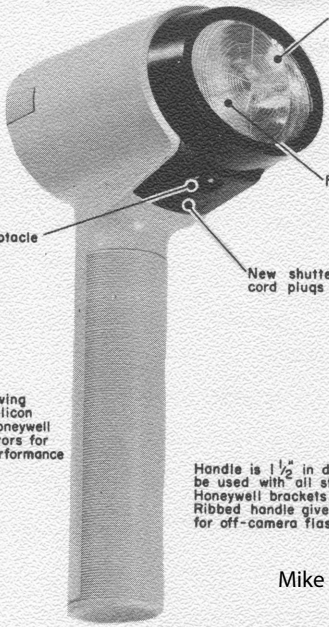
HOW TO TAKE BETTER PICTURES WITH THE HONEYWELL STROBONAR 65C

ELECTRONIC FLASH

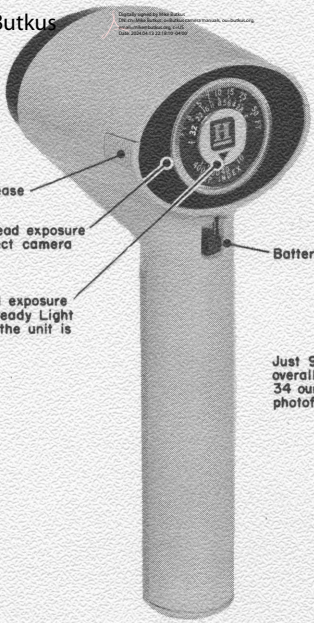
This book has been prepared to help you take better pictures with the Strobonar 65C, the most advanced, portable high speed electronic flash unit ever designed. An understanding of the contents will help you get better results from your unit, and add greatly to your picture-taking enjoyment.

CONTENTS



New space saving circuit uses silicon diodes and Honeywell power transistors for dependable performance

Handle is 1 ½" in diameter – may be used with all standard Honeywell brackets, clamps, etc. Ribbed handle gives sure grip for off-camera flash



Just 9 5/8" inches overall – weighs only 34 ounces with photoflash batteries

On-line camera manual library

This is the full text and images from the manual. This may take 3 full minutes for the PDF file to download.

If you find this manual useful, how about a donation of $3 to: M. Butkus, 29 Lake Ave., High Bridge, NJ 08829-1701 and send your e-mail address so I can thank you. Most other places would charge you $7.50 for a electronic copy or $18.00 for a hard to read Xerox copy.

This will allow me to continue to buy new manuals and pay their shipping costs.
It'll make you feel better, won't it?
If you use Pay Pal or wish to use your credit card,
click on the secure site on my main page.

Donate: www.PayPal.me/butkus venmo: @mike-butkus-camera Ph. 2083

STROBONAR 65C CHARACTERISTICS

Light Output	Measured 1710 ECPS at 60 watt seconds stored energy — battery operation.
Reflector Coverage	50°, ample for most standard lenses.
Effective Exposure Time	1/1500 second.
Color Temperature of Light	Approximately noon daylight, ideal for daylight color films.
Height	9-5/8 inches.
Head Width	3-3/4 inches.
Handle Diameter	1-1/2 inches.
Total Weight	25 oz. without cells. 31 oz. with four 1/2C-cells. 34 oz. with three C-cells.
Portable Power Source	Four 1/2C-size nickel-cadmium rechargeable cells, or Three C-size nickel-cadmium rechargeable cells, or Three C-size replaceable magnesium-alkaline cells for emergency use only, due to extended recycling time.
AC Power Source	105-130 volts, 60 cycles per second.

THE STROBONAR 65C

Triple Transistor Models 65C and P65C

The Honeywell Strobonar 65C presents an all-time high in light output at a controlled level to make this compact unit the most efficient electronic flash unit ever made. Combined with the new built-in charging circuit, this Strobonar combines economy and convenience. The 65C equipped with a set of Honeywell rechargeable Permacad cells completely eliminates the need for carrying and changing flashbulbs. The all-new automatic cut-off circuit of this triple-transistorized Strobonar assures you of a consistent amount of light packaged with each flash.

Simple to use, the Strobonar 65C is an ideal photographic aid for all your pictures — indoors as the primary source of light, and outdoors for fill light. Its specially-engineered light source provides illumination which closely matches daylight color films without need for separate filters. This advanced design provides evenly-distributed lighting over the full picture area for all normal lenses. Its effective exposure of 1/1500 second eliminates the effects of subject and camera movement to give you sharp, clear pictures every time. The exposure dial shows you just the settings you need, and eliminates the guesswork and calculations which usually accompany flash photography.

Strobonar 65C operation is economical. One set of the rechargeable C-cells or 1/2C-cells will give you a long period of care-free service. Household alternating current also provides power for operation as well as for recharging the Permacad cells.

The Strobonar 65C is made of the finest components — developed specially for photographic use. With the normal care usually given all good photo equipment, the 65C will give you many years of dependable operation. The Strobonar 65C thrives on frequent use — use it often!

Operation of the standard model 65C is described in the pages which follow. Variations for the Model P65C are described on page 14, "Other Models and Accessories."

HOW TO PUT YOUR STROBONAR 65C INTO OPERATION

Photography is pleasant and rewarding with the easy-to-operate 65C. A few minutes with this booklet and your new Strobonar will assure you of better pictures. Abbreviated outlines for both battery and AC operation are provided as convenient check lists. Use them only after you read and understand the more detailed information on operation of the 65C in the paragraphs which follow.

ELECTRONIC FLASH

Some idea of how the Strobonar 65C works will be of assistance to you in taking pictures. The 65C is an electronic flash unit which depends on a capacitor in which energy from batteries or alternating current is stored. When the unit has not been used for a few days or longer, the capacitor starts to "deform" and more than normal amounts of energy will be used with the first few flashes. Alternating current is, of course, the most economical means of restoring this energy (known as "forming" the capacitor) and will save your batteries for additional pictures. For this reason, whenever you are going to use the Strobonar 65C after an inactive period of more than a few days, set it for AC operation *(be sure you have removed non-rechargeable dry cells from the battery compartment)* and flash the unit nine or ten times either with the camera or with the Honeywell 53-1 Manual Tripping Cord (Catalog No. 404), a very useful item of optional equipment. At this same time, the alternating current is also recharging the Strobonar's nickel-cadmium rechargeable C-cells, the ideal way to keep your unit ready to go.

CAMERA-FLASH SYNCHRONIZATION

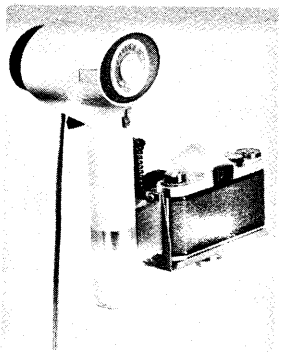
The Strobonar 65C is designed for use with cameras having built-in flash contacts. If your camera has a between-the-lens shutter with X-contacts (zero delay), the 65C will synchronize with it at all speeds. If your camera has a focal-plane shutter with X-synchronization, it will synchronize only at slower speeds — generally up to 1/25 or 1/60 second. (See Shutter Speeds, Page 22, and your camera instruction manual.) Most cameras without built-in X-synchronization (zero delay) can be easily adapted for the 65C by a competent camera repairman. If you wish to check the synchronization yourself, see instructions on page 23.

MOUNTING AND CONNECTION TO CAMERA

The Strobonar 65C may be mounted on your camera with one of the brackets described on page 19. You will find the special Universal Folding Bracket (available in the Strobonar 65C set, or separately as Catalog No. 358) or one of the Quick-Release Clamp Brackets ideally suited to your needs.

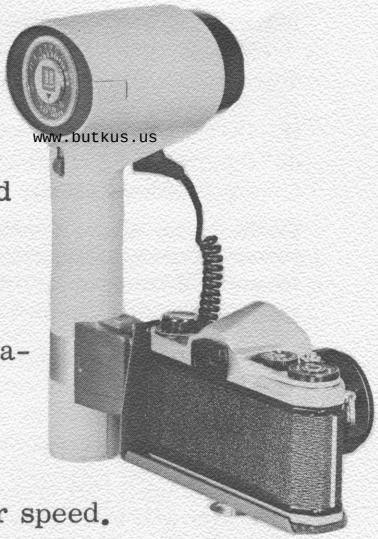
Connect the shutter cord from the camera's X-contacts to the two-way receptacle of the Strobonar. An exclusive Honeywell feature, this receptacle permits the cord to be faced to either side of the unit, whichever is more convenient for you.

AC OPERATION



1. Remove any non-chargeable cells from battery compartment. (Rechargeable "Permadad" cells may remain in place.)
2. Attach AC cord to Strobonar.
3. Plug AC cord into wall outlet.
4. Leave switch at OFF-AC.
5. Form capacitor on AC.
6. Mount unit on camera.
7. Attach shutter cord to flash unit and camera.
8. Set camera flash synchronization lever to "X"(ϟ).
9. Set film exposure index on exposure dial.
10. Determine exposure.
11. Set lens aperture and shutter speed.
12. Wait for Ready-Light to glow.
13. Shoot picture.
14. Wait for Ready-Light to glow before shooting each picture.

BATTERY OPERATION



1. Form capacitor on AC (first remove any non-rechargeable cells from battery compartment).
2. Insert cells or batteries (3 C-cells, or 4-1/2C-cells and dummy battery).
3. Mount unit on camera.
4. Attach shutter cord to flash unit and camera.
5. Set camera flash synchronization lever to "X"(⚡).
6. Set film exposure index on exposure dial.
7. Determine exposure.
8. Set lens aperture and shutter speed.
9. Push switch to BATT.
10. Wait for Ready-Light to glow.
11. Shoot picture.
12. Wait for Ready-Light to glow before shooting each picture.
13. Turn switch to OFF-AC when delaying more than 1 or 2 minutes between pictures and when through shooting.

AC POWER OPERATION

AC power is an economical means of operating your Strobonar 65C and is especially suited for indoor photography. Although battery operation of the 65C gives more consistent light output, AC operation does offer the advantage of permitting you to take pictures at the same time that your rechargeable cells are being charged. You may find this method of operation particularly convenient when your cells were not stored with their full charge. AC operation is also useful for an especially long series of flash pictures where rapid cycling and maximum light output

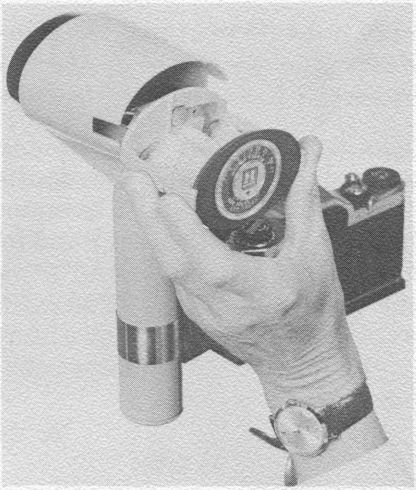
may not be required. *Non-rechargeable cells may be destroyed by the AC charging operation and should be removed before operating on AC Power.*

The Strobonar 65C is designed to operate from a 117-volt source of 60 cycle alternating current, standard in most U.S. localities. Just connect the line cord to your Strobonar and plug the other end into a wall outlet. The switch has two positions, "BATT" and "OFF-AC", as shown in the switch opening. The unit would not be damaged if the AC cord were connected when the switch is in the "BATT" position — you would merely be operating from battery power instead of AC.

BATTERY OPERATION

Batteries are the ideal power supply for the Strobonar 65C. In addition to providing maximum light output and rapid cycling time, battery operation permits complete freedom of movement for both indoor and outdoor shots. The Strobonar 65C uses four 1/2C-cells — preferably the rechargeable nickel-cadmium type (Honeywell Catalog No. 528) — or three C-cells, also of the rechargeable type (Catalog No. 527). With the self-contained battery charging feature of the 65C, the Honeywell Permacad high-performance rechargeable nickel-cadmium cells are recommended. Either the C-size or the 1/2C-size cells will provide the ultimate in battery operation. Magnesium — alkaline cells (Eveready E-93, Mallory Mn-1400, or equivalent) will also give dependable performance and are available at all camera shops and most stores where photo supplies are sold. Be sure the cells you purchase are fresh by asking the dealer to test them. Standard photoflash C-cells may be used for casual picture sessions when rapid cycling time is not of importance and *when only a few flashes will be used.*

65C assembly ready for use



Releases pressed and battery compartment withdrawn.

C–cells being placed in battery compartment.

½C–cells placed in battery compartment with dummy battery clip.

To install all types of C-cells, press the front of the two battery compartment releases and withdraw the compartment. Insert the three cells with the "+" ends positioned as shown by the label in the compartment. You will notice that the two outside cells are positioned with their "+" ends toward the rear of the Strobonar and the middle cell with its "+" end toward the front.

To install the small, faster cycling 1/2C-cells, place two of these cells in each *outside* position. Be sure all the "+" ends are positioned toward the rear of the Strobonar, as shown by the label in the compartment. In the *center* position, place the C-size dummy battery to complete the circuit for operation with the 1/2C-cells.

Replace the battery compartment in the unit and push forward until the release springs snap into place, locking the compartment in the unit. Your Strobonar 65C is now ready for pictures. If, however, your unit has been out of use for a few days, form the capacitor on AC as described on page 11 to conserve your cells. Be sure, of course, that you form the capacitor on AC *before* you install Energizer or other non-rechargeable cells in the unit. Then push the switch to the "BATT" position (where "BATT" shows in the switch window) and wait for the Ready-Light to glow.

When Ready-Light glows, the 65C may be fired (supplying light within 1/2-f/stop of maximum available). For full light capacity with absolutely uniform output, WAIT for audible cycling signal to stop. Constant readiness with maximum light output is evidenced by occasional audible "beep."

BATTERY OPERATION CHARACTERISTICS

The extremely consistant extra light output — is your bonus for battery operation of the Strobonar 65C. In addition, you also enjoy the convenience of the recharging circuit built right into your Strobonar. When there is an interval

longer than one or two minutes between pictures, turn off the unit to prevent unnecessary drain on your cells. TO SAFEGUARD YOUR STROBONAR FROM THE BATTERY CORROSION THAT SOMETIMES RUINS FLASHLIGHTS, REMOVE ANY NON-RECHARGEABLE BATTERIES WHEN STORING THE UNIT FOR ANY EXTENDED LENGTH OF TIME — such as 30 days or more. The high light output provided by the Strobonar 65C demands the use of heavy-duty batteries. While fresh magnesium-alkaline cells will give satisfactory service, they should be used primarily in emergencies or when only a few flashes will be needed. Since the cost of these cells is relatively low, we suggest that these cells be replaced whenever the unit has been out of use for a period of months, or when you are uncertain of their condition.)

FEATURES OF PERMACAD CELLS

Honeywell Permacad C-cells and 1/2C-cells are rechargeable nickel-cadmium cells. The Strobonar 65C uses 3 of the C-cells, or 4 of the 1/2C-cells with a C-size dummy battery. One set of these cells, which are recharged with the built-in charger in the unit, will give a long life of convenient and economical service. Your preference may be for the rapid-cycling 1/2C-cells or for the greater number of flashes per charge provided by the C-cells which are only slightly slower in cycling. The 1/2C-cells will cycle in 6 to 12 seconds, and will provide 40 to 65 flashes from each full charge when the unit is flashed once a minute. Fully-charged C-cells will cycle in 9 to 15 seconds to provide 100 to 125 flashes. The cells may be charged as often as necessary, and when stored in a fully-charged condition, may hold their charge up to several months. Make it a standard practice to give the cells a full charge before storing them.

CHARGING PERMACAD CELLS

The Strobonar 65C with its built-in charging circuit is designed to charge three Permacad C-cells or four 1/2C-cells without removing them from the unit. Just use the AC cord furnished with the Strobonar to connect the unit to any household AC outlet. Be sure the switch is in the OFF-AC position. The unit may be left plugged in overnight and the cells will usually take a maximum charge in 20 to 24 hours. If the Strobonar 65C has been stored with the switch in the "BATT" position, it may take 72 hours to fully recharge the cells. To turn off the charging circuit, disconnect the cord from the wall outlet. The built-in charger of the Strobonar 65C is a feature every photographer will appreciate.

IMPORTANT!

Whenever the Strobonar 65C has been out of use for even a few days, plug the unit into a wall outlet for about five minutes, and flash it nine or ten times on AC, using either the camera flash contacts or the Honeywell manual tripping cord 53-1. If a week or more has elapsed since the unit was last used, form for 15 minutes or until the Ready-Light comes on in 15 seconds or less on AC. Flashing the unit several times on AC will bring the unit up to peak efficiency by forming the capacitor and will conserve your cells.

READY-LIGHT

The Ready-Light indicates that the Strobonar 65C is ready for operation and assures you of a consistent amount of light with each flash. With the capacitor fully formed, as described above, turn the unit on and wait for the Ready-

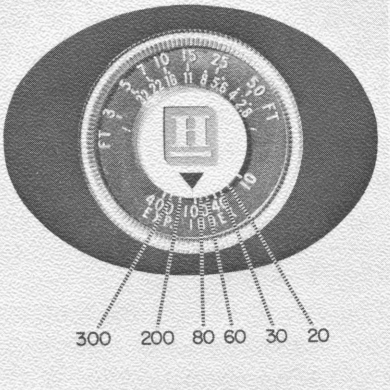
Light to appear.

When Ready-Light glows, 65C may be fired (supplying light within 1/2 f/stop of maximum available). For full light capacity with absolutely uniform output, WAIT for audible cycling signal to stop. Constant readiness with maximum light output is evidenced by occasional audible "beep."

(NOTE: AC operation does not utilize audible signal).

When the capacitor is fully formed, the Ready-Light should appear in 6 to 12 seconds with 1/2C-cells, 9 to 15 seconds with C-cells, or 7 to 30 seconds on AC. When operating on AC with a line voltage of less than 107 volts, the unit will be ready to flash after 30 seconds, but the Ready-Light may not glow. When operating with non-rechargeable batteries, a progressively longer time will be required as the batteries are depleted; a condition which the Ready-Light signals by taking longer to glow.

Setting the exposure dial



Additional calibration settings

EXPOSURE DIAL

Another feature for your convenience is the Strobonar 65C exposure dial. This easy-to-use calculator gives you the f/stop setting for lamp-to-subject distance when the 65C is used as the main source of light. Simply set the exposure dial so the exposure index for the film you are using aligns with the point of the Ready-Light opening. Read the proper lens opening opposite the lamp-to-subject distance on the dial.

EXAMPLE: Suppose the film you are using has an exposure index (ASA rating) of 80. This index is printed on the information sheet packaged with the film. Set the exposure index 80 on the dial at the pointer. The lamp-to-subject distance is 12 feet. Opposite 12 feet on the dial you find the proper lens opening is f/11.

For AC operation, determine the exposure as described above, then open up one f/stop. Or, you may find it more convenient to divide the exposure index for the film you are using by 2; set this number on the exposure dial; and read the f/stop directly opposite the distance.

With the 65C's handy exposure dial, no calculations are required to determine the exposure for films with exposure indexes as high as 400. For Films of higher speeds, divide the film speed by two (or four, or eight, etc.) to obtain an index of 400 or less. Take readings from the scale as described above; then stop down one f/stop if you divided by two, two f/stops if you divided by four, etc., to compensate for the faster film speed.

OTHER MODELS and ACCESSORIES

STROBONAR MODEL P65C

The Model P65C Strobonar serves both as a unitized electronic flash with all the features of the standard Model 65C, and as a power pack to provide AC or battery operation for the Honeywell Prox-O-Lite. Used as a power pack, the P65C may be mounted right on the camera with your usual mounting bracket for complete freedom of movement; or the unit may, of course, be laid to one side. The special outlet on the side of the P65C's head is provided with a protective cover which should be in place when the Prox-O-Lite is not connected to the unit. Operation of the Model P65C as an electronic flash unit is identical to the operation described in this booklet for the standard Model 65C Strobonar.

To use the Model P65C as a power pack for the Prox-O-Lite, first mount the Prox-O-Lite on the camera. Remove the cover from the P65C outlet, and insert the plug of the Prox-O-Lite power cord. Secure the plug in the outlet by screwing on the knurled ring, but *do not overtighten.* Connect the shutter cord from the camera to the Prox-O-Lite. Be sure to use the X-contacts (zero delay) or set the shutter for X-synchronization, and select a suitable shutter speed.

For battery operation, place the P65C's selector switch in the "BATT" position, and the Prox-O-Lite's Ready-Light will indicate when ready to flash. Conserve your cells by turning off the unit when more than one or two minutes will elapse between pictures.

For AC operation, leave the unit's selector switch in the "OFF-AC" position. Use the AC cord to connect the Strobonar to any 105-129 volt source of 60-cycle current.

The Prox-O-Lite is ready to operate when its Ready-Light glows.

The Prox-O-Lite has its own trigger circuit and does not cause the Strobonar P65C to flash when being used as a power pack. The Strobonar P65C may, however, be used alone, even when the Prox-O-Lite is connected, by connecting the shutter cord from the camera to the P65C.

Model P65C used with Honeywell Prox-O-Lite.

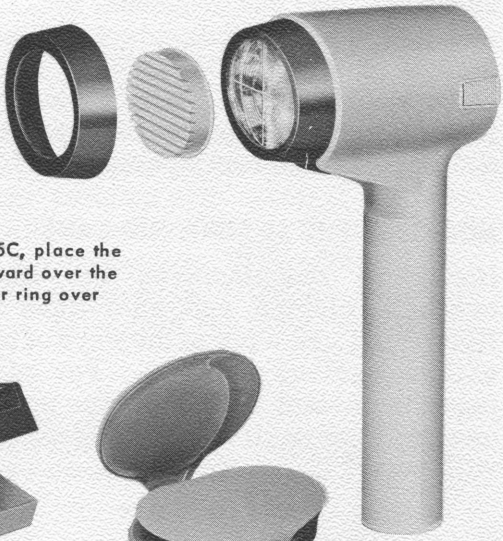
SERIES 65 LENS KIT

The 65 Series Lens Kit features interchangeable lenses which adapt the Strobonar for various picture situations. The kit contains four special lenses and a retainer ring, all neatly packed into a compact, protective case. To mount a lens on the 65C, place the lens, with the raised rim facing forward, over the Strobonar's standard lens. Then slip the retainer ring over the Strobonar's nose ring.

THE LENS FOR USE WITH KODACOLOR FILM is a salmon-colored lens which converts the normal daylight balance of the Strobonar to that of clear flashbulbs, providing a proper color balance for use indoors with Kodacolor film. This lens may also be used with Type F reversal color film, although daylight-type color reversal films are usually recommended for use with electronic flash. No exposure compensation is necessary for this lens.

THE WIDE-ANGLE LENS distributes the Strobonar's light over a wider-than-normal area to illuminate wide-angle pictures. When mounting this lens on the 65C, be sure that the smooth side of the lens faces outward. Because the wide-angle lens reduces the intensity of the Strobonar's light, it is necessary to increase the normal exposure by one full f/stop.

THE LENS FOR USE WITH POLACOLOR FILM is especially designed to produce beautifully exposed pictures with Polaroid color film. Light-yellow in color, this lens converts the normal daylight balance of the 65C Strobonar to that of recommended blue flashbulbs, providing the correct balance for indoor use of Polacolor film.



To mount a lens on your Strobonar 65C, place the lens with the Raised Rim facing forward over the standard lens. Then slip the retainer ring over the nose ring.

This lens can also be used with daylight type color film to provide a subtle, warming effect. Exposure compensation is not required for this lens.

THE CLOSE-UP LENS is a gray, neutral density lens which reduces the 65C's light intensity by four full f/stops. Use this lens for extreme close-ups or when your camera is loaded with fast film. To determine the

exposure, use the exposure dial in the normal way, but multiply the flash-to-subject distance by four before reading the f/stop. EXAMPLE: If you are using Anscochrome (Exposure Index 32) and your Strobonar is two feet from the subject, use 8 as the distance (4 x 2 feet) and read the correct aperture of f/11 on the dial.

MOUNTING THE 65C ON YOUR CAMERA

Honeywell manufactures the finest line of mounting brackets, clamps, and other flash accessories available. Illustrated are a few of the ways of mounting the Strobonar 65C on various cameras. For snap-on mounting, which permits instant release of the unit for off-camera flash, use the Honeywell Quick-Release Clamp, Catalog No. 308, with one of these brackets:

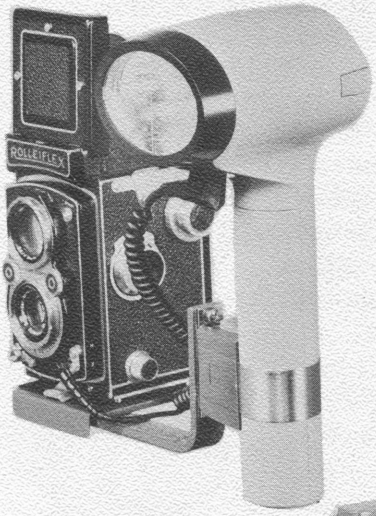
Bracket	Catalog No.	Camera
Standard Camera Bracket	300	For most miniature and roll film cameras
R-7	301	Most twin-lens reflex cameras
135-VX	304	Exakta VX
305	305	Retina IIIC
Polaroid (with "E" Clamp)	302	Polaroid only
Pentax-Leica	306	Honeywell Pentax and all Leicas

The special Universal Folding Bracket, Catalog No. 358, provides another convenient mounting arrangement. To attach this bracket to your Strobonar, first snap the camera arm of the bracket out to a horizontal position.

Then insert the 65C's handle into the clamp ring from the top until the handle extends at least 1/4 inch below the clamp block. Tighten the Phillips head mounting screw (located in the recess of the clamp block just above the spring) just enough to prevent slipping. Be sure that the camera arm is parallel to the lens of the Strobonar. To fold the bracket, pull the camera arm straight out from the clamp to clear the horizontal slots. Fold the arm upward and release the spring tension. The arm will then move freely to its folded position. When using this bracket, do not attempt to unfold the arm beyond the horizontal stop provided.

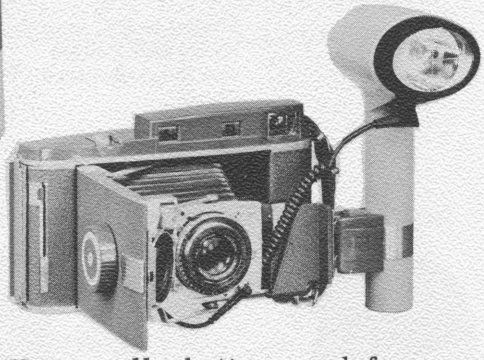
Strobonar 65C with Honeywell Pentax and Quick-Release Clamp

Strobonar 65C with Folding Bracket

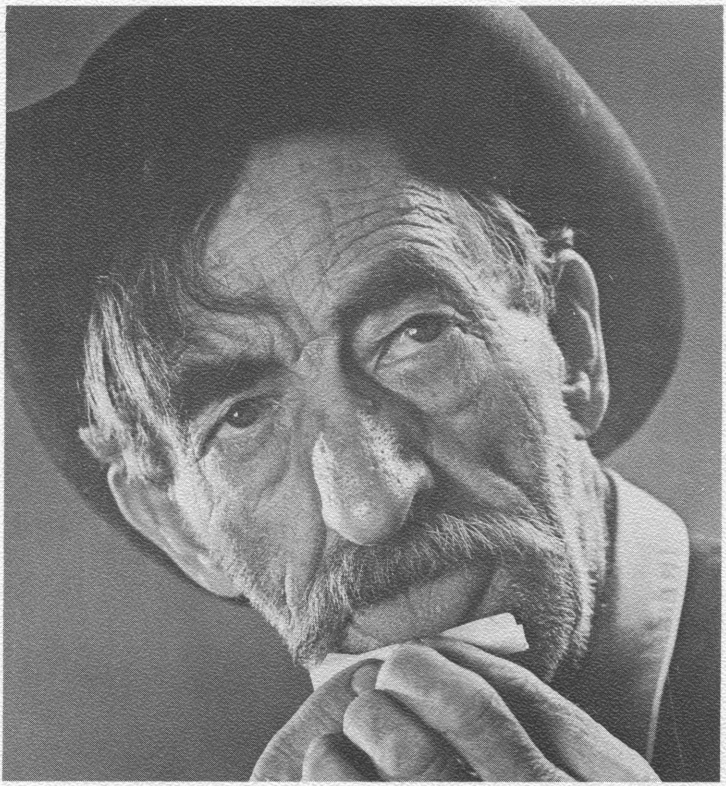


Left – Strobonar 65C mounted on Rolleiflex

Below – Strobonar 65C mounted on Polaroid



Select the proper Honeywell shutter cord for connecting the 65C to your camera. Some cords produced by other manufacturers have a high carbon content in the jacket which may cause the unit to fail to fire, or to self-fire intermittently, and should not be used. You may choose a 12-inch cord for on-camera use, or you may desire the versatility of a coiled cord for both on-and off-camera flash. Your Honeywell photo dealer will be happy to assist you in selecting the proper mounting combination and connecting cord for your camera.



HONEYWELL PENTAX/STROBONAR PHOTO BY AL MOLDVAY

GENERAL PHOTOGRAPHIC INFORMATION

TAKING BETTER PICTURES WITH THE STROBONAR 65C

First of all, be sure your Strobonar and camera are ready to go. Be sure the cells are properly installed, the proper shutter speed is set, and the shutter cord is connected from the 65C to the camera. If your shutter has adjustable synchronization, make certain that it is set at "X" (zero delay). Then, before taking a picture, consider the

elements of any good picture — composition, lighting, balance of mass and color, depth of field, background, scale, and center of interest. Plan your picture carefully. Consider the lighting effect you desire. Remember that your picture is made when you press the shutter release.

For general use, mount the Strobonar on your camera. The angle of light distribution is sufficient for all but wide-angle lenses (and these can be covered with the wide-angle lens of the Accessory Lens Kit). This gives the even distribution of light called "flat lighting", most desirable in group pictures and many candids. For portraits or pictures where you desire modeling or a dramatic effect, use the Strobonar off the camera with the light directed to the subject. This gives you better light control and enables you to get finer modeling with the use of one light source.

SHUTTER SPEEDS

If your camera has a between-the-lens shutter, you should normally use the highest shutter speeds. When photographing action in bright daylight, high shutter speeds will give a good, sharp image and avoid any secondary (ghost) images. If your camera has a focal-plane shutter, use the highest speed which will give a completely opened shutter at the instant of the flash. For most focal-plane shutters, this speed is between 1/25 and 1/60 second, but check the instruction booklet for your camera to be sure.

BOUNCE LIGHTING

To obtain the softer, more subdued lighting sometimes desirable in portraits, bounce the light from the 65C off the wall or ceiling. The wall or ceiling should be a light, neutral color. Light bounced from a colored surface will impart an overall color tint to your color pictures. To determine the exposure for bounce lighting, estimate the

distance from the flash to the ceiling to the subject. Find the f/stop for this distance on your exposure dial. Then, open up at least one full f/stop to compensate for the light absorbed by the ceiling.

The light is usually aimed at the ceiling in such a way that the bounced light falls directly on the subject. If the light is aimed at such an angle that the subject does not receive the main portion of the light, then allow one more f/stop in exposure.

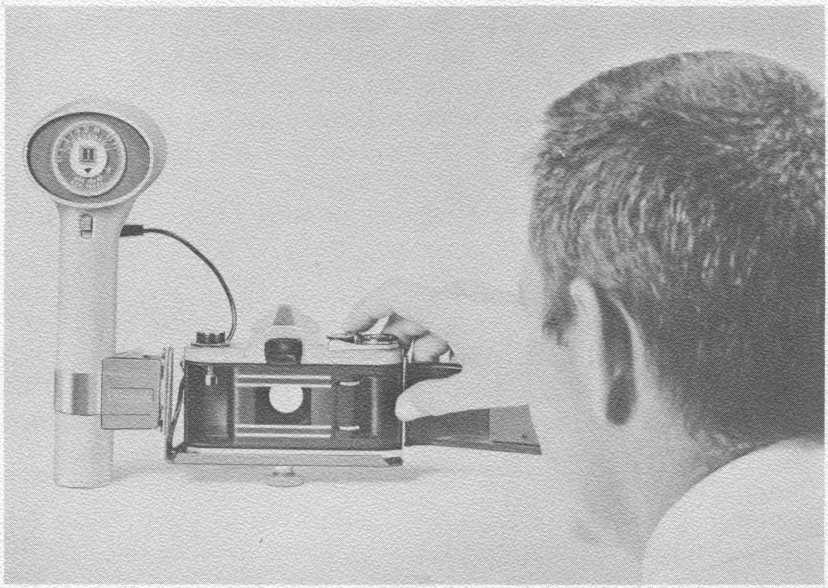
An accessory available at your Honeywell Dealer is the quick-Release Bounce Adapter (Catalog No. 363). Designed for use with the Quick-Release Clamp described on Page 18, this adapter fastens to a tripod or light stand and permits the Strobonar to be rotated through a full 360° for bounce lighting.

CHECKING SYNCHRONIZATION

If you are not sure about the shutter speeds at which your camera is synchronized for electronic flash, you can make this test yourself. Connect your camera to the Strobonar with the shutter cord. Set the camera at the widest lens opening and point the Strobonar at a light-colored wall so the reflected flash will be visible through the lens. Open the camera back and watch for light coming through the lens when you trip the shutter at various speeds. For compur-type shutters, synchronization is good when you can see a full circle of light, and you are getting the benefit of all the light from the unit. You may use any of the shutter speeds that give a full circle of light.

In cameras having focal-plane shutters, the shutter speeds are usually determined by a moving slit in the shutter curtain, or by two moving curtains. It is only at slower speeds that these shutters are ever fully opened, and these speeds are the ones with which electronic flash can be used. To check the synchronization, watch first from one side and then the other to see if *each edge* of the circle of light is visible from both sides of the camera.

When checking the synchronization, you will find it easier to see the light coming through the lens if you shield your eyes from the bright light bouncing off the wall. You may cup your hands around your eyes, or use a dark cloth or cardboard.



Checking synchronization of Honeywell Pentax

COLOR FILMS

Because the light from the Strobonar 65C is approximately the same value as noon daylight, the unit is ideally suited for use with daylight color films without corrective filters.

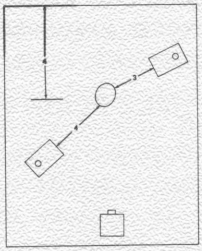
MULTIPLE FLASH PHOTOGRAPHY

For more control in flash photography you will want one or more additional lighting units. The ideal secondary light is a slave unit — one or more of the Honeywell 51A or 52A Modeling Slave Strobonars with built-in modeling lights, or the Strobonar 60-S for battery operation. These slave units are completely self-contained and are triggered by the flash of the master unit at the camera, without the use of any connecting cords.

You may also use a Honeywell Model 55 Fotoeye to adapt another Strobonar (any model) for use as a slave unit. The examples of multiple-lighting arrangements reproduced on page 26 show the results you can expect, using the Strobonar 65C with one or more auxiliary units.

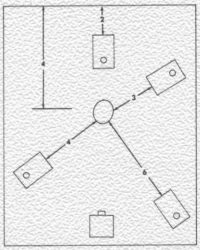
Model 52–A Slave Strobonars in use

Model 52–A Slave Strobonar with Modeling light



Two Slave Strobonar Model 52A's were used for this portrait. The main light was placed high and to the left. Back lighting was furnished by one unit placed high behind the model.

Exposure: f/16 at 1/50 sec., using Panatomic–X film.



Two additional Model 52A's were added for the picture – and to the right rear for fill-light and for background light.

Exposure: f/16 at 1/50 sec., using Panatomic–X film.

OUTDOOR USE *as fill-in light*

Using the Strobonar 65C as a fill light requires a special exposure determination when sunlight causes heavy side or front shadows. With the two sources of light, both must be considered. Otherwise, the picture will look as though two suns were shining. For best results, let the sun do most of the lighting, and add just the right amount of light to fill in the shadows cast by the sun. With your film's exposure index set on the exposure dial, read the f/stop for your lamp-to-subject distance. Now, stop down one additional f/stop for color film, and two f/stops for black-and-white. This keeps the flash-fill secondary to the sunlight. Since the flash duration of the 65C is too short to be affected by shutter speeds (except in the case of focal-plane shutters described below), you may now adjust the shutter speed for the outside light condition. Use an exposure meter on the sunlit or highlight side to determine the proper shutter speed for the f/stop already determined.

EXAMPLE 1: Using Anscochrome (Exposure Index 32), subject 11 feet away. Set exposure index 32 on the exposure dial and read the f/stop opposite 11 feet on distance scale. Note that indicated f/stop is shown as f/8. Stop down one f/stop, setting the camera at f/11 to give a flash-fill ratio of 2:1 for color film. Now, with an exposure meter or guide, determine the shutter speed for f/11 from the brightest area of the daylight-lighted subject.

EXAMPLE 2: Using Kodak Panatomic-X (ASA Exposure Index 64), subject 15 feet away. Set the exposure index 64 on the exposure dial and read the f/stop opposite 15 feet. Note that recommended aperture is f/8. Then stop down two f/stops, setting the camera at f/16 for a flash-fill ratio of 4:1 for black-and-white film. Now, with a meter or exposure guide, determine the shutter speed for f/16 from the brightest area of the daylight-lighted subject.

If your camera has a focal-plane shutter, you will want to determine the fastest usable shutter speed and f/stop *first* for the daylight lighting conditions. Then determine the flash-to-subject distance with the exposure dial. Remember to use a smaller f/stop (example: f/11 instead of f/8 for color; f/16 instead of f/8 for black-and-white) on the exposure calculator, and find the distance opposite this adjusted f/stop. *Do not* compensate with the camera shutter setting as you would with a between-the lens shutter.

OUTDOOR USE *as fill-in light*

LEFT — Strobonar fill-in softens shadows and gives crisp detail. Meter reading was taken on sunlight side of model.

RIGHT—Subject in bright sunlight without fill-in light.

When the shadows are not excessive, the Strobonar 65C may be used to put just the right amount of catchlight in the subject's eyes. Stop down by two additional f/stops and use a correspondingly slower shutter speed.

CLOSE-UP PHOTOGRAPHY

The Strobonar 65C is designed primarily for use at distances of three feet or more. However, with the camera accessories now available for close-up photography and the widespread interest in this area, you may want to use your unit at close range. The Close-Up Lens, available in the Accessory Lens Kit, reduces the light intensity of the 65C by four full f/stops and is ideal for close-up work. See page 17.

To determine exposures for the 65C at less than three feet, first read the f/stop for your film for a known distance such as four feet. Then, as you reduce the distance by 1/4, stop down one f/stop; 1/4 of the *remaining* distance, another f/stop.

EXAMPLE: Suppose the exposure dial indicates an aperture of f/16 at 4 feet. Then at 3 feet use f/22; at 2 feet 3 inches use f/32, etc., reducing the aperture or available light by one f/stop for each 1/4 reduction of the remaining distance.

NOTE: In close-up photography, the above exposure determinations are for the flash unit only. When using extension tubes or bellows with your camera for close-up work, the lens extension factor must also be considered. You will find that the factor introduced by the extended lens can be offset by using the Strobonar 65C at the close distances. Be sure to use the accessory Close-Up Lens to reduce the light when necessary for best results.

If you find that the light output from the Strobonar 65C is too great at close range, even with the Close-Up Lens, you can reduce the intensity the equivalent of one f/stop by placing a white handkerchief over the Strobonar lens. Use two thicknesses of the handkerchief if two f/stops are necessary.

EXPOSURE

The proper exposure for pictures taken by natural light is determined by and varies with the amount of light available. But with your Strobonar, a fixed amount of light is packaged in each flash. The amount of light reflected from the subject is important, however, and this depends on the distance from the flash to the subject. With a fixed amount of light, it is possible to determine the proper aperture (f/stop) if the distance from the lamp to subject is known. Likewise, with a fixed amount of light, it is possible to determine the proper lamp-to-subject distance if the aperture is known.

With the 65C, you do not have to perform any calculations. Simply turn the exposure dial to the exposure index (film speed) of the film you are using, and set your lens to the f/stop shown opposite the distance to your subject.

With conventional flash lamps the exposure must be computed for each shutter speed. This is not necessary with the Strobonar 65C. All the light output from the unit passes through the camera lens while the shutter is wide open; none is lost or wasted as the shutter opens and closes. In cameras having focal-plane shutters, the shutter speeds are usually determined by a moving slit in the shutter curtain, or by two moving curtains, or by some other similar arrangement. It is only at slower speeds

that these shutters are ever fully opened, and these speeds are the only ones with which electronic flash can be used.

When the Strobonar 65C is used indoors, or outdoors as the main source of light, simply set the exposure index for your film on the exposure dial and read the f/stop for the proper lamp-to-subject distance. The exposure dial is intended to give the proper exposure in a medium size room of average light-colored walls and ceiling. When shooting pictures in a very large room or hall, the lens should be opened up by half an f/stop more than is indicated by the exposure dial. When shooting outdoors at night, it will usually be necessary to open up one full f/stop.

Proper exposure requires that the important shadow areas of the subject be exposed enough to afford detail in the final print. It also requires that the highlight areas shall not be "blocked up" by too much exposure. Check the recommended exposures by making actual tests. To achieve proper exposure, make your first test exposures using the techniques suggested. The results should be satisfactory, but for the very best results, make some exposures at a smaller lens aperture and some at a larger aperture. Then determine the exposure index which will give the best exposure with your own equipment and processing combination.

Photography of the highest order of technical perfection requires careful control of all the variables that enter into equipment, supplies, and techniques. If you do your own processing, it is suggested that your techniques be standardized and you become familiar with your supplies and equipment. In this way you will be able to produce pictures of the highest technical quality. If photography is a casual hobby to you, as to most people, remember that excellent pictures can generally be made by following the manufacturers' instructions.

GLOSSARY OF PHOTOGRAPHIC TERMS

Aperture — The opening which admits light. The size is controlled by the diaphragm, which is marked in f/stop numbers.

Between-the-lens shutter — A device for controlling the length of exposure, located between the lens elements.

Blocking ("blocked up") — Overexposure of the highlight areas, resulting in loss of detail.

Color Correction — Use of a filter or filters to achieve a difference in color.

Color negative film — Color film which results in negative materials from which color prints, black-and-white prints, or color slides may be made.

Color reversal film — Color film which results in positive transparencies.

Color temperature — Measured in degrees Kelvin with reference to warmth or coldness of the illumination source, ranging from reds at low temperature through yellow to blues at high temperatures. Color films are often labeled for use with illumination of a particular color temperature. The term "color temperature" should not be confused with terminology generally associated with the color wheel, such as "warm color" transparency which is more on the red or yellow side than blue, or "cold color" transparency in which blue tones predominate.

Contrast — The range of tones, from lightest to darkest, in a picture. A print is "flat" when it is too low in contrast; "full scale" when all tones from white to black are present; and "hard" when there is too much contrast with lack of detail.

Diaphragm — Thin metal blades which "open up" or "close down" to regulate the amount of light admitted through the aperture of the lens. Controlled by the f/stop lever or diaphragm ring.

Filter factor — The number of times exposure must be increased to compensate for light absorbed by the filter.

Flat light — The type of light that results from a subject being lighted "face on" by the sun, or by flash on the camera. Flat light provides no modeling, and adds no contrast in the picture.

Flash contacts — A switch, actuated by the shutter, which triggers your Strobonar when the shutter is fully open. Most cameras have this built-in; but if your camera does not, or if the contacts are not synchronized for electronic flash, either can generally be done by a competent camera repairman.

Flash terminals — Terminals installed in a camera for connecting to the flash unit. Different type terminals require different tips on the connecting cord. Honeywell makes a cord for almost every popular camera, and your dealer will be glad to show you which type to use.

Focal-plane shutter — A device for controlling the length of exposure; consists of a curtain with slits or two curtains which pass directly in front of the film plane.

Focus — Adjustment of the camera-to-subject setting to make the image appear sharp.

f/stops — Numbers which indicate the size of the diaphragm opening; the larger the number, the smaller the opening. Example: When you set your camera at f/16, you are admitting 1/2 the light of f/11; at f/22 you are admitting 1/4 the light of f/11.

Ghost image — Secondary image or blur resulting when electronic flash is used at too slow a shutter speed to supplement the daylight-illuminated action subjects. Here's how it happens: During the time the shutter is open, one image is recorded with natural light; a second image is recorded by the split-second burst of electronic flash light. Because the subject is moving, the two images do not coincide.

Grain — The texture caused by the small clumps of silver particles that form the image of a negative. Grain is excessive when it enlarges to a size that detracts from the print.

Lens opening — The size of the aperture (as indicated by the f/stop of the diaphragm).

Modeling — Using flash off the camera (or keeping the sun off to one side of the subject) to achieve better contrast, detail, texture, etc.

Slave — Auxiliary flash unit triggered by the flash of the master light unit — the one connected to the camera — without the use of extension connecting cords. The triggering device used in the slave is a light-sensitive phototube.

Stop — Two photographic meanings: (1) to halt or "freeze" action in a picture; (2) as a synonym for "aperture" — i.e., stop 6.3, instead of f/6.3; or "stop down to f/8."

Synchronize — To time the firing of the flash with the camera shutter so that all the light passes through the lens when the shutter is open.

X-contacts — Flash contacts designed to fire an electronic flash unit at the exact instant the shutter is fully opened.

Zero ("0") Delay — Synonym for X-contacts.